

## STATE BOARD OF EDUCATION MEETING

February 17, 2022
Boise State University
Simplot Ballroom
Student Union Building
Boise ID 83706

**Public Streaming**: <a href="https://www.boisestate.edu/btv/university-television-productions/idaho-state-board-of-education-2022-february/">https://www.boisestate.edu/btv/university-television-productions/idaho-state-board-of-education-2022-february/</a>

Thursday, February 17, 2022 – 8:00 a.m. (Mountain Time)

## **BOARDWORK**

- Agenda Review / Approval Action Item
- 2. Minutes Review / Approval Action Item
- 3. Rolling Calendar Action Item

## CONSENT

#### BAHR

- Boise State University Online Program Fee for Certificate in Interventional Radiology and Interventional Cardiology – Action Item
- Boise State University Online Program Fee for Certificate in Resort Operations and Hospitality Management – Action Item
- 3. Boise State University Multi-Year Lease to T-Mobile for Mobile Communications Antenna Action Item
- Idaho State University Online Program Fee for Master of Science in Clinical Psychopharmacology – Action Item
- 5. University of Idaho In-Time Tech Service Contract Action Item **PPGA**
- 6. Indian Education Committee Appointment Action Item
- 7. STEM Action Center STEM School Designation Action Item
- 8. Boise State University Facility Naming Action Item

#### SDE

9. Emergency Provisional Certificates – Action Item

#### **OPEN FORUM**

Jeremy Graves – Community Impact Program

Tim Dunnagan – Value-Based Health Care
Ed Vasko – Cybersecurity
Eluterio Escamilla – Veterans Services
Leslie Durham – Stein Luminary
Kelly Myers – Bronco Gap Year
Nicolas Miller – Venture College
HP Marshall – Snow Research

#### WORK SESSION

# **Planning, Policy and Government Affairs**

1. Financial Literacy

## PLANNING, POLICY AND GOVERNMENTAL AFFAIRS

- 1. Boise State University Annual Report Information Item Dr. Marlene Tromp
- Idaho Division of Career Technical Education Annual Report Information Item – Dr. Clay Long
- 3. Idaho Public Charter School Commission Annual Report Information Item Jenn Thompson
- 4. Legislative Update Action Item Tracie/Mike
- STEM Action Center Updated Summer Learning After School Network Proposal – Action Item - Kaitlin
- Board Policy I.P. Indian Education Committee First Reading Action Item Tracie
- 7. Board Policy Bylaws First Reading Action Item Tracie
- 8. K-20 Education Strategic Plan Action Item Tracie
- 9. Educator Preparation Program Effectiveness Report Action Item Tracie
- 10. Temporary Fee Rule Docket 08-0000-2200F Action Item Tracie

## **BUSINESS AFFAIRS AND HUMAN RESOURCES**

- 1. Board Policy V.R. Second Reading Action Item Matt Freeman
- 2. Idaho State University –Bengal Pharmacy Contract Authority Action Item Jennifer Steele
- Idaho State University –Multi-Year Employment Agreement Head Football Coach – Action Item – Jennifer Steele
- University of Idaho Performance Evaluation of Staff Employees Policy Amendments – Action Item – Brian Foisy
- 5. University of Idaho Probation, Promotion, Demotion and Transfer of Classified Employees Policy Amendments Action Item Brian Foisy
- University of Idaho Idaho Center for Plant and Soil Health, Parma Construction Authorization – Action Item – Brian Foisy

## INSTRUCTION, RESEARCH AND STUDENT AFFAIRS

- Board Policy III.B. Academic Freedom and Responsibility and Policy III.P. Students – Second Reading – Action Item – TJ
- 2. Board Policy III.G. Postsecondary Program Review and Approval Second Reading Action Item TJ
- 3. Semi-Annual Report of Approved Program Requests Information Item TJ
- 4. Higher Education Research Council Annual Report for Fiscal Year 2021–Information Item Chris Nomura
- 5. Postsecondary Student Experience Survey Report Information Item TJ

## STATE DEPARTMENT OF EDUCATION

- 1. Developments in K-12 Education—Information Item
- 2. Federal Coronavirus Relief K-12 Funding Update Information Item
- 3. IDAPA 08.02.03.105 Graduation Requirements Partial Waiver College Entrance Exam Action Item

If auxiliary aids or services are needed for individuals with disabilities, or if you wish to speak during the Open Forum, please contact the Board office at 334-2270 no later than two days before the meeting. While the Board attempts to address items in the listed order, some items may be addressed by the Board prior to, or after the order listed.

# 1. Agenda Approval

Changes or additions to the agenda.

## **BOARD ACTION**

I move to approve the agenda as posted.

## 2. Minutes Approval

## **BOARD ACTION**

I move to approve the minutes for the December 15, 2021, Regular Board Meeting, the January 6, 2022, Special Board Meeting and the January 13, 2022, Special Board Meeting.

# 3. Rolling Calendar

## **BOARD ACTION**

I move to set February 15-16, 2023 as the date and Boise State University as the location for the February 2023 regularly scheduled Board Meeting.

Draft Minutes December 15, 2021



# STATE BOARD OF EDUCATION MEETING December 15, 2021 DRAFT Idaho State Board of Education Clearwater Conference Room 650 West State Street, Suite 349 Boise, ID 83720

A regular meeting of the Idaho State Board of Education was held via Zoom teleconference December 15, 2021, with the call originating from the Office of the State Board of Education in Boise. Board President Kurt Liebich called the meeting to order at 8:00 a.m. (MT).

## **Present**

Kurt Liebich, President Dr. Dave Hill, Vice-President Dr. Linda Clark, Secretary Shawn Keough Bill Gilbert
Cally J. Roach
Cindy Siddoway
Superintendent Sherri Ybarra

## **Absent**

None

Wednesday, December 15, 2021, 8:00 a.m. (Mountain Time)

## **OPEN FORUM**

Representative John Gannon addressed the Board. He said, "Idaho university and community college students should not be discouraged or prevented from pursuing studies and careers solely because of their gender and it is disappointing and insulting that this has been advocated recently. This is particularly irritating to me because my grandmother was the only woman in her University of California Dental

Draft Minutes December 15, 2021

School Class of 1902. She practiced various aspects of dentistry for 30 years, and she was an important mentor to me.

I recognize the free speech right, but at the same time Idaho students have a right to be as free from bias as possible in pursuing their education. Our students and their families need to be assured that students will not be restricted in career choices solely because of their gender.

Perhaps the State Board can implement policies and guidelines to protect this important right.

Perhaps a task force to develop language and policy would be a helpful way to go.

It is important that a person with authority not be able to discourage or prevent a student from pursuing a career solely upon the basis of gender. A professor who believes a woman

should not participate in the engineering school should not have influence. Someday a person in authority might advocate those men not be admitted to nursing school. A person with clear and convincing evidence of such attitudes could be restricted from:

- 1. Being involved in courses which are a prerequisite for graduation
- 2. Being involved in courses which are a prerequisite for other courses
- 3. Participating in decisions relating to tenure, employment, or personnel matters
- 4. Participating in decisions regarding to the operations of the university or college. These are just possible ideas. There are undoubtedly other ideas, but the important thing is to establish policies so that students and families are certain that they will not be denied entry into programs solely because of their gender.

Thank you for considering these concerns."

## **BOARDWORK**

Agenda Review / Approval

Dr. TJ Bliss, Chief Academic Affairs Officer, Idaho State Board of Education, asked that under the Work Session portion of the agenda that item B and C be switched.

#### **BOARD ACTION**

M/S (Hill / Roach) I move to approve the agenda as modified. A roll call vote was taken, and the motion carried 8-0.

There were no comments or questions from the Board.

2. Minutes Review / Approval

#### **BOARD ACTION**

Draft Minutes December 15, 2021

M/S (Hill / Clark) I move to approve the minutes for the October 20-21, 2021, Regular Board Meeting, the November 2, 2021, Special Board Meeting and the November 29, 2021, Special Board Meeting. A roll call vote was taken, and the motion carried 8-0.

There were no comments or question from the Board.

3. Rolling Calendar

## **BOARD ACTION**

M/S (Hill / Roach) I move to set December 21, 2022, as the date for the December 2022 regularly scheduled Board Meeting, to occur via a videoconference originating from the Office of the State Board of Education in Boise. A roll call vote was taken, and the motion carried 8-0.

#### AND

M/S (Hill / Roach) I move to amend the June 2022 Regular Board meeting date to June 14–15, 2022 for the June 2022 regularly scheduled Board meeting. A roll call vote was taken, and the motion carried 8-0.

Matt Freeman, Executive Director, Idaho State Board of Education said the change to the December meeting date came about because the original meeting date of December 14<sup>th</sup> would put pressure on the meeting agenda preparation process for institutions and staff. But the 21<sup>st</sup> is also problematic as it is closer to the holidays. From a staff perspective the 21<sup>st</sup> would be better.

A brief discussion among the Board members ensued with the consensus being that the 21<sup>st</sup> would work and the motion was brought forward.

There were no further comments or questions from the Board.

# CONSENT AUDIT

1. Audit Committee Appointment

## **BOARD ACTION**

M/S (Hill / Gilbert) I move to appoint Steve Skaggs as a non-Board member of the Audit Committee for a three (3) year term commencing December 15, 2021. A roll call vote was taken, and the motion carried 8-0.

Draft Minutes December 15, 2021

#### **BAHR**

2. Boise State University - Purchase of Aixtron Metal Organic Vapor Phase Epitaxy System

#### **BOARD ACTION**

M/S (Hill / Gilbert) I move to approve the request by Boise State University to authorize the purchase of an Aixtron Metal Organic Vapor Phase Epitaxy system as well as associated equipment and infrastructure, for a total of \$1,300,000. The equipment will be purchased with grant funding as part of a partnership with the NextFlex Office of Secretary of Defense Manufacturing USA Institute. A roll call vote was taken, and the motion carried 8-0.

3. Boise State University - Certificate in Content Production – Online Program Fee

#### **BOARD ACTION**

M/S (Hill / Gilbert) I move to approve the request by Boise State University to offer Certificate in Content Production, an existing certificate already offered online utilizing an online program fee model. The certificate program will charge an online program fee of \$350 per credit. A roll call vote was taken, and the motion carried 8-0.

4. Boise State University – Certificate in Creative Influence – Online Program Fee

## **BOARD ACTION**

M/S (Hill / Gilbert) I move to approve the request by Boise State University to offer a Certificate in Creative Influence, an existing certificate already offered online utilizing an online program fee model. The certificate program will charge an online program fee of \$350 per credit. A roll call vote was taken, and the motion carried 8-0.

5. Boise State University – Certificate in Digital Innovation and Design – Online Program Fee

## **BOARD ACTION**

Draft Minutes December 15, 2021

M/S (Hill / Gilbert) I move to approve the request by Boise State University to offer Certificate in Digital Innovation and Design, an existing certificate already offered utilizing an online program fee model. The certificate program will charge an online program fee of \$350 per credit. A roll call vote was taken, and the motion carried 8-0.

Boise State University - Certificate in User Experience Design – Online Program Fee

#### **BOARD ACTION**

M/S (Hill / Gilbert) I move to approve the request by Boise State University to offer Certificate in User Experience Design, an existing certificate already offered online utilizing an online program fee model. The certificate program will charge an online program fee of \$350 per credit. A roll call vote was taken, and the motion carried 8-0.

## **IRSA**

7. Higher Education Research Council Appointment

#### **BOARD ACTION**

M/S (Hill / Gilbert) I move to appoint Douglas A. Sayer as a non-institutional representative to the Higher Education Research Council, effective immediately and expiring June 30, 2024. A roll call vote was taken, and the motion carried 8-0.

## **PPGA**

8. Data Management Council Appointment

#### **BOARD ACTION**

M/S (Hill / Gilbert) I move to approve the appointment of Kevin Chandler to the Data Management Council as a representative of the State Department of Education for a term commencing immediately and ending June 30, 2022. A roll call vote was taken, and the motion carried 8-0.

9. Lewis-Clark State College – Facilities Naming

#### **BOARD ACTION**

Draft Minutes December 15, 2021

M/S (Hill / Gilbert) I move to approve Lewis-Clark State College's request to waive the application of Board Policy I.K. and to enter into a naming rights agreement with P1FCU in substantial conformance with Attachment 1 and authorize the Vice President and Chief Financial Officer to execute the agreement. A roll call vote was taken, and the motion carried 8-0.

10. University of Idaho - Facilities Naming

## **BOARD ACTION**

M/S (Hill / Gilbert) I move to approve the request by the University of Idaho to name the WWAMI Medical Education Building the "D.A. Huckabay M.D. Medical Education Building" and authorize the president of the University of Idaho, or the president's designee, to execute the agreement and any related transactional documents. A roll call vote was taken, and the motion carried 8-0.

11. Idaho State University – Facilities Naming

## **BOARD ACTION**

M/S (Hill / Gilbert) I move to approve the request by Idaho State University to name the Rendezvous building the Richard L and Connie S Bowen Rendezvous Center. A roll call vote was taken, and the motion carried 8-0.

#### SDE

12. Emergency Provision Certificates

## **BOARD ACTIONS**

M/S (Hill / Gilbert) I move to approve the recommendation by the State Department of Education for one-year emergency provisional certificates to be awarded in the endorsement area(s) at the specified school districts as provided herein for the 2021-22 school year for the following individuals: Mason Bilger, Logan Shipley, Tina Wayman, Megan Felter, Freddy Hernandez, Marissa Turner, Glenn Sailors, Sadie Pulliam, Laura Georigiades, Janelle Marie Kristina LaSalle, Gentry Isham, Matthew Campbell, Roman Romero, Guadalupe Sims, Mallory Smith, Riley Jo Johnson, Edward Simmons, Ericka Johnson, Martha McCuisition, Genevive Olivas, Jennifer Vitek, Maxwell Garrett, Wilson Ong, Karen Rohn, Karlene Ashcraft, Margarita Espinoza-Henscheid, Amy Hinojosa, Jasmyn Rogge, Richard Anderson, Chandler Lawrence, Kira Langer, Molley Alles, Emmanuel

Draft Minutes December 15, 2021

Candiani, Leah Dow-Sanchez, Mickey Carter, Michael Easterling, Gail Joy, Jared Lemon, Jasmine Victorious, Kelsey Lentz, Tiffany Ford, Kevin Dorrian, Whitney Oliver, Jesus Cervantes, and Drew Turbow. A roll call vote was taken, and the motion carried 8-0.

#### AND

M/S (Hill / Gilbert) I move to approve the request by State Department of Education for one-year emergency provisional certificates in the School Psychology endorsement area at the specified school districts as provided herein for the 2021-22 school year for the following individuals: Tanner Boyer, Savannah Dierks, Megan Taylor, and Toni Shantel Chadez-Farnetti. A roll call vote was taken, and the motion carried 8-0.

13. Idaho State University - New Educator Preparation Program

## **BOARD ACTION**

M/S (Hill / Gilbert) I move to accept the recommendation of the Professional Standards Commission to conditionally approve Idaho State University's Computer Science (6-12) program for certification. A roll call vote was taken, and the motion carried 8-0.

#### **WORK SESSION**

## PLANNING, POLICY AND GOVERNMENTAL AFFAIRS

A. K-20 Education Strategic Plan

This item was provided in the agenda materials as an information item.

Tracie Bent, Chief Policy and Planning Officer, Idaho State Board of Education, said what is presented in the agenda materials before the Board today asks the Board to decide if these are the right goals and objectives, the right performance measures and for any other amendments the Board would like to discuss. Actual approval of the comprehensive strategic plan will be brought back to the Board at the February Board meeting.

Dr. Clark said during the last Policy, Planning and Government Affairs (PPGA) Committee meeting the conversation centered around Complete College Idaho and should we be focused on those elements that were previously embraced. During the committee discussion it was decided that the focus needs to be on getting more Idaho

Draft Minutes December 15, 2021

students into Idaho institutions, keeping them there and getting them through to graduation.

Dr. Bliss said a state-wide summit is being planned for the spring that will bring together all Idaho Institutions to highlight what has been done, and what needs to be done, to help Idaho set up the strategies for moving forward to get the outcomes Idaho's higher education institutions are looking for.

Mrs. Roach asked if the benchmarks and goals as currently outlined are achievable and realistic. Ms. Bent said when looking at post-secondary bench marks those goals were set by the PPGA committee after bringing together representatives from Idaho institutions. The benchmarks are updated every year but fully reviewed every five years.

Dr. Clark said the goal that stands out and that is most likely not attainable is the sixty percent rule. Board President Liebich referenced the long discussion on the sixty percent rule at the last meeting. Dr. Clark referenced the data found on Attachment 2, Tab A, Page 5, of the agenda material, which showed two separate benchmarks. One benchmark is based on projected work force need (FY 2025), and the other is the Institution recommended targets (FY 2027) based on current awards and projected growth in student enrollment, retention, and completion.

Mr. Gilbert said expanding performance measures and benchmarks doesn't seem to work if we don't also remove something and he wanted to discuss what needs to be removed to have a more focused strategic plan.

Ms. Roach said one of the metrics that gets the most negative press is the Go-On-Rate, and she would like to discuss changing how the rate is measured. She suggested breaking it down further. The current goal for high school graduates going onto higher education is 60 percent and that is not achievable or realistic, and perhaps that goal should be set at 50 percent or less. Then for those who are 12 months past graduation the benchmark could be 55 percent and for those three years after graduation it should be 60 percent.

Dr. Hill said we confuse the strategic plan with the performance plan, and it gets in the way of the Board doing its job. The three issues highlighted for K-12 (K-3 literacy, 5-9 math and graduation readiness) should be the Boards focus going forward. The rest of this could be dropped into a performance plan and taken off the Board's focus but still be monitored by the Board. Dr. Clark said because we are required to keep a strategic plan in place for the state there is nothing to stop the Board from having a tactical plan,

Draft Minutes December 15, 2021

that focuses on the three main issues for K-12 and then three separate issues for higher education.

Ms. Bent asked to clarify the Boards purpose in this area. She asked if there is an end, or an overarching goal that the Board is trying to accomplish through these three focused areas and then what does the Board want to look at to measure progress toward that goal. Dr. Hill said strategic plans should be broadly stated and not include implementation measures. The three areas of focus, driven by the pandemic, should have measurements in place, leaving the strategic plan in place because of the state requirement, but create an action plan to the side, because these are the issues important to the Board and to the students in the state.

Mr. Gilbert agreed that this now gives the Board a better focus as a K-12 organization. He further said if we don't streamline the document now it will continue to be bloated and the Board loses its focus on what is most important.

Ms. Bent wanted to make sure the Board's intent is clear. How do they want progress reported in future meetings? She agreed, the objective is a good objective, but we don't have the underlying data to directly measure progress.

Dr. Hill said he begins by looking at a one-page strategic plan and asks if it makes sense. Using the large number of metrics provided and the need to meet the state requirement to satisfy that public spending has been spent well, he views it as 1. What we need to do for compliance and 2. To provide an overview if things are not going well and how to raise efforts to get Idaho to the next level.

Mrs. Roach said pulling out certain metrics which pertain to the top three priorities would help the Board focus on what is most important.

Mr. Gilbert said these documents should clearly show where the Board can dive in and work on the issues that are most important. This allows for looking at the growth and cohorts to see what is working and what is not.

Dr. Marlene Tromp, President, Boise State University, said she would be most interested in hearing from the Institutions Provosts to see the larger picture instead of swimming in a sea of data. The pandemic has affected the metrics being used and the long-term effects of the pandemic on student outcomes are still being analyzed.

Ms. Bent said to recap, there is general agreement that these are the three correct focus areas for post-secondary and the Board wants the data on those three focus

Draft Minutes December 15, 2021

areas to be highlighted at future meetings. Dr. Hill agreed and said based on the sheer volume of data previously presented it didn't really tell the Board anything.

Dr. Clark said these are the appropriate measures that the Board needs to have a laser like focus on and to communicate that to the institutions, and what the Board will hold the institutions responsible for. A strategic plan also holds the management team responsible for meeting those goals.

Matt Freeman asked, to clarify for Board meetings moving forward, does the Board want a K-12 and a Higher Education focus area that are highlighted only if new data is available? Board President Liebich agreed that was the Board's request. And if the data is only available once a year that is when that review happens. Mrs. Roach agreed that homing in on specific metrics with specific data should be highlighted at each meeting, instead of being inundated with so much data.

Board President Liebich said getting data only once a year makes it hard to assess where we are, so real time data would be more relevant to the Board discussions. Dr. Clark said that real time data is available, and many districts have this data, we just need to ask for that data.

Ms. Bent said the Board's strategic plan doesn't have to be approved until June. However, approving the plan at the February meeting, would assist the institutions. This timeline gives the institutions plenty of time to make changes to their strategic plans. Any changes made by the institutions are then brought back before the Board at the June Board meeting, giving the institutions time to make the reporting deadline with the state.

Dr. Clark said the goals for the institutions need to be attainable and she has confidence in the data coming from the institutions showing reasonable goals that they can attain.

Mr. Gilbert also said the same rules should apply for K-12 as well as for higher education. He believes trajectory and continuous growth are paramount to success. He believes the onus should be placed back on the institutions to achieve those growth rates. Seeing the growth rates for both FY 2025 and FY 2027 shows the institutions understand this trajectory idea.

Ms. Bent said the last piece of her work session is the workforce readiness measurement and how the skills are measured. Feedback from the community colleges is being worked on to develop a definition of workforce certificates.

Draft Minutes December 15, 2021

Superintendent Ybarra said during the tour of the Mastery Based schools planned for the Board members in February, everyone should get to see some of this workforce readiness in action. What these schools were doing during the pandemic was creative and interesting.

Mrs. Roach asked how these workforce readiness skills fit in with our strategic plans.

Board President Liebich asked if any state has found the answer to these questions. Ms. Bent said no state has found that magic bullet, but she has communicated with Career and Technical Education (CTE) who has a workforce readiness assessment in place and asked what would it take to offer this statewide.

Mrs. Roach said looking at the rate of high school graduates that go on she felt we are failing the majority of our students by not focusing on workforce readiness and that is where she wants to focus her attentions. Not every student wants to go on to get a higher education degree.

Superintendent Ybarra agreed that we are not getting the word out about the Board's work with workforce development and the fact that these competencies are in place.

There were no further comments or questions from the Board.

## INSTRUCTION, RESEARCH AND STUDENT AFFAIRS

C. Demographic Characteristics of Idaho's Four-Year Postsecondary Students This item was provided in the agenda materials as an information item.

Board President Liebich started by saying in the fall of 2021, at the request of the Board President, the Office of State Board of Education conducted an analysis of key student demographics at Idaho's four-year public postsecondary institutions to explore how well the student populations match the underlying state demographics, as well as regional demographics of the geographic areas served by the institutions. The analysis focused on two different groups: academic degree-seeking students and recent Idaho public school graduates. Race/ethnicity were analyzed for both groups. High school locale (city/suburb, town, or rural) and high school economic status were analyzed for recent Idaho public school graduates.

Dr. Cathleen McHugh, Chief Research Officer, Idaho State Board of Education, presented the following information.

Draft Minutes December 15, 2021

There are several key findings from this analysis:

- Undergraduate Hispanic students are underrepresented for both residents and nonresidents from key states across the four institutions as a whole;
- American Indian, Black, and Hawaiian/Other Pacific Islander students are equally represented across the four institutions as a whole;
- Multiracial students are overrepresented across the four institutions as a whole;
- Females are overrepresented at Boise State University and Lewis Clark State College;
   and
- The University of Idaho is equally gender balanced for resident students and Idaho State University is equally gender balanced for non-resident students.

Mr. Freeman asked if, based on the data UI was close to parody in their gender ratio, and Dr. McHugh said that was correct.

Dr. McHugh's entire report, located in Attachment 1, Tab C, Pages 1-12 gives very detailed breakdowns as to the various demographic groups (Whites, Hispanics, Blacks, Asians, etc.) and economic status (economically disadvantaged vs. economically advantaged) of Idaho's graduating seniors.

Some of the data findings are.

- At BSU and ISU, the share of white students reflects the underlying state population.
- At LC State and UI, white students are underrepresented.
- American Indian students are underrepresented at BSU and UI, equally represented at ISU and overrepresented at LC State compared to the statewide population.
- Asian students are overrepresented at all institutions except LC State where they are equally represented.
- Black students are equally represented at all institutions.
- Hawaiian/Other Pacific Islander students are equally represented at all institutions.
- Multi-race students are overrepresented at BSU and LC State and equally represented at ISU and UI.
- Hispanic and White females are generally either equally represented at the fourvear institutions or overrepresented.
- Hispanic females are equally represented among the four-year institutions and among the group who do not attend any institution, overrepresented among the two-year Idaho institutions, and underrepresented in the other institutions.
- White females who were ever economically disadvantaged in high school and are from town/rural locales are the only group of females that are

Draft Minutes December 15, 2021

underrepresented at the four-year institutions and that is only a one percentage point difference.

- White females who were never economically disadvantaged are overrepresented at Idaho's four-year institutions, especially those females from cities/suburbs.
- The only group of white or Hispanic males who are overrepresented at the fouryear institutions are those white males who were never economically disadvantaged and come from cities/suburbs.
- Hispanic males are underrepresented at both the four-year institutions and other institutions and overrepresented among those who do not attend any institution. This is also true for white males who were ever economically disadvantaged (regardless of their locale). However, white males from town/rural locales are also underrepresented among Idaho public two-year institutions as well.
- White males who were not ever economically disadvantaged and come from town/rural locales are equally represented at Idaho's four-year institutions although this result is just barely not statistically significant (a p-value of 0.0510 versus 0.05).
- White males who were economically disadvantaged and from town/rural locales are among the most underrepresented groups. While this group makes up 8 percent of all high school graduates, they make up only 4 percent of those who attend an Idaho four-year public institution.
- The corresponding group for females is more representative, also comprising 8
  percent of all high school graduates but comprising 7 percent of those who
  attend an Idaho four-year public institution.
- Hispanic males are also very underrepresented, comprising 8 percent of all high school graduates and only 5 percent of those who attend an Idaho four-year public institution.
- Both of these groups are overrepresented in the "Do not attend any institution." Therefore, it is not that these males are going on but just not to public four-year institutions. They are disproportionately less likely to go on.
- Hispanic males are equally represented at the Idaho public two-year institutions; economically disadvantaged white males from town/rural locales are underrepresented in those institutions.

Dr. Tromp said many in higher education are aware of these trends and they are working on targeting white males in this age group, and those who are economically disadvantaged in rural areas. The other topic that Institutions are addressing is the high suicide rate of this same demographic and they are working on offering support to them to help them be academically successful.

Mrs. Roach said the number of economically disadvantaged white males attending twoyear colleges should also be of note (Attachment 1, Tab C, Page 12).

Draft Minutes December 15, 2021

Mrs. Keough said she wondered what some of the student demographics were looking for when deciding not to seek a 4-year degree. Dr. Hill said, for the workforce minded, the data captures some but not all of what these white males are really looking for. Apprenticeships are not a part of this data, and neither is the number of males entering the military.

Dr. McHugh said the data presented also does not take into account those who were economically disadvantaged and who then drop out of school in the 9<sup>th</sup> grade. These white males tend to drop out of high school at a higher rate.

There were no further comments or questions from the Board.

At this time the Board recessed for 10 minutes, returning at 10:00 a.m.

B. Postsecondary Student Experience Survey Report
This item was provided in the agenda materials as an information item.

Board President Liebich prefaced the discussion by saying that during the 2021 Idaho legislative session, allegations were made that some students at Idaho's public postsecondary institutions are being treated negatively because of their personal beliefs and viewpoints. To determine if there is merit to these serious allegations, the Office of the State Board of Education conducted a research study in November 2021 that included a survey of the more than 54,000 students at Idaho's eight public institutions. All questions on the survey were optional, to allow maximum freedom and discretion in providing responses. Eight thousand, nine hundred eighty-nine (8,989) students completed the survey, for a total overall response rate of 16.4%. College of Southern Idaho had the lowest response rate (8.9%) and Idaho State University had the highest response rate (24%). All responses to the survey were completely anonymized, to protect student privacy. The Board office did not collect data about which students responded or did not respond, nor can the office connect any specific response to any specific student.

Dr. Bliss mentioned that in the Board's agenda packet was a copy of the actual survey questions sent to the students (Attachment 1, Tab B, pages 104).

Board President Liebich asked how the survey questions were developed. Dr. Bliss said the survey was created by Board staff and the institution research officers. The content of the survey was driven by the Board and reviewed by a national Institutional Review Board (IRB) whose job is to protect the rights and welfare of human research

Draft Minutes December 15, 2021

subjects recruited to participate in research activities conducted under the auspices of the institution with which it is affiliated.

Mr. Gilbert asked what percentage of the students surveyed are graduate students and what percentage were undergraduate students. Dr. McHugh said 14 percent of the students were graduate students.

Dr. Bliss said preliminary results showed the following:

- A supermajority of students across all institutions and class levels report Feeling valued (87%), respected (95%) and a sense of belonging (90%)
- Never or rarely feeling pressured to affirm or accept beliefs they find offensive (67%)
- Never or rarely feeling shamed or bullied for sharing their personal beliefs or viewpoints (78%)
- Feeling safe to express their personal beliefs or viewpoints with others (89%)
- Familiarity with safeguards and policies that protect freedom of expression (76%)
- Agreement that it is important to participate in courses and activities that are designed specifically to enhance understanding of others' beliefs and viewpoints (85%)

Mrs. Keough asked about the percentage of students who answered that they never or rarely feeling pressured to affirm or accept beliefs they find offensive. Why is the percentage so low? Dr. Bliss said there are no statistics here but raw data. More digging into the answer rates will need to happen in the near future.

Dr. Hill asked if the students were asked about the source of the pressure. Dr. Bliss said yes, they were asked but again this is just raw data and further analysis needs to happen before final data is brought back to the Board. Dr. Hill asked if students were asked to say where the pressure was coming from. Dr Bliss said students were specifically asked if the pressure was coming from school administrators, faculty, other employees, or even other students.

Dr. Tromp agreed that seeing the real survey data will help institutions work on what needs to be addressed when dealing with student concerns.

Mr. Gilbert said he does not believe the Board can have a conversation on this survey until the cohort data is complete. He wants to see all of the statistics by cohort broken down by age, by under grad and graduate, by political affiliation, by gender and by institution. He also said that the raw data needs to be available for the public to review to the extent possible.

Draft Minutes December 15, 2021

Dr. Bliss said the plan moving forward will be to analyze the data and to break it down by cohorts to help see where the issues are, which should then lead to being able to addresses concerns brought up by students.

Dr. Hill asked when the data will be ready for discussion. Dr. McHugh's staff will begin that work and hope to have the data ready for review in the early part of January or February 2022.

There were no further comments or questions from the Board.

#### **AUDIT**

1. FY 2021 Financial Statement Audits

Bill Gilbert said the first item on the agenda is to inform the Board that the Idaho State Board of Education (Board) has contracted with CliftonLarsonAllen LLP, an independent certified public accounting firm, to conduct the annual financial audits of Boise State University, Idaho State University, the University of Idaho, and Lewis-Clark State College.

There were some findings for the institutions, but all received an unmodified opinion on the financial statements. The results of the single audit are postponed due to a delay by the federal government in issuing the guidelines for auditing funds related to COVID-19. Pending that audit, there could be further items related to internal controls for federal expenditures addressed.

#### **BOARD ACTION**

M/S (Roach / Hill) I move to accept from the Audit Committee the FY2021 financial audit reports for Boise State University, Idaho State University, University of Idaho, and Lewis-Clark State College, as submitted by CliftonLarsonAllen LLP in Attachment 1. A roll call vote was taken, and the motion carried 8-0.

There were no comments or questions from the Board.

2. FY 2021 Financial Ratios - Information Item
This item was provided in the agenda materials as an information item.

Todd Kilburn, Chief Financial Officer, Idaho State Board of Education, said these financial ratios and analyses are provided for the Board to review the financial health

Draft Minutes December 15, 2021

and year-to-year trends at the institutions. The ratios reflect a financial snapshot as of fiscal year end. The Audit Committee reviews key financial performance factors on a quarterly basis.

The ratios presented measure the financial health of each institution and include a "Composite Financial Index" based on four key ratios. The ratios are designed as management tools to measure financial activity and key trends within an institution over time. They typically do not lend themselves to comparative analysis between institutions because of the varying missions and structures of the institutions and current strategic initiatives underway at a given institution at a given time.

Mr. Gilbert said the Audit Committee had no concerns with the information as presented.

There were no comments or questions from the Board.

3. FY 2021 Net Position Reports - Information Item
This item was provided in the agenda materials as an information item.

Mr. Kilburn shared the following. The volatility of state funding as well as fluctuations in enrollment and tuition revenue necessitates that institutions maintain fund balances sufficient to stabilize their operating budgets. As such, Board Policy V.B. sets a minimum target reserve of 5%, as measured by "Unrestricted Available" funds divided by annual operating expenses.

Idaho State University and Lewis-Clark State College met the Board's 5% reserve target in FY20. Boise State University's unrestricted net position increased by \$23.4 million during the fiscal year despite Covid-19 continuing to disrupt operations. Commitments against these reserves increased by \$18 million. As a result, the unrestricted funds available increased from \$2.5 million as of June 30, 2020 to \$7.9 million as of June 30, 2021. The ratio of unrestricted funds available to operating expenses is 1.86% which, although improved from the prior year, is short of the 5% target.

University of Idaho has reported a negative \$15.0 million for its "Unrestricted – Available" net position, which results in a negative ratio of 3.9% unrestricted available net position to FY21 operating expenses, an improvement of \$15.0 million over FY20. The University ended FY21 with a positive change in aggregate net position of \$22.8 million due to disciplined permanent base budget reductions. Growth in unrestricted net position of \$7.8 million was limited due to significant debt defeasance which added \$23.6 million to net position invested in capital assets, net of related debt.

There were no comments or questions from the Board.

Draft Minutes December 15, 2021

## **BUSINESS AFFAIRS AND HUMAN RESOURCES**

1. Amendment to Board Policy V.R. – Establishment Of Fees - First Reading

Dr. Hill said this topic came about after concerns were raised during the last Legislative session concerning the transparency of student fees. The Legislature wanted to see what fees could be optional and which needed to be compulsory.

Mr. Kilburn led a working group comprised of representatives from all four of the colleges and universities who worked together to develop the categories that were approved by the Board in October of 2021.

This policy amendment is to codify the decision made by the Board at the October 2021 Regular Board meeting, which includes one overall Consolidated Mandatory fee broken down into four categories:

## Student Enrollment, Engagement, and Success

The student enrollment, engagement and success fees provide funding to support the multitude of activities and services available to students, both on and off campus. Included in these fees are scholarships, student employment opportunities, funding to support student success initiatives, and enrollment (recruitment and retention) activities. Institutional

## Operations, Services, and Support

These fees support the departmental and infrastructure needs of the college and universities, including construction and maintenance of facilities; instructional and computing resources; student involvement services and participation with athletic, arts, and cultural events.

## **Student Health and Wellness**

The student health and wellness fee support students physical and mental health and well-being. Students' fees also allow for access to the health and counseling centers throughout the year as well as utilize well-being and fitness programs and facilities for overall improvement of the student experience. Also included are the facilities, maintenance, and programs available through the recreation and intramural programs.

#### **Student Government**

This fee is to support the student government officers elected by students and support them, their initiatives, and their overall experience. Students are provided the means to

Draft Minutes December 15, 2021

engage in discussions, events, and opportunities that interest them, are new to them, and challenge them. A subset of this fee would be student activities, clubs, and organizations, and students would be allowed to opt-out of that fee.

Approval of the policy amendment will support the move to a simplified fee system that is consistent across all institutions and require institutions to list these fees in a consistent and easily accessed location on their websites.

#### **BOARD ACTION**

M/S (Hill / Keough) I move to approve the first reading of Board policy V.R. to amend the process through which fees are established as set forth in Attachment 1. A roll call vote was taken, and the motion carried 8-0.

There were no comments or questions from the Board.

## 2. Maintenance of Effort – GEER Funding

Mr. Kilburn said the U.S. Department of Education provided guidance requiring that states receiving funding under the Coronavirus Response and Relief Supplemental Appropriations Act, 2021 (CRRSA Act) must maintain "State support for higher education in FY 2022 at least at the proportional level of the State's support for higher education relative to the State's overall spending, averaged over FYs 2017, 2018, and 2019." This Maintenance of Effort (MOE) must be demonstrated to the US Department of Education. While appropriated funding for higher education increased, the percentage relative to Idaho's overall spending decreased for several reasons, including Medicaid expansion.

Since the annual percentage has decreased due to an increase in overall state spending, and in alignment with the guidance provided by the US Department of Education, the Board is being asked to approve submission of a waiver which must be submitted no later than December 30, 2021.

#### **BOARD ACTION**

M/S (Hill / Roach) I move to approve the Maintenance of Effort Waiver as proposed in Attachment 2 and authorize Board Staff to submit the waiver on or before the December 30, 2021 deadline. A roll call vote was taken, and the motion carried 8-0.

There were no comments or questions from the Board.

Draft Minutes December 15, 2021

3. Idaho State University - Library Project - Construction and Bidding

Dani Dunstan, Vice President for Operations and Chief of Staff, Idaho State University, said Idaho State University (ISU) seeks approval from the Board to proceed with construction and financing for upgrades to ISU's library including upgrading the first-floor common areas to create a more dynamic student space. In addition, the project will allow for the addition of a Starbucks through ISU's partnership with its food service provider Chartwell's. Work for this project will be completed in two phases. The first phase will include the addition of Starbucks and required service to the area including electrical, plumbing, HVAC, and sewer hookups. The second phase will include upgrades to the remainder of the first-floor common areas to create a dynamic student space. Both projects are scheduled to be under construction in 2022, with the Starbucks portion planned to break ground in May.

#### **BOARD ACTION**

M/S (Hill / Keough) I move to approve the request by Idaho State University to proceed with construction and financing in two phases for the Library Upgrades: Common Area and Starbucks project for total costs not to exceed \$2.96M. A roll call vote was taken, and the motion carried 8-0.

There were no comments or questions from the Board.

4. Idaho State University – Leonard Hall Project - Construction and Financing

Dani Dunstan, Vice President for Operations and Chief of Staff, Idaho State University said, ISU seeks construction and financing approval for renovations to the College of Pharmacy, Leonard Hall. The renovation plan for Leonard Hall transforms an extremely outdated office, classroom, and laboratory space into state-of-the-art functionality. The renovation is primarily focused on upgrading the 2nd floor laboratories. Laboratories require redesign to update and modernize the spaces to fit current needs. Further, there is not ADA accessibility into lab spaces.

ISU has received gift commitments totaling \$16 million dedicated to the project. Further, ISU has submitted a request to the Permanent Building Fund Advisory Council (PBFAC) for an additional \$3.4 million.

Draft Minutes December 15, 2021

ISU requests that the Board approve the request to proceed with construction for a total project cost not to exceed \$20,200,000. The project should be completed by August of 2025.

#### **BOARD ACTION**

M/S (Hill / Clark) I move to approve the request by Idaho State University to proceed with the construction of Leonard Hall renovations for a total project cost not to exceed \$20,200,000. A roll call vote was taken, and the motion carried 8-0.

Board President Liebich asked if based on the current economic situation does ISU have the reserves needed to see this project through to completion. Ms. Dunstan said a careful analysis was made and ISU is confident that they have a healthy contingency in place to see this project through.

There were no further comments or questions from the Board.

5. University of Idaho – Issuance of 2022 General Revenue Refunding Bonds

Brian Foisy, Vice President for Finance and Administration, University of Idaho said the University of Idaho (UI) requests the Regents of the University of Idaho approval to issue one series of tax-exempt general revenue and revenue refunding bonds ("Series 2022A Bonds") pursuant to a Supplemental Resolution in an aggregate principal amount not to exceed \$46,110,000 million.

This is a three-part transaction. The proceeds of the Series 2022A Bonds will be used to refund the Series 2013B Bonds, which financed and reimbursed costs for the acquisition of land of the outdoor science center in McCall.

The Series 2014 Bonds were issued as fixed rate bonds with a final maturity of April 1, 2045.

And the total is not to exceed \$46,110,000 million, with the total amount allocated to the 2022 Project not to exceed \$2,000,000. This is primarily a refunding transaction.

#### **BOARD ACTION**

M/S (Hill / Clark) I move to approve the request by the University of Idaho to issue one series of tax-exempt general revenue and revenue refunding bonds to

Draft Minutes December 15, 2021

refund the Series 2013B and 2014 Bonds; finance various improvements to auxiliary services in an amount not to exceed \$2 million; and to find that this project is necessary for the proper operation of the University of Idaho and is economically feasible. A roll call vote was taken, and the motion carried 8-0.

#### **AND**

M/S (Hill / Roach) I move to approve a Supplemental Resolution for the Series 2022A Bonds, the title of which is as follows: A SUPPLEMENTAL RESOLUTION of the Regents of the University of Idaho Authorizing the Issuance and Providing for the Sale of General Revenue and Revenue Refunding Bonds, Series 2022; Delegating Authority to Approve the Terms and Provisions of the Bonds, and the Aggregate Principal Amount of the Bonds up to \$46,110,000; Authorizing the Execution and Delivery of a Bond Purchase Agreement upon Sale of the Bonds; and Providing for Other Matters Relating to the Authorization, Issuance, Sale and Payment of the Bonds.

Roll call vote is required. A roll call vote was taken, and the motion carried 8-0.

Board President Liebich asked if this was refinancing fixed rate instruments with fixed rate instruments and not extending the maturity. Mr. Foisy said that was correct.

There were no further comments or questions from the Board.

## 6. University of Idaho - 4+1 Program Fees

Brian Foisy, Vice President for Finance and Administration, University of Idaho, said the University of Idaho (UI) would like to initiate a 4+1 program for resident undergraduate students to continue into a non-thesis Master's program in the same or related discipline. Rather than charging the graduate tuition rate when matriculating to the graduate program, successful applicants to the program would be charged the regular undergraduate student rate for full-time attendance during the Master's program.

#### **BOARD ACTION**

M/S (Hill / Keough) I move to approve the University of Idaho's request to implement a 4+1 program for resident undergraduate students to continue into a non-thesis Master's program in the same or related discipline at the regular undergraduate tuition structure. A roll call vote was taken, and the motion carried 8-0.

Draft Minutes December 15, 2021

Board President Liebich asked if any of the other Idaho Institutions had a program like this in place. Dr. Jerry McMurtry, Dean, College of Graduate Studies, Professor, University of Idaho, said in his conversations with the other universities they do not have anything like this in place.

Dr. Bliss asked what the plans are for communicating this opportunity to the students. Dr. McMurtry said the graduate council has been informed who then informed the faculty who is being tasked with spreading the word, and the interest in this program is high.

There were no further comments or questions from the Board.

7. Lewis-Clark State College - College Place Residence Hall - Property Purchase and Funding

Dr. Julie Crea, Vice President for Finance and Administration, Lewis-Clark State College, said Lewis-Clark State College (LCSC) requests approval to purchase and finance a student housing building located at 814 4th street in Lewiston, adjacent to LCSC's campus and within LCSC's designated area of impact. The 28,976 square foot, 22-unit and 88-bedroom, student housing development is located on six contiguous tax parcels totaling 0.98 acres.

LCSC seeks approval to purchase the property for \$5,000,000 plus closing costs for a total cost not to exceed \$5.2 million.

LCSC has conducted due diligence relating to the property and has received a full appraisal and building inspection. The appraised value is \$4,640,000. Through negotiations with the sellers, LCSC requests to exceed the appraised value by 7.8% for a purchase price of \$5,000,000 of which is lower than the requested purchase price.

The property is of strategic value to LCSC with its location in direct proximity to the main campus.

## **BOARD ACTION**

M/S (Hill / Clark) I move to approve the request by Lewis-Clark State College to purchase the property located at 814 4th Street in Lewiston, for an amount not exceed \$5.2 million, subject to bond financing approval; to authorize the Vice President and Chief Financial Officer to execute all necessary documents to complete the purchase as outlined herein, and to find that this project is

Draft Minutes December 15, 2021

necessary for the proper operation of LCSC and is economically feasible. A roll call vote was taken, and the motion carried 8-0.

#### AND

M/S (Hill / Roach) I move to approve Lewis-Clark State College's request for authorization of variable rate debt in amount greater than 20% of LCSC's total outstanding indebtedness. A roll call vote was taken, and the motion carried 8-0.

## AND

M/S (Hill / Keough) I move to approve the Master Resolution for the Series 2021 Bonds as set forth in Attachment 2, the title of which is as follows: A resolution of the Board of Trustees of Lewis-Clark State College, authorizing the issuance and sale of General Revenue Bonds, Series 2021, in the principal amount of \$4,000,000; providing for the acquisition, construction, reconstruction or repair of certain facilities; establishing certain funds and accounts; authorizing the execution and delivery of a bond purchase agreement; providing for the issuance of additional bonds for future Projects; and providing for other matters relating to the authorization, issuance, sale, and payment of bonds.

**Roll call vote is required.** A roll call vote was taken, and the motion carried 8-0.

Board President Liebich asked if the fees being charged to students will cover debt service costs. Dr. Crea said that correct. The estimated bond payment is \$245,000 and that leaves 25% of the revenue being brought in to pay for improvements, and maintenance and repairs.

Board President Liebich asked if an inspection was done to see what types of improvements or maintenance issues might arise. Dr. Crea said a complete inspection was done and major repairs and upgrades have already been taken care of and LCSC does not expect any large maintenance issues in the near future.

There were no further comments or questions from the Board.

At this time the Board recessed for 10 minutes, returning at 11:25 a.m.

## INSTRUCTION, RESEARCH AND STUDENT AFFAIRS

 Board Policy III.B. Academic Freedom and Responsibility and Policy III.P. Students – First Reading

Draft Minutes December 15, 2021

Dr. Bliss said Board staff identified Board Policy III.B. as being in need of updating in early 2020, in connection with the amendments made to other Board policies at that time. In May 2021, Board staff formed a working group of faculty and administrators from all eight public postsecondary institutions. This working group met several times throughout the summer, resulting in the proposed amendments as attached. The committee and Board staff also sought input from nationally recognized experts and resources on academic freedom and freedom of expression, including the American Association of University Professors, the Foundation for Individual Rights in Education, and the Report on the Committee on Freedom of Expression at the University of Chicago.

The policy amendments represent a significant structural change to the policy.

The current version of Board Policy III.B. applies only to faculty, does not define key terms, and lacks limitations. Language related to the academic freedom of students currently found in Board Policy III.P has been proposed for deletion, as student academic freedom and responsibility is now covered in the proposed amendments to Board Policy III.B.

The policy amendments represent a significant structural change to the policy. Specifically, the proposed policy is restructured to include the following major sections:

- Definitions of Key Terms
- Academic Freedom and Academic Responsibility of Students
- Academic Freedom and Academic Responsibility of Faculty
- Academic Freedom and Academic Responsibility of Institutions
- Limitations

Dr. Jonathan Lashley, Associate Chief Academic Affairs Officer, Idaho State Board of Education, said academic freedom is what allows for excellence on our campuses. With this freedom also comes the responsibility to know how to protect other's freedoms as well. Academic freedom will exist on Idaho campuses without this legislation, but this is a real opportunity for the Board to lead on what is academic freedom and what is possible in education.

Dr. Bliss mentioned that this policy does not affect Idaho's two-year institutions. He also mentioned that in the second Board Action concerning III.P. the line concerning vaccines is being modified since the CDC has changed the classification of vaccines, so they removed the Category A and B reference from this policy (Attachment 2, Tab 1, Page 8).

Draft Minutes December 15, 2021

#### **BOARD ACTION**

M/S (Hill / Keough) I move to approve the first reading of proposed amendments to Board Policy III.B. Academic Freedom and Responsibility, as submitted in Attachment 1. A roll call vote was taken, and the motion carried 8-0.

## **AND**

M/S (Hill / Keough) I move to approve the first reading of proposed amendments to Board Policy III.P. Students, as submitted in Attachment 2. A roll call vote was taken, and the motion carried 8-0.

Mrs. Roach asked if the universities need to have this type of policy in their accreditation plan. President Tromp said yes, academic freedom is one part of the accreditation standards, and if an accrediting team sees equity gaps they ask the university to close those gaps.

Board President Liebich reminded everyone that this is a first reading of these changes and this will now be open to public comment. Any comments received will then be brought back to the Board at a future meeting.

There were no further comments or questions from the Board.

2. Board Policy III.G. Postsecondary Program Approval and Discontinuance – First Reading

Dr. Bliss said in August 2021, the Board approved a major revision to Board Policy III.G. Postsecondary Program Approval and Discontinuance. This revision restructured the policy to include three levels of review, based on the nature of requested programmatic changes: full proposal, short proposal, and letter of notification.

After the second reading was approved, Board staff identified an unintended conflict in the policy that cannot be handled as a minor technical correction. Specifically, there is an error in the recently adopted revision of Board Policy III.G that duplicates language in two places:

• Under 3.b.xi, Actions Requiring a Short Proposal Establishment of a dual degree from existing programs with a financial impact of less than \$250,000 per fiscal year.

Draft Minutes December 15, 2021

• Under 3.c.iv, Actions Requiring a Letter of Notification Establishment of a dual degree from existing undergraduate or graduate programs with a financial impact of less than \$250,000 per fiscal year.

The original intent was to have this type of action under the Short Proposal process, not the Letter of Notification process. Other amendments include clarifying procedures for the discontinuation of undergraduate and graduate certificates and clarifying roles for the State Administrator and Executive Director for approval of career technical programs in accordance with Section 33-2202 and 33-2205, Idaho Code.

Amendments will correct the erroneous conflict and duplicative language in the policy, removing confusion about what level of review is required for establishment of dual degrees from existing programs. Amendments will also provide institutions with the necessary procedures for discontinuing certificates and will align roles for program approval for the State Administrator and Executive Director in compliance with Idaho code.

## **BOARD ACTION**

M/S (Hill / Clark) I move to approve the first reading of proposed amendments to Board Policy III.G, Postsecondary Program Approval and Discontinuance, as submitted in Attachment 1. A roll call vote was taken, and the motion carried 8-0.

There were no comments or questions from the Board.

At this time the Board recessed for 45 minutes, returning at 12:33 p.m.

3. Online Idaho Update and Demonstration
This item was provided in the agenda materials as an information item.

Board President Liebich began by saying that Online Idaho has transitioned from a Board-led initiative to an interinstitutional collaboration toward radical affordability, reliable access, and educational agency for online learners. The consortia model endorsed by the Board in June 2020 endures because it celebrates the unique strengths of Idaho's higher education community: the already robust portfolio of fully online courses and programs collectively available across Idaho's eight public colleges and universities continues to grow; radically affordable learning pathways are emerging between colleges and universities; administrative processes are becoming less onerous as institutions consolidate efforts and understanding; and a sustainable understanding

Draft Minutes December 15, 2021

of "systemness" is emerging as Idaho institutions endeavor to reach every adult Idahoan with meaningful postsecondary opportunities.

Dr. Jonathan Lashley, Associate Chief Academic Affairs Officer, Idaho State Board of Education gave an update on Online Idaho's first year in operation.

## The Core Goals of Online Idaho

- 1. Increase access, affordability, and agency and
- 2. Map the future of online learning in Idaho.

## The Vision of Online Idaho

Online Idaho is a digital learning consortium that is collaboratively driven by public institutions to increase access to postsecondary learning opportunities, accommodate all learners regardless of their circumstances, advocate for the recognition of effective online educators, promote exceptional online learning practices, and pioneer improved advising pathways toward lifelong learning.

## Working Goals:

#### Access

- 1. Online learning becomes a meaningful option for every postsecondary student in Idaho
- 2. Support the general public and public/private decision makers in becoming effective champions of online, open, blended, and accessible teaching and learning in Idaho

## Affordability

- 1. Joint degree pathways, consolidated infrastructure, system-like purchasing power, and resource sharing result in radically affordable postsecondary learning experiences
- 2. Public institutions develop lifelong learning relationships with Idahoans through consolidated marketing, communication, analytics, reporting, and advising efforts

## Agency

- 1. Transparent, stackable pathways toward credentials emerge within and between institutions
- 2. Through regular statewide meetings, the academic community shares expertise that informs and continuously improves common standards for effective design and delivery of online courses

For the 2021-2022 Academic Year this will be the roadmap moving forward.

Draft Minutes December 15, 2021

- Complete exchange implementation and soft launch registration
- Design and deliver training for advising staff at each institution
- Launch interinstitutional cybersecurity pathways

## **SPRING 2022**

- Statewide marketing push to support summer/fall registration
- Define system-wide expectations for course exchange participation

## SUMMER 2022

Formalize long-term sustainability model for Online Idaho

To ensure success the following course exchange walkthroughs will happen.

- Student Experience and course-level information
- Administrative portal and reports
- Cyber Security degrees, certificates, and pathways

#### First Year Outcomes

## Engagement

- Institution-led steering committee
- Weekly open "office hours"
- Strategic planning and promotion

#### Administration

- New consortium agreements
- New joint programs and degrees
- New distributed support models

## Interoperable Technology

- Common LMS adoption and support
- Interoperable technology pilots and adoption

## **Professional Development**

- Statewide OEN membership
- Statewide OLC membership + workshop passes
- Board staff development with OLC and UPCEA
- Exploring open resources in online education

## The Future of Online Idaho

- More multi-institution collaborations on programs and stackable, fully online pathways to credentials (academic and nonacademic)
- Fortified statewide conversations about continuing education partnerships between Idaho employers and public institutions
- New and/or updated Board and institution policies for online education that reflect consortial infrastructure and practices

Draft Minutes December 15, 2021

- Experimentation with exchange pricing and consortial purchasing
- Leadership in interstate course sharing networks in Cybersecurity, Agriculture, and more

After his report Dr. Lashley did a demonstration of how Online Idaho works (<a href="https://online.idaho.edu/">https://online.idaho.edu/</a>).

Dr. Lashley ended by saying that the Board will most likely need to have policies concerning online learning to help formalize the foundation that will keep online learning moving forward in Idaho.

Superintendent Ybarra asked for clarification on the transferability mentioned during the demonstration. Does this mean that if a student tries to get into a class at their institution and the class is full, will Online Idaho be an option for students to still be able to take the class from anywhere and stay on track at their institution. Dr. Lashley said yes, this is what other states have found.

Dr. Hill said the institution registrars also came together to fix the Financial Aid issue. Students do not need to apply at each institution for financial aid in order to take any of these classes; financial aid assistance will stay within their enrolled school.

Dr. Lashley said the institutions decide what courses get put into Online Idaho, which leads to a shared infrastructure.

Superintendent Ybarra asked when this will be ready. Dr. Lashley said Quotty is building this shared infrastructure and should have it ready by the Spring – Fall 2022 semesters.

Dr. Clark asked if the GEM courses will be the bulk of the course offerings. Dr. Lashley said yes, that was the case. There are currently 11,000 courses available right now.

Mrs. Roach asked about scholarship students and their financial aid. Dr. Lashley said scholarship students are not part of the scope at this time but expanding the program is possible in the future.

Dr. Hill asked about the quality of classes being offered. Dr. Lashley said every institution has a mechanism in place to ensure that the courses being offered are quality offerings. However, this would be the perfect time for the Board to develop additional policies to state what the baseline quality for these courses should be.

Dr. Hill asked about dual credit students. Dr. Lashley said as part of the plan, it would leverage the same infrastructure so dual credit students could be a part of this program someday.

Draft Minutes December 15, 2021

Mr. Gilbert asked if Quotty provided information about their business growth since they are new and small. Dr. Lashley said Quotty is growing quickly, and the Committee felt comfortable in allowing them to develop the framework for Online Idaho.

President Tromp said nationally the largest population who have benefited from using online learning are women in their 30's with small children. This education opportunity is invaluable in getting more people educated.

Dr. Bliss added that Idaho tuition is very low compared to other states which may benefit our institutions as students from other states can access these courses.

There were no further comments or questions from the Board.

 North Idaho College – Northwest Commission on Colleges and Universities' Investigation of Complaints

This item was provided in the agenda materials as an information item.

Ms. Keough led a discussion about the continuing conversations and concerns that have arisen about North Idaho College.

Board President Liebich stated that teachers and students should not worry that accreditation would be withdrawn quickly. A thorough investigation will be conducted by the accreditation team when they visit NIC on January 18, 2022, and recommendations would be made then. No loss of accreditation is imminent.

Dr. Clark asked if there were any members of the Legislature who were concerned enough about this issue to want to draft new legislation. Mrs. Keough said yes, she has been in touch with a couple of Legislators who would like to get together after the first of the year to talk about drafting new legislation concerning this issue that would be part of statue.

There were no further comments or questions from the Board.

#### STATE DEPARTMENT OF EDUCATION

Development in K-12 Education
 This item was provided in the agenda materials as an information item.

Superintendent Ybarra gave an update on K-12 education specifically talking about the following three activities.

**School Operational Status Portal** 

Draft Minutes December 15, 2021

US Department of Education had asked for what schools were open for in person learning, and which were operating as hybrid. SDE staff have been working on the reporting for this. The full report can be seen at <a href="https://www.sde.idaho.gov/re-opening/index.html">https://www.sde.idaho.gov/re-opening/index.html</a>.

## **Student Advisory Council**

The team met most recently on December 6, 2021. A topic of most importance to them is helping fellow students who have dyslexia.

The students are very interested in having both Governor Little and Board President Liebich come and speak to them at a future Student Advisory Council meeting.

## **Report on Recent Conferences**

At a recent conference of chief state school officers' discussions centered around the following topics; learning loss, relief funds expenditures, staffing shortages, accountability and assessment, the mental health and wellbeing of Idaho students.

There were no comments or questions from the Board.

## 2. ARP Act ESSER State Plan Amendment

Karen Seay, Director, Federal Programs, State Department of Education, spoke on the State Plan Amendment. She said today's review deals with the changes made to C1. Attachment 2, Tab 2, pages 18-19 specifically detail how ARP ESSER funding will help children in the foster care system and those in the juvenile justice system. Foster Care Stakeholders meet quarterly and is comprised of LEA liaisons, health and welfare regional supervisors and local community organizations.

This working group feels the following are the most critical use of ARP ESSER funds.

- 1. Reduce chronic absenteeism and improve re-engagement strategies
- 2. Meet unfinished learning needs and gaps
- 3. Support credit recovery options
- 4. Meet the social emotional needs of students
- 5. Engage students' career technical education programs
- 6. Offer community based after school programs
- 7. Provide summer enrichment programs

#### **BOARD ACTION**

Draft Minutes December 15, 2021

M/S (Ybarra / Clark) I move to approve the amendments to the Idaho ARP ESSER SEA State Plan as provided in Attachment 2 and authorize the Board President to sign the ARP ESSER SEA State Plan as the representative of the State Education Agency. A roll call vote was taken, and the motion carried 8-0.

Dr. Clark asked if the State Board staff participated in these meetings. Ms. Seay said no, they did not.

There were no further comments or questions from the Board.

3. Elementary Secondary Education Act – Consolidated State Plan Amendment This item was provided in the agenda materials as an information item.

Superintendent Ybarra said this agenda item will provide the Board with an update on proposed changes to Every Student Succeeds Act (ESSA) Consolidated State Plan. Proposed updates will take effect during the current 2021-2022 school year (exit criteria) and for the 2022-2023 school year (identification criteria). Idaho may not implement these changes until the amendment has been approved by USED.

Karen Seay, Federal Programs Director, State Board of Education asked the Board to reference the slide presentation found at Attachment 1, Tab 3, page 1 - 14. Ms. Seay highlighted the following in her presentation.

Proposed changes are needed to address state accountability changes, small technical corrections, and gather feedback on improving metrics and identification methods. The goal is to finalize potential changes for stakeholder review and Board approval for submission to USED by February 2022. The last plan amendment was June of 2019. Areas of change for consideration:

- 1. Revise the current Exit Criteria for Comprehensive Support and Improvement, Underperforming schools reflecting the school is no longer identified in the bottom 5% and is above the 10th percentile (currently 20th percentile) in proficiency for both ELA and Math. This exit criterial was originally set without sufficient data and the 20<sup>th</sup> percentile is too high.
- 2. The current growth model is trajectory towards proficiency three years in the future. This model does not adequately reward growth.
- 3. For targeted support and improvement (TSI), schools can be identified in any (Comprehensive Support and Improvement (CSI) metric and student group

Draft Minutes December 15, 2021

based on gap of 35 percentage points or more for three consecutive years. Overidentification is a concern.

4. More rigorous interventions are required under ESSA for schools that do not exit CSI and therefore are re-identified. The first time this will occur is summer of 2022, after spring 2022 ISAT results are analyzed.

The original goal was to reduce the percentage of students not proficient/not making progress/not graduating by one-third over six years. Idaho has not come close to meeting these goals since original goals were set without meaningful data.

Discussion ensued about the lack of data surrounding the issues raised during this presentation. Having access to better data could assist in developing a plan to bring Idaho closer to goals.

There were no further comments or questions from the Board.

At this time the Board took a 10-minute break, returning at 2:55 p.m.

English Language Learner Assessment – Update
 This item was provided in the agenda materials as an information item.

Superintendent Ybarra said this agenda item will provide the Board with an update on the English Learners program, including student proficiency data. She then referenced Attachment 1, Tab 4, pages 1-4, and Attachment 2, Tab 4, pages 1-4.

Listed Recommendations for Program Progress are:

- 1. Increase professional development opportunities for general education teachers who work with EL students.
- 2. Continue to collaborate with certification department to promote EL endorsements and teachers of color.
- Provide curricular support and professional development for learning loss during COVID-19.

Board President Liebich said, based on the data presented in Attachment 2, Tab 4, page 2, it clearly shows the pandemic had a real impact on ELA students' progress.

Mr. Freeman asked if the recommendations listed at the end of the slide presentation go to the Board or to the Legislature. Superintendent Ybarra said they should be addressed by the Department in working with the school districts.

There were no further comments or questions from the Board.

Draft Minutes December 15, 2021

5. Statewide Reading Assessment –Update
This item was provided in the agenda materials as an information item.

Kevin Chandler, Director, Assessment and Accountability, State Department of Education, gave an update on student Idaho Reading Indicator (IRI) results. He reported the following.

The Fall 2021 IRI test was given in person with a remote option being available for those students who wanted it. Overall 90,094 valid tests were received.

The results showed the following data concerning Idaho students.

- Fifty one percent of all students were reading at grade level in Fall 2021.
- Between Fall 2020 and Fall 2021 there was a small rise in the number of students who were reading at grade level. The numbers rose from 49.6 percent (Fall 2020) to 51 percent (Fall 2021).
- When reviewing the data per grade, those in 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> grade showed a slight increase in reading scores. The only decline was in kindergarten students who went from 43.4 percent (Fall 2020) to 40.8 percent (Fall 2021).
- Overall IRI performance across all four grades recovered nearly 1.5
  percentage points in Fall 2021 over the prior year's decline of more than 5
  percentage points.
- A similar pattern of recovery in Fall 2021 following the decline in Fall 2020 appeared for all Grades 1 through 3, with the strongest recovery appearing among 1<sup>st</sup> graders.
- Kindergarten students manifested an opposite trend where the proportion reading at grade level rose by about 1 percentage point in Fall 2020 only to decline by about 2.5 points in Fall 2021.

Mr. Chandler imparted that as SDE reviews the results, there are a few key considerations to keep in mind.

- Although they compared Fall 2020 with Fall 2021 results, the two results come from different student cohorts.
- The fall 2021 to spring 2022 comparison for students will be critical to help understand actual growth and end-of-year reading proficiency among the 2021 cohort of K-3 students.

Draft Minutes December 15, 2021

 Preliminary findings indicate some learning loss in 2020 because of the COVID-19 disruptions and continued monitoring will tell whether, and by how much students' reading skills are recovering.

Board President Liebich said this data highlights why this issue is one of the Board's top three priorities. Dr. Clark said of special note to her is the 60 percent of kindergartens who came into this school year and were not at grade level. Those students will play catch up all their academic life.

There were no further comments or questions from the Board.

6. Professional Standards Commission (PSC) – Annual Report This item was provided in the agenda materials as an information item.

Dr. Bethani Studebaker, Director, Certification and Professional Standards, State Department of Education, spoke about the scope of the PSC. The commission is made up of 18 members appointed by the State Board of Education. Membership is made up of individuals representing the teaching profession in Idaho, including a staff person from the Department of Education and the Division of Career Technical Education. No less than seven members must be certificated classroom teachers, of which at least one must be a teacher of exceptional children and one must serve in pupil personnel services. The purpose of the Professional Standards Commission is to make recommendations regarding professional codes and standards of ethics to the State Board of Education and is authorized to investigate complaints regarding the violation of such standards and makes recommendations to the Board in areas of educator certification and educator preparation standards.

Dr. Studebaker further shared the following.

- There were 851 teacher authorizations made by the committee during the 2020-2021 school year.
- There were 20,673 total certificated educators employed statewide during the 2020-2021 school year.
- The percentage of educators working with an alternative authorization was 4.12 percent.
- During 2020-2021, the PSC received 39 written complaints of alleged educator ethical misconduct, out of which 24 cases were opened.
- There were 36 cases closed during 2020-2021.
- Twenty-five cases probable cause found with disciplinary action taken
- Eleven cases no probable cause found.

Draft Minutes December 15, 2021

Ten of the 36 cases were for educators employed as an administrator.

## The scope of the PSC is:

- Usually reviews 20 percent of the educator preparation standards and endorsements each year.
- Upon the written request of the House and Senate Education Committees in March 2020, a full review of all educator preparation standards and endorsements was conducted, and the full review was completed April 2021
- An Educator Standards Working Group, which included Standards Committee members and other members of the PSC, was convened to complete the full review and draft proposed revisions.
- The work of the Educator Standards Working Group is anticipated to culminate in a rulemaking action for consideration by the House and Senate Education Committees in 2022.
- Completes educator preparation program reviews. The following program reviews were completed during 2020-2021:
  - University of Idaho CAEP & State Team Review
- Completes educator preparation new program proposal desk reviews. The following new programs for certification were reviewed and approved by the State Board of Education during 2020-2021:
  - Northwest Nazarene University Exceptional Child, Teacher Leader – Instructional Specialist, Teacher Leader – Special education
  - University of Idaho Theater Arts

There were no comments or questions from the Board.

7. Federal Coronavirus Relief Funding Update
This item was provided in the agenda materials as an information item.

Karen Seay, Director, Federal Programs, State Board of Education said this agenda item provides the Board with a high-level update on the most recent information on the COVID-19 relief funds. Ms. Seay imparted the following updates on relief funds expenditures.

The percentage of funds expended in the GRA for the flow through amounts, only for the three ESSER grants, as of December 14, 2021 are:

Draft Minutes December 15, 2021

- 1. 92.7 percent of the Coronavirus Aid, Relief, and Economic Security Act (CARES Act) money have been expended.
- 2. 31.03 percent of the Coronavirus Response and Relief Supplemental Appropriations Act (CRRSA Act) monies have been expended and
- 3. 6.36 percent of the American Rescue Plan Elementary and Secondary School Emergency Relief (ARP ESSER) funds have been expended.

For a more complete review of the Local Education Agency (LEA) ARP ESSER Use of Funds Plan please reference the State Department of Education website at; <a href="https://www.sde.idaho.gov/federal-programs/prf/american-rescue-plan/index.html">https://www.sde.idaho.gov/federal-programs/prf/american-rescue-plan/index.html</a>

The State Department of Education has outlined a few concerns with the ESSER reporting. The largest of which is the burden statement which indicates each state, and each LEA will need 140 hours to collect and submit the proposed data. Superintendent Ybarra provided feedback with significant concerns relating to this data collection requirement.

Governor Little's substitute grant closed at 5:00 p.m. (MT) on December 15, 2021. As of December 14, 2021, 87 percent of the grant funds have been drawn down. The grant earmarked \$10 million to recruit and retain critical staff and provide supplementary pay for hard-to-fill positions. The SDE tracked positions and staff numbers benefiting from these funds and that data will be coming to the Board at a future meeting.

There were no comments or questions from the Board.

### PLANNING, POLICY AND GOVERNMENTAL AFFAIRS

1. STEM Action Center – Annual Report
This item was provided in the agenda materials as an information item.

Dr. Kaitlin Maguire, Director, Idaho STEM Action Center gave an update on the center's activity over the past year.

Some of the presentation highlights were:

- Nineteen of the twenty hot jobs in Idaho require STEM skills.
- That number is expected to grow by 16.3 percent by 2029.
- Idaho STEM jobs pay nearly twice the median wage of non-STEM jobs.
- Idaho's Tech Sector is the third fasting growing in the nation at 4.2 percent.
- Within 10 years, ninety percent of jobs will require digital skills.

Draft Minutes December 15, 2021

#### STEM's Mission

Advance innovative STEM opportunities for educators, students, communities, and industry to build a competitive Idaho workforce and economy.

#### STEM's Vision

A diverse STEM-literate Idaho workforce to support the long-term economic prosperity of Idaho.

### STEM's Goals

- 1: Increase awareness of the importance of STEM+CS throughout Idaho
- 2: Advance equitable access to high-quality STEM+CS opportunities for educators, students, and communities
- 3: Align education and workforce needs throughout Idaho

Schools that wish to be designated as STEM schools can apply for a \$10,000 grant per year up to 5 years. Currently there are 6 designated schools, and 5 schools are scheduled to be reviewed this school year.

Mrs. Roach asked if the state is currently tracking how many students are acquiring STEM diplomas. Dr. Maguire said that data is not currently being tracked.

There were no further comments or questions from the Board.

## 2. Next Steps Idaho Update

This item was provided in the agenda materials as an information item.

Sara Scudder, Outreach Team Senior Program Manager, Idaho State Board of Education began her update by saying the Next Steps website was initially developed to provide resources for students in grades 8 through 12, their parents, and the educators that help to support these students. Ongoing development and expansion of the website to include an adult audience has been done through a systematic approach of researching not only those tools most meaningful to the target groups but also through gathering user feedback. Due to this systematic approach, the website has seen expanded usage.

### **Next Steps Idaho Vision**

Create a college and career planning tool that is easily delivered, highly visible and widely used by Idahoans.

www.boardofed.idaho.gov

Draft Minutes December 15, 2021

## **Next Steps Idaho Goals**

- 1. Seamlessly incorporate career development resources on the Next Steps Idaho site.
- 2. Increase ability to meet and respond to stakeholder needs.
- 3. Engage students and professionals (counselors, advisors) with Next Steps Idaho.
- 4. Expand marketing and outreach.
- 5. Strategically engage business and partner agencies.

Since the relaunch of Next Steps Idaho in September 2020, enhanced navigation, expanded resources for adult users, and new career and college tools have produced substantial usage.

- 1. Over 230,000 user sessions produced 750,000-page views with an average session duration of 5.5 minutes very high by industry standards.
- 2. January 2021 will see the launch of student portfolios.
- 3. Students from 8th through 12th grade will be able to create a portfolio of career and college activities, interests, and assessments that will follow them from year to year and school to school.
- 4. Adults will also be able to create portfolios to support their career and education interests.

There were no comments or questions from the Board.

### 3. Community College Trustee Zones

Tracie Bent, Chief Policy and Planning Officer, Idaho State Board of Education, said pursuant to Section 33-2104A, Idaho Code, a proposal to redefine the boundaries of trustee zones of a community college district shall be initiated by its board of trustees at the first meeting following the report of the decennial census or following the electors' approval of the addition of territory pursuant to section 33-2105, Idaho Code. The board of trustees shall submit the proposal to the state board of education within one hundred twenty (120) days following the decennial census or election. The proposal shall include a legal description of each proposed trustee zone, a map of the district showing how each proposed trustee zone would appear and the approximate population each zone would have should the proposal to change the boundaries of the trustee zones become effective.

Draft Minutes December 15, 2021

At the time of agenda production the College of Southern Idaho's board of trustee zone boundary was ready for submission. The rest of the College trustee zones will be brought forward to the Board at a future meeting.

The College of Southern Idaho's proposal uses the 2020 Census data, has no population variances more than 10 percent from any other trustee zone, the proposal completely accounts for all areas within the district boundary, and a licensed professional has certified their legal descriptions.

#### **BOARD ACTION**

M/S (Clark / Hill) I move to approve the College of Southern Idaho's trustee zone boundary rezoning proposals as submitted in Attachment 1. A roll call vote was taken, and the motion carried 8-0.

There were no comments or questions from the Board.

4. Temporary Rule – IDAPA 08.02.01 – Average Daily Attendance

Dr. Clark said approval of the temporary rule, Docket 08-0201-2103, would allow averaging of the FTE student enrollment numbers to be used for calculating average daily attendance for FY 2022.

Ms. Bent said this temporary rule will require the Governor's approval to move forward. Further Ms. Bent said Section 33-1002, Idaho Code, authorizes the Board to set through Administrative Code the methodology for how attendance will be reported for calculating average daily attendance as it applies to public school funding. For the 2020-2021 academic year, in response to the COVID-19 pandemic and the disruption to in person learning, the Board approved a temporary rule allowing the FTE student enrollment methodology established in IDAPA 08.02.01 to be used for reporting attendance for calculating Average Daily Attendance (ADA). On average, statewide, daily school attendance rates run around 95%, meaning on any given day, about 95% of enrolled students are in attendance. Due to the ongoing impacts of the pandemic, schools have reported attendance rates as low as 80%. School districts and charter schools have indicated much higher instances of students being out sick at much higher rates than normal or remaining home due to quarantining. As a result of the lower daily attendance rates and the negative impact this will have on public school funding. several school district administrators and charter schools have asked the Board to consider approving another temporary rule allowing FTE student enrollment to be used for calculating ADA for the 2021-2022 school year.

Draft Minutes December 15, 2021

Matt Freeman reminded the Board that Temporary Rules expire when the Legislature calls Sine Die.

### **BOARD ACTION**

M/S (Clark / Keough) I move to approve the temporary rule Docket 08-0201-2103, allowing average student FTE enrollment to be used for calculating average daily attendance, as submitted in Attachment 1. A roll call vote was taken, and the motion carried 8-0.

There were no comments or questions from the Board.

There being no further business a motion to adjourn was entertained.

M/S (Hill / Roach) I move to adjourn the meeting at 4:29 p.m. (MT). A roll call vote was taken, and the motion carried 8-0.

Draft Minutes January 6, 2022



# STATE BOARD OF EDUCATION MEETING SPECIAL BOARD MEETING DRAFT

January 6, 2022 Idaho State Board of Education OSBE Conference Room 650 West State Street, Suite 307 Boise, ID 83720

A special meeting of the Idaho State Board of Education was held via Zoom teleconference January 6, 2022, with the call originating from the Office of the State Board of Education in Boise. Board President Kurt Liebich called the meeting to order at 2:00 p.m. (MT).

### Present

Kurt Liebich, President Dr. Dave Hill, Vice-President Dr. Linda Clark, Secretary Shawn Keough Bill Gilbert Cally J. Roach Superintendent Sherri Ybarra Cindy Siddoway

### Absent

None

Thursday, January 6, 2022, 2:00 p.m. (Mountain Time)

### **BUSINESS AFFAIRS AND HUMAN RESOURCES**

- 1. University of Idaho Multi-Year Employment Agreement Head Football Coach
- C. Scott Green, President, University of Idaho, said the proposed contract is for an approximate five-year term, terminating on January 31, 2027. Compensation under the contract will consist of an annual base salary of \$175,000 with the ability to participate in University-wide changes in employee compensation. The contract also provides for an annual \$125,000 media payment; a courtesy car or automobile allowance; and supplemental compensation in the form of incentive payments for academic

Draft Minutes January 6, 2022

achievements and athletic achievements. The contract contains a liquidated damages clause in the event either party seeks to terminate the contract early for convenience.

This contract is in line with other contracts held by other Head Football Coach's at the other Big Sky Conference schools.

### **BOARD ACTION**

M/S (Hill / Clark) I move to approve the multi-year contract with Jason Eck for the position of University of Idaho Head Football Coach in substantial conformance to the proposed contract submitted in Attachment 1. A roll call vote was taken, and the motion carried 8-0.

Board President Liebich asked if the 5-year contract is standard and is the media piece guaranteed or is it performance based. President Green said the answer was yes, and the media piece is a guaranteed part of the contract.

There were no further comments or questions from the Board.

 Lewis-Clark State College – Surrender of Radio Station License and Frequency – Action Item

Andrew Hanson, Vice-President for Student Affairs, Lewis-Clark State College, said Lewis-Clark State College (LCSC) purchased a radio station license and equipment from Lewiston High School in 2003 for \$5,000. Recent changes in Federal Communication Commission (FCC) regulations concerning the method for filing station activity reports created a situation in which LCSC was not in compliance. This noncompliance prompted LCSC's review of the continuation of the operation. Due to noncompliance with activity reporting, LCSC has the option to either surrender the license and radio frequency (88.9 FM) or confirm its intention to comply with the FCC reporting guidelines and create a comprehensive compliance plan. LCSC has until January 5, 2022 to either surrender the license or sign a consent decree indicating our intention to comply with reporting. The College may surrender the license at any time subsequent to filing the consent decree. Based on staffing considerations, changes in students' interfaces with various media, and the fact the radio station is among many co-curricular amenities made available to LCSC students, the College wishes to divest itself of the radio station license. The value of the license is anticipated to be similar to the cost of purchase (\$5,000) at most as other forms of broadcasting such as internet streaming have created market competition. This revenue might be realized if the College were to sell the license; however, no revenue will be generated if the College surrenders the license. Instead, the license will be made available to other entities through the FCC. LCSC will submit the decree on or before January 5, 2022 to meet the required FCC deadline as Board review to surrender the license is subsequent to this date.

Draft Minutes January 6, 2022

#### **BOARD ACTION**

M/S (Hill / Gilbert) I move to approve the request from Lewis-Clark State College to dispose of their radio station license and frequency either by surrender to the FCC or to transfer it to another Idaho public post-secondary institution and to authorize Lewis-Clark State College's Vice President for Finance and Administration to execute all of the necessary documents. A roll call vote was taken, and the motion carried 8-0.

Mr. Gilbert asked for more information on what the transfer of this license to another institution might look like. Mr. Hanson said the FCC told LCSC if they kept the license, they would have 30 days to get into compliance. If another institution absorbs the license, they would be responsible for getting that compliance in order. If this motion is approved by the Board, LCSC will reach out to the other public post-secondary institutions in Idaho to see who might be interested in the transfer of this license.

Mr. Gilbert asked if any other institution was currently interested. President Pemberton said this motion will give another Idaho institution a second FCC license instead of having to wait 7 years for another license opportunity, hence the revamped Board Action. The transfer of the license was also time sensitive with a deadline of January 5, 2022. But at this time she was not aware of any interest from another institution.

There were no further comments or questions from the Board.

### PLANNING, POLICY AND GOVERNMENTAL AFFAIRS

1. Community College Trustee Zone Boundaries – Action Item

Tracie Bent, Chief Policy and Planning Officer, Idaho State Board of Education, said the College of Eastern Idaho's proposal does not meet the equalization criteria of no more than a 10 percent variance in population between zones. Pursuant to Section 33-2104A, Idaho Code, if the Board does not approve a proposal the community college has 45 days to submit an amended proposal. The College of Eastern Idaho will present corrected data at the February 2022 Board meeting.

### **BOARD ACTION**

M/S (Clark / Keough) I move to reject the College of Eastern Idaho's trustee zone boundary legal descriptions submitted in Attachment 1. A roll call vote was taken, and the motion carried 8-0.

AND

Draft Minutes January 6, 2022

M/S (Clark / Keough) I move to approve the North Idaho College trustee zone boundary legal descriptions as submitted in Attachment 2. A roll call vote was taken, and the motion carried 8-0.

There were no comments or questions from the Board.

2. ARP ESSER Fund - SEA 10% Set Aside Funding – Action Item

Dr. Clark said the last agenda item deals with the set aside funding received from the American Rescue Plan (ARP). Further, the Unfinished Learning Work Group's recommendations focus on the three areas the Board identified as priority areas for addressing the student impacts due to the pandemic. The three areas of focus are:

- Accelerated Learning/Grow Kindergarten Grade 4 Literacy
- Accelerated Learning Grades 4-9 Mathematics
- High School Credit Recovery.

Dr. Clark said this proposal should help to level the playing field especially in the rural districts. At the October 2021 Regular Board meeting, the Board approved recommendations for funding an accelerated learning mathematics collaborative and setting the methodology for distributing 2.5 percent of the funds to LEAs that received low or no funds based on the US Department of Education Title I methodology used for distributing the 90 precent of the funds to the LEAs. This request is to earmark an additional \$1.6M for a statewide professional development platform over the next two years the funds are available; \$100,000 to contract for the development of a dyslexia handbook in alignment with the work of the Dyslexia Workgroup. This handbook will help in providing tools to educators on accelerating learning for this group of students; and \$20M to aid in enhancement to ISEE to held in the collection and reporting of data from the LEAs as required by the ARP Act ESSER Fund. In addition to these three funding requests the STEM Action Center has submitted a request for \$4.4M toward a Summer Learning Program, the program would be a collaboration between the STEM Action Center, the Idaho Commission for Libraries, and the Idaho Out-of-School Network. While the majority of this work is targeted toward a summer learning and enrichment program the work would also be leveraged and made available for after school programs.

Approval of these requests would allow the Office of the State Board of Education to direct funding, up to the amounts specified for these initiatives. All state procurement laws will be followed in the selection of applicable vendors prior to the distribution of funds.

Draft Minutes January 6, 2022

### **BOARD ACTION**

M/S (Clark / Hill) I move to approve up to \$1.6M of the ARP ESSER SEA set aside funds for use toward a statewide professional development and mentoring platform; up to \$20M for use toward ISEE enhancement for collection and reporting data required by the ARP ESSER Act; \$4.4M toward the Summer Learning initiative in substantial conformance to Attachment 1; and \$100,000 toward the development of a dyslexia handbook and to authorize Board staff to direct the use of these funds. A roll call vote was taken, and the motion carried 8-0.

Mr. Gilbert asked about the draw down of the funding. Dr. Clark said the ISEE system is the data system for the state. It's the way Idaho collects data from the school districts on attendance and enrollment. As a part of this ESSER plan, Idaho said it would update the ISEE system specifically to meet the data requirements as outlined by the US Department of Education. Matt Freeman, Executive Director, Idaho State Board of Education, said the Governor set aside \$360,000 in GEER money to hire a consultant to do a gap analysis to see what exactly needs to happen prior to the ISEE system enhancements. They will also develop the RFP for the vendor selection. Mr. Gilbert said he hoped the consultant's recommendation would come back to the Board before moving forward. Tracie Bent said part of the consultant's mandate would be to bring together the stakeholders involved to get their input and take those recommendations into account before moving forward.

Dr. Clark mentioned the dyslexia handbook which is part of this Board Action and said that Idaho will need Legislative help in developing legislation to deal with dyslexia.

There were no further comments or questions from the Board.

At this time Board President Liebich introduced Matthew Reiber to the members of the Committee. Mr. Reiber is the new Senior Advisor for Education to Governor Brad Little.

There being no further business a motion to adjourn was entertained.

M/S (Keough / Ybarra) I move to adjourn the meeting at 2:37 p.m. (MT). A roll call vote was taken, and the motion carried 8-0.

Draft Minutes January 6, 2022



# STATE BOARD OF EDUCATION MEETING SPECIAL BOARD MEETING DRAFT

January 13, 2022 Idaho State Board of Education OSBE Conference Room 650 West State Street, Suite 307 Boise, ID 83720

A special meeting of the Idaho State Board of Education was held via Zoom teleconference January 13, 2022, with the call originating from the Office of the State Board of Education in Boise. Board President Kurt Liebich called the meeting to order at 4:00 p.m. (MT).

### Present

Kurt Liebich, President Dr. Dave Hill, Vice-President Dr. Linda Clark, Secretary Shawn Keough Bill Gilbert Cally J. Roach Superintendent Sherri Ybarra Cindy Siddoway

### Absent

None

Thursday, January 13, 2022, 4:00 p.m. (Mountain Time)

### PLANNING, POLICY AND GOVERNMENTAL AFFAIRS

School District Trustee Zone Boundaries – Action Item

Dr. Clark explained pursuant to Section 33-313, Idaho Code, any proposal to define the boundaries of the trustee zones in a school district must include the determination of the number of trustee zones and the date of expiration of the term of office for each trustee. Any proposal must also include a legal description of each trustee zone, a map of the district showing how each trustee zone would then appear, and the approximate population each trustee zone would have should the proposal become effective.

Draft Minutes January 6, 2022

The Board has sixty (60) days after it has received a proposal to approve or disapprove the proposal. Should the Board disapprove a proposal, a board of trustees has forty-five (45) days to submit a revised proposal to the Board for consideration. Following approval of any amended trustee zones, the approved legal description of each trustee zone and map of the district showing how each trustee zone will appear must be filed by the school district board of trustees with the applicable country clerk. The Idaho 2020 Census Data was released on August 12, 2021, so the 120-day deadline was December 10, 2021. The Board received the proposals from the State Department of Education on January 5, 2022. The Board has 60 days after receiving the proposals to take action.

Of the six (6) districts requesting exceptions to the requirements:

- Three (3) of these districts are chartered districts. Chartered school districts have charters that predate statehood and are subject to the terms of their charter. Charter districts' charters may state that the district is treated as one zone and the trustees are elected at-large. These districts' trustee zone boundaries should be approved based on the requirements of their charter. These same exceptions were granted ten (10) years ago. The chartered districts are Boise, Emmett, and Lewiston.
- Two (2) districts split census blocks. However, all the split census blocks contain zero population. The split of the blocks made it easier to write the legal descriptions and does not impact the 10% variance requirement. Those districts are Arbon and Avery.
- One (1) district has asked to exclude the prison population in their district. The people in the prison are not taxpayers in the district, do not vote in the district, and while the number of people in the prison remains constant, the actual people are not the same people from day to day. Furthermore, they will not remain in the district once they are released from the prison. The prison has provided written verification of the population. This same exception was granted ten (10) years ago. That district is Cottonwood.

Two (2) districts are not recommended for approval, North Gem School District and West Jefferson School District. North Gem School District submitted a map without the required legal descriptions of the proposed trustee zones. Based on the map submitted, census blocks are split. They have not provided to date an explanation of how they will determine in which zone trustees resides. West Jefferson School District has submitted a map with several split census blocks. The school district is working on providing additional information regarding the split blocks but were not able to update their proposal in time for this Board meeting. Rejection of the North Gem and West Jefferson School District proposals will give each district an additional 45 days to resubmit their proposals.

Draft Minutes January 6, 2022

Five school districts have evaluated their populations and found that they are still equalized based on the 10 percent variance set by the Board at the April 5, 2021 Special Board meeting. These school districts are Blackfoot, Gooding, Jerome, Lake Pend Oreille, and Wallace. They have no changes to their school district trustee zone boundaries and do not require additional approval.

### **BOARD ACTION**

M/S (Clark / Hill) I move to approve the Idaho school districts' trustee boundary rezoning proposals legal descriptions for those school districts submitted in Attachment 1. A roll call vote was taken, and the motion carried 8-0.

#### AND

M/S (Clark / Hill) I move to approve the Idaho school districts' trustee zone boundary proposals legal descriptions for those school districts with exceptions as submitted in Attachment 2. A roll call vote was taken, and the motion carried 8-0.

#### AND

M/S (Clark / Hill) I move to reject the school district trustee boundary rezoning proposals for North Gem School District and West Jefferson School District. A roll call vote was taken, and the motion carried 8-0.

Board President Liebich asked for clarification on the three districts which are chartered districts; Boise, Emmett, and Lewiston. Karen Echeverria, Special Consultant, Idaho School Boards Association (IDSBA), said they were chartered because they were districts before Idaho became a state and they have no zones.

Board President Liebich asked that the following information be part of the minutes for use when discussing school district trustee zones in the future.

Ms. Echeverria imparted the following guidelines for hopefully streamlining this process in 10 years times.

She began by giving a short history. She said 10 years ago was the first time that IDSBA helped to assist with this project. Prior to that this work was all done using paper maps.

Several issues that complicated this process were:

- 1. The census bureau consolidated census blocks by creating 40 percent fewer blocks.
- 2. Allow for census blocks to be split if they contain zero population which allows for a cleaner map and easier legal descriptions.

Draft Minutes January 6, 2022

3. Require that zones be contiguous. Ms. Echevarria and her team were forced to use 'odd shaped' zones, but it would be easier if it were just a requirement.

Further, Ms. Echeverria said these simple added measures should help with this process in 10 years' time.

- 1. Be sure to budget for this project when your budgets are submitted on September 1, 2029. Statutorily, this is the responsibility of the State Board of Education. However if they are going to ask another agency to take on this project one of them needs to budget for it.
- 2. Continue to contract with one entity even if districts and charters choose to do the work on their own. She sighted the complication that arose between the Avery and St. Marie school districts, where the districts decided for themselves where the border was, and further review by the IDSBA realigned that boundary.
- 3. Assure the information (maps, legal descriptions, etc.) are retained. To be clear it is recommended to save both the maps and the legal descriptions, not one or the other. And the data needs to be kept in an easily accessible location for the next team who works on this project.

Ms. Echeverria further suggested working to amend HB136. That legislation was intended to allow small, rural, elementary districts to do away with zones and vote districtwide. This bill was not amended and so zones are still required.

There were no further comments or questions from the Board.

There being no further business a motion to adjourn was entertained.

M/S (Hill / Keough) I move to adjourn the meeting at 4:15 p.m. (MT). A roll call vote was taken, and the motion carried 8-0.

TAB	DESCRIPTION	ACTION
1	BAHR – BOISE STATE UNIVERSITY – ONLINE PROGRAM FEE - CERTIFICATE IN INTERVENTIONAL RADIOLOGY AND INTERVENTIONAL CARDIOLOGY	Action Item
2	BAHR – BOISE STATE UNIVERSITY – ONLINE PROGRAM FEE - CERTIFICATE IN RESORT OPERATIONS AND HOSPITALITY MANAGEMENT	Action Item
3	BAHR – BOISE STATE UNIVERSITY – MULTI-YEAR LEASE TO T-MOBILE FOR MOBILE COMMUNICATIONS ANTENNA	Action Item
4	BAHR – IDAHO STATE UNIVERSITY – ONLINE PROGRAM FEE - MASTER OF SCIENCE IN CLINICAL PSYCHOPHARMACOLOGY	Action Item
5	BAHR – UNIVERSITY of IDAHO – IN TIME TECH SERVICE CONTRACT	Action Item
6	PPGA – INDIAN EDUCATION COMMITTEE APPOINTMENT	Action Item
7	PPGA – STEM ACTION CENTER – STEM SCHOOL DESIGNATION	Action Item
8	PPGA – BOISE STATE UNIVERSITY – FACILITY NAMING	Action Item
9	SDE – PROFESSIONAL STANDARDS COMMISSION - EMERGENCY PROVINCIAL CERTIFICATES	Action Item

# **BOARD ACTION**

I move to approve the consent agenda.

CONSENT TOC Page i

#### **BOISE STATE UNIVERSITY**

#### **SUBJECT**

Certificate in Interventional Radiology and Interventional Cardiology

### APPLICABLE STATUTE, RULE, OR POLICY

Idaho State Board of Education Governing Policies & Procedures, Section III.G. and Section V.R.

### **BACKGROUND/DISCUSSION**

Boise State University (BSU) proposes to offer Interventional Radiology and Interventional Cardiology, a recently created fully online certificate utilizing an online program fee. This certificate will operate under the guidelines of Board Policy V.R. as it pertains to wholly online programs.

Interventional radiology is defined as a medical subspecialty that performs various minimally invasive procedures using imaging. This field of study addresses cardiovascular disease and cancer, as well as others, the leading causes of death in the United States. The workforce demand for trained interventional radiology professionals is stable and steadily increasing.

Boise State University's certificate in Interventional Radiology and Interventional Cardiology is a relevant option for health care professionals who have a degree but want to transition into interventional work. The certificate aligns with the American Registry of Radiologic Technologists (ARRT) certification. Additionally, recent changes to national boards require specialized education (i.e., proven completion of in-field education.) Working professionals may enroll in Boise State University's certificate track to earn credit to retain their jobs or seek an increase in salary.

This program is designed for students who are either already working in an interventional setting and need to obtain the required education to sit for their national boards or are trying to obtain the education they need to be hired into this role.

#### **IMPACT**

A report published by Indeed.com (Nov. 2020) shows that the American Registry of Radiologic Technology (ARRT) certification ranks #15 for the top 20 most indemand certifications in 2020. The certificate helps to fill a shortage of healthcare professionals. The need for healthcare services is increasing due to the aging population as well as the ongoing global pandemic. This need has been exacerbated by those leaving the profession due to burnout.

BSU will be offering this online certificate program at a very market competitive rate of \$395 per credit hour. Textbooks are bundled and used for multiple program

CONSENT - BAHR TAB 1 Page 1

courses to reduce costs. Students can finish this certificate in two semesters. The program will utilize existing personnel and courses from the Imaging Sciences program to implement this program. There are no other similar programs at Idaho public institutions.

The student fee will be in accordance with the Online Program Fee as defined in the Board Policy V.R.3.b.ii. The price-point of \$395 for the proposed online certificate aligns with other Imaging Sciences undergraduate online programs. The total credit hours required for the certificate is 21. The cost of the program would be \$8,295.00 (21 credits at \$395 per credit).

### **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

Boise State University has established a price point for this online, undergraduate certificate that is consistent with most of their similar programs. The certificate will allow students to demonstrate competencies, making them stronger candidates in industry. Staff recommends approval.

### **BOARD ACTION**

I move to approve the request by Boise State University to offer Certificate in Interventional Radiology and Interventional Cardiology to be offered online utilizing an online program fee model. The certificate program will charge an online program fee of \$395 per credit.

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Moved by	Seconded by	Carried Yes	NO

CONSENT - BAHR TAB 1 Page 2

#### **BOISE STATE UNIVERSITY**

#### **SUBJECT**

Certificate in Resort Operations and Hospitality Management

### APPLICABLE STATUTE, RULE, OR POLICY

Idaho State Board of Education Governing Policies & Procedures, Section III.G. and Section V.R.

#### **BACKGROUND/DISCUSSION**

Boise State University (BSU) proposes to offer Resort Operations and Hospitality Management (ROHM), a recently created fully online certificate utilizing an online program fee. This certificate will operate under the guidelines of Board Policy V.R. as it pertains to wholly online programs.

This certificate is responding to a need expressed by community leaders in McCall, and by Idaho businesses in recreation and the hospitality industry in general. Leaders in the McCall business community have identified a need to upskill the workforce and to increase access to educational opportunities for the next generation of local business leaders. This program will enable students to earn a certificate with an emphasis in real-life skills, knowledge, and tools for working in and leading Idaho's recreational and hospitality businesses.

This certificate program will be a natural extension to Boise State University's Community Impact Program. This certificate will also be integrated into the online Management BBA such that credits earned in the ROHM certificate will be transferable to the online Management BBA.

### **IMPACT**

The certificate will help stimulate the state economy by expanding access to resort operations and hospitality management skills and methodologies to students and community members. Graduates of the certificate will effectively contribute to the economic development of their communities.

Graduates of this certificate will be able to advance with their current employer, or grow in a new venture. The certificate will introduce students to the field of resort operations and hospitality management, or provide an introduction into the field for the person changing careers.

The program is expected to have 15 students on inception, due to the aforementioned relationship with various McCall, Idaho businesses, including Brundage Mountain Resort. At this time, we expect the program to stay relatively small initially in order to be able to provide the desired focused education and business experience through internships.

CONSENT - BAHR TAB 2 Page 1

The student fee will be in accordance with the Online Program Fee as defined in the Board Policy V.R., 3.b.ii. The price-point of \$350 for the proposed online certificate aligns with the majority of Boise State University's undergraduate online programs. The certificate is 17-19 credits (requiring 1-3 credits of internship depending on student background and experience, thus, the cost of the certificate will vary from \$5,950 to \$6,650 (17 to 19 credits at \$350 per credit).

### **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

Boise State has established a price point for this online, undergraduate certificate that is consistent with most of their similar programs. The certificate will allow students to demonstrate competencies, making them stronger candidates in industry. Staff recommends approval.

### **BOARD ACTION**

I move to approve the request by Boise State University to offer the certificate in Resort Operations and Hospitality Management (ROHM), a recently created fully online certificate utilizing an online program fee model. The certificate program will charge an online program fee of \$350 per credit.

Moved by	Seconded by	Carried Yes	No
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CONSENT - BAHR TAB 2 Page 2

#### **BOISE STATE UNIVERSITY**

### **SUBJECT**

Multi-year lease to T-Mobile for Mobile Communications Antenna

### APPLICABLE STATUTE, RULE, OR POLICY

Idaho State Board of Education Governing Policies & Procedures, Section V.I.5.b.i.

### **BACKGROUND/DISCUSSION**

Boise State University (BSU) requests permission to enter into a license agreement with T-Mobile to install and operate an antenna on the roof of Albertsons Library. The proposed contract is for a period of ten years with one five year renewal option, exercised at T-Mobile's option.

BSU works closely with wireless carriers to provide data and phone services to University constituents and the community within the geographical proximity of the Boise State campus. BSU has successfully worked with Verizon to improve data and phone service in Albertsons Stadium and the ExtraMile Arena. Like Verizon, T-Mobile is interested in providing data and phone services that align with ever increasing consumer expectations for reliability and speed. T-Mobile's mid-band spectrum is capable of improving service to the Boise State campus.

The proposed contract includes a site option payment of \$5,000 and monthly payments of \$4,000 (with annual escalations of 3%) for the term of the agreement, for a ten year total of \$571,774. If the renewal option is exercised, total payment from T-Mobile is \$924,530. T-Mobile is responsible for all costs related to the system, including installation, maintenance and operating costs, and utilities. T-Mobile will work with BSU on design and modification approval, future upgrades, and site access coordination.

### **IMPACT**

T-Mobile's mobile communications antenna atop the Albertsons Library will provide more reliable service and faster data transmission rates for T-Mobile customers. Additionally, the Games, Interactive Media, and Mobile Technology (GIMM) and Office of Information Technology (OIT) have further strengthened BSU's relationship with T-Mobile by engaging in knowledge transfer and learning development efforts related to Smart Campus initiatives. The combination of academic and administrative interest in high-bandwidth data transmissions may provide BSU with additional options related to wayfinding applications and more resilient emergency services communications.

### **ATTACHMENTS**

Attachment 1 - Site Lease

CONSENT - BAHR TAB 3 Page 1

### **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

This project demonstrates Boise State's commitment to providing data and phone services to its constituents and the community in a time of increasing demand for reliable and fast service.

Staff recommends approval of this project.

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<b>BOARD ACTION</b>	u	IV

I move to approve the request by Boise State University to enter into a multi-year site lease agreement with T-Mobile West LLC for the placement of equipment and improvements related to the provision of wireless communications services.

Moved by	Seconded by	Carried Yes	No

CONSENT - BAHR TAB 3 Page 2

#### SITE LEASE AGREEMENT

This **SITE LEASE AGREEMENT** (this "<u>Lease</u>") is effective the date of the last signature on this Lease (the "<u>Effective</u> <u>Date</u>") by and between **Boise State University**, an Idaho institution of higher education ("<u>Landlord</u>") and **T-Mobile West LLC**, a Delaware limited liability company ("<u>Tenant</u>").

Landlord and Tenant agree to the following:

- 1. Property Description. Landlord is the owner of the real property located at 1865 Cesar Chavez Lane, Boise, Idaho 83725, as further described on Exhibit A (the "Property"). The Property includes One Hundred Sixty (160) square feet plus any additional portions of the Property which Tenant may require for the use and operation of its facilities, as generally described on Exhibit B (the "Premises"). In addition to the square footage specified above, the Premises, as defined, shall include, but not be limited to, the following: cable runs and associated cable trays from the base transceiver station(s) (also referred to as the BTS) and the installation of power, telephone and other utility service cables. However, it is expressly agreed that the exact and precise location of the Tenant's Antenna Facilities (as defined below) are subject to review and approval by the planning and/or zoning board(s) having jurisdiction over the Property, and the University Architect. The specific locations, number and type of equipment described in Exhibit B is for illustrative purposes only and in no way limits Tenant's ability to alter, replace, add to, expand, enhance, modify, supplement, replace, relocate or upgrade within the footprint of the Premises.
- 2. **Option.** Landlord grants to Tenant an option to lease the Premises on the terms and conditions described in this Lease (the "**Option**"). The option period shall commence on the Effective Date and shall continue for one (1) year (the "**Option Period**"). The Option Period will be automatically extended for one (1) additional and successive one (1) year period, unless Tenant provides written notice to the Landlord of its election to exercise or not renew its Option. For each Option Period, Tenant shall pay Landlord Five Thousand and No/100 dollars (\$5,000.00).
- 3. <u>Landlord Cooperation</u>. After the Effective Date Landlord shall cooperate with Tenant's due diligence activities, which shall include, but not be limited to, access to the Property for inspections, testing, permitting related to the Permitted Uses (as defined below). Tenant is authorized to sign, file, submit and obtain all zoning, land use and other applications for permits, licenses and approvals required for the Permitted Uses from all applicable governmental and quasi-governmental entities (collectively, the "<u>Governmental Approvals</u>"), and to the fullest extent necessary Landlord grants Tenant and its agents power of attorney to take all such actions on behalf of and in the name of Landlord. Landlord's cooperation shall include the prompt execution and delivery of any documents necessary to obtain and maintain Governmental Approvals or utility services. Landlord shall not take any actions which are in conflict with or interfere with Tenant's Governmental Approvals.
- 4. <u>Antenna Facilities and Permitted Uses</u>. Tenant leases the Premises for its equipment, personal property and improvements associated with Tenant's wireless communications business (the <u>"Antenna Facilities"</u>). The Premises may be used for the construction, installation, operation, maintenance, repair, addition, modification, expansion, enhancement, upgrading, removal, relocation or replacement of any and all Antenna Facilities (the "<u>Permitted Uses</u>") within the leased area for no fee and coordinated with the Landlord in a mutually acceptable manner. The Antenna Facilities shall remain the exclusive property of Tenant and shall not be considered fixtures. Tenant, at its expense, may use within reason and as coordinated with the Landlord

1

Site Number: SL08081A Site Name: BSU Education Building

**CONSENT - BAHR** 

in a mutually acceptable manner, as Tenant deems necessary to control, secure or restrict access to the Antenna Facilities. Landlord hereby waives any and all lien rights it may have concerning the Antenna Facilities. If necessary to maintain service, Tenant shall have the right to locate a temporary antenna facility, (e.g. a cell-on-wheels) on the Property, including all utilities associated with the use of the temporary antenna facility. Landlord shall cooperate with the placement of the temporary facility at a mutually acceptable location.

#### 5. Lease Term.

- a) The Initial Term of the Lease shall be ten (10) years commencing on the date of Tenant's exercise of the Option (the "<u>Commencement Date</u>"), and ending on the day immediately preceding the tenth (10<sup>th</sup>) anniversary of the Commencement Date (the "<u>Initial Term</u>"). The Initial Term, together with any Renewal Terms and Extended Periods are referred to collectively as the "<u>Term</u>."
- b) The Initial Term shall automatically renew for one (1) successive renewal term of five (5) years ("<u>Renewal Term")</u> provided, however that Tenant may elect not to renew by providing notice prior to the expiration of the then-current term.
- c) Upon the expiration of the Renewal Term, Tenant shall have the right to continue to occupy the Premises and the Term shall automatically extend for up to nine (9) successive one (1) year periods (each, an "Extended Period"). Landlord may elect not to renew by providing notice to Tenant at least six (6) months prior to the expiration of the then current Extended Period. Tenant may terminate any Extended Period at any time by delivery of notice to Landlord.

### 6. Rent/Other Charges.

- a) Upon the Commencement Date, Tenant shall pay Landlord rent in the amount of Four Thousand and No/100 dollars (\$4,000.00) per month (the "Rent"). Tenant shall deliver Rent to Landlord at the address specified in the Notice section, or by electronic payment. The first Rent payment shall be due within thirty (30) days after the Commencement Date. Subsequent Rent shall be payable by the fifth day of each month.
- b) The Rent for each successive year shall be increased by three (3%) percent of the Rent for the immediately preceding year. The Rent for each Extended Period shall be increased by three (3%) percent of the Rent for the immediately preceding year.
- c) Rent for any partial month shall be prorated on a per day basis, based on the number of days in the month in question. Landlord shall cooperate with Tenant regarding the use of any electronic rent payment systems or the provision of any associated documentation. Tenant may condition payment of Rent and any other sums payable under this Lease upon Tenant's receipt of a duly completed IRS form W-9, or similar governmental form.
- d) Any charges payable under this Lease other than Rent shall be billed by Landlord to Tenant within twelve (12) months from the date the charges were incurred or due; otherwise the charges shall be deemed time-barred and forever waived and released by Landlord. Additionally, if it is determined by Tenant that Tenant overpaid Landlord for any charges due under the Lease, Tenant is permitted, upon written notice to Landlord, to deduct any such overpayment from Rent amounts due under this Lease.

Site Number: SL08081A Site Name: BSU Education Building

- 7. <u>Interference.</u> Tenant shall not interfere with the radio frequency communications of Landlord or any of Landlord's existing tenants as of the Effective Date. After the Effective Date, Landlord shall not install, or permit any third party to install, any equipment or structures that interfere with or restrict the operations of Tenant. Any such interference shall be deemed a material breach of this Lease by Landlord and Landlord shall remove the cause of the interference within forty-eight (48) hours of notice notwithstanding any other cure periods in this Lease. Tenant shall have the right to exercise all legal and equitable rights and remedies to end the interference, including the right to terminate this Lease.
- 8. <u>Utility Services.</u> Tenant shall have the right to connect to, maintain, repair, modify, upgrade, remove or replace existing utility related equipment and/or construct and install new utility related equipment and lines, excluding a generator, optical fiber facilities and alternative energy related equipment, to service its Antenna Facilities (collectively, the "<u>Utility Facilities</u>") as coordinated with the Landlord in a mutually acceptable manner. The Utility Facilities may be brought by Tenant to the Property and the Premises, and the charges for utility usage (the "**Utility Fees**") shall be payable, by one of the following methods:
- a) **Separate Meter**. Tenant may install a separate meter at any time during the Term of the Lease and will remit payment directly to the utility provider.

### b) Submeter

- (i) **Smart Submeter**. Tenant may install a submeter that can be remotely managed and read ("**Smart Submeter**"). The Smart Submeter will be read on a **regular/ quarterly** basis and Tenant will be directly invoiced for its Utility Fees, with a copy provided to Landlord's email address. Tenant will remit payment to the Landlord within thirty (30) days of receipt of the invoice; or
- (ii) **Manually-Read Submeter.** Tenant may install a sub-meter to monitor Tenant's electrical usage which will be read by Landlord on a monthly basis and which determine Tenant's actual electrical usage. Tenant shall pay to Landlord on a monthly basis for such actual usage within 30 days of receipt of an invoice. The invoice must list the current and previous readings along with the kWh cost, and the building utility invoice must accompany the invoice.
- c) If Tenant does not install a separate meter or submeter, Tenant shall pay Landlord Utilities Fees in the amount of Three Hundred Dollars (\$300.00) per month for its utility usage when usage commences.

### 9. Access and Easements.

- a) Landlord shall furnish, at no additional charge to Tenant, unimpeded and secure access to the Premises including the Utility Facilities on a 24-hours-a-day, 7-days-a-week basis to Tenant and Tenant's employees, agents, contractors and other designees. In the event that Landlord does not provide Tenant with access as described, Rent will be abated for the time period where Tenant was denied access to the Antenna Facilities.
- b) Upon the Effective Date, Landlord shall provide all applicable access key(s) and a defined and accessible location on the Property for Tenant to install a secure lockbox to store any such access key(s) necessary to allow for 24-hours-a-day, 7-days-a-week physical access to all of Tenant's equipment or conduits. Landlord shall not change the method(s) of access or access key(s), without providing Tenant prior written notice and an updated set of access keys or new access code(s).

Site Number: SL08081A Site Name: BSU Education Building

- c) Landlord grants Tenant, at no additional Rent or charge, easements on, over, under and across the Property for ingress, egress, communications, power and other utilities, installation, construction, demolition and access to the Premises and any Utility Facilities (collectively, the "Easements"). Landlord shall not modify, interrupt or interfere with any access, communications, electricity, or other utility equipment and Easements serving the Property, except with the prior written approval of Tenant.
- d) Landlord acknowledges that denial of access may adversely impact Tenant's requirement as an FCC licensee to provide 9-1-1 emergency calling services and may adversely impact Tenant's ability to provide wireless services to its customers. Failure to provide Tenant access to the Premises, as required above, within 24 hours after receiving written notice of such failure shall be deemed a material Default. In the event Landlord, its employees or agents impede or deny access to Tenant, its employees or agents, Tenant shall, without waiving any other rights that it may have at law or in equity, have the right to deduct from the Rent due under this Lease five hundred and no/100 dollars (\$500.00) per day for each day that access is impeded or denied.
- 10. <u>Termination.</u> Tenant may terminate this Lease upon thirty (30) days prior written notice to Landlord, for any of the following reasons: (i) changes in local or state laws or regulations which adversely affect Tenant's ability to operate; (ii) a Federal Communications Commission ("<u>FCC</u>") ruling or regulation that is beyond the control of Tenant; (iii) in its sole discretion for technical, or economic reasons; or (iv) if Tenant is unable to obtain or maintain any Governmental Approval required for the construction or operation of Tenant's Antenna Facilities. Upon ninety (90) days prior written notice to Landlord, Tenant may terminate this Lease for any or no reason.
- 11. Casualty and Condemnation. If the Premises or Antenna Facilities are damaged or destroyed by wind, fire or other casualty, Tenant shall be entitled to negotiate, compromise, receive and retain all proceeds of Tenant's insurance and other claims and Tenant may terminate the Lease by written notice to Landlord. If the Premises, any Easements or Antenna Facilities are taken or condemned by power of eminent domain or other governmental taking, then: (a) Tenant shall be entitled to negotiate, compromise, receive and retain all awards attributable to (i) the Antenna Facilities, (ii) Tenant's leasehold interest in the Property, (iii) any moving or relocation benefit available to Tenant and (iv) any other award available to Tenant that is not attributable to Landlord's title to or interest in the Property. If the Antenna Facilities are not operational or accessible, due to casualty, condemnation, or damages, Tenant shall have the right to abate the Rent for that period time. In addition, Tenant may terminate the Lease by written notice to Landlord.

### 12. **Default and Right to Cure.**

- (a) The following will be deemed a default by Tenant and a breach of this Lease (i) non-payment of Rent if such Rent remains unpaid for more than thirty (30) days after receipt of written notice from Landlord of such failure to pay; or (ii) Tenant's failure to perform any other term or condition under this Lease within thirty (30) days after receipt of written notice from Landlord specifying the failure. No such failure, however, will be deemed to exist if Tenant has commenced to cure such default within such period and provided that such efforts are prosecuted to completion with reasonable diligence. Delay in curing a default will be excused if due to causes beyond the reasonable control of Tenant.
- (b) The following will be deemed a default by Landlord and a breach of this Lease. Landlord's failure to perform any term, condition or breach of any warranty or covenant under this Lease within thirty (30) days after receipt of written notice from Tenant specifying the failure. No such failure, however,

Site Number: SL08081A Site Name: BSU Education Building

will be deemed to exist if Landlord has commenced to cure the default within such period and provided such efforts are prosecuted to completion with reasonable diligence. Delay in curing a default will be excused if due to causes beyond the reasonable control of Landlord.

13. <u>Taxes</u>. Landlord shall pay when due all real estate taxes and assessments for the Property, including the Premises. Notwithstanding the foregoing, Tenant shall reimburse Landlord for any personal property tax paid for by Landlord which is solely and directly attributable to the presence or installation of Tenant's Antenna Facilities during the Term. Landlord shall provide notice of any tax or assessment within fifteen (15) days for which Tenant is liable in whole or in part. Tenant shall have the right to challenge any tax or assessment and Landlord shall cooperate with Tenant regarding such challenge. In the event that Landlord fails to pay any taxes or other fees and assessments for the Property, including the Premises, Tenant shall have the right, but not the obligation, to pay such owed amounts and deduct them from Rent amounts due under this Lease. Landlord shall provide Tenant with written notice of any taxes due that Landlord fails to pay.

### 14. Insurance and Subrogation and Indemnification.

- a) Boise State University, referred hereafter as "Institution" is a "governmental entity," as defined under the Idaho Tort Claims Act, specifically, Idaho Code section 6-902, as well as a "public employer," as defined under the Idaho Worker's Compensation law, specifically, Idaho Code section 72-205. As such, Institution shall maintain, at all times applicable hereto, comprehensive liability coverage in such amounts as are prescribed by Idaho Code section 6-924 (not less than \$500,000), as well as worker's compensation coverage for its employees, as required under Idaho Code Section 72-301. Institution's liability coverage shall cover the actions of Institution and its employees, agents, students, and faculty while acting in the course and scope of employment. Institution's liability coverage obligations shall be administered by the Administrator of the Division of Insurance Management in the Department of Administration for the State of Idaho, and may be covered, in whole or in part, by the State of Idaho's Retained Risk Account, as provided under Idaho Code Section 6-919. Institution shall cover its liability for worker's compensation through the State of Idaho's State Insurance Fund, as provided under Idaho Code section 72-301. Upon Agency's request, Institution shall provide proof of such coverage to Agency.
- b) The Contractor and its subcontractors are required to carry the types and limits of insurance shown in this Request, and to provide Boise State University ("Certificate Holder") with a Certificate of Insurance within thirty (30) days of the signing of this Contract.

Certificate Holder shall read:

State of Idaho and Boise State University

Attn: Risk Management 1910 University Drive Boise, Idaho 83725-1245

- i) All certificates shall provide for thirty (30) days' written notice to Certificate Holder prior to cancellation of any insurance referred to in the certificate.
- ii) All insurers shall have a Best's rating of A- or better and be licensed and admitted in Idaho.
- iii) All policies required shall be written as primary policies and not contributing to nor in excess of any coverage Certificate Holder may choose to maintain, with respect to the negligent acts or willful misconduct of Contractor.

Site Number: SL08081A Site Name: BSU Education Building

- iv) All policies (except Workers Compensation and Professional Liability and Property policies) shall include the following as Additional Insured: State of Idaho and Boise State University.
- v) Failure of Certificate Holder to demand a certificate or other evidence of full compliance with these insurance requirements or failure of Certificate Holder to identify a deficiency from evidence that is provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- vi) Failure to maintain the required insurance may result in termination of this contract at the Certificate Holder's option.
- vii) By requiring this insurance, Certificate Holder does not represent that coverage and limits will necessarily be adequate to protect Contractor, and such coverage and limits shall not be deemed as a limitation on Contractor's liability under the terms of the grant or contract.
- viii)Required Insurance Coverage. Contractor shall obtain insurance of the types and in the amounts described below.
- ix) Commercial General and Umbrella Liability Insurance. Contractor shall maintain commercial general liability (CGL) and, if necessary, commercial umbrella insurance with a limit of not less than \$1,000,000 each occurrence and \$2,000,000 in the aggregate. If such CGL insurance contains a general aggregate limit, it shall apply separately by location and shall not be less than \$2,000,000. CGL insurance shall be written on standard ISO occurrence form (or a substitute form providing equivalent coverage) and shall cover liability arising from premises, operations, products-completed operations, personal injury and advertising injury, and liability assumed under an insured contract including the tort liability of another assumed in a business contract. Waiver of subrogation language shall be included. If necessary to provide the required limits, the Commercial General Liability policy's limits may be layered with a Commercial Umbrella or Excess Liability policy. All insurers shall have a Best's rating of A- or better and be licensed and admitted in Idaho.
- x) Commercial Auto Insurance. Contractor shall maintain a Commercial Automobile Policy with a Combined Single Limit of not less than \$1,000,000; Underinsured and Uninsured Motorists limit of not less than \$1,000,000; Comprehensive; Collision; and a Medical Payments limit of not less than \$5,000. Coverage shall include Non-Owned and Hired Car coverage. Waiver of subrogation language shall be included. All insurers shall have a Best's rating of A- or better and be licensed and admitted in Idaho.
- xi) Business Personal Property and/or Personal Property. Contractor shall purchase insurance to cover Insured's personal property. In no event shall Certificate Holder be liable for any damage to or loss of personal property sustained by Insured, whether or not insured, even if such loss is caused by the negligence of Certificate Holder, its employees, officers or agents.
- xii) Workers' Compensation. Where required by law, Contractor shall maintain all statutorily required Workers Compensation coverages. Coverage shall include Employer's Liability, at minimum limits of \$100,000 / \$500,000 / \$100,000. All insurers shall have a Best's rating of A- or better and be licensed and admitted in Idaho.
- c) Professional Liability. If professional services are supplied to the University, Contractor shall maintain Professional Liability (Errors & Omissions) insurance on a claims made basis, covering claims made during the policy period and reported within three years of the date of occurrence. Limits of liability shall be not less than one million dollars (\$1,000,000). All insurers shall have a Best's rating of A- or better and be licensed and admitted in Idaho.Landlord and Tenant hereby mutually release each other (and their successors or assigns) from liability and waive all right of recovery against the other for any loss or damage covered by their respective first party property insurance policies for all perils insured thereunder. In the event of an insured loss, neither party's insurance company shall have a subrogated

Site Number: SL08081A Site Name: BSU Education Building

claim against the other party.

- d) To the extent permitted by Idaho law and subject to the limitations of liability specified in Sections 6-901 through 6-929, inclusive, Idaho Code (the "Idaho Tort Claims Act"), and subject to the property insurance waivers set forth in the preceding subsection (b), Landlord and Tenant each agree to indemnify and hold harmless the other party from and against any and all administrative and judicial actions and rulings, claims, causes of action, demands and liabilities, including reasonable attorneys' fees, to the extent caused by or arising out of: (i) any negligent acts or omissions or willful misconduct in the operations or activities on the Property by the indemnifying party or the employees, agents, contractors, licensees, tenants or subtenants of the indemnifying party, (ii) any spill or other release of any Hazardous Substances (as defined below) on the Property by the indemnifying party or the employees, agents, contractors, licensees, tenants or subtenants of the indemnifying party, or (iii) any breach of any obligation of the indemnifying party under this Lease. The indemnifying party's obligations under this subsection are contingent upon its receiving prompt written notice of any event giving rise to an obligation to indemnify the other party and the indemnified party's granting it the right to control the defense and settlement of the same. In no event shall either party be liable for any consequential, special, indirect or punitive damages or causes of loss, whether arising from breach of strict liability, contract, tort or otherwise, and regardless of whether or not such party was advised of, or should have known, the possibility of such damages. Nothing herein shall be deemed to constitute a waiver by Landlord of any privilege, protection, or immunity otherwise afforded to it under the Idaho Constitution, Idaho Tort Claims Act, or other applicable law. Nothing contained herein shall be deemed a waiver of Landlord's sovereign immunity, which is hereby expressly retained. Tenant shall not be responsible or liable to Landlord or any third party for any claims, damages, costs, expenses, including liens, fines, penalties or other enforcement actions, attributable to any pre-existing violations of applicable laws, codes, ordinances or other regulations relating to the Property (collectively, "Pre-Existing Violations"). To the extent Tenant is or may be required to cure such Pre-Existing Violations in order to obtain any Governmental Approvals for its Permitted Uses of the Premises, Tenant shall have the right, but not the obligation, to cure such Pre-Existing Violations and deduct the curative costs from Rent payable under this Lease.
- e) Tenant shall not be responsible or liable to Landlord or any third party for any claims, damages, costs, expenses, including liens, fines, penalties or other enforcement actions, attributable to any pre-existing violations of applicable laws, codes, ordinances or other regulations relating to the Property (collectively, "Pre-Existing Violations"). To the extent Tenant is or may be required to cure such Pre-Existing Violations in order to obtain any Governmental Approvals for its Permitted Uses of the Premises, Tenant shall have the right, but not the obligation, to cure such Pre-Existing Violations and deduct the curative costs from Rent payable under this Lease.
- f) The provisions of subsections (c) and (d) above shall survive the expiration or termination of this Lease.
- 15. <u>Notices</u>. All notices, requests, demands and other communications shall be in writing and shall be effective three (3) business days after deposit in the U.S. mail, certified, return receipt requested or upon receipt if personally delivered or sent via a nationally recognized courier to the addresses set forth below. Landlord or Tenant may from time to time designate any other address for this purpose by providing written notice to the other party.

Site Number: SL08081A Site Name: BSU Education Building

### If to Tenant, to:

T-Mobile USA, Inc. 12920 SE 38th Street Bellevue, WA 98006

Attn: Lease Compliance/ SL08081A

### If to Landlord, to:

Boise State University c/o Finance and Leasing 1910 University Drive Boise, Idaho 83725-1247 jeffbanka@boisestate.edu

### Per the W-9 Form Rent is to be paid to:

Boise State University 1910 University Drive Boise, Idaho 83725

- 16. Quiet Enjoyment, Title and Authority. Subject to State Board of Education policy, including but not limited to any requirements for long term leases to be formally approved by the Board, Landlord covenants and warrants, following any such required approval that: (a) Landlord has full right, power and authority to execute and perform this Lease to grant Tenant the leasehold interest and Easements contemplated under this Lease; (b) Landlord has good and unencumbered title to the Property, free and clear of any liens and will not interfere with Tenant's Permitted Uses and any rights under this Lease; (c) the execution and performance of this Lease shall not violate any laws, ordinances, covenants, or the provisions of any Mortgage, lease, or other agreement binding on Landlord; (d) Tenant's use and quiet enjoyment of the Premises will not be disturbed; and (e) Landlord will be responsible, at its sole cost and expense, for maintaining all portions of the Property, except for Tenant's Antenna Facilities and equipment, in good order and condition and in compliance with all applicable laws, including without limitation, the roof and its weatherproof membrane, any support structure owned by Landlord, HVAC, plumbing, elevators, landscaping and common areas.
- 17. <u>Environmental Laws.</u> Landlord and Tenant shall comply with all federal, state and local laws in connection with any substances brought onto the Property that are identified by any law, ordinance or regulation as hazardous, toxic or dangerous (collectively, the "<u>Hazardous Substances</u>"). Tenant agrees to be responsible for all losses or damage caused by any Hazardous Substances that it may bring onto the Property and will indemnify Landlord for all such losses or damages. Landlord agrees to be responsible for all losses or damage caused by any Hazardous Substances on or entering the Property, except those brought onto the Property by Tenant, and will indemnify Tenant for all such losses or damages including the cost of any investigation or remediation, or other actions required to comply with applicable law. Landlord represents that it has no knowledge of any Hazardous Substances on the Property.

### 18. Assignment.

- a) Tenant shall have the right to assign, sublease or otherwise transfer this Lease, upon written notice to Landlord. Tenant shall also have the right to provide access and easement rights exisiting under this Lease, for the purposes of bringing in Utility Facilities, including fiber equipment. Upon an assignment or transfer, Tenant shall be relieved of all liabilities and obligations and Landlord shall look solely to the transferee for performance under this Lease. Upon receipt of a written request from Tenant, Landlord shall promptly execute an estoppel certificate.
- b) Landlord shall have the right to assign and transfer this Lease only to a successor owner of the Property. Only upon Tenant's receipt of written verification of a sale, or transfer of the Property shall Landlord be relieved of all liabilities and obligations and Tenant shall look solely to the new landlord for

Site Number: SL08081A Site Name: BSU Education Building

performance under this Lease. Until Tenant receives required information and documents, Tenant shall not be responsible for any failure to make payments under this Lease and reserves the right to hold payments due under this Lease. Landlord shall not attempt to assign, or otherwise transfer this Lease separate from a transfer of ownership of the Property (the "Severance Transaction"), without the prior written consent of Tenant, which consent may be withheld or conditioned in Tenant's sole discretion. If Tenant consents to a Severance Transaction, Landlord and its successors and assigns shall remain jointly and severally responsible for the performance of all duties and obligations of the Landlord under this Lease.

### 19. Relocation.

- a) Landlord must provide Tenant at least six (6) months written notice of any repairs, maintenance or other work (the "Work") during the Term of the Lease which would require the temporary relocation of the Antenna Facilities. Landlord agrees that the Work will not limit or interfere with Tenant's Permitted Uses of the Premises. Tenant will be responsible for all expenses incurred that are necessary to accommodate the Work and Landlord will impose no additional fees, considerations, or conditions upon Tenant. If necessary, in Tenant's sole determination, Tenant may elect to install a temporary communications facility (e.g. a "cell on wheels," or "COW") in another mutually agreeable location on the Property that provides Tenant coverage and service levels similar to those of the Antenna Facilities at the original location, while the Work is being performed. Tenant shall have the right to reinstall its Antenna Facilities immediately upon the completion of the Work. Tenant or its designee shall have the right to accompany Landlord, its agents or contractors whenever the Work is being performed on the Premises. Notwithstanding anything to the contrary, Landlord shall not have the right to permanently relocate the Antenna Facilities except as set forth herein.
- b) If Landlord desires to redevelop, modify, remodel, or in any way alter its Property or any improvements thereon ("Redevelopment"), Landlord shall in good faith use its best efforts to fully accommodate Tenant's continuing use of the Premises. If both parties to this Lease determine that the Redevelopment necessitates permanent relocation of the Antenna Facilities, Landlord shall have the right, subject to the following provisions of this section, to relocate the Antenna Facilities, or any part thereof, to an alternate location on the Property (the "Relocation Premises"), provided, however, that: (i) Landlord may only relocate Tenant once during the Lease; (ii) Landlord must give Tenant at least twelve (12) months' written notice prior to such relocation; (iii) all costs and expenses associated with or arising out of such relocation (including, without limitation, approval and permitting costs) shall be paid by Landlord; (iv) such relocation shall be performed exclusively by Tenant or its agents; and (v) such relocation shall not limit or interfere with Tenant's Permitted Uses of the Premises. Landlord shall exercise its relocation right by delivering written notice to Tenant pursuant to the Lease and shall identify in the notice the proposed Relocation Premises on the Property. If, in Tenant's reasonable judgment, no suitable Relocation Premises can be identified on the Property, then Landlord shall not be permitted to exercise its relocation right under this section.
- 20. <u>Marking and Lighting Requirements</u>. If any tower or other support structure for Tenant's Antenna Facilities is owned by Landlord, Landlord acknowledges that Landlord shall be responsible for compliance with all marking and lighting requirements of the Federal Aviation Administration and the FCC. Landlord shall indemnify and hold Tenant harmless from any fines or other liabilities caused by Landlord's failure to comply with these requirements.

### 21. Miscellaneous.

Site Number: SL08081A Site Name: BSU Education Building

- a) The prevailing party in any litigation or other legal proceedings arising under this Lease (including any appeals and any insolvency actions) shall be entitled to reimbursement from the non-prevailing party for reasonable attorneys' fees and expenses.
- b) This Lease constitutes the entire agreement and understanding of the parties, and supersedes all offers, negotiations and other agreements with respect to the subject matter and Property. Any amendments to this Lease must be in writing and executed by both parties.
- c) Landlord agrees to cooperate with Tenant in executing any documents which Tenant deems necessary to insure and protect Tenant's rights in, or use of, the Premises. Landlord shall execute and deliver: (i) a Memorandum of Lease in substantially the form attached as **Exhibit C**; and (ii) if the Property is encumbered by a deed, mortgage or other security interest (each, a "**Mortgage**"), a subordination, non-disturbance and attornment agreement using Tenant's form.
- d) This Lease shall be construed in accordance with the laws of the state or territory in which the Property is located, without regard to the principles of conflicts of law.
- e) If any term of this Lease is found to be void or invalid, the remaining terms of this Lease shall continue in full force and effect. Any questions of particular interpretation shall be interpreted as to their fair meaning.
- f) Each party hereby represents and warrants to the other that this Lease has been duly authorized, executed and delivered by it, and that no consent or approval is required by any lender or other person or entity in connection with the execution or performance of this Lease.
- g) If either party is represented by any broker or any other leasing agent, such party is responsible for all commission fee or other payment to such agent.
- h) This Lease and the interests granted herein shall run with the land, and shall be binding upon and inure to the benefit of the parties, their respective successors, personal representatives and assigns.
- i) This Lease may be executed in any number of counterparts, each of which shall be deemed an original, but all of which together shall constitute a single instrument. Signed, scanned and emailed copy and electronic copies of this Lease shall legally bind the parties to the same extent as original documents.

Site Number: SL08081A Site Name: BSU Education Building

_
Зу:
Printed Name:
Title:
Date:
TENANT: T-Mobile West LLC
Ву:
Printed Name:
Title:
Date:

Site Number: SL08081A Site Name: BSU Education Building

Market: Salt Lake

**LANDLORD: Boise State University** 

## EXHIBIT A Legal Description

Property address of 1865 Cesar Chavez Lane, Boise, Idaho 83725 Assessor's tax parcel number of S1010346610

The Property is legally described as follows:

PAR #6610 IN S2 SEC 10 & N2 SEC 15 3N 2E 242-5

Site Number: SL08081A Site Name: BSU Education Building

Market: Salt Lake

#### **EXHIBIT B**

Subject to the terms and conditions of this Lease, the location of the Premises is generally described and depicted as shown below or in the immediately following attachment(s).

Site Number: SL08081A Site Name: BSU Education Building

Market: Salt Lake

## EXHIBIT C Memorandum of Lease

[CONFIRM HEADING/MARGINS/FORMAT CONFORM TO STATE AND LOCAL REQUIREMENTS]

(Separate Document to be Executed)

Memorandum of Lease

After Recording, Mail To: T-Mobile USA, Inc. 12920 SE 38th Street Bellevue, WA 98006 Attn: Lease Compliance Site Number: SL08081A

APN: S1010346610 Loan No. N/A

#### **MEMORANDUM OF LEASE**

A Site Lease Agreement (the "<u>Lease</u>") by and between **Boise State University**, an Idaho institution of higher education ("<u>Landlord</u>") and **T-Mobile West LLC** a Delaware limited liability company ("<u>Tenant</u>") was made regarding a portion of the following property (as more particularly described in the Lease, the "<u>Premises</u>"):

See Attached **Exhibit A** incorporated herein for all purposes.

Without limiting the terms and conditions of the Lease, Landlord and Tenant hereby acknowledge the following:

- 1. Capitalized terms used, but not otherwise defined herein, shall have the meanings ascribed to such terms in the Lease.
- 2. Pursuant to the Lease, Landlord has granted Tenant an option to lease the Premises (the "Option") on the terms and conditions described in the Lease. The Option is for an initial term of one (1) year commencing on the effective date of the Lease, and will be extended for up to one (1) additional and successive one (1) year period unless Tenant provides written notice to exercise or not renew its Option.
- 3. Provided that the Option has been exercised by Tenant, the initial term of the Lease shall be for ten (10) years and will commence on the date that Tenant exercises its Option.
- 4. Tenant shall have the right to extend the Lease for one (1) additional and successive five (5) year term which may be extended for up to nine (9) additional and successive one-year periods.

Site Number: SL08081A Site Name: BSU Education Building Site Lease - version 5.8.17

- 5. This memorandum is not a complete summary of the Lease. It is being executed and recorded solely to give public record notice of the existence of the Option and the Lease with respect to the Premises. Provisions in this memorandum shall not be used in interpreting the Lease provisions and in the event of conflict between this memorandum and the said unrecorded Lease, the unrecorded Lease shall control.
- 6. This memorandum may be signed in any number of counterparts, each of which shall be an original, with the same effect as if the signatures thereto were upon the same instrument.

**IN WITNESS WHEREOF**, the parties hereto have respectively executed this memorandum effective as of the date of the last party to sign.

LANDLORD: Boise State University

## [Notary block for Landlord] [Substitute State-Specific Acknowledgement Form if Content Differs]

## [Landlord Notary block for a Corporation, Partnership ,or Limited Liability Company]

STATE OF	)	
	) ss.	
COUNTY OF	)	
This instrument was		by of
	a [type of entity], on behalf of s	said
	[name of entity].	
Dated:		
	Notary Public	
	Print Name	
	My commission expires	
(Use this space for notary stamp,	/seal)	

, , , ,

Site Number: SL08081A Site Name: BSU Education Building Market: Salt Lake

## [Notary block for Tenant]

STATE OF	)	
COUNTY OF	) ss. )	
	e satisfactory evidence that me, and said person acknowledged that she/he signe	
• • • • • • • • • • • • • • • • • • • •	authorized to execute the instrument and acknowledged that sliep its signeral authorized to execute the instrument and acknowledged that sliep its signeral acknowledged that sliep its sliep its signeral acknowledged that sliep its slie	owledged it as the
company, to be the free and volunt	ary act of such party for the uses and purposes mention	ned in the instrument.
Dated:	<del></del>	
_		
l N	otary Public	
P	rint Name	
	ly commission expires	
(Use this space for notary stamp/seal)		

Site Number: SL08081A Site Name: BSU Education Building Market: Salt Lake

## Memorandum of Lease - Exhibit A Legal Description

The Property is legally described as follows:

PAR #6610 IN S2 SEC 10 & N2 SEC 15 3N 2E 242-5

Site Number: SL08081A Site Name: BSU Education Building

#### **IDAHO STATE UNIVERSITY**

#### **SUBJECT**

Online Program Fee for online option MS in Clinical Psychopharmacology

## APPLICABLE STATUTE, RULE, OR POLICY

Idaho State Board of Education Governing Policies & Procedures, Section V.R.

#### **BACKGROUND/DISCUSSION**

Idaho State University (ISU) requests permission to fund its fully online Clinical Psychopharmacology program using the online program fee model, in lieu of tuition and other fees, in accordance with Board Policy V.R., subsection 3.b.ii. The program is currently offered in-person, and is launching a fully online degree. ISU is requesting an online program fee that is competitive with other comparable online programs. The online program fee is being requested for \$560 per credit.

The online program fee covers the costs associated with the program, including two part-time faculty (0.50 FTE) consisting of a prescribing psychologist and a licensed clinical social worker.

Of the five Clinical Psychopharmacology programs in the country, three are fully online (Fairleigh Dickinson University, Alliant International University, and the Chicago School of Professional Psychology). New Mexico State University has a hybrid model with online didactic work and occasional in-person training. The enrollment at the other MSCP programs far exceeds the current enrollment at ISU.

#### **IMPACT**

The fiscal impact of the online program fee is estimated based on 5 new students (FTE) in the first year, 10 new students in the second year, and 20 new students in the third year. In setting the program fees, the goal is to provide an affordable option to students while ensuring that revenue covers the costs within the first few years of launching the program. The program is expected to run a deficit in the first three years, after which net income will be sufficient to cover the costs of the program as it grows. If after five years the program is not self-sustaining, ISU will discontinue the program.

The program fee of \$560/credit is competitive with similar programs at other institutions (e.g., Total Program Tuition and Fees - ISU = \$21,280.00, FDU = \$17,404, NMSU = \$18,990). No additional tuition or fees will be charged.

#### **ATTACHMENTS**

Attachment 1 – Proposed budget for the Online Clinical Psychopharmacology Program

## STAFF COMMENTS AND RECOMMENDATIONS

In FY 2019, the legislature appropriated six FTE and \$680,600 to create a clinical psychopharmacology program at ISU.

ISU has established a price point for this online, undergraduate certificate that aligns with their budget which approximates the cost of a resident student for tuition, mandatory fees and graduate fees. The program is forecasted to be self-sustaining in the third year. Staff recommends approval.

## **BOARD ACTION**

I move to approve the request by Idaho State University to add an online program
fee of \$560.00 per credit to the online MS in Clinical Psychopharmacology, in
conformance with the program budget submitted to the Board in Attachment 1.

Moved by	Seconded by	Carried Yes	No

## **IDAHO STATE UNIVERSITY**

## **Resource Allocation and Impact Summary**

PROGRAM IDENTIFICATION

Clinical Psychopharmacology On-line Program

**Program Resource Requirements.** Indicate all resources needed including the planned FTE enrollment, projected revenues, and estimated expenditures for the first four fiscal years of the program. Include reallocation of existing personnel and resources and anticipated or requested new resources. Second and third year estimates should be in constant dollars. Amounts should reconcile subsequent pages where budget explanations are provided. If the program is contract related, explain the fiscal sources and the year-to-year commitment from the contracting agency(ies) or party(ies). Provide an explanation of the fiscal impact of any proposed discontinuance to include impacts to faculty (i.e., salary savings, re-assignments).

#### I. PLANNED STUDENT ENROLLMENT

	FY2023		FY2024		FY2025		FY2026		Cumulative Total	
	FTE	Headcount	FTE	Headcount	FTE	Headcount	FTE	Headcount	FTE	Headcount
A. New enrollments	5	5	10	10	20	20	30	30	70	70
B. Shifting enrollments	5	5	10	10	10	10	20	20	40	40
Total Enrollment	10	10	20	20	30	30	50	50	110	110

#### II. REVENUE

	FY2	023	FY20	)24	FY20	25	FY20	26	Cumulativ	re Total
	On-going	One-time	On-going	One-time	On-going	One-time	On-going	One-time	On-going	One-time
1. New Appropriated Funding Request									0	0
2. Institution Funds									0	0
3. Federal									0	0
New Tuition Revenues from Increased Enrollments									0	0
5. Student Fees	106,400		212,800		319,200		532,000		1,170,400	0
6. Other: (Specify)									0	0
Total Revenue	106,400	0	212,800	0	319,200	0	532,000	0	1,170,400	0

On-going is defined as on-going operating budget for the program which will become part of the base. One-time is defined as one-time funding in a fiscal year and not part of the base.

#### III. EXPENDITURES

II. EXI ENDITORES										
	FY2	023	FY20	24	FY20	)25	FY20	26	Cumulativ	ve Total
	On-going	One-time	On-going	One-time	On-going	One-time	On-going	One-time	On-going	One-time
A. Personnel Costs										
1. FTE	1.50		1.50		1.50		1.50		6	0
2. Faculty	40,000		82,400		84,872		87,418		294,690	0
3. Adjunct Faculty	20,000		20,000		20,000		20,000		80,000	0
4. Graduate/Undergrad Assistants									0	0
5. Research Personnel									0	0
6. Directors/Administrators	0		0		0		0		0	0
7. Administrative Support Personnel	30,015		30,915		31,843		32,798		125,572	0
8. Fringe Benefits	33,408		49,221		50,635		52,091		185,354	0
9. Other:	_								0	0
Total Personnel and Costs	123,423	0	182,536	0	187,349	0	192,307	0	685,616	0
	FY2	000	FY20	124	FY20	)0E	FY20	26	Cumulativ	va Tatal
B. Operating Expenditures	On-going	One-time	On-going	One-time	On-going	One-time	On-going	One-time	On-going	One-time
1. Travel	16,000		16,000		16,000		16,000		64,000	0
2. Professional Services									0	0
3. Other Services	9,000		18,000		27,000		45,000		99,000	0
4. Communications									0	0
5. Materials and Supplies									0	0
6. Rentals									0	0
7. Materials & Goods for Manufacture & Resale									0	0
8. Miscellaneous 25% Overhead	26,600		53,200		79,800	-	133,000		292,600	0
Total Operating Expenditures	51,600	0	87,200	0	122,800	0	194,000	0	455,600	0

	FY2	2023	FY20	)24	FY20	)25	FY20	)26	Cumulativ	ve Total
	On-going	One-time	On-going	One-time	On-going	One-time	On-going	One-time	On-going	One-time
C. Capital Outlay										
1. Library Resources	<u> </u>								0	0
2. Equipment		10,000							0	10,000
Total Capital Outlay	0	10,000	0	0	0	0	0	0	0	10,000
D. Capital Facilities Construction										
or Major Renovation		-		·				-	0	0
E. Information Technology										
Support									0	0
F. Other Costs										
1. Utilities									0	0
2. Maintenance & Repairs									0	0
3. Other:									0	0
Total Other Costs	0	0	0	0	0	0	0	0	0	0
TOTAL EXPENDITURES:	175,023	10,000	269,736	0	310,149	0	386,307	0	1,141,216	10,000
Net Income (Deficit)	-68,623	-10,000	-56,936	0	9,051	0	145,693	0	29,184	-10,000

Budget Notes (specify row and add explanation where needed; e.g., "I.A.,B. FTE is calculated using..."):

I.A.	Increase student enrollment by 10 students per cohort until student enrollment equals a total of 60 students with 30 in each cohort. Expected to reach 60 total students by FY2027.
II.5	On-line program fee is based on 38 credits to complete program @ \$560 per credit. Students will take approximately 19 credits per year for two years.
III.A.2	Prescribing psychologist with be a .5 fte and will not start until January of fiscal year 1.
III.B.3	\$900.00 per student for use of Lab space and materials (TVAPL) and other services.
III.B.8	25% of on-line program fee will go to central ISU for overhead costs.
III.C.2	\$5,000 on-time cost for each employee to cover new computer and office furniture and equipment.
Net Income (Deficit)	Deficit for first two years will be covered by the College of Pharmacy reserves and will need to be paid back to the College of Pharmacy with profits from the 3rd, and 4th years.

#### **UNIVERSITY OF IDAHO**

#### **SUBJECT**

IdahoStars – RISE database – Contract with In Time Tec, LLC

## APPLICABLE STATUTE, RULE, OR POLICY

Idaho State Board of Education Governing Policies & Procedures, Section V.I.3

#### **BACKGROUND/DISCUSSION**

The University of Idaho's Center on Disabilities and Human Development (CDHD) operates the IdahoSTARS program in partnership with Idaho Association for the Education of Youth Children (IAEYC), funded through the Idaho Department of Health and Welfare. IdahoSTARS provides education, professional development, technical assistance, scholarships, and resources to childcare providers throughout the state. CDHD has been operating the IdahoSTARS program in the since May of 2003 after securing a competitive grant.

The IdahoSTARS – RISE database is a comprehensive database and application that houses all data related to IdahoSTARS' programs (e.g., Idaho Child Care Program (ICCP), State Licensing, and Pyramid Model coaching). The application is the avenue that child care facility owners & directors use to apply for and maintain eligibility for ICCP, State Licensing, and Steps to Quality (Idaho's quality improvement program) as well as to apply for facility assessments and grants offered through both IdahoSTARS and IDHW. Through RISE, individuals register for and take trainings and Targeted Technical Assistance modules across all early childhood domains, track eligibility for and manage participation in IdahoSTARS incentives (training scholarships, academic & single course higher ed scholarships Registry recognition), access a comprehensive professional and PDS development record (training hours, education credits, and recognition received for their accomplishments), and log coaching activities with IdahoSTARS and partner coaches. IdahoSTARS team members use RISE to do their everyday work such as: process documents, manage facility participation and supports in ICCP, State Licensing, Steps to Quality, maintain a training catalog and calendar, and launch online training produced in-house on the RISE training portal.

The proposed contract will expand the functions of RISE, provide for a necessary system upgrade, update the parent portal, and develop mobile apps. Funding for the contract is provided by an IDHW grant, which was just received in December 2021, through the Coronavirus Response and Recovery Supplemental Appropriations Act (CRRSAA) and the American Rescue Plan Act (APRA) to support COVID-19 response and recovery in child care settings. The money must be spent, and the work completed, by June 30, 2022.

In Time Tec, LLC (ITT) developed the IdahoSTARS - RISE database, and, given ITT's knowledge of the database, is uniquely situated to be able to provide the

services. Thus, the contract will be awarded through a waiver of the competitive bid requirements as permitted by University Policy 60.13 (Waiver of Competitive Bid Process). Given the tight time frames, and in order to allow In Time Tec, LLC to begin work immediately, the University entered into a short term contract with In Time Tec for \$375,000 running through the end of February. This proposed contract is for the time period of March 1, 2022 through June 30,2022.

#### **IMPACT**

The total contract amount for this proposed contract is \$1,125,000. The short term contract through February 28, 2022, is for \$375,000, with a total cost for this project of \$1.5 million.

#### **ATTACHMENTS**

Attachment 1 – Proposed Contract

## **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

This contract will benefit childcare providers and parents throughout the state by enhancing the IdahoSTARS – RISE database and its functionality. Funding is from federal funds and the project must be completed by June 30, 2022. Since the vendor, Time Tec, LLC (ITT) developed the IdahoSTARS – Rise database, the contract is being awarded through a bid waiver/sole source exemption of University of Idaho purchasing policies.

Staff recommends approval.

#### **BOARD ACTION**

I move to approve the proposed contract between the Regents of the University of Idaho and In Time Tec, LLC, and to authorize the University of Idaho Vice-President for Finance and Administration, or designee, to execute the contract in substantial conformity to the proposed contract submitted as Attachment 1.

Moved by	Seconded by	Carried Yes	No	

## UNIVERSITY OF IDAHO CONTRACT FOR SERVICES

This Agreement is made between the Regents of the University of Idaho, a public corporation and state educational institution, and body politic and corporate organized and existing under the Constitution and laws of the state of Idaho ("Institution"), and In Time Tec LLC, a limited liability company with its principal place of business in Idaho and with authority to do business in the State of Idaho ("Contractor"), collectively the Parties.

#### RECITALS

- A. Institution desires to obtain the services of Contractor; and
- B. Contractor claims to have expertise and experience to provide the services described herein for the benefit of the Institution.

#### **TERMS**

The Parties in recognition of the good and valuable consideration as further described herein agree as follows:

- 1.0 Scope of Services
  - 1.1 Contractor agrees to perform such professional services as are set forth in this Agreement with the standard of professional care and skill customarily provided in the performance of such services, and Institution agrees to pay Contractor such amounts as are specified in this agreement, all upon the following terms and conditions:
  - 1.2 Contractor agrees to provide the deliverables set forth in **Exhibit A and Exhibit A-1**, attached hereto and incorporated herein.
  - 1.3 Contractor shall provide such services as are necessary to provide the deliverables set forth in Exhibit A.
  - 1.4 Contractor agrees to perform as set forth in sections 1.2 and 1.3 to the satisfaction of Institution.
  - 1.5 Institution's liaison overseeing the services provided under this Agreement is Melissa Crist, who is located at University of Idaho, Department of Center on Disabilities and Human Development, Moscow, ID 83843; Voice: (208) 885-6169; Email: mcrist@uidaho.edu.
  - 1.6 The parties may from time-to-time extend the scope of services and deliverables or omit services and deliverables previously ordered, and the provisions of this Agreement shall apply to all such additions and omissions. All such additions and omissions must be in a writing executed by both parties in order to be effective.
- 2.0 Fees and Expenses.
- 2.1 Institution agrees to pay a maximum fee of \$1,125,000.00 for services, out-of-pocket expenses and deliverables rendered by Contractor hereunder, as stated in **Exhibit A-2** incorporated herein.
  - 2.2 The total fee, and any reimbursement for incidental out-of-pocket expenses identified in section 2.4, shall be payable in progress payments based on a percentage of completion of work. An application for payment of fees and expenses, accompanied by proper documentation, including receipts, shall be submitted by Contractor to Institution upon completion of the work, said application to cover and include all fees earned and expenses incurred. Contractor shall be deemed to have waived its right to payment for any fees earned or expenses incurred if not included on the application. Institution reserves the right to require reasonable additional supporting

documentation from Contractor. All applications for payment shall be on forms acceptable to or approved by Institution.

- 2.3 Contractor agrees that Contractor is solely responsible for payment of income, social security, and other employment taxes due to the proper taxing authorities, and that Institution will not deduct such taxes from any payments to Contractor hereunder. Contractor agrees to indemnify, defend, and hold harmless the state of Idaho and Institution and its governing board, officers, employees, and agents from and against any and all costs, losses, damages, liabilities, expenses, demands, and judgments, including court costs and attorney's fees, relating to the payment of income, social security, and other employment taxes for itself and subcontractor(s) of any tier.
- 2.4 Institution shall, at its discretion, reimburse or directly pay the following designated out-of-pocket expenses. Absent a specific statement from Institution that it will directly pay for a designated expense, a designated expense will be reimbursed. In all cases, whether direct pay, or reimbursement, the rates for the following costs shall be consistent with the University's current travel policy and rates:
  - (1) Airplane travel for N/A person(s) not to exceed coach rate for dates of travel.
  - (2) One rental car in an amount not to exceed economy rates for dates of travel, unless an upgrade is justified and authorized by Institution.
  - (3) Lodging for  $\underline{\text{N/A}}$  person(s) for  $\underline{\text{N/A}}$  night(s) not to exceed standard single rates, unless otherwise justified and authorized by Institution.
  - (4) Meals for  $\underline{NA}$  person (s) for  $\underline{NA}$  day(s) not to exceed Institution per diem for such location, per day.
  - (5) Other as follows: N/A
- 2.5 Fees for services not within the scope of this Agreement shall be at an hourly rate to be negotiated in writing by the parties.
- 3.0 Term.

The services to be rendered by Contractor under this Agreement shall commence on March 1, 2022 and be completed by June 30, 2022. Time is of the essence for this Agreement. This term may be extended beyond such completion date if Institution agrees to the extension in writing.

- 4.0 Contractor's Capacity and Responsibilities.
  - 4.1 It is expressly understood that Contractor is an independent contractor and not the agent, partner, or employee of Institution. Contractor and Contractor's workers are not employees of Institution and are not entitled to tax withholding, Workers' Compensation, unemployment compensation, or any employee benefits, statutory or otherwise.
  - 4.2 Contractor shall not have the authority to enter into any contract or agreement to bind Institution and shall not represent to anyone that Contractor has such authority.
  - 4.3 Contractor represents and warrants to Institution that in performing the services called for hereunder Contractor will not be in breach of any agreement with a third party.
  - 4.4 In the event that Contractor subcontracts for the services to be provided herein, Contractor shall remain liable for all obligations and commitments under this Agreement and shall ensure that any necessary obligations and commitments flow through to the subcontractor(s) of any tier.
  - 4.5 As used in this Section 4.5, the following definitions apply:

Data is defined as electronic or digital records and information or records of any type owned, created, received, collected or stored by the Institution or on its behalf.

Data Compromise means any attempted or actual access, use, disclosure, loss, modification, or destruction of Data (as defined below) that is not permitted by this Agreement. This definition does not include incidents that occur on a daily basis, such as scans, "pings," or unsuccessful attempts to penetrate computer networks or servers VENDOR or its subcontractor maintains.

PII is defined as Social Security Numbers, driver's license numbers, full birth date, financial account information, payment card information, customer lists, and other types of personally identifiable information that would reasonably be considered highly sensitive.

- 4.5.1 Immediately upon becoming aware of a Data Compromise, or of circumstances that could have resulted in unauthorized access to or disclosure or use of Institution Data, Contractor will notify Institution, fully investigate the incident, and cooperate fully with Institution's investigation of and response to the incident. Except as otherwise required by law, Contractor will not provide notice of the incident directly to the persons whose data were involved, regulatory agencies, or other entities, without prior written permission from Institution. Notwithstanding any other provision of this agreement, and in addition to any other remedies available to Institution under law or equity, Contractor will reimburse Institution in full for all costs incurred by Institution in investigation and remediation of such Data Compromise, including but not limited to providing notification to third parties whose data were compromised and to regulatory agencies or other entities as required by law or contract; the offering of 24 months' credit monitoring to each person whose data were compromised; and the payment of legal fees, audit costs, fines, and other fees imposed by regulatory agencies or contracting partners as a result of the Data Compromise. All of Contractor's obligations and Institution's rights and remedies under this section shall survive the termination of this Agreement.
- 4.5.2 Contractor will use Data only for the purpose of fulfilling its duties under this Agreement and for Institution's and its End User's sole benefit, and will not share such data with or disclose it to any third party without the prior written consent of Institution or a as otherwise required by law. By way of illustration and not of limitation, Contractor will not use such data for Contractor's own benefit and, in particular, will not engage in "data mining" or communications, whether through automated or human means, except as specifically and expressly required by law or authorized in writing by Institution.

All Institution Data will be stored on servers, located solely within the Continental United States.

Contractor will provide access to Institution Data only those Contractor employees and subcontractors who need to access the data to fulfill Contractor's obligations under this Agreement. Contractor will ensure that employees who perform work under this Agreement have read, understood, and received appropriate instruction as to how to comply with, the data protection provisions of this Agreement, and have undergone all background screening and possess all qualifications appropriate to the nature of the employees' duties and the sensitivity of the data they will be handling prior to being granted access to the Data.

4.5.3 Data used for testing or development systems will be appropriately de-identified of PII prior to use. All PII will be encrypted to modern standards (e.g., AES 128 or better) in transit and at rest.

All Institution Data will be removed from Contractor systems and/or destroyed when work requiring said Data is complete. Upon Institution's request, Contractor will supply Institution a certificate indicating the records destroyed, the date destroyed, and the method of destruction used.

4.5.4 Contractor will provide software using a modern software development life cycle (SDLC), which will include, but not be limited to: code review, static and dynamic testing, regression testing, load testing, and security testing including addressing the Open Web Application Security Project top 10 vulnerabilities (OWASP Top 10). SDLC

documentation will be provided to the university upon request. Key and/or lead development staff will be trained in the OWASP top 10.

- 4.5.5 All systems and software delivered or modified shall be penetration tested by a qualified individual or company prior to close of this work. This is to be completed in cooperation with the Institution designated staff if needed. Defects found will be remedied as required by Institution review.
- 4.5.6 Software delivered shall be compliant with Section 508 standards for accessibility, such as through WCAG 2.0 standards. A Voluntary Product Accessibility Template (VPAT) form shall be delivered upon request.
- 4.5.7 Any portions of the system or application described in Exhibit A that is Internet-accessible with access to sensitive personal information, meeting breach notification requirements under Idaho Law (Idaho Code section 28-51-104), shall be modified to include multi-factor authentication (MFA) to Institution standards. Contractor will work cooperatively with Institution to implement this in an agreed upon fashion, compliant with current Institution standards.
- 4.5.8 Any portions of the system holding or transmitting PII must be modified to use modern encryption standards as part of this work. This includes encryption in transit and at rest, to AES-128 standards or better. Contractor will work cooperatively with Institution to implement this in an agreed upon fashion, compliant with current Institution standards.
- 5.0 Confidentiality of Information.
  - 5.1 Contractor agrees to keep confidential and not to disclose to third parties any information provided by Institution pursuant to or learned by Contractor during the course of this Agreement unless Contractor has received the prior written consent of Institution to make such disclosure. This obligation of confidentiality does not extend to any information that:
    - 5.1.1 Was in the possession of Contractor at the time of disclosure by Institution, directly or indirectly;
    - 5.1.2 Is or shall become, through no fault of Contractor, available to the general public, or
    - 5.1.3 Is independently developed and hereafter supplied to Contractor by a third party without restriction or disclosure.
  - 5.2 This provision shall survive expiration and termination of this Agreement.
- 6.0 Property Rights and Reports.
  - 6.1 Contractor agrees that any intellectual property including but not limited to computer programs, software, documentation, copyrightable work, discoveries, inventions, or improvements developed by Contractor solely, or with others, resulting from the performance of services pursuant to this Agreement is the property of Institution, and Contractor herby agrees to assign all rights therein to institution. Contractor further agrees to provide Institution with any assistance which Institution may require to obtain patents or copyright registrations, including the execution of any documents submitted by Institution.
  - 6.2 Contractor shall provide five (5) copies of the deliverables to be provided under this Agreement on or before 30-JUNE-22. Institution shall be considered the author thereof, and the sole and exclusive owner throughout the world forever of all rights existing therein, including all manuscripts, reports, sketches, drafts, notes, maps, memoranda, etc., relating to the work, and all revisions, editions, and versions thereof in all languages, forms and media now and hereafter known and developed.

- 6.3 Non-Use of Names and Trademarks. No party to this Agreement shall, without express written consent, use any name, trade name, trademark, or other designation of any other party hereto (including contraction, abbreviation or simulation) in advertising, publicity, promotional, or any other activities or context
- 6.4 This provision shall survive expiration and termination of this Agreement.
- 7.0 Suspension or Termination of Contract.

Institution reserves the right to suspend indefinitely or terminate the contract and the services to be rendered by Contractor for any reason upon—seven (7) days' prior written notice. In the event of termination prior to completion of all work described in Section 1.0, the amount of the total fee to be paid Contractor shall be determined by Institution on the basis of the portion of the total work actually completed up to the time of such termination.

- 8.0 Indemnification and Hold Harmless.
  - 8.1 Contractor agrees that any personal injury to Contractor or third parties or any property damage incurred in the course of performance of the Consulting Services shall be the responsibility of Contractor.
  - 8.2 Contractor agrees to indemnify, defend, and hold harmless the state of Idaho and Institution and its governing board, officers, employees, and agents from and against any and all costs, losses, damages, liabilities, expenses, demands, and judgments, including court costs and attorney's fees, which may arise out of Contractor's performance of the Consulting Services, including performance of subcontractor(s) of any tier, except to the extent such are caused by the negligence of Institution.
  - 8.3 This provision shall survive the termination of this agreement.

#### 9.0 Insurance

- 9.1 General Requirements
  - 9.1.1 Contractor and its subcontractor(s) of any tier are required to carry the types and limits of insurance shown in this insurance clause, section 9.0, and to provide Institution with a Certificate of Insurance ("certificate"). All certificates shall be coordinated by the Contractor and provided to the Institution within seven (7) days of the signing of the contract by the Contractor. Certificates shall be executed by a duly authorized representative of each insurer, showing compliance with the insurance requirements set forth below. All certificates shall provide for thirty (30) days' written notice to Institution prior to cancellation, non-renewal, or other material change of any insurance referred to therein as evidenced by return receipt of United States certified mail. Said certificates shall evidence compliance with all provisions of this section 9.0. **Exhibit B**, the Request for Certificate of Insurance, provides a list of instructions for the insurance agent or broker of the Contractor and its subcontractor(s) of any tier.
  - 9.1.2 Additionally and at its option, Institution may request certified copies of required policies and endorsements. Such copies shall be provided within (10) ten days of the Institution's request.
  - 9.1.3 All insurance required hereunder shall be maintained in full force and effect with insurers with Best's rating of AV or better and be licensed and admitted in Idaho. All policies required shall be written as primary policies and not contributing to nor in excess of any coverage Institution may choose to maintain. Failure to maintain the required insurance may result in termination of this Agreement at Institution's option.

- 9.1.4 All policies shall name Institution as Additional Insured. On the certificate, the Institution shall be stated as: "State of Idaho and The Regents of the University of Idaho". Certificates shall be mailed to: University of Idaho, Risk Management, 875 Perimeter Drive MS2433, Moscow, ID 83844-2433.
- 9.1.5 Failure of Institution to demand such certificate or other evidence of full compliance with these insurance requirements or failure of Institution to identify a deficiency from evidence that is provided shall not be construed as a waiver of the obligation of Contractor and its subcontractor(s) of any tier to maintain such insurance.
- 9.1.6 No Representation of Coverage Adequacy. By requiring insurance herein, Institution does not represent that coverage and limits will necessarily be adequate to protect Contractor and its subcontractor(s) of any tier, and such coverage and limits shall not be deemed as a limitation on the liability of the Contractor and its subcontractor(s) of any tier under the indemnities granted to Institution in this Lease.
- 9.1.7 Contractor is responsible for coordinating the reporting of claims and for the following: (a) notifying the Institution in writing as soon as practicable after notice of an injury or a claim is received; (b) cooperating completely with Institution in the defense of such injury or claim; and (c) taking no steps (such as admission of liability) which will prejudice the defense or otherwise prevent the Institution from protecting its interests.
- 9.2 Required Insurance Coverage.

Contractor and its subcontractor(s) of any tier shall at its own expense obtain and maintain:

- 9.2.1 Commercial General and Umbrella / Excess Liability Insurance. Contractor and its subcontractor(s) of any tier shall maintain Commercial General Liability ("CGL") written on an occurrence basis and with a limit of not less than \$1,000,000 each occurrence and in the aggregate. If such CGL insurance contains a general aggregate limit, it shall apply separately by location and shall not be less than \$1,000,000. CGL insurance shall be written on standard ISO occurrence form (or a substitute form providing equivalent coverage) and shall cover liability arising from premises, operations, independent contractors, products-completed operations, personal injury and advertising injury, and liability assumed under a contract including the tort liability of another assumed in a business contract. Waiver of subrogation language shall be included. If necessary to provide the required limits, the Commercial General Liability policy's limits may be layered with a Commercial Umbrella or Excess Liability policy.
- 9.2.2 Commercial Auto Insurance. If applicable, Contractor and its subcontractor(s) of any tier shall maintain a Commercial Auto policy with a Combined Single Limit of not less than \$1,000,000; Underinsured and Uninsured Motorists limit of not less than \$1,000,000; Comprehensive; Collision; and a Medical Payments limit of not less than \$10,000. Coverage shall include Non-Owned and Hired Car coverage. Waiver of subrogation language shall be included.
- 9.2.3 Personal property. If applicable, Contractor and its subcontractor(s) of any tier shall purchase insurance to cover personal property of Contractor and its subcontractor(s) of any tier. In no event shall Institution be liable for any damage to or loss of personal property sustained by Contractor, even if such loss is caused by the negligence of Institution, its employees, officers or agents. Waiver of subrogation language shall be included.
- 9.2.4 Workers' Compensation. Contractor and its subcontractor(s) of any tier shall maintain all coverage statutorily required of the Contractor and its subcontractor(s) of any tier, and coverage shall be in

accordance with the laws of Idaho. Contractor and its subcontractor(s) of any tier shall maintain Employer's Liability with limits of not less than \$100,000 / \$500,000 / \$100,000.

## 10.0 Attorneys' Fees

In the event of any controversy, claim or action being filed or instituted between the parties to this Agreement to enforce the terms and conditions of this Agreement or arising from the breach of any provision hereof, the prevailing party will be entitled to receive from the other party all costs, damages, and expenses, including reasonable attorneys' fees, incurred by the prevailing party, whether or not such controversy or claim is litigated or prosecuted to judgment. The prevailing party will be that party who was awarded judgment as a result of trial or arbitration, or who receives a payment of money from the other party in settlement of claims asserted by that party.

#### 11.0 Notice.

Any notice under this Agreement shall be in writing and be delivered in person or by public or private courier service (including U.S. Postal Service Express Mail) or certified mail with return receipt requested or by facsimile. All notices shall be addressed to the parties at the following addresses or at such other addresses as the parties may from time to time direct in writing:

the Institution: Contracts and Purchasing Services

University of Idaho

875 Perimeter Drive MS 2006 Moscow, ID 83844-2006 Phone: (208) 885-6116 Fax: (208) 885-6060 purchasing@uidaho.edu

the Contractor: In Time Tec, LLC

580 E Corporate Drive Meridian, ID 83642 Phone: 208-608-6827

Email: justin.wallace@intimetec.com

Any notice shall be deemed to have been given on the earlier of: (a) actual delivery or refusal to accept delivery, (b) the date of mailing by certified mail, or (c) the day facsimile delivery is verified. Actual notice, however, and from whomever received, shall always be effective.

## 12.0 Entire Agreement; Modification.

This Agreement (and its incorporated attachments) is the final, complete, and exclusive expression of all agreements between the parties on all subjects and supersedes and replaces all prior discussion, representation, agreements, policies, and practices and may not be amended except by an agreement signed by Contractor and an authorized representative of Institution. Neither party is entering this Agreement in reliance on any oral or written promises, inducement, representations, understandings, interpretations, or agreements other than those contained in this Agreement and its incorporated attachments.

## 13.0 Severability.

The terms of this Agreement are severable such that if any term or provision is declared by a court of competent jurisdiction to be illegal, void, or unenforceable, the remainder of the provisions shall continue to be valid and enforceable.

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## 14.0 Governing Law; Forum.

Any legal proceeding instituted between the parties shall be in the courts of the County of Latah, state of Idaho, and each of the parties agrees to submit to the jurisdiction of such courts. It is further agreed that this Agreement shall be governed by the laws of the State of Idaho as an agreement to be performed within the State of Idaho.

## 15.0 Paragraph Headings.

The paragraph headings in this Agreement are inserted for convenience only and shall not be construed to limit or modify the scope of any provision of this Agreement.

#### 16.0 Non-Waiver.

The delay or failure of either party to exercise any of its rights under this Agreement for a breach thereof shall not be deemed to be a waiver of such rights, nor shall the same be deemed to be a waiver of any subsequent breach, either of the same provision or otherwise.

## 17.0 Assignment.

Contractor may not assign the rights or delegate the obligations under this Agreement without Institution's prior written consent.

## 18.0 Accounting; Audit.

For a period of three (3) years following completion of the services called for hereunder, Institution or its authorized representatives shall be afforded access at reasonable times to Contractor's accounting records relating to the services set forth herein in order to audit all charges for the services.

#### 19.0 Nondiscrimination and Affirmative Action.

- 19.1 Contractor shall not discriminate against any employee or applicant for employment in the performance of this Agreement, with respect to tenure, terms, conditions or privileges of employment, or any matter directly or indirectly related to employment, because of race, sex, color, religion, age, status as Disabled or a veteran, or physical or mental handicaps, national origin or ancestry. Breach of this covenant is a material breach of this agreement. The Contractor certifies that it does not and will not maintain segregated facilities or accommodations on the basis of race, color, religion or national origin. Regarding any position for which an employee or an applicant is qualified, the Contractor agrees to take affirmative action to employ, train, advance in employment, and retain individuals in accordance with applicable laws and regulations including:
  - 19.1.1 For nondiscrimination based on race, color, religion, sex or national origin this includes, but is not limited to, the U.S. Constitution, and Parts II and IV of Executive Order 11246, September 24, 1965 (30 FR 12319). Contractor disputes related to compliance with its obligations shall be handled according to the rules, regulations, and relevant orders of the Secretary of Labor (See 41 CFR 60-1.1).
  - 19.1.2 For nondiscrimination based on Disabled or Vietnam Veterans this includes, but is not limited to, the Vietnam Era Veterans Readjustment Assistance Act of 1972, as amended (38 U.S.C. 4012)(the Act); Executive Order 11701, January 24, 1973 (38 CFR 2675, January 29, 1973); and the regulations of the Secretary of Labor (41 CFR Part 60-250).

- 19.1.3 For nondiscrimination based on the Handicapped this includes, but is not limited to, Section 503 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 793)(the Act); Executive Order°11758, January 15, 1974; and the regulations of the Secretary of Labor (41 FR Part 60- 741).
- 19.1.4 For nondiscrimination based on Age this includes, but is not limited to, Executive Order 11141, February 12, 1964 (29 CFR 2477).
- 19.2 The Contractor shall include the terms of this clause in every subcontract or purchase order exceeding \$50,000 and shall act as specified by the Department of Labor to enforce the terms and implement remedies.

## 20.0 Representations and Warranties.

Contractor represents and warrants the following: (a) that it is financially solvent, able to pay its debts as they mature, and possessed of sufficient working capital to provide the equipment and goods, complete the services, and perform its obligations hereunder; (b) that it is able to furnish any of the plant, tools, materials, supplies, equipment, and labor required to complete the services required hereunder and perform all of its obligations hereunder and has sufficient experience and competence to do so; (c) that it is authorized to do business in Idaho, properly licensed by all necessary governmental and public and quasi-public authorities having jurisdiction over it and the services, equipment, and goods required hereunder, and has or will obtain all licenses and permits required by law; and (d) that it has familiarized itself with the local conditions under which this agreement is to be performed.

## 21.0 Compliance with Rules, Regulations, and Instructions.

Contractor shall follow and comply with all rules and regulations of the Institution and the reasonable instructions of Institution personnel. The Institution reserves the right to require the removal of any worker it deems unsatisfactory for any reason. The duties and responsibilities required under this agreement shall be performed in accordance with all local, state and federal law. Failure to perform these obligations in conformity with controlling law may be construed as breach.

Some provisions of this Agreement may not be applicable, and those sections do not need to be completed by the parties. Please see attached **Exhibit C** for a list of provisions that are specifically excluded from this Agreement and, therefore, have no legal force or effect on the parties signing this Agreement.

IN WITNESS WHEREOF, the authorized representatives of the parties have executed this Agreement:

INSTITUTION: The Regents of the University of Idaho	CONTRACTOR: In Time Tech, LLC
Signature:	Signature:
Name:	Name:
Title:	Title:
Date:	Date:

# Exhibit A Scope of Work

## Data Base Work Scope IdahoSTARS Contract In Time Tech

## Management of backlog

ITT will create and manage the backlog related to all work in this SOW, including writing and grooming of user stories.

## Opt-in for email & SMS communication

ITT will explore options, both commercial and open-source, for Providing SMS messaging services within RISE for better communication and engagement with users.

Once investigation is complete, ITT will deliver results and recommendations to IdahoSTARS leadership for selection. Once selection is made, ITT will integrate the chosen solution into RISE. This will include a text management system for RISE admins which will allow selection of text recipients, composition of text messages, and ability to choose time of sending text messages.

As part of this integration ITT will provide a method for users to opt-in to receive text messaging in accordance with current best practice and industry standards. The ability to opt in and/or opt out will always be made available to users through settings or another acceptable method.

#### Deliverables:

- Research Results and Recommendations for SMS provider options
- Integration of selected SMS provider with RISE
- SMS Messaging management system for Admin users in RISE
- User opt-in/opt-out for SMS text messaging

UI/UX Usability Study to improve overall user journey in RISE web application

Conduct surveys, focus groups, interviews, and other research methods with a cross section of RISE users to identify strengths and weaknesses in the user interface and experience.

Define the current user journey and, with the information learned from user research, create a new user journey to improve usability of RISE. All design will include a feedback loop with beneficiaries.

Create wireframes for web and mobile applications incorporating the new user journey to be used for the creation of RISE mobile applications and web applications. These will also be used to inform the Design System being created in the previous SOW for RISE's continued Development.

#### Deliverables:

- Research Results of user surveys, focus groups, and interviews
- New User Journey documentation
- Wireframes for mobile and web applications

## RISE mobile app

With input from all beneficiary sectors, create a mobile version of RISE for users (not ISMS administrators) that contains the current functionality of RISE and incorporates the lessons learned from the UI/UX study. Mobile applications will be compatible with Apple iOS and Android phones and will be developed with React Native in order to keep maintenance costs to a minimum. Mobile application will be registered and deployed in the Apple App Store and on the Google Play Store.

#### Deliverables:

o RISE mobile application for iOS and the Android

## Parent mobile app

Using the beneficiary voice of parents across Idaho, define the feature list for a parent mobile application, focusing on parent access to early childhood training and resources, as well as other features determined by DHW. Integration of parent referrals per DHW parameters, including the ability to search for childcare with mapping.

Once features have been identified, create a user journey for parents based on those features. Then transform the designed user journey into wireframes for mobile development and create a mobile application to meet parents' needs. Mobile application will be compatible with Apple iOS and Android phones and will be developed with React Native in order to keep maintenance costs to a minimum. Mobile application will be registered and deployed in the Apple App Store and on the Google Play Store

#### Deliverables:

- Completed Feature List
- Parent User Journey documentation
- Wireframes for mobile design
- Mobile application for parents for iOS and Android

## Idaho's Cost of Quality Calculator

Using a simplified Provider Cost of Quality calculator as a reference point, create a new and improved Idaho Cost of Quality Calculator. As appropriate, the calculator will integrate with RISE data systems to improve the accuracy of the calculator. To provide a superior product, research and beneficiary voice will be used to define the shortcomings of the current Provider Cost of Quality calculator and identify areas of improvement.

#### Deliverables:

- o Results of research and study to include a feature list
- o Idaho Cost of Quality Calculator

Additional architecture enhancements and technical maintenance to improve scale and performance

The scale and performance of RISE must be improved to keep up with its usage.

#### Deliverables:

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- Refactor Database and cleanse data
- Rearchitect the existing system to have plug and play capabilities to support and enable the next generation of the RISE system
- Standardize time measurements to one server time for all of system
- Move logic calculations from front end to back end
- Move calculated fields where possible to state-based fields
- o Review improvements and make any additional changes necessary
- o Consider a message que-based system if additional improvements necessary

## Enhancements to PIR (data improvements)

The PIR can be improved in both data collection methodology and modeling to provide a more accurate assessment of the cost of childcare in Idaho at a granular level. Engage data scientists to improve the questions in the PIR so that we can more accurately model a standardized cost of childcare. Model that data across the spectrum to provide global and granular accuracy. Modifications should consider the federal reporting standards as defined by DHW.

#### Deliverables:

- Modified PIR sections for calculating childcare rates
- o Data model of childcare rates for entire state down to neighborhood levels

## Improvements to Ad Hoc Reporting

Ad Hoc reporting in RISE is currently limited by the division of user and facilities and training. This limitation causes certain reports and functions to not be useable in RISE. Review the reporting structure and provide a solution to this division. Further we will add a user-friendly interface to do more reporting functionality such as pivot reporting, data visualization, custom naming of reports, scheduling of standardized reports.

#### Deliverables:

- Unified reporting structure with increased measures
- o Pivot reporting and data visualization
- Custom naming and saving of reports
- Scheduling of reports

#### **Enhancements to Parent Referrals**

Make changes as defined for enhanced and phone parent referral forms in family management in RISE. Add additional fields in RISE forms for parent referrals. Enhancements to add additional children to referral. Ad new measures to reporting functionality for referrals including logged notes.

#### Deliverables:

- New form for parent referrals
- o Add multiple children enhancement
- Add measures to ad hoc reporting

#### **Enhancements to Dashboards**

Create user customizable dashboards for RISE so that users can choose what they want to see as a priority on their dashboard. Drag and Drop customization through a limited set of 'widgets' that can be expanded in the future. Creation of a widget library for users. Ui/UX involvement in dashboard design will be delivered in other parts of this SOW.

#### Deliverables:

- Widget Library
- Dashboard settings and customization interface
- Link with new reporting features

Provide secure external connections between third parties and RISE

This work will be tightly coupled with the User Roles and Permissions enhancements in the previous SOW and/or defined in the DHW RFP for a data hub. Provide controlled access to RISE for third parties where it is necessary and desirable for the efficient functioning of RISE and the early childhood system. Create connections between RISE to third party systems where RISE can acquire data or forms directly from third parties. This will include:

- o Connection to Health Districts for employees, Health Inspection, Licensing Fees
- o Connection to CHU for background checks
- Automated ICCP recert & de-cert in IBIS
- MDCC forms

Exhibit A-1

Feature #	Feature	Requirement #	Requirement
3	Additional architecture enhancements and technical maintenance to improve scale and performance	3.18	Move calculated fields where possible to state- based fields
3	Additional architecture enhancements and technical maintenance to improve scale and performance	3.19	Review improvements and make any additional changes necessary
3	Additional architecture enhancements and technical maintenance to improve scale and performance	3.2	SMS Messaging management system for Admin users in RISE
3.1	Enhancements to Ad Hoc Reporting	3.23	Unified reporting structure with increased measures
3.1	Enhancements to Ad Hoc Reporting	3.25	Custom naming and saving of reports
3.1	Enhancements to Ad Hoc Reporting	3.26	Scheduling of reports
3.1	Enhancements to Ad Hoc Reporting	3.29	Add measures to Ad Hoc reporting
3.2	Enhancements to Dashboards	3.3	Widget Library
3.2	Enhancements to Dashboards	3.31	Dashboard settings & customization interface
3.2	Enhancements to Dashboards	3.32	Link with new reporting features
3.3	Enhancements to Parent Referrals	3.27	New form for parent referrals
3.3	Enhancements to Parent Referrals	3.28	Add multiple children enhancement
3.4	Enhancements to PIR. Model data outside data hub if data hub doesn't come online. requires a data scientist.	3.21	Modified PIR sections for calculating childcare rates
3.4	Enhancements to PIR. Model data outside data hub if data hub doesn't come online	3.22	Data model of childcare rates for entire state down to neighborhood levels
3.5	Opt-in for email & SMS communication	3	Research Results and Recommendations for SMS provider options
3.5	Opt-in for email & SMS communication	3.01	Integration of selected SMS provider with RISE
3.5	Opt-in for email & SMS communication	3.02	Consider a message que-based system if additional improvements necessary
3.5	Opt-in for email & SMS communication	3.03	User opt-in/opt-out for SMS text messaging

3.6 Parent Mobile App			
		3.08	Parent mobile app – complete feature list
3.6 Parent Mobile App		3.09	Parent User Journey documentation
3.6 Parent Mobile App		3.1	Wireframes for mobile design
3.6 Parent Mobile App		3.11	Mobile app for parents, iOS & Android
3.6 Parent Mobile App		3.12	Results of research and study & feature list
	ernal connections between third orking with Ericka on these	3.33	Connection to Health Districts for employees, health Inspection, Licensing Fees
	ernal connections between third orking with Ericka on these	3.34	Connection to CHU for background checks
	ernal connections between third orking with Ericka on these	3.35	Automated ICCP recert and de-cert in IBIS
	ernal connections between third orking with Ericka on these	3.36	MDCC forms
3.8 Reconfigure archite	ecture to accommodate growth	3.14	Refactor Database and cleanse data
3.8 Reconfigure archite	ecture to accommodate growth	3.15	Rearchitect the existing system to have plug and play capabilities to support and enable the next generation of the RISE system
3.8 Reconfigure archite	ecture to accommodate growth	3.16	Standardize time measurements to one server time for all of system
3.8 Reconfigure archite	ecture to accommodate growth	3.17	Move logic calculations from front end to back end
3.9 UI/UX Usability Stu journey in RISE web	dy to improve overall user o application	3.04	Research Results of user surveys, focus groups, and interviews
3.9 UI/UX Usability Stu journey in RISE web	dy to improve overall user o application	3.05	New User philosophy / patterns documentation
3.9 UI/UX Usability Stu journey in RISE web	dy to improve overall user o application	3.06	Wireframes for mobile and web applications
3.10		3.07	RISE mobile application for iOS and the Android
3.11		3.13	Idaho Cost of Quality Calculator
3.12		3.24	Pivot reporting & data virtualization

#### Exhibit A-2

		Invoice Details			
	January Invoice		End of April Milestones & Invoice	End of May Milestones & Invoice	End of June Milestones & Invoice
		3.5 Opt-in for email & SMS communication	3.0 Additional architecture enhancements and technical maintenance to improve scale and performance	3.1 Enhancements to Ad Hoc Reporting	3.5 Enhancements to Parent Referrals
		3.9 UI/UX Usability Study to improve overall user journey in RISE web application	3.11 Idaho Cost of Quality Calculator	3.2 Enhancements to Dashboards	3.10 RISE mobile application for iOS and the Android
			3.8 Reconfigure architecture to accommodate growth	3.7 Provide secure external connections between third parties and RISE	
			3.4 Enhancements to PIR. Model data outside data hub if data hub doesn't come online.	3.12 Pivot reporting & data virtualization	
				3.6 Parent Portal Mobile App	
Invoice Amoui	\$ 375,000.00	\$ 175,000.00	\$ 375,000.00	\$ 400,000.00	\$ 175,000.00

#### Exhibit B

# Request for Certificate of Insurance to be sent to University of Idaho RETURN A COPY OF THESE INSTRUCTIONS WITH YOUR CERTIFICATE. CERTIFICATE RECEIVED WITHOUT THIS SHEET WILL NOT BE APPROVED.

Contractor (Insured) is required to carry the types and limits of insurance shown in this Request, and to provide the University of Idaho with a Certificate of Insurance within 7 days of the signing of the contract.

Certificate Holder shall read:

State of Idaho and the Regents of the University of Idaho Attn: Risk Management 875 Perimeter Drive MS 2433 Moscow, ID 83844-2433

- Description area of certificate shall read: "Contracting Agreement with [Insert Named Insured]"
- All certificates shall provide for thirty (30) days' written notice to University prior to cancellation or material change of any insurance referred to therein
- All insurers shall have a Best's rating of AV or better and be licensed and admitted in Idaho.
- All policies required shall be written as primary policies and not contributing to nor in excess of any coverage University may choose to maintain.
- All policies (except Workers Compensation and Professional Liability) shall name the following as an Additional Insured: The Regents of the University of Idaho, a public corporation, state educational institution, and a body politic and corporate organized and existing under the Constitution and laws of the state of Idaho.
- Failure of the University to demand a certificate or other evidence of full compliance with these insurance requirements or failure of Institution to identify a deficiency from evidence that is provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- Failure to maintain the required insurance may result in termination of this grant or contract at the Institution's option.
- By requiring this insurance, University does not represent that coverage and limits will necessarily be adequate to protect Contractor, and such
  coverage and limits shall not be deemed as a limitation on Contractor's liability under the terms of the grant or contract.
- A copy of this certificate request must be sent with the Certificate.

Required Insurance Coverage. Contractor shall obtain insurance of the types and in the amounts described below.

- Commercial General and Umbrella / Excess Liability Insurance. Contractor shall maintain Commercial General Liability ("CGL") written on an occurrence basis and with a limit of not less than \$1,000,000 each occurrence and in the aggregate. If such CGL insurance contains a general aggregate limit, it shall apply separately by location and shall not be less than \$1,000,000. CGL insurance shall be written on standard ISO occurrence form (or a substitute form providing equivalent coverage) and shall cover liability arising from premises, operations, independent contractors, products-completed operations, personal injury and advertising injury, and liability assumed under an Contractor contract including the tort liability of another assumed in a business contract. Waiver of subrogation language shall be included. If necessary to provide the required limits, the Commercial General Liability policy's limits may be layered with a Commercial Umbrella or Excess Liability policy.
- <u>Commercial Auto Insurance</u>. If applicable, Contractor shall maintain a Commercial Auto policy with a Combined Single Limit of not less than \$1,000,000; Underinsured and Uninsured Motorists limit of not less than \$1,000,000; Comprehensive; Collision; and a Medical Payments limit of not less than \$10,000. Coverage shall include Non-Owned and Hired Car coverage. Waiver of subrogation language shall be included.
- <u>Personal property</u>. If applicable, Contractor shall purchase insurance to cover Contractor's personal property. In no event shall Institution be
  liable for any damage to or loss of personal property sustained by Contractor, even if such loss is caused by the negligence of University, its
  employees, officers or agents. Waiver of subrogation language shall be included.
- <u>Workers' Compensation</u>. Contractor shall maintain all coverage statutorily required of the Contractor, and coverage shall be in accordance with the laws of Idaho. Contractor shall maintain Employer's Liability with limits of not less than \$100,000 / \$500,000 / \$100,000.
- <u>Professional Liability</u>. If available generally to members of the Contractor's profession, Contractor shall maintain Professional Liability (Errors & Omissions) insurance on a claims made basis, covering claims made during the policy period and reported within three years of the date of occurrence. Limits of liability shall be not less than one million dollars (\$1,000,000).

If you have additional questions, please contact:

Risk Management PH (208) 885-7177. FAX (208) 885-9490 risk@uidaho.edu

#### **SUBJECT**

Idaho Indian Education Committee Appointments

#### REFERENCE

June 20, 2019	The Board approved the appointment of Dr. Leslie Webb, Mr. Jaime Barajas-Zepeda, and Ms. Effie
	Hernandez.
February 13, 2020	The Board approved the appointment of Mr. Jesse LaSarte.
April 16, 2020	The Board approved the appointment of Dr. Rex Force.
August 26, 2020	The Board approved the appointment of Dr. Mary Jane Miles.
April 2021	The Board approved reappointments for Mr. Sobotta, Dr. Force, Ms. James, Dr. Meyer, and Mr. LaSarte.
June 2021	The Board approved the reappointment of Ms. Tina Strong.
August 2021	The Board approved the appointment of Ms. Shirley Allman.
October 2021	The Board approved the appointment of Dr. Eric Scott.

#### APPLICABLE STATUTE, RULE, OR POLICY

Idaho State Board of Education Governing Policies and Procedures, Section I.P.

#### **BACKGROUND/DISCUSSION**

The Idaho Indian Education Committee serves as an advisory committee to the State Board of Education (Board) and the State Department of Education (Department) on educational issues and how they impact Idaho's American Indian student population. The committee also serves as a link between Idaho's American Indian tribes. Pursuant to Board Policy I.P., the Idaho Indian Education Committee consists of 19 members appointed by the Board. Each member serves a term of five years. Appointments to vacant positions during a previous incumbent's term are filled for the remainder of the open term. The membership consists of:

- One representative from each of the eight public postsecondary institutions
  - o Nominations are submitted from the institution president
- One representative from each of the five tribal chairs or designee
- One representative from each of the five tribal education departments
- One representative from each of the two Bureau of Indian Education schools
  - Representatives must be a school board member, administrator, or designee
- One representative from the State Board of Education

All members are voting members.

Members serve six year terms and may be reappointed at the end of each term. Terms run from July 1 of the appointing year to June 30 of the year they expire.

#### **IMPACT**

The proposed appointments will replace the Idaho State University, North Idaho College and Coeur d'Alene Tribe representatives on the committee.

#### **ATTACHMENTS**

Attachment 1 – Current Committee Membership

Attachment 2 – ISU Indian Education Committee Nomination

Attachment 3 – NIC Indian Education Committee Nomination

Attachment 4 – Coeur d'Alene Tribe Nomination

## **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

Dr. Jean McGivney-Burelle is the Dean of the College of Education at Idaho State University. Dr. McGivney-Burelle will be completing a term vacated by Dr. Rex Force, which is scheduled to expire on June 30, 2026. A letter of support is provided from Idaho State University President Kevin Satterlee.

Dr. Kassie Silvas is currently serving as Interim Provost/VP of Student Services at North Idaho College. Dr. Silvas will be completing a term vacated by Dr. Graydon Stanley, which is scheduled to expire on June 30, 2022 to include a new five-year term, which will run through June 30, 2027. A letter of support is provided by North Idaho College, Interim President, Michael W. Sebaaly.

Ms. Desi Moses is the ARP Program Manager/Academic Success for the Coeur d'Alene Tribe, Tribal Education Department. Ms. Moses will be completing a term vacated by Mr. Jesse LaSarte, which is scheduled to expire on June 30, 2026. A letter of nomination is provided by Chairman Chief J. Allan.

Board staff recommends approval.

#### **BOARD ACTION**

I move to appoint Dr. Jean McGivney-Burelle, representing Idaho State University to the Indian Education Committee effective immediately and expiring June 30, 2026.

Moved by	Seconded by	Carried Yes	_ No	
AND				

I move to appoint Dr. Kassie Silvas, representing North Idaho College to the Indian Education Committee effective immediately for the remainder of Dr. Stanley's Term and a new term effective July 1, 2022 and expiring June 30, 2027.

Moved by	Seconded by	Carried Yes	. No
AND			
• • •	s. Desi Moses, representir , to the Indian Education C 2026.	•	
Moved by	Seconded by	Carried Yes	No

# STATE BOARD OF EDUCATION Idaho Indian Education Committee

## **Tribal Chair or Designee**

**Shirley J. Allman** - Nez Perce Tribal Executive committee representative and serves as the Tribal Chairperson's designee. Term: August 18, 2021 – June 30, 2023.

**Gary Aitken, Jr** is the Tribal Chairman for the Kootenai Tribe of Idaho and serves as their Tribal Chair representative. Term: immediately – June 30, 2022.

**Ladd Edmo** is the Tribal Secretary of the Fort Hall Business Council and serves as their Tribal Chairperson representative. Term: immediately - June 30, 2022.

**Dr. Chris Meyer** is the Director of Education for the Coeur d'Alene Tribal Education Department and serves as the Tribal Chairperson's designee for the Coeur d'Alene Triba. Term: July 1, 2021 – June 30, 2026.

**Pending Recommendation -** Tribal Chairperson's designee for the Shoshone-Paiute Tribes. Term: July 1, 2018 – June 30, 2023.

## **Tribal Education Department Representative**

**Jessica James** is the Tribal Youth Education Program Manager for the Shoshone-Bannock Tribes and serves as their Tribal Education Department representative. Term: July 1, 2021 – June 30, 2026.

**Joyce McFarland** is the Education Manager for the Nez Perce Tribe and serves as their Tribal Education Department representative. Term: July 1, 2018 – June 30, 2023.

**Desi Moses** is the ARP Program Manager/Academic Success Coach for the Coeur d'Alene Tribe and serves as their Tribal Education Department representative. Term: February 17, 2022 – June 30, 2026. **Pending Board approval.** 

**Pending Recommendation** – Tribal Education Department representative for the Shoshone-Paiute Tribes.

**Pending Recommendation** – Tribal Education Department representative for the Kootenai Tribe.

## **Bureau of Indian Education Representatives**

**Hank McArthur** is the Bureau of Indian Education school representative. Term: July 1, 2018 – June 30, 2023.

**ATTACHMENT 1** 

**Tina Strong** is the Bureau of Indian Education school representative. Term: July 1, 2021 – June 30, 2026.

#### **State Board of Education Representative**

**Dr. Linda Clark** is the State Board of Education member of the Indian Education Committee.

#### <u>Institutions of Higher Education Representatives</u>

**Jaime Barajas-Zepeda** is the Assistant Director of Admissions and Recruitment at the College of Western Idaho. Term: immediately - June 30, 2024.

**Dr. Yolanda Bisbee** is the Chief Diversity Officer and Executive Director of Tribal Relations at the University of Idaho. Term: July 1, 2017 – June 30, 2022.

**Effie Hernandez** is the Multicultural Coordinator at College of Eastern Idaho. Term: July June 20, 2019 – June 30, 2022.

**Dr. Jean McGivney-Burelle** is the Dean of the College of Education at Idaho State University. Term: February 17, 2022 – June 30, 2026. **Pending Board approval.** 

**Jason Ostrowski** is the Dean of Students at the College of Southern Idaho. Term: July 1, 2018 - June 30, 2023.

**Dr. Eric Scott** – Associate Vice President for Student Affairs at Boise State University. Term: February 17, 2022 – June 30, 2023.

**Dr. Kassie Silvas** is the Interim Provost/Student Services at North Idaho College. Term: February 17, 2022 – June 30, 2027. **Pending Board approval.** 

**Bob Sobotta, Jr.** is the Director for Native American, Minority, and Veteran's Services at Lewis-Clark State College. Term: July 1, 2021 – June 30, 2026.

CONSENT - PPGA TAB 6 Page 2



January 6, 2022

Ms. Patty Sanchez
Academic Affairs Program Manager
Office of the State Board of Education
Patty.Sanchez@osbe.idaho.gov

Dear Ms. Sanchez,

Please appoint Dr. Jean McGivney-Burrelle to serve as Idaho State University's representative on the Idaho Indian Education Committee.

Please contact my office if you have any questions or concerns regarding this matter.

Sincerely,

Kevin D. Satterlee

President

Idaho State University

January 11, 2022

Kurt Liebich, President Idaho State Board of Education P.O. Box 83720 Boise, ID 83720-0037

Dear Mr. Liebich:

North Idaho College is proud to partner with our Tribes in the state of Idaho to provide greater opportunity for our American Indian students. We share a close relationship with the Coeur d'Alene and Kootenai Tribes in North Idaho by providing direct support services, scholarships and an American Indian Studies Program. Several of our faculty and staff are directly involved in those efforts and we are committed to improving those services regionally and statewide.

Please accept my nomination of Dr. Kassie Silvas, our interim Provost, to serve as NIC's institutional representative to the Idaho Indian Education Committee, replacing Graydon Stanley who recently retired. Kassie has 20 years' experience working in Indian education through the Bureau of Indian Affairs, local tribes, Spokane Community College and North Idaho College. I am confident that she will represent our institution and the region very effectively.

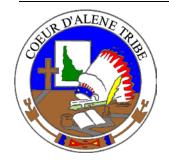
If you need additional information, please don't hesitate to contact me. Thank you for your leadership of education in Idaho.

Sincerely,

Michael W. Sebaaly, Ed.D.

**Interim President** 

**ATTACHMENT 4** 



#### **COEUR D'ALENE TRIBE**

CHIEF J. ALLAN CHAIRMAN
P.O. BOX 408
PLUMMER, IDAHO 83851
(208) 686-5803 • Fax (208) 686-8813
email: chairman@cdatribe-nsn.gov

January 12, 2022

Patty Sanchez Academic Affairs Program Manager Readiness Office of the State Board of Education PO Box 83720 Boise, ID 83720-0037

RE: Idaho Indian Education Committee Nominations

Dear Ms. Sanchez,

Please accept this letter as the nomination for the Coeur d'Alene Tribe for Desi Moses to replace Jesse Lasarte to serve as representative on the Idaho Indian Education Committee. On behalf of the Coeur d'Alene Tribe, thank you very much for all the good work the Committee and the Board of Education do to improve educational opportunities for Idaho students.

Sincerely,

Chief J. Allan, Chairman

**CONSENT - PPGA** 

#### **IDAHO STEM ACTION CENTER**

#### **SUBJECT**

STEM School Designation Recommendation For 2022

#### REFERENCE

April 2018 Board approved STEM School Designation standards

and the process for designating public schools and

programs.

December 2018 Board received an update from the STEM Action

Center on the process for identifying schools for STEM School Designation and a general update on the

activities of the STEM Action Center.

January 2019 Board designated the first four Idaho STEM Schools:

Barbara Morgan STEM Academy, Galileo STEM Academy, Temple View Elementary, and Bingham

Academy.

February 2020 Board designated two additional Idaho STEM Schools:

North Idaho STEM Charger Academy and Southside

Elementary.

August 26, 2020 Board approved updates to the STEM School

**Designation Standards** 

#### APPLICABLE STATUTE, RULE, OR POLICY

Section 33-4701. Idaho Code

#### **BACKGROUND/DISCUSSION**

Section 33-4701, Idaho Code, was enacted by the legislature in 2017, establishing a STEM school designation to be earned by schools and programs that meet specific standards established by the State Board of Education (Board). Pursuant to Section 33-4701, Idaho Code, the Board is charged with awarding STEM school and STEM program designations annually to those public schools and public school programs that meet the standards established by the Board in collaboration with the STEM Action Center.

As provided in the information at the Regular April 2018 Board meeting, the Board approved STEM School Designation Standards aligned with Cognia (formerly AdvancED) STEM School Certification Standards and Indicators. In July 2018, the STEM Action Center in collaboration with Board staff, began planning for the Idaho STEM School Designation application process. Schools submit a self-assessment and application to Cognia in order to verify that an on-site review is warranted. School site visits are conducted throughout the school year, with Cognia STEM Certification awarded at the conclusion of the visit based on the STEM School Criteria. Due to the alignment between the Cognia STEM School Certification requirements and the Idaho STEM School Designation Standards, any school

CONSENT - PPGA TAB 7 Page 1

receiving Cognia STEM School Certification will have also met Idaho's standards for STEM School Designation.

The Basin Elementary site visit was conducted November 18-19, 2021 with STEM Certification at the conclusion of the visit. In turn, both State Board and STEM Action Center Board approval is now required to designate Basin Elementary. The STEM Action Center Board review was held on January 18, 2022. Schools receiving this designation are eligible to receive funds from the STEM Action Center.

#### **IMPACT**

There is no fiscal impact to the Board. The STEM Action Center will award up to \$10,000 from its general fund appropriation in FY22 to each designated school, up to seven schools in 2022. The STEM Action Center is anticipating this annual \$10,000 award for the duration of the designation, up to four additional years, pending annual appropriation and industry partnerships.

#### **ATTACHMENTS**

Attachment 1 – STEM School Designation Review Summary Attachment 2 – 16 Cognia STEM School Standards

#### **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

Pursuant to Section 33-4701, Idaho Code:

- The Board shall award STEM school and school programs that meet the standards established by the Board in collaboration with the STEM Action Center.
- The STEM Action Center Board shall make recommendations annually to the State Board of Education for the award of a STEM school designation.
- STEM designations shall be valid for a term of five (5) years. At the end of each designation term, a school may apply to renew its STEM designation.

Staff Recommends Approval

#### **BOARD ACTION**

	move	to	approve	the	request	by	STEM	Action	Center	to	designate	Basir
E	Element	ary	in Basin	Sch	ool Distri	ct#	72 as a	Design	ated ST	ΕM	School for	2022
2	2026.											

Moved by	Seconded by	Carried Yes	No

CONSENT - PPGA TAB 7 Page 2



## cognia

# **Basin Elementary** STEM Certification Findings Summary



November 18-19, 2021

## Classroom Observations (18 Observations)

eleot® Environment	Cognia Improvement Network	STEM Network	Basin Elementary
Equitable Learning (A)	2.7	2.9	3.32
High Expectations (B)	2.8	3.1	3.27
Supportive Learning (C)	3.1	3.3	3.49
Active Learning (D)	2.9	3.3	3.36
Progress Monitoring (E)	2.8	3.0	3.07
Well Managed (F)	3.1	3.4	3.40
Digital Learning (G)	1.9	2.3	2.28

<sup>©</sup> Advance Education, Inc.

## Stakeholder Interviews

Stakeholder Group	Number Interviewed
Leadership	5
Teachers	14
Students	12
Parents	6
STEM Community Partners	4
Total	41

<sup>©</sup> Advance Education, Inc.

## **Self-Assessment Activities**

- Narratives 128 pages very organized
- Strength statements
- Overviews
- Statements of targeted Continuous Improvement
- Narrative Overview
- Definition of Terms
- Examples
- Demographics
- Countless Examples of Evidence & Artifacts

© Advance Education, Inc.

Self-Assessment



- Leadership and Staff are completely invested in student success
- Passionate, highly engaged and supportive Teachers, and Support Staff
- Wonderfully invested students at all grade levels



© Advance Education, Inc.

- Strong support to find ways to get additional classroom resources
- Students understand and care about the value of their resources
- Parents interviewed respect and are very happy with communication and student success



TAB 7 Page 6

Standard 4 Leadership and all Staff at Basin understand the value of using their various strengths to keep the wheels turning. The staff is small and each person passionately plays a key role in collaboration, instructional practices, design and implementation of curriculum.

Standard 5 – All stakeholders, students and parents have ongoing strategies and platforms to communicate with each other. Parents reported they are very happy with communication that occurs in multiple formats. All parents and students were able to verbalize Basin Elementary's focus on STEM education.



TAB 7 Page 7

Standard 11 – STEM learning experiences are integrated in all disciplines with an emphasis on processes and practices associated with STEM. Interviews, observations, evidences and narratives provided many samples to show the Review Team the school is completed invested in STEM practices.

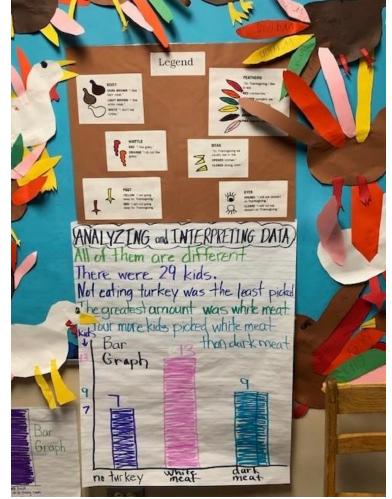
Standard 15 – Basin Elementary School is strategic and intentional to ensure there are adequate resources in place to support full implementation and ongoing support for the overall school program. In Idaho, where resources are thin, this is a most important factor. The STEM Advisory Board provides formalized feedback and the institution reflects and embeds decisions into the school culture. Programming directly reflects the school's Mission, Vision and the District's Strategic Planning process.



TAB 7 Page 8

Standard 14 - Basin Elementary school is focusing on integrating skills and cross-cutting competencies, using common language, skills and resources that align horizontally and vertically in the school. Continue to develop shared vocabulary building-wide while developing units and lessons using shared templates so a more natural instructional model can be embedded into the culture of the entire school.

Standard 16 – Basin Elementary School conducts evaluative activities to ensure effectiveness of the many aspects of STEM implementation. Most evaluations up to this point are qualitative. Teachers, parents, visitors and students understand and are becoming more successful. The pieces are in place to go to the next step. Quantitative assessment of implementation of programming is critically important to reflect on teacher and student needs and activities to ensure long-term embeddedness and overall success.



TAB 7 Page 9



#### Cognia STEM K-12 Standards

#### **STEM Community**

Standard 1 - School/program provides equitable opportunities for students to engage in high quality STEM learning.

Standard 2 - STEM educators collaborate to develop, implement, and improve high quality STEM learning activities.

Standard 3 - School/program engages diverse STEM community in order to support and sustain STEM programs and initiatives.

Standard 4 - School/program has established a shared vision for STEM and has leadership structures to support effective implementation.

#### STEM Learning Culture

Standard 5 - Leaders ensure that all stakeholders have ongoing opportunities to access information and learn about STEM implementation.

Standard 6 - Educators and leaders participate in an ongoing system of STEM-specific professional learning.

Standard 7 - Students engage collaboratively in authentic inquiry during ongoing units of study.

Standard 8 - Students engage in self-directed STEM learning guided by educators who are effective facilitators of learning.

#### STEM Experiences

Standard 9 - School/program provides within-school and extra-curricular opportunities for students to extend STEM learning.

Standard 10 - Students demonstrate their learning through performance-based assessments and have opportunities to develop self-assessment and self-monitoring skills.

Standard 11 - STEM learning experiences integrate all STEM disciplines with an emphasis on processes and practices associated with STEM.

Standard 12 - School/program provides high quality STEM courses and curriculum aligned to recognized standards and organized into interdisciplinary frameworks.

#### **STEM Outcomes**

Standard 13 - Students demonstrate STEM content knowledge representative of STEM literacy outcomes that prepare them for the next level of learning and work.

Standard 14 - Students develop STEM skills and cross-cutting competencies that support workforce readiness.

Standard 15 - School/program engages in a continuous improvement process for STEM.

Standard 16 - School/program conducts evaluative activities to ensure the effectiveness of STEM implementation.

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CONSENT - PPGA TAB 7 Page 1

#### **BOISE STATE UNIVERSITY**

#### **SUBJECT**

Facilities Naming: ESI Building - Construction Management

#### APPLICABLE STATUTE, RULE, OR POLICY

Idaho State Board of Education Governing Policies & Procedures, Section I.K.

#### **BACKGROUND/DISCUSSION**

Boise State University requests Board approval to recognize Engineered Structures Incorporated (ESI) contributions to Boise State University and name the construction management facility the ESI Building — Construction Management. This proposal to honor ESI recognizes their long-term partnership with Boise State University, significant philanthropy to university programs, and their transformational role in ensuring the completion of the construction management facility.

The estimated construction budget for the new building is between \$3 to 4 million and will be funded by private donations. ESI has agreed to serve as the contractor, donate \$1 million in cash, and work with Boise State University to obtain contributions (cash and in-kind) from industry partners and donors to fund the project. ESI guarantees an additional \$1 million in cash if in-kind donations are not secured.

#### **IMPACT**

This construction management facility update and expansion will allow students to receive hands-on professional work experience and apply knowledge gained in the classroom to the job site. The ESI Building – Construction Management naming will honor ESI's vision and commitment to the Department of Construction Management and ensure that the next generation of construction management graduates have the facility needed to provide continued learning, innovation and discovery opportunities.

#### **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

Board Policy I.K.1.b, outlines the requirements by which a building, facility, or administrative unit may be named for other than a former employee of the system of higher education. These include consideration of the nature of the individual's gift and its significance to the institution; the eminence of the individual whose name is proposed; and the individual's relationship to the institution.

Pursuant to Board Policy I.K.1.:

a. Naming for an administrator, member of the faculty or employee of a unit responsible to the State Board of Education:

CONSENT - PPGA TAB 8 Page 1

- No building, facility, or administrative unit shall be named for a person currently employed within the system of higher education in Idaho, except when authorized by the Board.
- ii. Memorialization of a building, facility, or administrative unit for a former employee retired or deceased shall be considered on the basis of the employee's service to education in the state of Idaho. Significant factors will include, but shall not be limited to:
  - 1) Recommendation of the chief executive officer of the institution and the recommendation of the institutional community.
  - 2) Contributions rendered to the academic area to which the building, facility, or administrative unit is primarily devoted.
- b. Naming of a building, facility, or administrative unit for other than a former employee of the system of higher education will be considered by the Board in accordance with 1.a. Additionally, the following shall apply:
  - i. When deemed appropriate, a facility, building, or administrative unit may be given a nonfunctional name intended to honor and memorialize a specific individual who has made a distinguished contribution to the University.
  - ii. Name for an individual in recognition of a gift.
    - 1) No commitment for naming shall be made to a prospective donor of a gift prior to Board approval of the proposed name.
    - 2) In reviewing requests for approval to name a facility, building, or administrative unit for a donor, the Board shall consider:
      - a) The nature of the proposed gift and its significance to the institution;
      - b) The eminence of the individual whose name is proposed; and
      - c) The individual's relationship to the institution.

While the current Board policy contemplates naming a building for "other than a former employee," the provisions are written in reference to an individual rather than a company. Based on the information provided though, the proposed naming request does meet the other requirements outlined in Board Policy I.K.1.b.ii.2. and is being proposed in consideration of ESI's cash and in-kind donation as well as additional commitment to help raise the remaining funds necessary to complete the capital project.

Staff recommends approval.

CONSENT - PPGA TAB 8 Page 2

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	ve Boise State University lity the ESI Building - Cons	•		tion
Moved by	Seconded by	Carried Yes	No	

CONSENT - PPGA TAB 8 Page 3

#### STATE DEPARTMENT OF EDUCATION

#### SUBJECT

**Emergency Provisional Certificate Recommendations** 

#### REFERENCE

April 2021 Board approved thirteen (13) provisional certificates for

the 2020-21 school year.

June 2021 Board reviewed six (6) provisional certificates for the

2020-21 school year. Five (5) applications were approved and one (1) application was not approved.

Board approved two (2) provisional certificates for the August 2021

2021-22 school year.

Board approved Emergency Provisional Certificate

Application Process.

Board approved nineteen (19) provisional certificates October 2021

for the 2021-2022 school year.

Board approved forty-nine (49) provisional certificates December 2021

for the 2021-2022 school year.

#### APPLICABLE STATUTE, RULE, OR POLICY

Idaho Code § 33-1201 and 33-1203

#### **BACKGROUND/DISCUSSION**

Twenty-seven (27) complete emergency provisional certificate applications were received by the State Department of Education by December 22, 2021, including twenty-six (26) instructional and career technical education certificate applications and one (1) pupil service staff certificate application from the school districts listed below. These applications for the 2021-22 school year were reviewed by the Certification Department of the State Department of Education using the Board of Education approved emergency provisional certficate application process. The emergency provisional certificate allows a school district or charter school to requrest one-year certification/endorserment in an emergency situation for a candidate who does not hold the required Idaho certificate or endorsement to fill a certificated position. While the candidate is under emergency provisional certification, the school district or charter school is funded for the position the same as if they had a standard or interim certified person in the position.

#### **Instructional and Career Technical Education Certificate Applications**

**Boise School District #001 Applicant Name: Kris Cools** 

Endorsement(s): Economics (6-12)

**College Training: BA** 

**Declared Emergency Date: 11/8/2021** 

TAB 9 Page 1 **CONSENT - SDE** 

Hire/Assignment Date: 8/16/2021

**Summary of Recruitment Efforts:** The employee is a current teacher in the Boise School District that was misaligned to teach Economics and did not have the proper endorsement to do so. This was not discovered until the ISEE submission.

**Applicant Name:** Tammy Green **Endorsement(s):** Theater Arts (6-12)

College Training: BA

**Declared Emergency Date:** 11/8/2021 **Hire/Assignment Date:** 8/16/2021

**Summary of Recruitment Efforts:** The employee is a current teacher in the Boise School District that was misaligned to teach Theater Arts and did not have the proper endorsement to do so. This was not discovered until the ISEE submission.

**Applicant Name:** Lisa Moore-Clifton **Endorsement(s):** Visual Arts (K-12)

College Training: BS

**Declared Emergency Date:** 11/8/2021 **Hire/Assignment Date:** 8/16/2021

**Summary of Recruitment Efforts:** The employee is a current teacher in the Boise School District that was misaligned to teach Visual Arts and did not have the proper endorsement to do so. This was not discovered until the ISEE submission.

**Applicant Name:** Andrew Remaly **Endorsement(s):** Theater Arts (6-12)

**College Training: MA** 

**Declared Emergency Date:** 11/8/2021 **Hire/Assignment Date:** 8/16/2021

**Summary of Recruitment Efforts:** The employee is a current teacher in the Boise School District that was misaligned to teach Theater Arts and did not have the proper endorsement to do so. This was not discovered until the ISEE submission.

**Applicant Name:** Sabrina Schroeder **Endorsement(s):** Theater Arts (6-12)

College Training: BA

**Declared Emergency Date:** 11/8/2021 **Hire/Assignment Date:** 8/16/2021

**Summary of Recruitment Efforts:** The employee is a current teacher in the Boise School District that was misaligned to teach Theater Arts and did not have the proper endorsement to do so. This was not discovered until the ISEE submission.

Applicant Name: Kaidi Stroud Endorsement(s): Visual Arts (6-12)

**College Training: MA** 

**Declared Emergency Date:** 11/8/2021 **Hire/Assignment Date:**8/16/2021

**Summary of Recruitment Efforts:** The employee is a current teacher in the Boise School District that was misaligned to teach Visual Arts and did not have the proper endorsement to do so. This was not discovered until the ISEE submission.

**Applicant Name:** Timothy Taylor **Endorsement(s):** Visual Arts (6-12)

College Training: BA

**Declared Emergency Date:** 11/8/2021 **Hire/Assignment Date:** 8/16/2021

**Summary of Recruitment Efforts:** The employee is a current teacher in the Boise School District that was misaligned to teach Visual Arts and did not have the proper endorsement to do so. This was not discovered until the ISEE submission.

**Applicant Name:** Brooke Ward

Endorsement(s): Mathematics (6-12)

College Training: BS

**Declared Emergency Date:** 12/13/2021 **Hire/Assignment Date:** 12/2/2021

**Summary of Recruitment Efforts:** The Boise School District uses a Pool Based approach to hiring. When this position became open, the School District did not have any available applicants in the Mathematics Job Pool. This employee was a current substitute in the Boise School District and was hired to complete the rest of the 21-22 school year.

**Applicant Name:** Anthony Wuerfel **Endorsement(s):** Theather Arts (6-12)

College Training: BA

**Declared Emergency Date:** 11/8/2021 **Hire/Assignment Date:** 8/16/2021

**Summary of Recruitment Efforts:** The employee is a current teacher in the Boise School District that was misaligned to teach Theater Arts and did not have the proper endorsement to do so. This was not discovered until the ISEE submission.

#### **Boundary County School District #101**

**Applicant Name:** Sheila Lavala **Endorsement(s):** All Subjects (K-8)

College Training:112 credits

**Declared Emergency Date:** 9/20/2021 **Hire/Assignment Date:** 9/20/2021

**Summary of Recruitment Efforts:** Due to an influx of students, the school district needed to fill another teaching position. The position was posted by the district on 9/8/2021. Four applicants were received, but none were certificated teachers. On 9/20/2021, it was deemed an emergency; the school district chose to hire an interal candidate and apply for an emergency provisional.

#### Soda Springs School District #150

**Applicant Name:** Colter Evans

Endorsement(s): CTE Heavy Equipment, Construction Trades Technology,

Certified Welding and Small Engine Repair

**College Training:** BA

**Declared Emergency Date:** 9/22/2021 **Hire/Assignment Date:** 8/16/2021

**Summary of Recruitment Efforts:** The school district interviewed four candidates for this position. Two were out of state, and after hearing details about the district and the position, the applicant declined the offer. The third candidate took another position before the offer was presented. This candidate had the most work history and is a former student of Soda Springs School District. He is also part of the staff as the high school's football coach. With mentoring and guidance from the staff, this seems like a good fit for the year.

#### Cassia School District #151

Applicant Name: Joelle Anthon Endorsement(s): All Subjects K-8

College Training: BA

Declared Emergency Date: 12/16/2021 Hire/Assignment Date: 5/24/2021

Summary of Recruitment Efforts: Advertised on district website. Four applicants applied and four were interviewed. Position became vacant when the current teacher left for another school. Candidate was already a serving as a paraprofessional in the school district.

<u>Jefferson County Joint School District #251</u> **Applicant Name:** Austin Davis

**Endorsement(s):** CTE Agriculture Science and Technology

College Training: BS

**Declared Emergency Date:** 9/8/2021 **Hire/Assignment Date:** 9/8/2021

**Summary of Recruitment Efforts:** The school district posted the position from February 2021 to August 2021. They received no applicants for the position.

**Applicant Name:** Jodie Young

**Endorsement(s):** CTE Practical Nursing (6-12), Nursing Assistant (6-12)

College Training: AAS

**Declared Emergency Date:** 8/1/2021 **Hire/Assignment Date:** 11/20/2021

Summary of Recruitment Efforts: The school district could not find a nurse

willing to get her certification to teach the CNA class.

#### Minidoka County Joint School District #331

**Applicant Name:** Kody Andrew **Endorsement(s):** All Subjects (K-8)

College Training: 115

**Declared Emergency Date:** 8/16/2021 **Hire/Assignment Date:** 8/16/2021

**Summary of Recruitment Efforts:** Had four applicants and two with the most qualifications were hired. Advertised on School Spring, the district website and

Indeed.

Twin Falls School District #411
Applicant Name: Tiffany Harrison
Endorsement(s): All Subjects (K-8)

College Training: 58 credits

**Declared Emergency Date:** 10/11/2021 **Hire/Assignment Date:** 10/18/2021

**Summary of Recruitment Efforts:** Not all of the candidates that applied for this position had the qualifications to become a math teacher. Some of the qualified candidates accepted the positions elsewhere in the district. The position was offered on July 22nd to a candidate and was accepted. However, the same candidate declined the offer on July 23rd. The position remained open until being offered on October 14th to Ms. Harrison.

**Applicant Name:** John Kapeleris **Endorsement(s):** Social Studies (6-12)

College Training: BS

**Declared Emergency Date:** 12/13/2021 **Hire/Assignment Date:** 12/1/2021

**Summary of Recruitment Efforts:** The teacher who was in this position needed to move to Las Vegas for personal reasons. Mr. Kapeleris was a current guest teacher in the school district and had subbed in that classroom. He offered to become the teacher in the class for the remainder of the school year.

**Applicant Name:** James Poole **Endorsement(s):** All Subjects (K-8)

College Training: BS

**Declared Emergency Date: 10/11/2021** 

Hire/Assignment Date: 8/9/2021

**Summary of Recruitment Efforts:** The four applicants that were interviewed for this position were offered other teaching positions within the school district. With no other applicants available, the position remained vacant when school started on August 16th. The football coach was approached for the position due to having the qualifications to be hired on an emergency provisional. The candidate was offered the position and hired on August 25th.

#### Filer School District #413

**Applicant Name:** Hailey Wadsworth

**Endorsement(s):** Social Studies (6-12), History (6-12)

**College Training: BS** 

**Declared Emergency Date:** 8/26/2021 Hire/Assignment Date: 8/26/2021

Summary of Recruitment Efforts: The position was posted in July. Only one applicant applied with a certification and endorsement in social studies. This applicant was under contract with another school district and therefore did not pursue. More applicants applied, but none were certified. Ms. Wadsworth applied, but had an expired credential. The position was offered to the candidate, and the school district is confident she will be able to reactivate her certification going forward.

#### Hansen School District #415

**Applicant Name:** Jeffrey Lewis

Endorsement(s): Natural Science (6-12)

College Training: 126

**Declared Emergency Date: 12/14/2021** 

Hire/Assignment Date: 1/17/22

Summary of Recruitment Efforts: The social studies teacher submitted a letter of resignation on November 23, 2021. Email correspondence was sent to BSU, ISU, U of I, NNU and Eastern Oregon University asking if they had student teachers available. The position was advertised on the State Department of Education website.

#### Xavier Charter School #462

**Applicant Name:** Afton Perry

**Endorsement(s):** Physical Education (K-12), Health (6-12)

College Training: AA

**Declared Emergency Date: 6/17/21** Hire/Assignment Date: 6/17/2021

Summary of Recruitment Efforts: This position was opened on May 18, 2021 and posted on School Spring. A total of three applicants applied for the position. None of the applicants had teacher certifications. All applicants were interviewed and the top applicant was recommended to the board and approved to be hired and seek an Emergency Provisional certificate.

#### Sage International School of Boise #475

Applicant Name: Diego Rodriguez Endorsement(s): ESL (K-12)

College Training: MA

**Declared Emergency Date: 10/26/2021** Hire/Assignment Date: 11/2/2021

Summary of Recruitment Efforts: The original English Learner (EL) instructor left the position in October 2021. The position was posted and two applications were received (one external/one internal). Both applicants are currently under fulltime contracts. Applications have been filed for review for the 2022-2023 school year. Sage currently has a qualified classified employee who can fill the position.

TAB 9 Page 6 **CONSENT - SDE** 

EL position needs filled immediately in order to continue providing EL services to K-12 students at Sage.

#### Legacy Public Charter School, Inc #478

**Applicant Name:** Megan Stockwell **Endorsement(s):** All Subjects (K-8)

College Training: 74 credits

**Declared Emergency Date:** 1/20/2022 **Hire/Assignment Date:** 12/2/2021

Summary of Recruitment Efforts: The position has been opened since summer 2021. The job was posted on the school's website, social media and shared by word-of-mouth. Many who had applied implied they spoke Spanish, but 90% had not worked in an educational/school setting. Seventeen applications were received, five interviewees never showed. One applicant that was hired reassured the ability to work in the US; turned out to not be true. The second hired applicant contracted COVID and did not show up, then decided not to take the job after the alloted quarantine time had expired. The current candidate is well-suited for the requirements of the job. She will be mentored by teachers at the school to help ensure her success.

#### **Alturas Preparatory Academy #560**

**Applicant Name**: Bethany Cassidy **Endorsement(s)**: Music (6-12)

College Training: BA

**Declared Emergency Date:** 11/17/2021 **Hire/Assignment Date:** 11/18/2021

Summary of Recruitment Efforts: Music teacher resigned mid-year. Candidate

was a paraprofessional with a background in music and the theater arts.

#### Pupil Service Staff Certificate - School Psychologist Applications

#### Preston School District #201

Applicant Name: Todd Smith

Endorsement(s): School Psychology

College Training: BA

**Declared Emergency Date:** 8/18/2021 **Hire/Assignment Date:** 8/16/2021

**Summary of Recruitment Efforts:** End of 20-21 school year, both school psychs moved out of state. Job was posted on the state and district website as well as contacting surrounding universities for recent graduates interested in the position. Of the six applicants, none had the school psychology qualifications. One individual hired was a clinical psychologist but declined when informed of the requirements to receive the endorsement. This candidate was the only one willing to attend school. The candidate was accepted but the program will not begin until June 2022.

#### **IMPACT**

If an emergency provisional certificate is not approved, the school district will have no certificated staff to serve in the position as required by Idaho Code §33-1201 and funding could be impacted.

#### **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

Pursuant to Section 33-1201, Idaho Code, "every person who is employed to serve in any elementary or secondary school in the capacity of teacher, supervisor, administrator, education specialist, school nurse or school librarian shall be required to have and to hold a certificate issued under the authority of the State Board of Education...." Section 33-1203, Idaho Code, prohibits the Board from authorizing standard certificates to individuals who have less than four (4) years accredited college training, except in "the limited fields of trades and industries, and specialists certificates of school librarians and school nurses." In the case of emergencies, which must be declared, "the State Board may authorize the issuance of provisional certificates based on not less than two (2) years of college training."

Section 33-512(15), Idaho Code, defines substitute teachers as "as any individual who temporarily replaces a certificated classroom educator...." Neither Idaho Code, nor administrative rule, limits the amount of time a substitute teacher may be employed to cover a classroom. In some cases, school districts use a long-term substitute prior to requesting emergency provisional certification for the individual. The individual that the school district is requesting emergency certification for may have been in the classroom as a long-term substitute for the entire school term. Salary based apportionment is calculated based on school district employee certification. A school district or charter school receives a lesser apportionment for noncertificated/classified staff than it receives for certificated staff. Substitute teachers are calculated at the lesser-classified staff rate.

A process for approving provisional certificates was approved by the Board at the April 2019 Regular Board meeting to limit the timeline for emergency provisional certificates to come to the Board to incentivize school districts and charter schools to request emergency provisional certification earlier in the school year rather than waiting until the end of the school year. The approved provisions required requests, for the current school year, to come to the Board at no later than the April Regular Board meeting. The process was amended at the August 2019 Regular Board meeting to provide an extension of this timeframe "subject to extenuating circumstances" such as when a local education agency loses a staff member after the January Professional Standards Commission (Commission) meeting deadline. In order to meet the April Board meeting agenda material deadline in March of each year, the certification request is required to be submitted no later than January of each year to make it through the Commission/Department process. Due to the length of time it was taking to process the requests when Commission recommendations were included in the process, the Board amended the process again at the August 2021 Regular Board meeting limiting the recommendation

process to recommendation from Department certification staff or Division of Career Technical Education staff as applicable to the type of certification. The Department staff have forwarded those applications they recommend for approval for Board consideration.

#### **BOARD ACTIONS**

I move to approve the request by State Department of Education for one-year emergency provisional certificates in the endorsement area(s) at the specified school districts as provided herein for the 2021-22 school year for the following individuals: Kris Cools, Tammy Green, Lisa Moore-Clifton, Andrew Remaly, Sabrina Schroeder, Kaidi Stroud, Timothy Taylor, Brooke Ward, Anthony Wuerfel, Sheila Lavala, Colter Evans, Joelle Anthon, Austin Davis, Jodie Young, Kody Andrew, Tiffany Harrison, John Kapeleris, James Poole, Hailey Wadsworth, Jeffrey Lewis, Afton Perry, Diego Rodriguez, Megan Stockwell, and Bethany Cassidy.

Moved by	Seconded by	Carried Yes	_ No
AND			
emergency provisiona	ne request by State Depar al certificates in the School districts as provided hereir	Psychology endorse	ement area at
Moved by	Seconded by	Carried Yes	No

#### WORK SESSION FEBRUARY 17, 2022

#### SUBJECT

Financial Literacy Instruction

#### **REFERENCE**

August 2018 Board discussed possible high school graduation

requirement amendments, including specific

requirements regarding financial literacy.

October 17, 2018 Board received an update on the requirements for

financial literacy instruction at the K-12 level.

October 2019 Board received an update on financial literacy

instruction as part of the mastery education update

from the Department.

#### APPLICABLE STATUTE, RULE, OR POLICY

Idaho Administrative Code, IDAPA 08.02.03.

#### **BACKGROUND/ DISCUSSION**

From time to time, the Board receives requests to consider adding a high school graduation requirement specific to a minimum number of credits required in Financial Literacy. The minimum high school graduation requirements are established by the Board through the negotiated rulemaking process and are currently codified in IDAPA 08.02.03.105.

School districts and charter schools are currently required to include history, government, geography, economics, current world affairs, citizenship, and sociology as part of their Social Studies instruction. This requirement has been in place since 1997. Students are required to earn a minimum of five credits in social studies; one of those credits must be in economics to graduate from high school. Additionally, students are required to earn at least six credits in mathematics to graduate. Courses that may be used to meet the mathematics credit requirement include applied mathematics and business mathematics or other courses in mathematical problem solving and reasoning. Financial literacy is identified as part of the social studies – economics standards and often incorporated into applied mathematics courses by school districts and charter schools.

The Idaho Content Standards describe the knowledge, concepts, and skills that students are expected to acquire by the end of each grade level in each content (subject) area. The Board adopts minimum content standards as a way of meeting Idaho's constitutional requirement for a uniform and thorough system of public, free common schools. School districts and charter schools are responsible for assuring all students meet the minimum content standards prior to graduating from high school. The Idaho Content Standards are also established in administrative code, IDAPA 08.02.03, through the negotiated rulemaking process as incorporated by reference documents. School districts and charter schools may use any curriculum they choose for teaching the various content areas.

#### WORK SESSION FEBRUARY 17, 2022

Representatives from CapEd Credit Union, Idaho Central Credit Union and Junior Achievement will provide a brief update to each of the programs they currently make available to Idaho school districts and charter schools as examples of some of the financial literacy programs that are currently being used in Idaho public schools.

#### **IMPACT**

This informational item will provide the Board with an update on the requirements for financial literacy in our public schools and examples of programs that are currently available to Idaho school districts and charter schools.

#### **ATTACHMENTS**

Attachment 1 – CapEd Credit Union Financial Literacy Program

Attachment 2 – Idaho Central Credit Union Financial Literacy Program

Attachment 3 – Junior Achievement Financial Literacy Program

#### **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

How the standards are implemented varies by school district and charter school. Some schools have a financial literacy course in high school as a standalone financial literacy course while others have it embedded in one or more of their economics courses or a math course. Additionally, the College and Career Readiness competencies the Board adopted in 2017 and incorporated by reference into IDAPA 08.02.03, require financial literacy as one of the competencies ("possess knowledge and understanding in the following areas: earning income, buying goods and services, using credit, saving and protecting assets and insuring"). Some school districts have included financial literacy aspects as part of the senior projects requirement. Personal finance or financial literacy is also part of two CTE programs:

- High School Business (HSB) Wealth Management CTE Financial literacy
- CTE Business and Marketing includes Personal Financial Literacy as part of the Marketing component

Additionally, as part of the Elementary and Secondary Education Act, as amended by the Every Student Succeeds Act, 21st Century Community Learning Centers require students to be offered financial literacy programs (<a href="https://www.sde.idaho.gov/student-engagement/cclc/">https://www.sde.idaho.gov/student-engagement/cclc/</a>) — Idaho has 34 21st Century Community Learning Centers around the state, 25 of them are at/in schools.

Finally, Advanced Opportunities also covers the Center for Financial Responsibility Personal Financial Literacy Certification Exam.

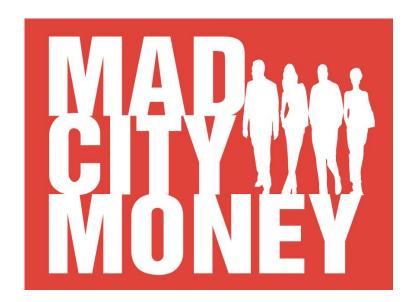
A sampling of resources available for schools regarding financial literacy include the three programs identified in Attachments 1 through 3 as well as:

#### WORK SESSION FEBRUARY 17, 2022

- Idaho Financial Literacy Coalition's Jump Start National Educator Conference: <a href="http://www.idahoflc.org/jumptart-national-educator-conference/">http://www.idahoflc.org/jumptart-national-educator-conference/</a> or <a href="https://www.jumpstart.org/what-we-do/nec/">https://www.jumpstart.org/what-we-do/nec/</a>
- Idaho Central Credit Union is partnering with school districts and charter schools to provide a grant for each high school in the state of Idaho so that students may experience Stukent's Mimic Personal Finance simulation and curriculum free for the next few years (<a href="https://www.stukent.com/iccu/">https://www.stukent.com/iccu/</a>). There were over 100 different schools in Idaho that participated in this program (pre-pandemic).

#### **BOARD ACTION**

This item is for informational purposes only.



# Hands-on Financial Well-being & Budgeting Simulation for Middle - High School Students.

Provided by



At no charge as a part of our commitment to Idaho's students and education community.

Mad City Money gives middle and high school aged students a taste of the real world. Students take on the role of an adult in futuristic Mad City. They're given jobs, income, a family, and debt. The challenge? Visit merchants (staffed by volunteers) to select housing, transportation, food, household necessities, clothing, childcare, and other needs and wants while building a budget. CapEd Credit Union has an office in town to help students with their financial decisions.

This hands-on, experiential learning allows participants to make mistakes – and suffer the consequences of their decisions – in a realistic, but safe, environment. Most participants are surprised to learn "I can't have a big house and a new truck on my salary and still pay for childcare and groceries." Once the shock wears off, they reevaluate choices and manage their money effectively with an opportunity for input from CapEd volunteers.

After the simulation, participants and facilitators review their decisions and draw conclusions. Once they leave Mad City, participants are almost sure to have more insight into how money works in the real world!

CapEd Credit Union provides all materials, volunteers and facilitator to run the 1.5-to-2.5-hour simulation. Time requirements and facility needs are based on the size of the group. Mad City Money can be used for small (20-50) to larger (250+) student groups.

To schedule a Mad City Money event please contact Lisa Hamilton, Brand Engagement Manager at 208-855-4606 or lisa.hamilton@capedcu.com.



#### **Current & Prior Participants:**

Caldwell-Middleton-Nampa Youth
Advisor Council
Idaho Association of City –
Youth Advisory Council Conference
Kuna High School
Nampa Pathways in Education
Meridian Mayor's Youth Advisory Council
West Ada High Schools & Student Councils





## Idaho Central is proud to provide financial education to high school and college students throughout Idaho.



Idaho Central's partnership with Stukent, a digital financial literacy platform, continues to be successful. Stukent is available to any high school in Idaho, free of charge, thanks to the grant from ICCU.

- Idaho Central will spend over \$3m
   to provide the Mimic Personal Finance
   Simulation to every high school in Idaho
- 183 schools currently signed up
- 78% of students currently have access
- 112 teachers currently using
- Predicted to have 213 teachers using it by end of 2021/2022 school year
- Through Fall 2021 semester, 3023 students had used the simulation
- Over 500 students have already started using Mimic in the first 2 weeks of the Spring 2022 semester

"The MIMIC program is extraordinary! My class roster has jumped 200% since I started teaching this just last fall! Our district, because of the success of this simulation and the feedback from our seniors, is looking at making this class a graduation requirement. That's the goal! For our seniors, this class is the most important, relevant, and hands-on class they could possibly take. I am so, so thankful for ICCU for their forward-thinking and dedication to our youth."

Melissa Smith, Clearwater Valley HS



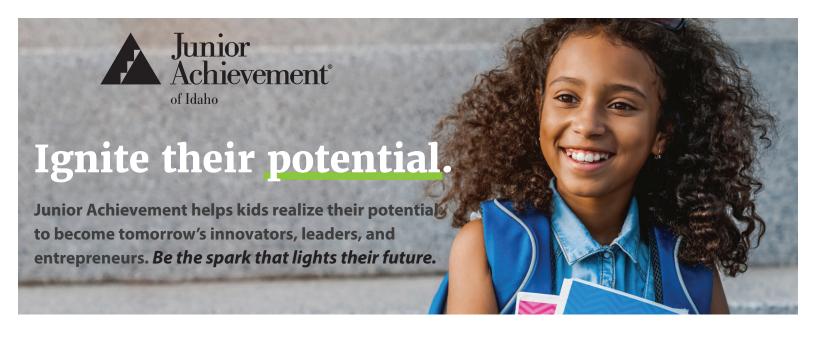
"My students love this program and so do I. It gives them real work experience and teaches them the importance of personal finance in a fun and engaging way. ICCU's support of my students is amazing. We would not be able to afford this opportunity without them. Their support is making a difference and helping me prepare my students to be in control of their finances and become productive members of society. Thank you so much!"



More testimonials available on www.stukent.com/iccu

## EVERPI

Idaho Central's partnership with EVERFI provides financial education to university students in Idaho. The University of Idaho, Idaho State University, College of Idaho, College of Southern Idaho, and Boise State University are currently using the program with their students; some are considering making the completion of EVERFI modules a required part of the process of accepting financial aid.



#### **Junior Achievement History**

Serving over 12 million students each year in more than 100 countries throughout the world, JA works with educators to equip young people with the employment and entrepreneurship skillsets and mindsets they need to succeed. By building abilities and nurturing self-belief, JA prepares youth for the future of work, ensures they have the tools to be financially capable adults, and teaches them to think entrepreneurially. Founded in 1919, Junior Achievement is the world's largest business/education partnership supported by nearly half a million volunteers and the number one financial literacy program in school districts across the country with 104 area offices.

Junior Achievement of Idaho was established as an area office in 1955 and is currently reaching 9,500 Idaho students annually. JA programs correlate to the Idaho State Achievement Standards for social studies for grades K-12 as well as the Common Core State Standards in English/ Language Arts and Mathematics.

#### **Current JA of Idaho Programs**

- K-12 Volunteer-led In-Class Programs
- JA Middle School STEM Camps
- JA Middle and High School Inspire
   Virtual Career Expo
- JA High School Stock Market Challenge

**51%** of JA alumni report going into the same field as one of their JA volunteers

#### Volunteer Impact

At the heart of Junior Achievement's success are the dedicated volunteers and sponsors generously investing in the lives of Idaho children. JA brings volunteers from the business community face-to-face with Idaho students. In the classroom, volunteers serve as role models and mentors making economic concepts relevant, fueling the entrepreneurial spirit, and challenging students to excel as they prepare for careers in the world of work.

#### Program Impact

Research from an independent evaluation demonstrates that the effect of JA programs on our students and our communities is significant, and therefore ongoing investment in JA programs provides a significant positive return.

More specifically, a recent study indicates that JA alumni:

- Graduate at higher rates (93%) than their peers (83.2% national average)
- Are 30% more likely to have a bachelor's degree than the general population
- Are 67% more likely to have an advanced degree than the general population
- Secure employment at higher rates than their peers
- Incur less debt than their peers
- Use credit and debit appropriately
- Know how to create and manage a realistic budget
- Earn 20% more than the general population and are more likely to be better off than their parents
- Have a positive view of the American economic system
- Start businesses at a rate 2.5 times higher than the general population
- Are socially mobile, with more than 60% shifting from low-income areas in their youth to middle- and highincome areas in adulthood

# SCOPE AND SEQUENCE

		KE'	Υ	Junior Achievement	Pat	JA hwa	เуร*
Minimal	Moderate	High	*JA Pathways signify a program's primary focus.	Visit <b>ja.org</b> to learn more.	Entrepreneurship	Financial Literacy	Work Readiness
	K–	12 K	it-Based and B	lended	Entrepr	Financi	Work R
about the role of m <b>Concepts:</b> Buying, values <b>Skills:</b> Counting, d	oney in society and ga choices, costs, earnin ecision making, drawir	in practical info g, entrepreneu ng conclusions,	ormation about earning, saving, and sharing mon		•	•	•
in which businesse  Concepts: Businesshelter, skills, spend  Skills: Analyzing ir	s provide goods, servides, earning, employmed, symbols, work	ces, and jobs font, entrepreneun hing, decision	or families. Five volunteer-led sessions required. urship, family, fill a need, goods and services, inc	ome, job, money, needs and wants, neighborhood, ening and responding, making observations, map		•	•
how citizens benefi  Concepts: Busines taxes, voting	t from and contribute t	o a community nip, coins, comr	lents to work readiness and early elementary gra 's success. Five volunteer-led sessions required. munity, goods and services, government, innovat making, idea development, making choices, ma	. (Grade 2) ion, jobs, production, needs and wants, skills,		•	•
and how entrepreneur, good withdrawal  Skills: Brainstormi directions, listening	eurs promote a health g, business, business o s, government, income ng, conceptualizing, cr	y economy. Five decisions, circu e, interdepende itical thinking, o cing observation	ices people have with money. Students learn above volunteer-led sessions required. (Grade 3) lar flow of money, city, consumer, currency, deponce, jobs, money choices, producer, save, saving decision making, developing ideas, drawing conces, mapping information, planning a business, producer.	ps, savings account, services, spend, taxes,	•	•	•
Students are provide Concepts: Advertise innovation, interder supply chain, trade Skills: Analyzing a	led with a practical appoint of the sing, business fundame the pendence, loss, manufa, traits, transportation diagram, analyzing info	oroach to starti entals, capital r acturing, natura ormation, assen	ng a business. Five volunteer-led sessions requiresources, entrepreneur, expense, finance trackiral resources, price, products, profit, region, resources.	ng, goods and services, human resources, urces, revenue, risk and reward, services, supply, g, decision making, evaluating alternatives, following	•	•	•

# SCOPE AND SEQUENCE

		KE	Υ	Junior Achievement <sup>®</sup>	Pat	JA hwa	ays*
Minimal	Moderate	High	*JA Pathways signify a program's primary focus.	Visit <b>ja.org</b> to learn more.	Entrepreneurship	Financial Literacy	Work Readiness
	K-	-12 K	it-Based and Bl	ended	Entrep	Financ	Work
for businesses and	careers. Students ex	amine the need	ractical information about the U.S. free market sys for entrepreneurial and innovative thinking to med d sessions required. Optional: Sixth session supple	et the requirements of high-growth, high-demand			
employees, employ	vers, entrepreneur, fre	e market econo	oration, communication, competition, competitor, comy, global economy, goods and services, human of the resume, skills, technology, work readiness	consumer, critical thinking, engineering, capital, innovation, invention, interdependence, job			
written instructions		interpreting eco	pnomic issues, map reading, organizing information	ve thinking, decision making, estimating, following n, prioritizing, problem solving, reasoning,			
practical approach school) <b>Concepts:</b> Adverti financial institution	to starting a business sing, bank account, b	s and making sr ousiness, busine s, identify persor	udents about money-management, goods and semant decisions about managing money. Five volunt ss loan, business plan, consumer, deposit, earn, enal interests and goals, imports, income, market re	teer-led sessions required. (Grades 3–5, also after mployee, entrepreneur, ethics, expenses, exports,		•	
reasoning, empath	y, following directions	, matching and	nation, comparing and contrasting, computation, co classifying, presentation, problem solving, reading ninking, using vocabulary in a meaningful way				
			provides practical information about personal fina and values. Six volunteer-led sessions required. (G				
			pay insurance, debit card, decision making, deduc unity cost, policy, premium, risk, self-knowledge, s	tible, goal setting, gross income, higher education, skills, values, world of work			0
			kills, interpreting data, math calculations, oral and g, self-assessment, working in groups and pairs	written communication, organizing information,			
between producer	rs and consumers in t	the global marke	nstrates why and how countries buy and sell from etplace and the effect of free enterprise in an econ divanced (Sessions One–Six volunteer-led; Session				
norms, culture, cuinterdependence,	ırrency, customer, edu international careers,	ucational and leg international tra	on, communication, cultural awareness in internati gal requirements, etiquette, exchange rate, export, ade, market, marketplace, migration, product, prod trade barriers, trade embargo	free trade, immigration, import, innovation,		•	
innovation, entrep identifying interna decisions, negotia	reneurial thinking, exitional job requiremen tiong, reading a spread	amining resourd ts, identifying po dsheet, reading	nalyzing human behavior, categorizing data, decision ces, following instructions, identifying business respositive and negative traits, interpreting charts and comprehension, recognizing and applying terms, real etiquette, using a currency convertor	ponsibilities, identifying foreign currency, graphs, making customer-based product			

# SCOPE AND SEQUENCE

	2	KE	Υ	Junior Achievement <sup>®</sup>	Pat	JA hwa	ys*
Minimal	Moderate	High	*JA Pathways signify a program's primary focus.	Visit <b>ja.org</b> to learn more.	Entrepreneurship	Financial Literacy	Work Readiness
	K–	12 K	it-Based and Bl	ended	Entrepi	Financi	Work B
school students into	o their futures. The pro	ogram consists	ngs together the business community and local scl of three segments: 1) in-class sessions presented aspire expo, students participate in hands-on activ	by the classroom teacher; 2) the hands-on JA			
Concepts: Introspe	ection, self-knowledge	, research, map	oping skills to potential careers, goal-setting				
	ment, utilizing career loyment trends and jo		evelop a career plan, explore post-secondary educa areer planning	ation options, explore various careers,			
JA It's My Business!® encourages middle school students to turn their ideas into a business. The program introduces design thinking as a problem-solving process and provides students an authentic entrepreneurial experience that builds toward a pitch competition. Six volunteer-led sessions required. Fifteen-minute optional extension activities are provided for use in after-school implementation. (Grades 6–8)  Concepts: Business, consumer feedback, design, entrepreneur, entrepreneurial characteristics, funding, innovation, innovative, investor, market, market							
			e, pitch, presentation visuals, product, product ske	tches, prototype, risk-taker, self-confident, self-			
motivated, service, speaking skills, surveys, target market <b>Skills:</b> Analyzing data from a variety of media sources, applying terms, brainstorming, collecting data, creating a model, creative thinking, communicating information through design, deduction, empathy, evaluating alternatives, group presentation, group work, labeling an illustration, listening, logical reasoning, memory recall and matching, presenting ideas, problem solving, self-evaluation, teamwork							
JA It's My branding and job-h	/ Future® off nunting skills needed	ers students pr to earn a job. S	actical information to help prepare them for the waix volunteer-led sessions required. (Grades 6–8)	orking world. Students develop the personal-			
<b>Concepts:</b> Achievements, attitude, brand, career, career clusters, career mapping, career paths, communication, decline, education level, high-growth careers, interests, job application, job growth, job hunting, job interview, job outlook, logo, making a good impression, maps, personal brand, professionalism, references, reputation, soft skills, tagline, teamwork, technical skills, transferable skills, work ethic							
<b>Skills:</b> Analyzing branding, analyzing charts and graphs, analyzing data from media, applying cause and effect, demonstrating cause and effect, evaluating and sorting options, group discussion, identifying personal skills, identifying strengths and weaknesses, logical reasoning, note taking, prediction, reading for understanding, recognizing patterns, reviewing results, role-playing, self-evaluation, teamwork, using art as self-expression							
JA Career	Exploratio	n Fair™	introduces students to a range of career options a	across multiple career clusters. (Grades K–12)			
JA Career Exploration Fair <sup>™</sup> introduces students to a range of career options across multiple career clusters. (Grades K–12) <b>Concepts:</b> Abilities, business, careers, choices, community, earn, goals, goods, guest speakers, interests, job, pay, resume, services, skills, talent, work values							
Skills: Decision making, formulating questions, listening responsively, making observations, note taking, reasoning, social skills, verbal communication							
JA Career work, and education	Speakers on experience. (Grades	<b>Series</b> ™ K–12)	brings a volunteer guest speaker into the classro	om to share information about his or her career,			
Concepts: Business, career clusters, career speaker, careers, choices, community, earn, education, interests, knowledge, job, pay, skills, talent, work activities						0	
<b>Skills:</b> Active listening, decision making, formulating questions, making observations, online research, reasoning, social skills, verbal and written communication							

# SCOPE AND SEQUENCE

		KE	Υ	Junior Achievement <sup>®</sup>	Pat	JA hwa	ıys*
Minimal	Moderate	High	*JA Pathways signify a program's primary focus.	Visit <b>ja.org</b> to learn more.	Entrepreneurship	Financial Literacy	Work Readiness
	K-	12 K	it-Based and Bl	ended	Entrepr	Financi	Work B
JA Excelled	ence throug ce of ethics in the wo	gh Ethic rkplace and in	allows students to meet and interact with a everyday life. (Grades 6–12)	local executive or business professional and learn			
	ethical standards, inte		e values, decision-making, employee ethics, ethica nterpersonal skills, professional attitude, rights of c				
<b>Skills:</b> Analyze situations and decisions in light of ethical considerations, apply guidelines for ethical decision making, consider attitudes, critical thinking, examine the competing pressures on young people, express why ethical standards are important to society and businesses, listening and communicating, reading for understanding, suggest actions to correct problems							
JA It's My nore employable to	Job (Soft of future employers ac	Skills) <sup>TM</sup> ross multiple ca	allows students to learn the value of professional areer clusters. (Grades 9–12)	communication and soft skills, making them			
<b>Concepts:</b> Cell phone behavior and function in the workplace, character development, career preparation, employer expectations, ethics, job application, job interview, positive attitude, professionalism, making a good impression, manners, relationships with others, resume, self-motivation, soft, interpersonal, or transferable skills, workplace behavior and productivity, workplace communication							•
<b>Skills:</b> Active listening, analyzing and applying information, collaboration, critical observation, decision-making, demonstrating soft skills in a mock interview, evaluating alternatives, examining forms, oral and written communication, presenting information, role-playing, self-evaluation, working in teams, weighing consequences of personal behavior							
JA Be Ent	repreneuria venture while still in h	al <sup>®</sup> introducting high school. Sev	es students to the essential components of a pract ven volunteer-led sessions required. (Grades 9–12)	ical business plan and challenges them to start			
<b>Concepts:</b> Advertisement, business plan, competitive advantages, customer, demographic, entrepreneur, entrepreneurial spirit, ethical dilemma, ethics, financing, franchise, long- vs. short-term consequences, management, market, market needs, marketing, nonprofit business, product, product development, profits, social entrepreneur, social responsibility, stakeholder, voting							
<b>Skills:</b> Analyzing information, business planning, categorizing data, decision making, evaluating alternatives, expressing multiple viewpoints, graphic presentation, oral and written communication, presenting information, reading for understanding, weighing consequences, working in groups and pairs							
JA Career olunteer-led session	Success® ons required. (Grades	equips student 9–12)	ts with the tools and skills required to get and keep	a job in high-growth career industries. Seven			
<b>Concepts:</b> Career clusters, career planning, career preparation, collaboration, communication, conflict management, critical thinking, education and training, employer expectations, high-growth jobs, high-performance teams, interests, inventory and ordering, job interviews, job outlook, job retention, post-secondary options, problem-solving techniques, skills, soft skills, STEM, technical skills, the 4Cs, work priorities, workplace skills							
<b>kills:</b> Analyzing danaking, following w	ata, collaborative disc vritten instructions, fo	collaborative discussions, conflict resolution, communication, competition, creativity and innovation, critical thinking, decision en instructions, formulating answers from personal experiences, goal setting, identifying behaviors, interpersonal skills, organizing research skills, role-playing, self-assessment, time management, working collaboratively, working in groups					
JA High S lementary schools Grades 9–12)	chool Hero	<b>es</b> <sup>™</sup> provid	es leadership development opportunities to high so	shool students who deliver JA programs in			
Concepts: Adaptability, accountability, civic leadership, conflict resolution, flexibility, leadership, verbal and nonverbal cues to communicate meaning and demonstrate understanding							
			o work-based problems, assessing personal skills, a skills, listening to others, negotiation, problem sol				

# SCOPE AND SEQUENCE

KEY Junior Achievement				JA Pathways*			
Minimal	Moderate	High	*JA Pathways signify a program's primary focus.	Visit <b>ja.org</b> to learn more.	Entrepreneurship	Financial Literacy	Work Readiness
	K-	-12 K	it-Based and E	Blended	Entre	Finar	Work
eeded in demandi equired after the v <b>concepts:</b> Career	risit. (Grades 9–12) assessment, career (	g workplaces. Iv clusters, career p	planning, elevator pitch, infographic profile, int				
<b>kills:</b> Analyzing a xperience, identify	nd applying data, bus ring behaviors, intervi	siness communic ewing, oral and		ten instructions, formulating answers from personal n, presenting information, researching a variety of		Û	
tarting a company Concepts: Capital,	and the entrepreneu	rial journey. (Grass of the entrepre	ades 9–12) eneurial experience (motivation, inspiration, pre	eparation, expectations, and challenges),	•		
			tion, steps to becoming an entrepreneur, prob	lem solving			
Money-managemerisk management, volunteer-led; Ses	ent strategies include and investing. Two insions Six–Eight teach	earning, employ nplementation on ner- or volunteer	options are offered: Basic (Sessions One–Five virled). (Grades 9–12)	and debt, consumer protection, smart shopping, volunteer-led) and Advanced (Sessions One–Five			
<b>Concepts:</b> Benefits versus costs, budgeting, compound interest, consequences, cost of living, credit, credit card fraud, credit reporting and rating, debt, delayed gratification, earnings, education, expense tracking, financial management, identity theft, income, information mining, interest, investing, job skills, limited resources, maximizing earnings, opportunity cost, priorities, rent-to-own, return on investment, reward, risk, saving, savings plan, unlimited wants, variable and discretionary expenses							
Skills: Analyzing a decision making, options, evaluating proactive planning	and evaluating data f disputing unauthorize g personal skills, groc g, problem solving, re	evaluating data from multiple sources, car buying, comparing results, comparison shopping, creating savings plans, critical thinking, uting unauthorized charges on a credit card, estimating, evaluating risks and rewards, evaluating online resources, evaluating rsonal skills, grocery shopping, interpreting analogy, long-term planning, personal inventory, planning, presentation skills, prioritizing, oblem solving, recognizing scams and fraud, requesting and checking credit reports, research, saving and investing, sorting, penses, weighing costs and benefits					
JA Titan® challenges students to apply their knowledge of business as they compete online in the highly competitive industry of the fictional Holo-Generator. Students enter decisions about price, production, marketing, capital investment, and research and development. The impact of their decisions will lead to the success or failure of each company. Seven volunteer-led sessions required. (Grades 9–12)							
<b>Concepts:</b> Business management, capital investment, charitable giving, demographics, fixed costs, four Ps of marketing, law of diminishing returns, marketing, marketing research, price, product life cycle, production, research and development, target marketing, variable costs							
<b>skills:</b> Analyzing ir eamwork	nformation, critical thi	nking, data anal	lvsis, decision making, mathematical skills, pla	inning, reading charts and graphs, researching,			

#### PLANNING, POLICY AND GOVERNMENTAL AFFAIRS FEBRUARY 17, 2022

TAB	DESCRIPTION	ACTION
1	BOISE STATE UNIVERSITY ANNUAL REPORT	Information Item
2	IDAHO DIVISION OF CAREER TECHNICAL EDUCATION ANNUAL REPORT	Information Item
3	IDAHO PUBLIC CHARTER SCHOOL COMMISSION ANNUAL REPORT	Information Item
4	LEGISLATIVE UPDATE	Action Item
5	STEM ACTION CENTER – SUMMER SCHOOL/AFTER SCHOOL COLLABORATIVE LEARNING LOSS PROPOSAL	Action Item
6	BOARD POLICY I.P. – INDIAN EDUCATION COMMITTEE – FIRST READING	Action Item
7	BOARD POLICY – BYLAWS – FIRST READING	Action Item
8	K-20 EDUCATION STRATEGIC PLAN	Action Item
9	EDUCATOR PREPARATION PROGRAM – EFFECTIVENESS REPORT	Action Item
10	TEMPORARY RULE – OMNIBUS FEE RULE – CONDITIONAL	Action Item

PPGA TOC Page 1

#### PLANNING, POLICY AND GOVERNMENT AFFAIRS FEBRUARY 17, 2022

#### **BOISE STATE UNIVERSITY**

#### **SUBJECT**

Boise State University Annual Report

#### APPLICABLE STATUTE, RULE, OR POLICY

Idaho State Board of Education Governing Policies & Procedures, Section I.M.3.

#### **BACKGROUND/DISCUSSION**

This agenda item fulfills the Board's requirement for Boise State University to provide a progress report on the institution's strategic plan, details of implementation, status of goals and objectives and information on other points of interest in accordance with a schedule and format established by the Board's executive director

Boise State University's strategic plan drives the University's planning, programming, budgeting and assessment cycles, and is the basis for the institution's annual budget requests and performance measure reports. Although the timeline for the University's prior strategic plan, Focus on Effectiveness, has lapsed, the goals of that plan continue to guide the University as it prepares to begin the strategic planning process anew.

#### **IMPACT**

Each institution annual report provides the Board with an update on the institution's progress in meeting their strategic plan goals and efforts toward program prioritization.

#### **ATTACHMENTS**

Attachment 1 – Boise State University Annual Progress Report

#### **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

Board Policy I.M. requires each institution and agency to report to the Board annually on "progress on the approved strategic plan, details of implementation, status of goals and objectives, and expanded information on points of interest and special appropriations."

The institution annual progress report gives the Board the opportunity to discuss advancement toward the institution's strategic plan goals, initiatives the institution may be implementing to meet those goals, barriers identified and progress toward the Board's educational system initiatives. Additionally, this time will be used to update the Board on the institution program prioritization implementation.

#### **BOARD ACTION**

This item is for informational purposes only.

February 2022

# ANNUAL PROGRESS REPORT

#### **2** STRATEGIC PLAN IMPLEMENTATION

- 3 Improve Educational Access and Student Success
- 24 Innovation for Institutional Impact
- **30** Advance Research and Creative Activity
- 33 Foster Thriving Community
- **39** Trailblaze Programs and Partnerships
- **4.4** PROGRAM PRIORITIZATION PROCESS
- 50 INSTITUTIONAL DATA
- 53 UNIVERSITY ADVANCEMENT
- 55 COLLEGE HIGHLIGHTS
- 60 NEW FACILITIES



#### CONTEXT

Since providing our last Annual Progress Report to the Board, Boise State University, as all Idaho universities, continued to operate in the face of a global pandemic. Even in these challenging times, Boise State University successfully developed and started implementing Blueprint for Success 2021 - 2026, our new strategic plan, and completed a year-long process of program prioritization. Our new mission and vision as well as the Blueprint for Success were approved by the State Board of Education in the June 2021 Board meeting. We seized the opportunity during these periods of adversity to learn new ways of serving our community and introduced those insights into our new plan with the goal of helping Idaho thrive and our students succeed.

**MISSION:** Boise State University provides an innovative, transformative, and equitable educational environment that prepares students for success and advances Idaho and the world.

**VISION:** To be a premier student-success driven research university innovating for statewide and global impact. To be a premier student-success driven research university innovating for statewide and global impact. The trailblazing, innovative character that has always defined Boise State will help us foster student success, advance Idaho and Idahoans, and strengthen our culture of innovation and impact.

## STRATEGIC PLAN IMPLEMENTATION

**Blueprint for Success** and the Board's clear direction in Complete College America's (CCA) "Momentum Pathways Project" have given us guidance up to this point and our future strategic plan will be informed by the goals that preceded it.

# Goal #1: Improve Educational Access and Student Success.

Enhance the comprehensive student experience with a focus on student success and post-graduate outcomes.

toward the achievement of this goal, and we have intentionally aligned our efforts with the Complete College America (CCA) Game Changer strategies.

The SBOE's adoption of Complete College America's "Momentum Pathways Project" has shaped our work.

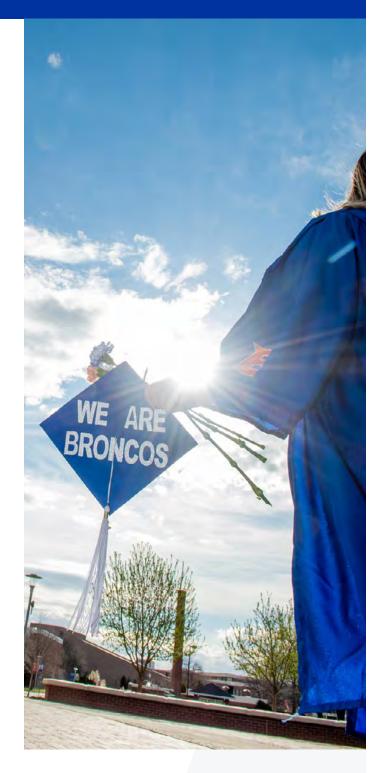
Moreover, CCA's recent focus on the importance of reducing the equity gaps experienced between

Boise State is investing significant effort and resources

Moreover, CCA's recent focus on the importance of reducing the equity gaps experienced between different student populations is guiding our work on the development of a new strategic enrollment and retention plan. In addition, Boise State is a member of the Powered by Publics Coalition of the Association of Public and Landgrant Universities (APLU), which has a focus similar to that of CCA: increase the number of college graduates and close equity gaps.

Our coverage of Goal #1 has the following sections:

- 1. Overall progress relative to this goal.
- Development of a Strategic Enrollment and Retention Plan addressing the importance of equity in college attainment.
- 3. Update on "Game Changer Strategies" our status, description of current activities, and plans relative to the six Game Changer Strategies that constitute the Momentum Pathways Project.





**BOISE STATE UNIVERSITY** Annual Progress Report | 2

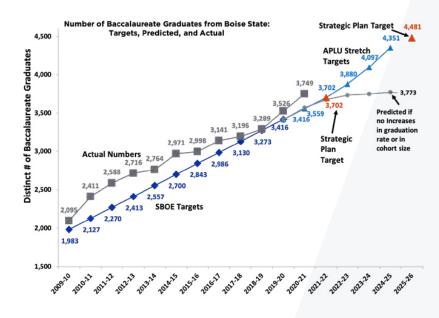


#### **OVERALL PROGRESS**

We are very proud to have played a key role in contributing to the **college attainment rate for Idaho.** Boise State confers more than half of all baccalaureate degrees from public institutions in Idaho. The number of baccalaureate graduates from Boise State has increased every year over the past decade, with a stunning overall **increase of 55 percent** from 2010-11 to 2020-21. Boise State has exceeded the targets put forth by

the SBOE in August 2010 as part of the overall strategy of achieving the state's 60 percent goal.

The SBOE targets, which spanned 2009-10 through 2019-20, galvanized Boise State's efforts to increase the number of students we graduate. A new set of targets resulted from Boise State's participation in the APLU's effort to increase the number of graduates nationwide; those targets are depicted in the graph. The graph also shows that to achieve those targets will require a continued increase in the size of our incoming cohort and/or a further increase in our graduation rate. Without such increases, Boise State's annual number of baccalaureate graduates will level off at about 3.800.



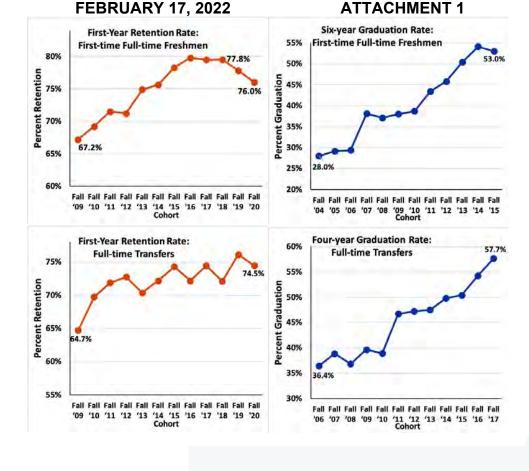


## PLANNING, POLICY AND GOVERNMENTAL AFFAIRS

The increase we have already seen in baccalaureate graduates has been, in large part, a result of substantial increases in Boise State's retention and graduation rates, as well as the number of students who enter the university, as shown below. A slight decline in the first-year retention rate in the last three years has certainly been impacted by the global pandemic.

# Six-year graduation rate for the first-time full-time freshmen *nearly doubled*,

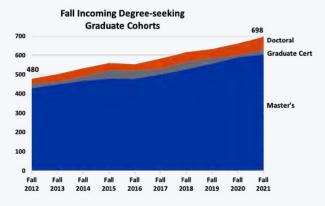
increasing from 28 percent for the Fall 04 cohort to 53 percent for the Fall 15 cohort. The four-year graduation rate for the full-time transfer students reached the all-time high rate of 57.7 percent for the Fall 17 cohort.

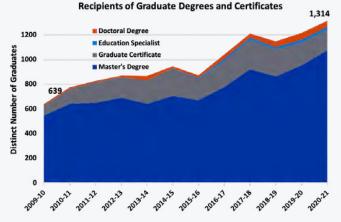


**Fall Incoming Degree-seeking Undergraduate Cohorts** 5,000 4,916 4,500 4,000 3.768 3,500 First Time 3,000 2.500 2,000 1,500 1,000 Transfer 2013 2014 2015 2016 2017 2018 2019 2020

**Graduate-level programs** are also an important aspect of serving Idaho and Idahoans, and Boise State continues to develop a variety of new programs.

The number of graduates from those degree and certificate programs has *nearly doubled* over the last decade.





**BOISE STATE UNIVERSITY** Annual Progress Report | 4

B



Blueprint for Success specifically and intentionally calls for the creation and enactment of a comprehensive strategic enrollment and retention plan as a significant strategy to make progress on the goal of improving educational access and student success. The development of a Strategic Enrollment and Retention Plan (SERP), led collaboratively by Student Affairs and Academic Affairs divisions, started in earnest in summer and fall of 2021. During the spring 2022 semester, six working groups will generate strategies to address the strategic goal of improved retention and graduation, with a specific focus on the closing of equity gaps. The six working groups will be focused on 1) Student Development, Connections, and Wellbeing
2) Academic Advising and Student Transitions 3) Academic Experience and Career Readiness

2) Academic Advising and Student Transitions 3) Academic Experience and Career Readiness
4) Academic Programming and the Student Learning Experience 5) University Infrastructure, Policies and Processes 6) University Recruitment and Outreach.

As noted, an important focus of the SERP is the identification of strategies designed to the close equity gaps, which are discrepancies in access, retention and graduation rates (among other student success indicators) by demographic or student characteristics, such as socio-economically disadvantaged students, underrepresented minority students, rural students, first-generation students, etc. There are two primary reasons for a focus on equity gaps. First, one of the recommendations Boise State received in response to our 2019 accreditation review was a requirement that we address equity gaps. Second, there are important societal impacts of these inequities, as follows:

- Education is key to providing Idahoans the opportunity to develop the talents and skills necessary
  for employment. Education can have a transformational impact on students (and their families) in
  terms of employment opportunities and upward economic mobility. Students from all backgrounds
  must have the same access to and support for pursuing a college education, or they miss out on the
  opportunity to develop those skills and talents, develop their full potential, and give back to our great
  state.
- Education is key to increasing the size and competence of the state's workforce, as is captured in Idaho's 60% goal. Increasing the rate of college attainment in all groups, especially those populations that are presently underrepresented populations with respect to college attainment, is the most impactful way to increase the size and competence of the workforce, and achieve our state's 60% goal.

The equity gaps of four underserved groups will be addressed: Rural Idahoans, First Generation in College, Low Income/High Financial Need, and Hispanic/Latinx.

For each of the four, (i) the underserved group represents a substantial fraction of Idaho's population, (ii) there is a substantial gap in college attainment between the underserved group and the majority population, and (iii) there is evidence of a substantial gap in access to Boise State and/or in retention and graduation from Boise State.

B

**BOISE STATE UNIVERSITY** Annual Progress Report | 5

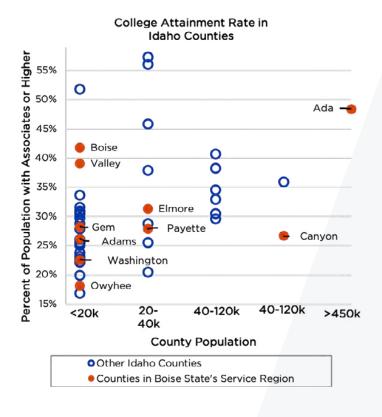


A single mother of three boys, Mandy Fulbright works for the Department of Education in Boise where she finds pathways for non-traditionally certified teachers to teach in Idaho.

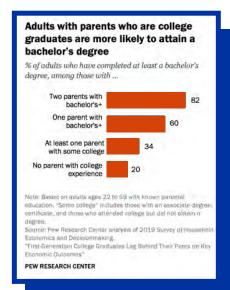
Fulbright enrolled in the Community Impact
Program on the way to finishing her bachelor's degree in multidisciplinary studies and a credential of readiness through Boise State's Harvard Business School Online. The program saved her another commute to Boise and, thanks to its scholarship program, tuition

Rural Idahoans. The percentage of Idahoans with an associate's degree or higher varies widely from county to county, from less than 20% to over 55%. The rate of college attainment in Idaho's rural counties tends to be substantially lower than that in urban counties, as shown in the graph. And in Boise State's 10 county service area, the percentage varies from 18% in highly rural Owyhee County to 48% in relatively urban Ada County. A notable exception to this trend is the relatively urban Canyon County, which has a rate of college attainment on par with counties that are much more rural.

A key reason for this trend is that rural Idahoans are, in general, geographically distant from institutions of higher education thereby precluding commuting to college and limiting participation to those able to move closer to a college or enroll in an online program, with the exception of new programs that are designed to deliver education in rural communities, like our **Community Impact Program.** 





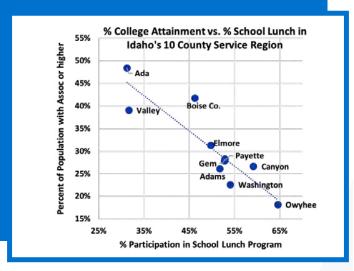


First Generation in College. This graphic, from the Pew Research Center, shows that the likelihood of being a college graduate is more than 3 times higher for those with at least one parent with a bachelor's degree. Therefore, unless we can break that cycle,

those families without college-educated parents will tend to have children who are not college educated, across generations, thus, not able to receive value and benefits that comes with college education. And those families will see less of the value that would come from a college education.

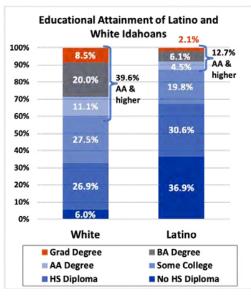
#### Low Income/High Financial Need.

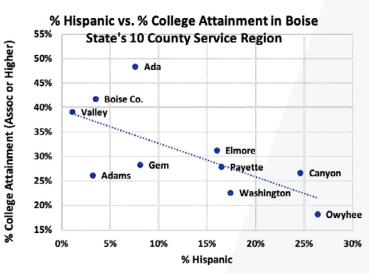
National data indicate that attainment of a bachelor's degree is 5 times higher for those from the highest family income quartile than for those from lowest family income quartile. The graph below shows a similar trend. Participation in the school lunch program is a reasonable proxy for higher financial need. And among the counties in Boise State's service region, the counties with the highest participation in the School Lunch Program are those with the lowest level of college attainment.



**Underrepresented Racial/Ethnic Minority (URM).** Members of two groups comprise the bulk of Idaho's underrepresented minorities: Hispanic/Latino and Native American. The accompanying graph shows statewide data that indicates that Latinos have a level of college attainment less than a third that of Whites.

The second graph shows that in Boise State's 10-county service region, counties with a higher percentage of Hispanic residents tend to have a lower rate of college attainment.





BOISE STATE UNIVERSITY Annual Progress Report | 7

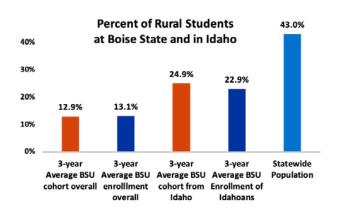
#### **Boise State University's Role in Closing Idaho's Equity Gaps**

Because Boise State confers more college degrees than any other public institution in Idaho, we play a key role in helping to raise the level of college attainment of Idahoans in general and of the four groups we have identified as having substantially lower levels of college attainment. Our path forward requires that we focus energy on (i) **increasing college attendance** among those students who are typically less likely to attend college in the first place and (ii) **increasing successful retention and graduation** among those students typically less likely to graduate. The data that follow demonstrate the magnitude of the task before us.

#### **Gaps in Access to Boise State University**

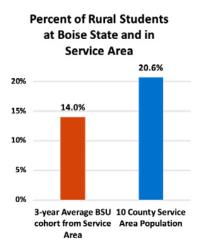
Two types of data will be used to demonstrate the current gaps in the access to Boise State of underserved groups. First, for Rural Idahoans and Hispanic/Latinos, demographic data enable us to compare the percent of the population at the state and the service-region levels to the composition of Boise State's student body and incoming cohorts. Second, for all four underserved groups, we will show the trends over time in the composition of our incoming student cohorts.

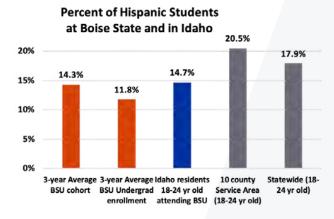
The graphs below show that the composition of Boise State's incoming cohort (first-time and transfer combined) and degree-seeking undergraduate enrollment significantly differ from the composition of the population in Idaho and in Boise State's 10-county service area. The percentages of rural students in Boise State's cohorts and enrollment are significantly below the percent of the population in rural areas.



The graph on the right shows a similar pattern in comparing the percent of Hispanic students in Boise State's incoming cohorts and student enrollment to the composition of Boise State's 10 county service area and Idaho's population (census and enrollment data are from OSBE's Demographic Characteristics of Idaho's Four-Year Postsecondary Students report). As shown, Hispanic students at both Boise State are underrepresented when compared to the surrounding area (10 county service area and overall state).

For both underserved groups, it is clear that Boise State needs to **increase its enrollments** of these students in order more equitably **to serve Idaho and its residents**.





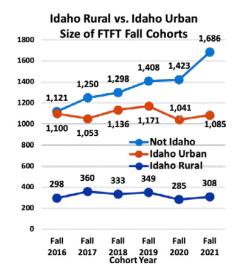
\*18-24 year old data are from OSBE's Demographic Characteristics of Idaho's Four-Year Postsecondary Students report

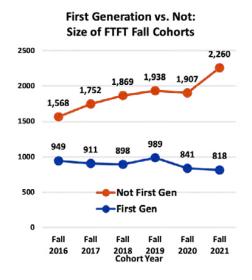
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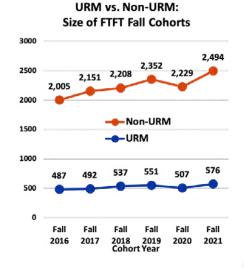


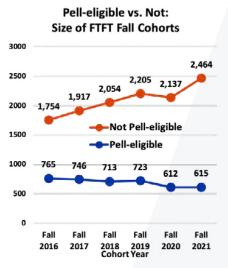
#### The fall cohorts of first-time full-time degree-seeking students

The following graphs depict the sizes of incoming fall cohorts of first-time full-time degree-seeking students. As can be seen in all four graphs, the size of the cohorts of underserved groups has remained flat or has gone down whereas the size of the majority groups has gone up.









**BOISE STATE UNIVERSITY** Annual Progress Report | 9

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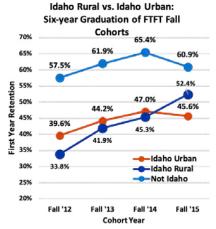
#### **Gaps in Graduation Success at Boise State University**

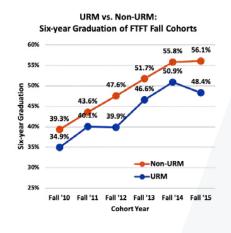
Three types of data are typically used to depict the size of equity gaps in retention, progress, and graduation: **first-year retention rate**, **six-year graduation rate**, and the trend in the **number of graduates**. However, for the sake of brevity, we will present data only for the six-year graduation rate. Note that impacts on six-year graduation rate will be closely related to impacts on first year retention rate. And in combination with trends in cohort size, six-year graduation rate is a key determinant of the number of graduates.

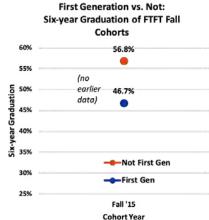
Several patterns are apparent in the accompanying groups.

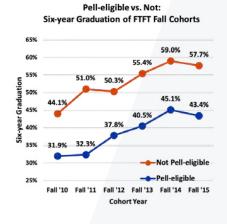
- Students from rural areas of Idaho have a graduation rate that is comparable to that of students from
  urban areas of Idaho, indicating a relatively small gap, if any, in graduation success of rural students.
   Therefore, Boise State needs to focus its efforts on increasing access for rural students while also
  ensuring the continued graduation success of those rural students who do attend Boise State.
- There is a substantial 7.7 point gap in graduation rate between underrepresented minority students and majority students of the Fall 2015 cohort. Therefore, our efforts need to focus on increasing access (as demonstrated above) as well as **closing the gap in graduation success**.
- There is an even greater 10.1 point gap in graduation rate between first generation students and continuing
  generation students of the Fall 2015 cohort. Again, our efforts need to focus on increasing access to first
  generation students as well as closing the gap in graduation rates.
- The greatest gap in graduation rate, 13.3 points, is between Pell-eligible students and those who are not Pell-eligible, **indicating the importance of financial challenges** that face students of low-income families.













#### **SERP Timeline**

Working groups were launched in early December and will work throughout the spring of 2022 with the goal of forwarding their recommendations by mid-May. A final report will be submitted to executive leadership in June of 2022 for their consideration.

#### **WORK ALREADY IN PROGRESS**

Boise State's work to address equity gaps includes a variety of actions, many of which are listed below:

#### Increased need-based financial aid

In the last 18 months, the university has received about \$10.3M in gifts and pledges for need-based scholarships; of that, \$4.2M is for scholarships with an Idaho residency preference or requirement. A key component of our need-based financial aid is our True Blue Promise scholarship, which has the goal of ensuring support for all qualified Idaho college students, eliminating the financial barrier to their success. Scholarships remain our highest fundraising priority.

#### **Expanded institutional scholarships**

Effective fall 2022, our keystone institutional scholarships for Idaho residents (Presidents and Deans scholarships) will be extended from 2-year to 4-year awards.

#### A focus on rural communities

In fall 2020, we launched the **Community Impact Program (CIP)**. We engaged in dialogue with three communities — McCall, Mountain Home and Payette — to learn their educational needs. In response to those needs and in collaboration with local community and economic leaders, we are delivering a hybrid-format program that continues to grow in scope and impact.

- Year 1 outcomes: Of the 16 students enrolled in the fall 2020 cohort, 1 student graduated, 14 remain engaged with higher education in fall 2021, and 1 "stopped out" for personal reasons.
- Twenty-eight (28) students with an average age of 30 enrolled in the fall 2021 cohort. They include students who are overcoming a variety of barriers: first generation students, underrepresented populations, 2021 high school graduates, mothers of young children, military spouses, returning adults, and students returning after a "gap year." The goal is to enroll an additional 45 students for fall 2022.
- CIP students received a scholarship that cut their per-credit cost in half.
- Consistent with year one results, the program has a demonstrated impact on students beyond those enrolled: the go-on rate from these three communities increased by an average of 21 percent, whereas the go-on rate in three similar, non-CIP communities (communities that are similar but are not part of the program) decreased by as much as 50 percent. This type of engagement, programming, and support works, as also shown by national data and in other similar programming.
- - first generation students
  - underrepresented populations
  - mothers of young children
  - military spouses
  - returning adults

Students are participating in a year-long team project focused on "making a positive impact in your community." This project engages students with their local community to solve challenges and/or provide answers to pressing questions. The students will present their findings and outcomes in summer 2022.

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- Students will participate in a summer Entrepreneurship course and will explore the entrepreneurial
  mindset and be introduced to establishing an entrepreneurial start-up in their community.
- The CIP program has created considerable interest among local business owners seeking advice from
  Boise State faculty members and community-based problem-solving from students in the program. In
  response, we have created a new non-credit community leadership program that can be offered as a
  stand alone program or in concert with existing local leadership programming sponsored by Chambers
  of Commerce, etc. These offerings are being provided at no cost to partnering CIP communities and
  provide direct access to Boise State expertise.
- A large employer in the McCall/West-Central Mountains region has engaged with Boise State through CIP and the College of Business and Economics to develop a "world class" Resort Operations and Hotel Management (ROHM) program. This program is in active development, already approved by the internal curriculum process and planned to launch in fall 2022.



# Recruitment of students from underrepresented groups includes the following activities by the Office of Admissions:

- Visited rural high schools to recruit rural students and provide them information about transitioning to Boise State, resources available to help them succeed, and an overview of on-campus jobs. Created a virtual recruitment event specifically to help rural students understand their next steps in their college enrollment process.
- Increased our ability to offer **one-on-one appointments** by 50% by moving these to a virtual format.
- In addition to traditional college fairs and high school visits, actively engaged with community-based organizations whose mission it is to increase the go-on rate in populations that are underrepresented in higher education in our state, including the Diversity Network for Student Success, Refugee Student Support Network, and the Idaho Commission on Hispanic Affairs.
- Collaborated with Idaho Commission on Hispanic Affairs and Boise State's student organization,
   Organización de Estudiantes Latino-Americanos, to host hundreds of Latinx students at the Hispanic
   Youth Leadership Summit and participated in Project: Dream for Tomorrow.
- Hosted a one-day program targeting first-generation students with financial need and those from an underrepresented race or ethnicity designed to help students prepare for college.
- Hosted a monthly Spanish-language radio show heard throughout the Treasure Valley in order to engage Spanish-speaking families and promote higher education and Boise State University.
- Targeted communication to students from a variety of backgrounds to provide key assistance from the point of inquiry to enrollment.



- Collaborated with educational partners like TRIO, AVID and Gear Up by providing special
  presentations, group visits and key admissions, financial aid and scholarship information that
  targeted the needs of each specific group. These educational partners also provide insight into
  individual students' personal, financial and academic needs, which is then used to personalize the
  service provided to students.
- Renewed our Trio Scholarship agreement extending our commitment for the next 5 years.
- Enhanced our partnership with Extended Studies to improve our outreach to community colleges.

#### **Professional Development for Faculty**

The Center for Teaching and Learning (CTL) and eCampus Center (eC2) provide opportunities for faculty members to become better teachers for the student population we serve, with particular attention to effectively supporting students that have experienced less favorable outcomes.

 The CTL offers a semester-long "Designing for Student Success" faculty learning community which supports faculty to explore evidencebased strategies to support first-generation, low-income, and other underrepresented students to be successful. Three cohorts of ~10 faculty, most of whom teach lowerdivision courses critical for student success,



have completed this experience. In the first cohort, nearly all participating faculty were more successful supporting students, as evidenced by smaller (or fully-closed) gaps in passing rates between majority students and those less likely to succeed (e.g, first gen, Pell-eligible, living off campus). Data from two additional cohorts will be analyzed in 2022. The analysis will also attempt to understand how COVID may have impacted students in the classes of participating faculty.

- Boise State was awarded funding from the APLU's Powered by Publics seed-funding competition
  in January 2021 to support collaborative projects. The project (Faculty as Change Agents for
  Equity and Student Success, \$22,000) created a summer faculty learning institute for faculty from
  across the Western Coalition fashioned after our local efforts and led by staff from Boise State's
  CTL in collaboration with leaders from the University of Hawaii.
- In response to the need to support faculty for pandemic-conditions, the CTL and eC2 offered a variety of faculty development opportunities through the "Flexible Teaching for Student Success" initiative. Assessment indicates that the program had a positive impact on teaching on our campus. Results from the Annual Campus Teaching Climate survey (Landrum et al., 2017) show faculty who participated in the FTSS Initiative generally reported higher student interactions in their courses. In addition, participants generally reported a more positive perception of the institutional infrastructure in support of teaching. Finally, participants reported a higher degree of Evidence Based Instructional Practices adoption compared to their counterparts who did not participate in FTSS programming.
- The BUILD Program offers a variety of workshops and consultations to support faculty and staff
  across campus to develop knowledge and skills needed to generate a sense of belonging for all our
  students. Such efforts are critical to efforts to close equity gaps.





## Efforts by Boise State aimed at strengthening the social support network for vulnerable students include:

- Launched a program in fall 2019 focused on first-generation commuter students. Roughly 900 students live off campus during their first year. Their retention rate is 71% compared to their on-campus peers at 83%. The program includes outreach and communication, peer mentor opportunities, and connection to resources. This program is now built into the work of the Office of New Student Transition and Family Connections (formerly new student programs), which focuses on the entirety of the first year transition period and emphasizes work that supports students in need of transition support.
- Two new positions in the Office of New Student Transition and Family Connections will support
  the mentoring program; with one specifically supporting tribally enrolled students from Idaho's five
  federally recognized tribes. This effort follows the signing of an MOA with the Shoshone Bannock
  Tribes and the establishment of the first Tribal Advisory Board at Boise State. Another position, a
  Student Success and Mentorship Coordinator will be supporting first year students who will benefit
  most from additional support, including first-generation students, a group that encompasses many of
  our rural and underrepresented students.
- Launched a student success online portal called "student life essentials" in early 2021. This resource is tailored to the ways students look for information. Use of student life essentially has now expanded and focused on efforts that support engagement, mattering and belonging. We continue to seek new ways to reach this new generation of students electronically and in face-to-face settings.
- Initiated a student design team to explore first-generation student experiences. They partnered
  with student researchers to administer a study on rural student experiences and engaged a graduate
  assistant to help analyze the findings and create interventions to better support rural students.
  Developed student personas and recorded interviews to help campus stakeholders better understand
  the needs and experiences of first generation students.
- Created a position in student involvement focused on creating a bridge between affinity based student organizations and ASBSU.
- **Expanded the food pantry** in partnership with the Idaho Food Bank and University Foundation to improve offerings and access of fresh foods.
- Secured \$7M in 5-year renewable Department of Education TRIO grants for veterans and students with disabilities.
- Boise State will become a JED Campus implementing the Mental Health First-Aid training model, developing psychoeducational conduct sanctioning for students engaging in risk-taking behaviors; and increased collaboration with community providers to help support a continuum of care for Boise State students.

B

**BOISE STATE UNIVERSITY** Annual Progress Report | 14

#### CCA Game Changer: "Think 30"

Students too often take fewer credits per semester (or year) than they could successfully complete, thereby prolonging their time in college and decreasing their likelihood of finishing. Boise State has implemented tactics to increase the number of credits taken per year and decrease the time to completion. At the same time, we recognize and respect that some students with full-time jobs and families, for example, may be unable to attend school full time. For these students, "Think 30" may not be appropriate.

#### **Ongoing Activities and Current Status:**

- Finish-in-Four program: participating students sign a contract stating they will stay on their plan, and Boise State guarantees that necessary courses will be available to enable students to complete in four years. Budget cuts could impact our ability to provide these courses. Currently, about 600 students are participating.
- Since 2019, we have discounted undergraduate per-credit cost of attending summer school by at least 20% compared with fall and spring semesters, which we will continue in the summer of 2022. We have engaged in a robust marketing campaign using a "Think 30: On Time On Track" message to motivate students to take summer courses as a way of reaching 30 credits for the full year. As a result of the discount and associated marketing campaign, the number of undergraduate discounted credit hours taken in summer sessions increased from 26,932 in 2018 to 29,825 in 2021. This is an overall increase of 2,893 or 11 percent.
- We have observed a sizable increase in students completing 30 credits per year, increasing from 23.9
  percent of students in 2016-17 to 28.3 percent of students in 2020-21.

#### **Future Plans:**

- Continue with the focus on expanding need-based scholarships a key reason students (especially low-income students) take fewer than 15 credits per semester is that they must work. A key component of our need-based financial aid is our True Blue Promise scholarship, which has the goal of ensuring support for all qualified Idaho college students, eliminating the financial barrier to their success. Based on our Financial Aid Office figures, we awarded \$1.04 million True Blue scholarship moneys to 522 students in FY22; for FY 23 we are on target to award \$1.4 million to 622 students and we plan to award \$2.4 million to 1126 Idaho students, growing the number of students receiving need-based scholarship by over 600 students between FY22 and FY26. Scholarships remain our highest fundraising priority.
- Take further steps to implement a Customer Relationship Management (CRM) solution, Salesforce, that will provide timely, targeted communications to students, employees, and the campus community (Phase 1). The technology and processes that facilitate better communication will then be used to identify students who are not on track to accumulate 30 credits in a given year, and initiate actions such as early intervention, which is more likely to help us impact student success.





# CCA Game Changers: "Math Pathways" and "Co-requisite Support for Mathematics"

The goal of CCA's Math Pathways" are to (i) provide an array of math pathways (e.g., Statistics) to better accommodate students who do not need algebra as part of their major and (ii) The second is to minimize the negative impacts of changing majors and transferring among institutions by having all the majors within a pathway make use of the same math requirement. Boise State currently has five math pathways that serve the vast majority of students well, including courses appropriate for each of the groups of students identified by revised SBOE policy III.S: Academically prepared, underprepared, and unprepared.

The goal of CCA's Co-requisite support for **mathematics** is to **reduce student attrition and time to degree** by hastening completion of general education math courses, which is accomplished by replacing remedial math courses with credit-bearing gateway courses that provide supplemental support. Our Math Learning Center (MLC) employs an adaptive placement model, delivering lower-division math courses through an enhanced "modified emporium" model that has resulted in substantial increases in student success in early math. Fewer repeats (because of higher success) and a better placement strategy have resulted in dramatic decreases in the number of students needing to take early math courses.

However, CCA's game changers produce their own challenges (below we describe the steps we have taken to mitigate these challenges). The first of these challenges occurs when a student moves from one math pathway to another and faces the possibility of needing to go back and start a math sequence. Second is the failure to recognize the difference in necessary outcomes between STEM math pathways and non-STEM pathways. For the non-STEM pathway, the necessary outcome is for a student to complete a general education class, and for this the CCA strategy works well. However, for the STEM pathway, the necessary outcome of a gateway math class is that a student is prepared for subsequent higher-level math, science, and engineering coursework. The CCA strategy of pushing a student through a gateway math class, no matter how well prepared a student is, will result in poor downstream performance especially for those students who may have the lowest passing performance and who need to complete higher-level math for their majors.



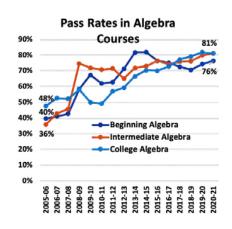
**BOISE STATE UNIVERSITY** Annual Progress Report | 16

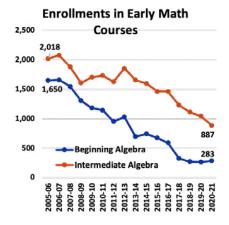
#### To help mitigate these challenges, Boise State has taken the following steps:

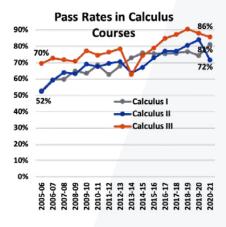
- We **created a new course**, MATH 133: Modeling and Functions, that simultaneously serves as a general education math class and as a stepping-stone for students pursuing STEM or other fields. This course replaces MATH 108, which was not a general education course; therefore, all students are now able to complete a general education math class by their second semester. In addition: (i) a student who takes MATH 133 as a STEM major but switches to a non-STEM field will not need to go back and take a general education math class, and (ii) a student who takes MATH 133 as a general education class for a non-STEM major but switches to a STEM major will not need to go back and begin the algebra sequence.
- We developed a new credit-bearing course, MATH 103, that will serve students who previously took MATH 025. This course is designed to help build self-confidence and basic math skills. We expect this course will help with increasing student success overall, as math is often a barrier course for students. For students who want to pursue a STEM major but who lack the skills, knowledge and/or confidence needed to succeed after having been rushed through a general education math class (as per CCA), MATH 103 will build the foundation necessary for success in higher level math, science, and engineering coursework.
- We are in the midst of **developing a new math placement tool** that will replace the SAT test, which is no longer required. The new placement tool will place a student based on high school math courses and grades, high school GPA, and results of evaluation of academic skills and confidence in math ability. Appropriate placement in math is very important: those placed in too high of a course are prone to failure; those placed in too low of a course waste time and also are prone to developing poor study habits.

## The following graphs demonstrate the success of Boise State's strategy for early math classes:

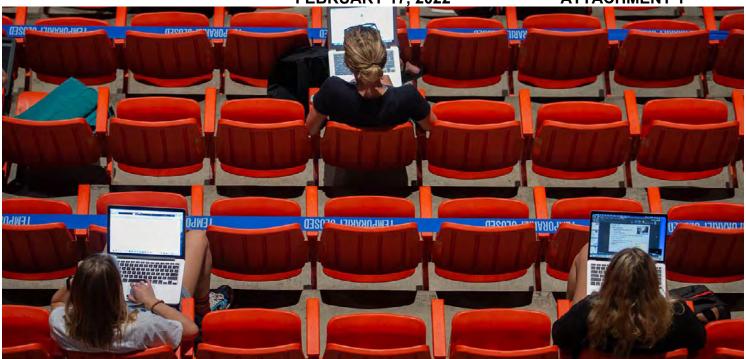
- · Pass rates in beginning and intermediate algebra have doubled since the MLC began its work.
- Courses that rely on success in early algebra classes (i.e., College Algebra and Calculus I, II, III) have seen substantial increases in success.
- Enrollments in "Beginning Algebra" (previously MATH 25 but now MATH 103), which is now
  our only early math class that does not fulfill the general education requirement, have dropped
  dramatically. Therefore, the bulk of incoming students are able to take a general education math
  class in their first semester.











#### CCA Game Changer: "Co-requisite Support for English"

This game changer strategy replaces remedial English courses with gateway courses that provide supplemental support in the form of a "P" corequisite studio for students who need it. It helps hasten completion of general education English courses to reduce student attrition and time to degree; build student self-efficacy in writing.

#### **Ongoing Activities and Current Status:**

- Our **First Year Writing Program** designed a web-based writing placement tool for students called "The Write Class" that has been adopted by colleges and universities around the country.
- We eliminated English 90, our zero-credit remedial course, in 2009 and implemented a pure co-requisite model in English 101-P. "P" stands for "plus," a one-credit, one-hour per week writing studio where students get hands-on support from trained writing coaches. Success rates for 101-P are virtually identical to those for the traditional 101 class, and success rates in the follow-on class (English 102) are also virtually identical for both populations.
- The combined success of English 101P and The Write Class have meant that the Boise State First-Year
  Writing Program is seen as a model of faculty-led curricular revisions that positively affect student
  success rates. These results have been shared at a number of state-level Complete College America
  events as well as in several peer-reviewed publications and an edited special issue of Composition
  Studies on equity and access in corequisite writing courses.
- The most pressing need in first-year writing (English 101, 101P, and 102) is for stable, teaching-intensive faculty positions. We need to increase the size of that workforce. Therefore we will create a comprehensive funding plan for first-year writing. Currently, the interest in this course exceeds the number of seats we can make available to students.



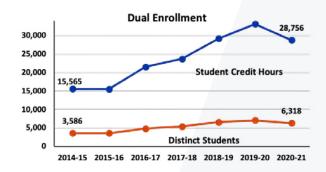
**BOISE STATE UNIVERSITY** Annual Progress Report | 18

#### CCA Game Changer: "Momentum Year"

This game changer strategy's main expected outcome is that clarity of post-graduate (career) path results in students settling on a major earlier in their academic careers, thereby reducing the impact of switching majors. Additionally, it promotes early academic success: higher pass rates in early coursework (including but not limited to math and English) are an important driver of retention and graduation, and increases the ability of students to understand and articulate the value of their degrees and of co-curricular experiences, enabling students to better wield the skills and knowledge gained during their college career. Ultimately, the goal is to help students understand the value of becoming a college graduate early in their academic career, fully prepared to pursue their aspirations with vigor and aware of the competencies they have acquired that can lead them to a variety of career pathways.

#### **Ongoing Activities and Current Status:**

- We have developed six meta-majors/areas of interest that largely correspond to current colleges or math pathways. They include Business, STEM, Education, Arts and Humanities, Social Sciences, and Health. We primarily use meta-majors as "undeclared pathways," which have been implemented in advising of new, incoming undeclared students at the point of orientation and registration.
- To give students a better understanding of careers, we are increasing information flow to students
  about majors and encouraging students to actively contemplate their futures. In addition, we aim to
  facilitate reflection about how coursework and co-curricular experiences will affect what the student
  knows, can do, and will become.
  - We have been using a relatively new university-wide strategy in University Foundation courses
    to bolster a student's knowledge, skills and disposition toward "Make a Living and Make a Life"
    far beyond graduation.
  - Major Finder is a web application that helps prospective and current undergraduate students
    gain information about the degree programs that Boise State offers. It includes information
    about the careers that can be pursued by a graduate.
  - Career Pathways dashboard enables exploration of majors to careers based on degree level, major field of study, and career outcomes. Conversely, one can also select a career outcome and see the fields of study that individuals came from.
- We continue to increase early academic success through our Learning Assistants program, which
  provides support in high fail-rate courses with embedded peer-to-peer support that has made asking
  for help a normalized activity, rather than a rarefied trip to a tutoring center.
- Dual Enrollment programs are one way to gain early momentum toward a degree. Boise State's numbers have increased substantially over time, as shown below.







• Finishing Foundations: Every student at Boise State takes a Finishing Foundations course in their senior year, and every one of those courses now requires that students engage in a culminating reflection assignment. Therefore, before students graduate, they will have a guided experience that includes articulating their vision for the future, looking back at the skills and experiences they gained at Boise State, planning a career and naming specific next steps for reaching their goals.

#### **Future Plans:**

- Consider an integrative approach to General Education that would bundle courses into clusters, pathways, or minors.
- Further incorporate career-readiness into all degree programs' curriculum to provide better access to high-quality and highly usable career data to all students.



**BOISE STATE UNIVERSITY** Annual Progress Report | 20

### CCA Game Changer: "Academic Maps and Proactive Advising"

Focus is on offering full-program academic maps to provide a clear and relevant path to graduation, including default sequence of courses, identification of milestone courses, and alignment to math pathways and career interests, and providing proactive advising to create and enhance mechanisms to help students remain on track with their academic maps. As a result, there should be an increased rate of degree progression, fewer wasted credits, and lower attrition.

#### **Activities and Status:**

- Newly adopted **Kuali Catalog** provides a default set of courses in a semester-by-semester format to help students better understand their path to degree completion.
- Academic maps have been developed for all majors which list courses critical to each program's curriculum. Virtually all of these plans feature required English, Math and University Foundations courses to be taken in the first year.
- Those degree plans are available to students and their advisor in the software package "Degree Tracker." Several colleges make use of Degree Tracker. Full university engagement is expected by fall 2022.
- We hired a staff member, in May of 2021, with the responsibility of ensuring that the academic maps in Degree Tracker and Major Finder are updated and accurate. This update was completed in fall of 2021. As a result:
  - Advisors can query **Degree Tracker** for lists of students who are off-track, giving them the information necessary to intervene.
  - Engaging in the critical work of maintaining accuracy will enable us to create a strong expectation on the part of students, advisors, and advising faculty to utilize Degree Tracker. Our goal is universal use by advisors and students.

#### Proactive Advising:

- All new students must, during their first year, receive advisor approval for their course schedules.
- In the College of Business and Economics, students must receive approval to register throughout their college careers to help ensure timely graduation.
- Changing to high-intervention majors requires consultation with an advisor.

#### **Future Plans**

Develop ways to forecast the future schedule for the offering of courses, thereby providing greater predictability to students about required courses.

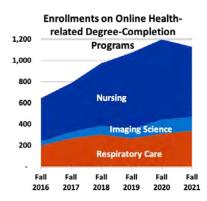


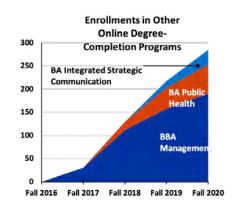
#### CCA Game Changer: "A Better Deal for Returning Adults"

Focus is on facilitating college attendance/completion for adult learners by leveraging modalities and schedules that accommodate life responsibilities; award more credit for prior learning; market to those with some college but no degree. Expected outcome is more adult completers at reduced financial and opportunity costs.

#### **Ongoing Activities and Current Status:**

- For several years we have offered two degree-completion programs in both face-to-face and online
  formats that are specifically designed to the needs of returning adult learners: Bachelor of Applied
  Sciences (BAS) and BA in Multidisciplinary Studies (MDS). Both BAS and MDS are highly flexible
  and customizable to meet the specific needs of individual students. Enrollments have continued to
  climb steadily: between Fall 2016 to Fall 2021, the MDS enrollment grew from 127 to 199 students and
  the BAS grew from 266 to 300 students.
- We have developed several additional online degree-completion programs to meet the needs of adult learners in high demand fields. One set of programs targets health care professionals who possess an associates degree: Bachelor of Science in Imaging Sciences, Bachelor of Science in Nursing, and Bachelor of Science in Respiratory Care. The other set targets a broader audience: BBA in Management, Bachelor of Arts in Public Relations, and Bachelor of Arts in Public Health. Enrollments in all are increasing (see graphs).







BOISE STATE UNIVERSITY Annual Progress Report | 22

TAB 1 Page 22

- We offer the Online Degree Pathway that enables adult degree-completion students to finish
  general education and prerequisite coursework before entering one of our online degree-completion
  programs. As the graph shows, enrollment has increased substantially.
- Boise State has been accepted as a partner for the Air Force General Education Mobile initiative, which will facilitate acceptance of military experience and technical credits into the BAS program.
- Our Military Tuition Assistance Promise program buys down the gap between traditional online tuition/fees and standard, Federally Approved Tuition Assistance. This "gap coverage" allows active duty, guard, and reserve members to maximize their tuition benefit without additional out-of-pocket expenses.
- **BroncoReconnect** is an ongoing effort to re-engage and re-enroll students who have stopped out of Boise State. The program provides these students with a guided pathway back into the institution using the same high-touch concierge-level support provided in the MDS and BAS programs.



**PPGA** 

We hired a full-time Clinical Experiential Learning Faculty member in fall 2019 who teaches the
one-credit Prior Learning Assessment (PLA) preparation course described above and facilitates other
PLA support for students in all majors. In fall 2020, 44 students were supported in their challenge of
a total of 136 classes. Since the addition of the clinical line, we have issued 618 student credit hours,
and saved students \$216,300.

#### **Future Plans:**

- We are developing an "Experiential Learning Framework" (ELF) that will integrate a significant
  amount of Experiential Learning credits into the curriculum and thereby reduce the cost to students
  because the learning is taking place outside of the classroom. ELF is being integrated into a new
  Bachelor of Science in Cyber Operations and Resilience program that is in the program review
  pipeline.
- Continue to monitor existing programs and develop additional ways to support returning adults. There are many adults in Idaho who can benefit from achieving a college education.





**BOISE STATE UNIVERSITY** Annual Progress Report | 23



#### **Goal #2: Innovation for Institutional Impact.**

Expand and implement leading-edge innovations to provide access to integrated high-quality teaching, service, research and creative activities.

We sometimes call it Blue Turf Thinking, and we've been nationally recognized for it. Boise State is a top 50 university in the most recent U.S. News and the World Report's most innovative schools ranking. U.S. News annually asks top college officials to identify institutions "that are making the most innovative improvements in terms of curriculum, faculty, students, campus life, technology or facilities." Those schools that receive the most nominations by top college administrators for making promising changes on campus are announced and listed as the "most innovative schools."

Boise State is building on our culture of innovation — developing research that positively impacts lives, structures that transcend disciplines so researchers and students can collaborate on big problems, and spaces and programs specifically devoted to innovation. This new strategic goal recognizes our focus on innovation and seeks to expand and grow it in every aspect of what we do.



**BOISE STATE UNIVERSITY** Annual Progress Report | 24

MOST INNOVATIVE

#### **NEW ACADEMIC PROGRAMS**

Boise State continues to expand its curricular offerings in targeted areas driven by an analysis of student, industry, and community demand, as well as by our research about where we can create new innovations that will enhance student learning, research, and positively impact our state and nation.

These exciting new programs will improve the delivery of K-12 in the state, prepare more students to serve in a rapidly evolving healthcare industry, ready our state and our students for a new tech economy, and increase not only our students' post-baccalaureate success but also the availability of a highly-trained workforce for Idaho.

#### **NEW DEGREE-LEVEL PROGRAMS**

Bachelor of Science in Cyber Operations and Resilience - Fall 2021
Bachelor of Applied Science in Cyber Operations and Resilience - Spring 2022
Master of Science in Cyber Operations and Resilience - Fall 2021
Bachelor of Science in Digital Innovation and Design - Fall 2021

#### **NEW GRADUATE CERTIFICATES**

Computational Science - Fall 2021

#### **NEW UNDERGRADUATE CERTIFICATES**

Community Impact - Fall 2021
Content Production - Fall 2021
Creative Influence - Fall 2021
Data Sciences for the Sciences - Fall 2021
Physical Activity and Health - Fall 2021
Business Creation - Fall 2021
Environmental Education - Fall 2021
Environmental History - Fall 2021
Gender History - Fall 2021
Health Coaching - Fall 2021
Cryptography and Cryptanalysis - Fall 2021

Resort Operations and Hospitality Management - Fall 2021
Interventional Radiology and Interventional Cardiology - Fall 2021
Business Prep - Fall 2021

Drone Operations for Visualization, Research, and Resource Management - Fall 2021

#### **NEW UNDERGRADUATE MINORS**

Astronomy - Fall 2021
General History with Geographic Focus - Fall 2021
The History of Faith and Ideology - Fall 2021
The History of Law, Justice, and Power - Fall 2021
The History of War, Conflict, and Society - Fall 2021
Applied Data Science - Fall 2021

#### **NEW INSTITUTE**

Institute for Advancing American Values - Fall 2021

B

**BOISE STATE UNIVERSITY** Annual Progress Report | 25



The **Cyber Operations and Resilience degrees (CORe)** were approved at the MS, BS, and BAS level, enabling students from rural Idaho and AA/AAS students to transfer into a four year degree program. These programs are a part of the statewide cybersecurity initiatives and the collaboration between Idaho's higher education institutions to meet the growing workforce demand for cyber-related education. They collaborate and coordinate with Boise State's Institute for Pervasive Cybersecurity.

All CORe programs at Boise State are designed around the realities of today's cyber and physical landscape, and they prepare students to anticipate, detect, mitigate, and manage cyber, physical, and interdependencies infrastructure threats. In addition, the unique scaffolding of these programs (designed as a stackable degree program) along with the emerging importance of cyber and physical resilience prepares students with the knowledge, skills, and expertise needed for maintaining the operational effectiveness of complex business, academic, and government information and physical systems.

Because it is entirely online, the proposed program will enable Boise State to reach potential students who need flexibility in their education that result from professional and personal responsibilities. These students may also live in a rural area of Idaho that does not have face-to-face educational opportunities.

# Designated as a National Center of Academic Excellence in Cyber Defense



**BOISE STATE UNIVERSITY** Annual Progress Report | 26



#### **Communty Impact Program**

In fall 2020, we launched the Community Impact Program (CIP). We engaged in dialogue with three communities — McCall, Mountain Home and Payette — to learn their educational needs. In response to those needs and in collaboration with local community and economic leaders, we are delivering a hybrid-format program that continues to grow in scope and impact.

- Twenty-eight (28) students with an average age of 30 enrolled in the fall 2021 cohort. They include students who are overcoming a variety of barriers: first generation students, underrepresented populations, 2021 high school graduates, mothers of young children, military spouses, returning adults, and students returning after a "gap year." The goal is to enroll an additional 45 students for fall 2022.
- Year 1 outcomes: Of 16 enrolled students, 1 student graduated, 14 remain engaged with higher education in fall 2021, and 1 "stopped out" for personal reasons.
- CIP students received a scholarship that cut their per-credit cost in half.
- Consistent with year one results, the program has a demonstrated impact on students beyond
  those enrolled: the go-on rate from these three communities increased by an average of 21
  percent, whereas the go-on rate in three similar, non-CIP communities (communities that are similar
  but are not part of the program) decreased by as much as 50 percent. This type of engagement,
  programming, and support works.
- Students are participating in a year-long team project focused on "making a positive impact in your community." This project engages students with their local community to solve challenges and/or provide answers to pressing questions. The students will present their findings and outcomes in summer 2022.
- Students will participate in a **summer Entrepreneurship course** and will explore the entrepreneurial mindset and be introduced to establishing an entrepreneurial start-up in their community.



**BOISE STATE UNIVERSITY** Annual Progress Report | 27

- The CIP program has created considerable interest among local business owners seeking advice from Boise State faculty members and community-based problem-solving from students in the program. In response, we have created a new non-credit community leadership program that can be offered as a stand alone program or in concert with existing local leadership programming sponsored by Chambers of Commerce, etc. These offerings are being provided at no cost to partnering CIP communities and provide direct access to Boise State expertise.
- A large employer in the McCall/West-Central Mountains region has engaged with Boise State through CIP and the College of Business and Economics to develop a "world class" Resort Operations and Hotel Management (ROHM) program. This program is in active development and anticipated to launch in fall 2022.





The Hometown Challenge: provides scholarship dollars for students to return home and create projects that give back to their local communities.

The (Apple) Idaho Onramp program: designed to provide access to equipment and high-quality instruction using Apple's Everyone Can Code and Everyone Can Create curriculum, has continued the expansion begun in fall 2020 to support each of the partnering communities via local libraries and one school district (Payette). Additional equipment has been deployed directly to schools and libraries and a new mobile learning van is in the process of being outfitted to provide introductory experiences with the same equipment and curriculum. This effort will open doors to communities and provide valuable STEM related experiences to students and community members in a much larger geographic area. This activity is being funded by Apple.

**Bronco Gap Year Program:** We developed the "Bronco Gap Year" program in fall 2020 to give students a low-cost opportunity to make academic progress and benefit from the guidance of a faculty mentor, even if present circumstances prevent them from being enrolled full time. Of the first cohort of 35 Bronco Gap Year students, 60% enrolled at Boise State upon completing the program. The remaining students either: enrolled at CWI with plans to transfer to Boise

State, enrolled at another university, or selected a professional path (e.g., attaining a real estate license). On average, students earned three credits for their Gap Year experience, with some earning as many as nine. We have ten students in our current cohort, with plans to hire a Bronco Gap Year Program Coordinator this spring whose main task will be to grow enrollments and bolster student support.

While Bronco Gap Year is intended for students transitioning from high school, the majority of those enrolled in the program are current Boise State students who need a pause/reset or students who started college and stopped out. These students are utilizing the opportunity to explore major and career options, and work directly with a faculty mentor, with significantly reduced costs. The program is serving both as a recruitment and retention tool.

**PPGA** 

TAB 1 Page 28

**Storyboard Project:** The Storyboard project is grounded in the belief that students experience their education with a stronger sense of purpose and ownership if they are actively building their story throughout their time at Boise State. In addition, students who can articulate the value of their degree are better positioned for success in the job market. Beginning in 2018, a team of faculty and staff collaborated on research, data collection, and programmatic innovation, and they developed and tested strategies for integrating reflective practices and storywork across disciplines.

The Storyboard mobile app, a unique tool designed by students and faculty at Boise State, launched in spring 2021. It creates a digital space where Boise State students can capture and compile their experiences and work on reflective practice through guided prompts. The app is currently being piloted in the First-Year writing program, and approximately 500 students will use it in spring 2022.

**University Foundations:** Boise State's University Foundations (UF) program reimagined general education by providing a connected, multidisciplinary framework of learning from freshman year through senior year. This kind of work represents one of the innovations for which Boise State is nationally known: defying the boundaries between disciplines to help students think critically in new ways and to prepare them for life after graduation.

**New innovations include:** Finishing Foundations, our capstone course for all graduating seniors, now includes a "making sense of college education" reflection assignment. It has proven effective in helping students articulate their knowledge and skills for life after graduation. Before students graduate, they have a guided experience that includes articulating their vision for the future, looking back at the skills and experiences they gained at Boise State, and naming specific next steps for reaching their goals.



B

**BOISE STATE UNIVERSITY** Annual Progress Report | 29









# **Goal #3: Advance Research and Creative Activity.**

Advance the research and creative mission of the university community by fostering transformational practices, and supporting faculty, staff, and student excellence in these pursuits.

Boise State University is **committed to fostering an environment** where research and creative activity thrive. Focus and attention includes providing comprehensive support for faculty during all phases of the research endeavor; facilitating relationships with industry for research and commercialization collaboration; and leading outreach aimed at fostering economic development in Boise and the region.





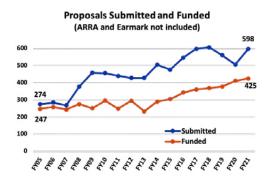
BOISE STATE UNIVERSITY Annual Progress Report | 30



million in research awards.
58 percent growth in five years.

Boise State has fostered a steady increase in research proposal submissions and in the number of globally competitive research awards

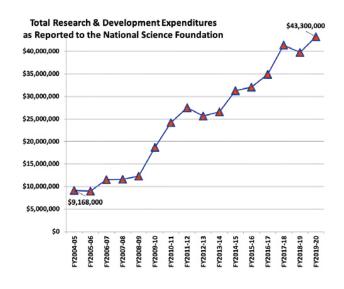
- an increase of almost 50 percent
- over the past 15 years. Even more remarkable is the dramatic increase in research funding dollars awarded to the university. From FY05 to FY20 (latest year data is available), total



Research and Development Expenditures have increased more than four-fold, from \$9 million to \$43.3 million.

Despite the challenges presented by COVID-19 to the campus research community in the recent past, total research and development expenditures grew by \$3.5 million, an almost 9 percent increase in FY20.

Awards support Boise State's path-breaking research across colleges and schools to impact a wide array of ongoing challenges. Currently funded research ranges from election cybersecurity, to evaluating farmland conversion impacts in the Treasure Valley, to better understanding the earthquake that shook the region in March 2020, and to revolutionizing aerospace manufacturing.



These awards not only support faculty in conducting research, but ensure that Boise State's students gain first-hand educational experiences and opportunities to prepare them for professional success and workforce placement. This permits our students to engage in the critical work of knowledge creation — experiences that will impact their ability to innovate and lead in the world beyond their graduation.



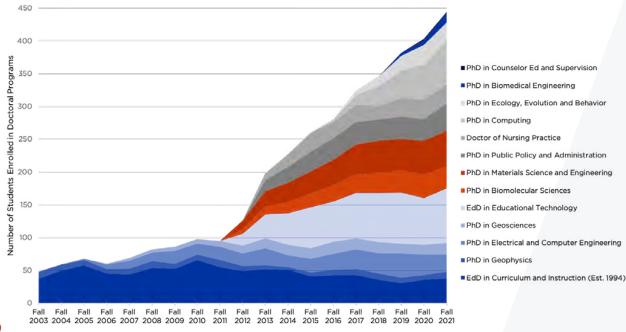
BOISE STATE UNIVERSITY Annual Progress Report | 31



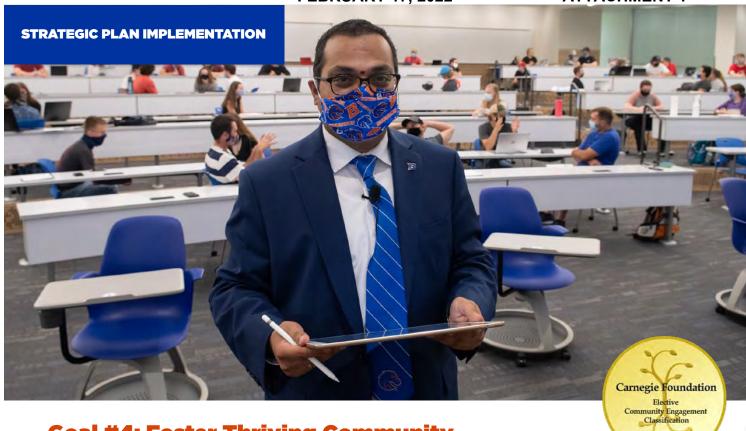
**Creating research**intensive graduate programs, especially doctoral programs, and recruiting active research faculty to the university have helped advance not only our students, but **Boise, the state** of Idaho, and, more broadly, the world by fostering discovery and innovation.

At the core of Boise State's critical service to the community, state and region has been the creation of successful and impactful doctoral programs. Over the past decade, Boise State has created **nine new doctoral programs**: Ph.D.s in Materials Science and Engineering; Biomolecular Sciences; Public Policy and Administration; Ecology, Evolution and Behavior; Computing; and Biomedical Engineering; Counselor Education and Supervision; an Ed.D. in Educational Technology; and a Doctor of Nursing Practice.

The following figure shows the growth in the number of doctoral programs and growth in the number of students enrolled in those programs. The annual number of doctoral graduates has increased more than four-fold from 2011-12 to 2020-21.



B



**Goal #4: Foster Thriving Community.** 

Promote and advance a fair, equitable, and accessible environment to enable all members of the campus community to make a living, make a life and make a difference.

President Tromp brings with her an ethic of "caring for our community" to Boise State. This ethic has strong roots on our campus, and we embrace the opportunity to imagine and implement new ways in which we can better serve the various communities within our sphere of activity, including and foremost all members of the campus community.

In 2006, Boise State was one of only 76 universities in the nation initially selected by the **Carnegie Foundation as a Community Engaged Institution**.

That classification was renewed in 2015 in recognition of the myriad ways that Boise State actively works to align with the cares, interests, and activities of our local and state community. This commitment to service has been, and continues to be, a defining feature of the university.







**BOISE STATE UNIVERSITY** Annual Progress Report | 33



The Institute for Advancing American Values encourages conversation between opposing viewpoints to spur engagement, understanding, and human connection. Institute activities include: public events to encourage dialogue about central issues facing Idaho and the nation, research and projects that approach complex and contested issues through the prism of American values and evidenced-based research, and education programming supporting the development of new courses across the disciplines that chart how the values of freedom and opportunity have shaped the triumphs and challenges of American life and history. Through these commitments, the Institute inspires us to talk and listen to each other respectfully about the issues and values that have shaped America and Americans from all walks of life.

Since its approval by the State Board of Education in August 2021, the Institute has:

- Established a **faculty research grant** (applications due in March 2022).
- Confirmed two Distinguished Lecturers, Jason Riley and Danielle Allen.
- Scheduled Idaho Listens for April 2022.
- Is **partnering with Idaho Public Television** to produce a documentary on Idaho Listens. Filming is currently underway.



**BOISE STATE UNIVERSITY** Annual Progress Report | 34



Boise State online programs among the nation's best

### **ONLINE PROGRAMS**

We are proud that Boise State has had a longstanding commitment to develop academic programs at every level that can be completed fully online — a profound way to support our rural communities. Today, Boise State offers more than 60 degrees and certificates and 800 plus unique courses in a fully-online format at the undergraduate and graduate levels.

Thousands of Idahoans have engaged with these online programs and courses: 38% of students in fully online undergraduate programs are **residents of Idaho** (33% at the graduate level), and nearly two-thirds of all students who took at least one online course in the academic year 20-21, reside within Idaho's borders. Moreover, many online students residing outside of Idaho are residents of the state who are geographically displaced due to military service or other commitments. We also see the return on serving Idahoans and out-of-state students in their potential to build and maintain lifelong connections to Idaho that help the state thrive.

As described elsewhere in more detail, we launched the Community Impact Program (CIP) in fall 2020, which initially involves a partnership with three communities (McCall, Mountain Home, and Payette) and collaboration with community and economic leaders to identify the greatest educational needs and deliver a hybrid-format program to serve each community. Sixteen students of a variety of ages enrolled in the Fall 2020, 28 students with an average age of 30 enrolled in the fall 2021 cohort. They include students who are overcoming a variety of barriers: first generation students, underrepresented populations, 2021 high school graduates, mothers of young children, military spouses, returning adults, and students returning after a "gap year." The goal is to enroll an additional 45 students for fall 2022.

#59

Best Online Bachelor's Programs #40 for Veteran's

Best Online Bachelor's Programs in Business

Best Online MBA
Programs
#43 for Veteran's

Best Online Master's Business Degree Programs (non-MBA)(MSA)

Best Online
Master's in
Education
Programs
(Educational/
Instructional Media
Design)

Best Online
Master's in Nursing
Programs



In fall of 2021, The Provost's Office formed a working group to discuss the future of online. The working group is exploring opportunities to further improve Boise State's online capabilities. We anticipate recommendations from the working group in spring of 2022.



**BOISE STATE UNIVERSITY** Annual Progress Report | 35



Boise State is responding to the contemporary healthcare needs of rural and urban communities by offering a 21-week Value-Based Healthcare certificate (non-credit bearing) for practicing professionals, delivered in a mostly online format that includes one day of in-person work. The College of Health Sciences' workforce development program in value-based healthcare welcomed its first cohort in January 2020. In the same year, the program received a Workforce Development Training Fund Industry Sector Grant from the Idaho Workforce Development Council to fund scholarships.

While the entire country is adopting value-based payment models, each state is implementing laws, policies and processes on its own. Unfortunately, Idaho lags behind the nation in adopting value-based payment models; Idaho has a 29 percent rate for value-based payments while the national rate for value-based payments is 50 percent. It remains much more challenging for rural providers, hospitals and clinics to implement value-based payment models, and 35 of Idaho's 44 counties are rural. We are preparing leaders in healthcare for the future with this one-of-a-kind program.

The popularity of the certificate has increased with each cohort. The spring 2021 cohort was currently full, including 30 scholarships, and there was a waitlist for the fall 2021 cohort.



**BOISE STATE UNIVERSITY** Annual Progress Report | 36



An important element of the university's support of student success requires that we attend to the mental health and overall well-being of students, as well as the staff and faculty who support their growth and development. It is well documented that a large percentage of college students struggle with mental health issues, and Boise State students are not immune <u>activeminds.org/about-mental-health/statistics/.</u>

In Idaho, data shows that white males are at a disproportionately high risk for suicide and we must support them and all students who enter our institution.

For medical providers at Boise State, approximately 40% of appointments are mental health related. In addition, the pandemic has increased stressors for students, staff, and faculty and has increased the need for mental health services.

### **Foundational work**

Even before the pandemic, Counseling Services had been working to address increased student needs. In tha last three years, appointments increased by approximately 40%; wait times for scheduled appointments decreased by about 30% decreasing from 4-5 weeks to 3 weeks; and the office created and sustained five new counseling groups.



**BOISE STATE UNIVERSITY** Annual Progress Report | 37



### Additional efforts that focused on wellness include:

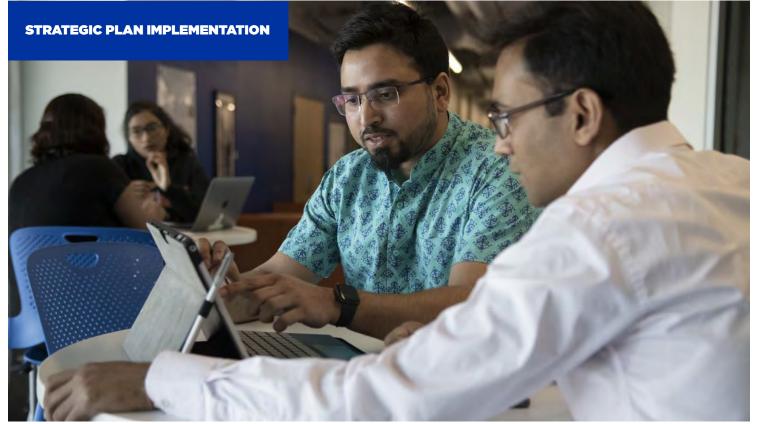
- Held 120 outreach events, including guest lectures, training, and discussions. Developed partnerships across campus to create educational and preventive initiatives to address mental health and wellness from multiple angles.
- Launched an initiative to become "America's Healthiest
   Learning Environment" because we know that well being is paramount to student success and their ability to
   graduate.
- Coordinated BroncoFit, a student and employee wellness program, utilizing staff liaisons in departments across the university and about 20 student staff. The BroncoFit program reached 9,000 campus community members in FY20, including after the wellness programs were moved to virtual formats.
- Propelled Boise State into prominence as a national thought leader by hosting over 700 participants from across the country in strategic dialogue to support student engagement and well-being through the Project Launchpad Summit.

### **Current and Future Plans**

Even as the pandemic subsides or changes form, challenges around mental health and well-being in Idaho will persist. We intend to leverage lessons learned during the pandemic to build a campus culture focused on wellness, so that students can gain the full benefit of their years as students at Boise State and reach their academic and career goals. To work toward this aspirational vision, we plan to:

- Embed the President's **Wellness Working Group** into regular structures of the university in order to support a campus culture move toward a public health approach to wellness.
- Increase staffing in Health Services (medical, counseling, and wellness / BroncoFit) to support campus needs. The increased capacity of the past few years is not sustainable without additional resources.
- Ensure fair compensation for current positions in order to retain and recruit high-quality staff.
- Integrate well-being into the curriculum so that every student learns the 8 dimensions of wellness principles (and all staff and faculty know how to support them).

B



### **Goal #5: Trailblaze Programs and Partnerships.**

Boise State University participates in many collaborative programs and community partnerships. Select examples to illustrate academic, research and industry / non-profit and other community partnerships are provided in the section below.

# PRESIDENTS' LEADERSHIP COUNCIL

Perhaps the most noteworthy and exciting example of partnership is the unprecedented collaboration between the presidents and executive leadership of Idaho's eight public colleges and universities. All are deeply engaged with one another in shared projects. Their communication, cooperation, and alignment will produce better outcomes for Idaho. This year, the PLC worked on a state-wide marketing campaign to promote higher education throughout Idaho.



B

**BOISE STATE UNIVERSITY** Annual Progress Report | 39

### **COLLABORATIONS AND COMMUNITY PARTNERSHIPS**

### **CAREER CHOICE PROGRAM**

Boise State has completed the onboarding process to be an educational partner with a global organization. The program will provide their employees with new skills for career success. It can include a variety of education and upskilling opportunities including college tuition, industry certifications, and foundational skills such as English as a Second Language proficiency certifications, high school diplomas, and GEDs.

- Partnered with Idaho State and UI on Statewide Three-Minute Thesis presentations and competitions.
- Formed GradWell program on graduate student mental health and well-being, shared with Idaho State University and University of Idaho.
- GradPro Idaho professional development opportunities for graduate students, in collaboration with Idaho State and UI graduate deans.

Intermountain Bird
Observatory (IBO) partners
with several companies
to study the impacts
of human lives

and bird conservation. Suez Idaho,
Micron Technology, Inc., and The
Nature Conservancy are just a few of
the organizations that have partnered
with IBO to develop the Diane Moore
Nature Center at the Boise River. A
significant partnership with the Micron
Foundation in 2021 reconstructed a
major side channel to add to water
quality and restore natural habitat.

### INTERMOUNTAIN BIRD OBSERVATORY

- Bridges to Baccalaureate for underserved students in biomedical fields, implemented by Boise State and College of Western Idaho.
- Boise State faculty, in partnership with the Wassmuth Center for Human Rights, awarded grant to develop an Alternate Reality Game about democratic value of non-violent political participation.
- College of Health Sciences and Idaho State working to create a school of public health.
- Center for the Study of Aging, along with St. Luke's Health System, AARP, Molina Healthcare, Idaho Parents Unlimited and T Care Inc., connect professionals, faculty and students.
- Partnered with the 65,000-member
  Healthcare Financial Management
  Association to create a first-of-its-kind fully
  online Master in Population & Health Systems
  Management degree.
- College of Engineering collaborating CWI and CSI to develop more systematic pathways from community colleges into four-year engineering programs.
- Collaborating with veteran-run Idaho company WMDTech, Boise State developed a low-cost gunshot detection system.
- Expanded Vertically Integrated Projects research teams to include CWI students.
- Institute for Inclusive and Transformative Scholarship leading a collaboration with CSI around NSF Louis Stokes Alliance for Minority Participation program.

BOISE STATE UNIVERSITY Annual Progress Report | 40

- College of Education's Center for Multicultural and Educational Opportunities secured \$5.1 million in grants to fund academic tutoring, advising and counseling for k-20 students at schools across the state.
- College of Education's Center for School and Community Partnerships supported special education professional development and helps improve student achievement with than \$6 million in grants.
- Engineering students worked with the Micron Foundation, DOE, National Renewable Energy Laboratory, Fiberguide, Harbor Freight, Schweitzer Engineering Laboratories, InDepth and sunEtrike on senior design projects.
- Partnered with the University of Idaho
   College of Law to offer a concurrent JD/MSAT program and a concurrent JD/MBA program.
- In partnership with Apple, the College of Education and the College of Innovation and Design delivered coding experiences to 425 students in 5 Idaho school districts.
- The Institute for Inclusive and Transformative Scholarship partnered with the Micron Foundation to launch and run the Micron Academy for Inclusive Leadership undergraduate scholarship program.
- Boise State University, Idaho Power and INL established a new collaborative partnership to advance high-performance computing, statewide weather modeling and workforce development for the state of Idaho in the new Collaborative Computing Center.
- Idaho Small Business Development
  Center, hosted by the College of Business
  and Economics, launching a statewide
  collaboration to bring business assistance
  to underserved communities all across the
  state.
- Idaho Small Business Development Center helped generate \$735 million in sales revenues for Idaho businesses, and \$17.8 million in tax revenue for the state.

- TechHelp, Idaho's Manufacturing Extension Partnership and EDA University Centers, located in COBE, engaged over 100 Idaho manufacturing clients.
- Executive MBA students partnered with Idaho Suicide Prevention Hotline to create a strategic growth plan.



### ERONCO CORPS

**Bronco Corps connected** College of Business and **Economics students with** local small businesses and nonprofits to help them navigate the pandemic. More than 55 companies and organizations, including **Boise Bicycle Project, American Red Cross, Girls** on the Run-Treasure Valley and Idaho Medical Academy were included. Students served as paid interns, thanks to an anonymous university donor.

- Boise State, Idaho State University, Lewis Clark State College and the University of Idaho library leaders formed the Network of Idaho Academic Libraries to enhance services and resources.
- Library faculty collaborated with the Idaho
  Commission for Libraries to select Idaho's
  Great Reads Book and participate in the
  National Book Festival at the Library of
  Congress.



### **CYBERSECURITY**

Developed a statewide cybersecurity partnership with all public Idaho institutions of higher education to make Idaho a national leader in the field. Boise State's Institute for Pervasive Cybersecurity is leading innovative cybersecurity research and advancement in Idaho and the region.



- Expanded access to Robert C. Sims
   Collection on Minidoka and Japanese
   Internment housed in Albertsons Library's
   Special Collections and Archives.
- COBE management faculty worked with an interdisciplinary team on COVID-19 modeling for the state of Idaho, advising the Department of Health and Welfare on interventions to respond to the pandemic.
- Marketing faculty served on the Governor's
   Economic Rebound Advisory Committee to
   help Idaho businesses survive the pandemic and keep Idahoans employed.

- Collaborated with the Gem State Tax
   Symposium and Gem State Business and
   Accounting Conference to bring top national
   and Idaho speakers to educate professionals.
- Conducted research on Idaho Election
   Cybersecurity in collaboration with the Idaho
   Secretary of State.
- Collaborated with Idaho Power to provide support in hydrological modeling, cloud seeding and computational infrastructure high-performance computing; with Micron to conduct basic research in nucleic acid memory, memristive devices and materials science; and with Boeing Company to model and research performance of mechanical properties of materials.
- CAES Technical Assistance Program in the Office of Research and Economic Development has served almost 100 Idaho companies in five years.
- Idaho Policy Institute of School of Public Service has provided policy research to the City of Boise, Blue Cross Foundation, Idaho Departments of Health and Welfare, Agriculture and Insurance.
- The School of Public Service/Idaho Policy Policy Institute partnered with Valley Regional Transit to better understand how the COVID-19 pandemic has affected travel behavior.

### **FOOD AND DAIRY INNOVATION CENTER**

With funding from the Idaho Global Entrepreneurial Mission Grant Program, State Board of Education, the Food and Dairy Innovation Center advances and creates new food and dairy safety and processing technologies, and establishes a robust employee pipeline from university to industry. It builds on existing strengths at Boise State University, the University of Idaho, and Idaho State University, with the goal of becoming a nationally recognized resource for research and development, for workforce training programs, and for driving economic success for Idaho industry. The team includes researchers from Chemistry, Biology, and Engineering.



- The Idaho Policy Institute is working with United Way of Treasure Valley to understand COVID-19 pandemic's impact on the financial stability, housing stability, education and health of Idahoans.
- School of Public Service faculty and students partnered with the Treasure Valley Cycling Alliance to help inform future policy.
- The Blue Sky Institute is connected to more than 25 Idaho-based corporate, civic and nonprofit organizations, including Boise Cascade, KeyBank, Micron, Simplot, St. Alphonsus, and the City of Boise and moreas a hub for DEI knowledge, expertise, resources, and connection.
- Work with Idaho-based resettlement refugee agencies to support the seamless integration of new Americans into our community.
- Intensive English Program provides
   English support to community
   members who identify with refugee
   backgrounds.
- Hazard and Climate Resilience Institute is a community of researchers and practitioners dedicated to improving society's resilience to natural hazards and the impact of a changing climate.
- Boise State Writing Project, led by faculty in the College of Arts and Sciences Department of English, works with teachers to make classrooms and school systems places of hope and possibility for all of Idaho's students.
- Cyberdome was established with funding from the Idaho Global Entrepreneurial Mission Grant Program of the State Board of Education to create a cybersecurity ready workforce that elevates Idaho as a leader across the nation, a platform that reduces the risk to the state and its citizens, and techniques, tools, and product commercialization opportunities that produce long-term economic value.

# BUSINESS PARTNERSHIP HUB

Launched Business Partnership Hub
to provide a central place for the
university community to explore
innovations in research, teaching and
programming that meet the unique
expectations of business and industry.
In turn, the Hub offers the business
community a central doorway to
engage and navigate the university
and access all we have to offer. By
engaging the university leadership, this
group is helping set transformational
strategies for business partnerships that
will attract resources and draw them to
student talent.

- As part of the Business Partnership Hub,
   Dr. Marlene Tromp created the President's
   Business Advisory Council, a group of
   10 Idaho CEOs who are helping advance
   Boise State's commitment to Idaho and its economy.
- Venture College, out of the College of Innovation and Design, has partnered with several companies and nonprofit organizations to produce educational competitions for college and high school students.
- Career Services Center partners with area businesses and nonprofits to create an internship program with a twist.
   Students attend interactive workshops and network building events and are placed in an organization where they gain work experience, regardless of their major. Over 50 organizations regularly partner in this program.



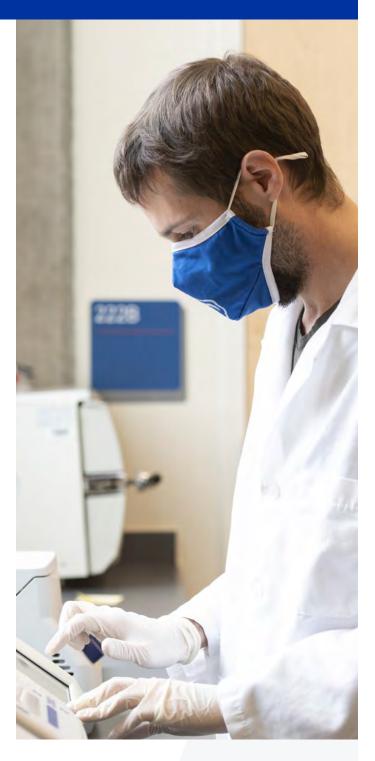
BOISE STATE UNIVERSITY Annual Progress Report | 43

# PROGRAM PRIORITIZATION PROCESS

Our ongoing efforts include institutionalizing Program Prioritization through the implementation of a Responsibility-Centered Management (RCM)-style budget model ("BroncoBudget 2.0"), and our development of Department Analytics Reports (DAR) provide extensive, actionable data to department chairs, deans, and other academic decision makers.

Between July 2020 and June 2021, under the direction and guidance of Idaho State Board of Education Policy III.F: Program Prioritization, Boise State University engaged in a program prioritization using methodology modified from that of the primary proponent of the process, Robert Dickeson, and following steps similar to the 2013-14 Program Prioritization process conducted at Boise State University. The primary goal of Program Prioritization, as outlined by Dickeson, is to increase alignment of resources with institutional priorities. In addition, the University and the Board Policy established the additional goal of campus-wide program improvement, and plan to incorporate the prioritization activities into a sustainable continuous improvement process on campus.

With Program Prioritization, all programs were evaluated at the same time. We identified a total of **604 programs** at the university: 204 degree and graduate certificate programs, 236 minors, emphases (also known as options or subplans) and undergraduate certificates, and 164 administrative and support programs. Nine degree programs and 19 minors or emphases in secondary education areas were excluded from evaluation. Unlike the 2013-14 Program Prioritization process, we did not exclude the new instructional programs from the analysis.





BOISE STATE UNIVERSITY Annual Progress Report | 44

Instructional	Minors, emphases, and undergraduate certificates	236 programs
Programs	Instructional degree programs (bachelor's and above, including graduate certificate programs)	204 programs
	Division of Academic Affairs	24 programs
	Centers/Institutes/College-based Administrative & Support	33 programs
	Division of Finance and Administration	31 programs
Administrative and	Division of Research and Economic Development	7 programs
Support Programs	Division of Student Affairs and Enrollment Management	28 programs
	Division of University Advancement	10 programs
	Division of University Affairs	16 programs
	President's Office	15 programs

Our process was open and participatory. However, it is important to note that our process was situated in the context of the global pandemic, with concerns about health and safety at the forefront, during a year that was active in planning and nimbleness, and without compromising quality of learning or the centrality of students and their experiences. A Coordinating Committee facilitated the process and communicated regularly with academic and divisional leaders. Each division oversaw and carried out the process in the programs within that division, under the guidance of the principles and framework established by the Coordinating Committee. Academic departments, academic leaders, and the faculty senate were involved in the development and determination of metrics used to evaluate instructional programs. Numerous presentations were made to keep the campus community informed during the process; a Google drive with all program prioritization related communication and materials was maintained for the use of academic leaders.

Our process was logical and sensible. When evaluating and making decisions about programs, we paid attention to the context of the university. We incorporated initiatives already underway to ensure alignment of those initiatives with any new actions. We utilized the same criteria established in 2013-14 Program Prioritization for continuity and consistency. The criteria — relevance, quality, productivity, efficiency, and opportunity analysis — guided the evaluation of programs in a relatively simple and straightforward way, and provided substantial utility in their application. The metrics under each criterion were updated



and changed as appropriate, based on feedback received. We were careful in our interpretation and the application to decision-making of the metrics used in the process. Finally, although programs assigned to the lowest two quintiles are required to make substantial changes, it was often the programs themselves that had the responsibility to determine the best way to meet outcomes.

**Our process was comprehensive.** Every effort was made to ensure that all university programs were evaluated.

Our process was rigorous and impactful. Underlying that rigor was the understanding that without it, the process would have little external or internal credibility.

**Our process is sustainable.** We are integrating Program Prioritization with our new strategic plan, Blueprint for Success, and with regional accreditation, which requires that we create an ongoing, systematic structure for measurement of institutional and unit-level effectiveness.

Results of the 2020-21 Program Prioritization pertaining to instructional programs and academic departments can be summarized as follows:

• Of the 440 evaluated instructional programs, 153 received assignments in the fourth or fifth quintile (79 in the fourth and 74 in the fifth quintile). Forty-four instructional programs were not assigned to a quintile because of missing or insufficient data; all of these programs are new.

Quintile Assignments Across All Programs								
Program Type	Total Programs	Quintile assignments						
	Evaluated	First	Second	Third	Fourth	Fifth	NQ*	
Minors	94	15	11	18	15	28	7	
Emphases	67	17	10	13	6	10	11	
Undergraduate Cert.	75	8	11	8	6	16	26	
Bachelor's	87	22	22	17	22	4	O	
Graduate Cert.	40	4	7	8	11	10	O	
Master's	62	10	16	12	18	6	O	
Education Specialist	2	1	o	o	1	O	O	
Doctorate	13	5	2	6	0	O	O	
Totals	440	82	79	82	79	74	44	
% of total per quintile	100%	20.7%	19.9%	20.7%	19.9%	18.7%		



- Placement in the fourth or fifth quintile triggered a requirement for the program to submit an action
  plan, for those programs that are not new. Ninety-four of the 153 instructional programs in the fourth
  and fifth quintiles are not new and, thus, were required to submit the Action Plan report and to
  describe substantive changes they plan to make.
- Among the criteria responsible for an instructional degree program being assigned to the fifth or
  fourth quintile, the most common deficiency was productivity, typically resulting from a low number
  of graduates.
- Twenty of the programs assigned to the fifth quintile are degree programs and graduate certificates; these programs must make substantial changes to increase their productivity, relevance, quality and/or efficiency or be considered for discontinuation. All such programs (if not new) were required to submit an action plan.
- Fifty-four of the programs assigned to the fifth quintile are undergraduate minors, emphases, and
  certificates; these programs must make substantial changes to increase their productivity, relevance,
  quality and/or efficiency or be considered for discontinuation. All such programs (if not new) were
  required to submit an action plan.
- By June 1, 2021, 22 instructional programs were discontinued in academic year 2020-21 or are identified for discontinuation in fall 2021. These programs' discontinuation proposals are currently being reviewed by the University Curriculum Committee and the Graduate Council. To date, 13 programs have been discontinued.

### **Discontinued instructional programs:**

- Master of Applied Historical Research
- Master of Arts Teaching English Language Arts
- Master of Education in Bilingual Education Pending State Board Review and Approval
- Graduate Certificate in History for Secondary Educators
- Graduate Certificate in School Technology Coordination
- Bachelor of Arts in Dual Blended Early Childhood / Early Childhood Special Education, Elementary Education
- Undergraduate Certificate in Special Education Services
- Undergraduate Certificate in Early Childhood Intervention Services
- Minor in Iberian Studies
- Minor in French for Business
- Minor in Romance Languages
- Minor in German for Business



BOISE STATE UNIVERSITY Annual Progress Report | 47

# The following is a selection of notable outcomes from the evaluation of administrative and support programs:

There has been significant structural and organizational changes in the University since the 2013-14 Program Prioritization process. Notable examples include:

- Creation of a new Division, initially known as Division of Compliance, Legal, Public Health and Audit, which became the **Division of University Affairs** in March 2021.
- Campus Operations, which previously was a standalone division, was merged with the **Division** of **Finance and Administration** to simplify structure, better align functional priorities, and create
   greater synergy among operations, facilities, finance and administrative teams. As part of this
   change, the Office of Public Safety, including Campus Security, Transportation and Parking,
   Emergency Management and Integrated Security Technology, moved to the newly named Division
   of University Affairs.
- The Office of the President and programs that report to it were substantially revised and reconfigured since the last program prioritization. These changes include:
  - Moving Morrison Center and ExtraMile Arena to the Division of Finance and Administration.
  - Moving Boise State Public Radio to Extended Studies.
  - Transfer of university policy management from the President's Office to the General Counsel's
    office to create synergy with functions already assigned to the General Counsel's office
    related to policy interpretation and compliance.
- Restructure and redesign the Office of Communications and Marketing to enhance quality, productivity and align communications and marketing strategy across the enterprise.
- Moved University Health Services from the Division of Student Affairs and Enrollment
  Management to the College of Health Sciences, in order to align with the college's academic
  programs and create teaching and research opportunities.
- Added Advancement Services Department to provide strategic leadership for University
   Advancement and the Boise State University Foundation's infrastructure.
- Creation of the Office of Academic Leadership and Faculty Development in the Provost's Office to support Department Chairs and other academic leaders.







- Many programs have strong interdependence with programs in other divisions/colleges/departments.
   Cross-college or cross-divisional initiatives and processes are challenging and require substantial collaboration among individuals that do not share reporting lines.
- A number of very strong cross-dependencies exist between programs in the Division of Student Affairs and Enrollment Management and those in the Division of Academic Affairs. In a number of cases, effectiveness of programs will depend on the strength of collaborative relationships.
- The most critical improvements needed in retention are with our Idaho, underrepresented, first-generation commuter students. Restructuring and expanding a first-year experience program will accomplish part of this. This is already underway as part of the development of the Strategic Enrollment and Retention Planning process and more details are expected to emerge by the end of spring semester.
- The most critical improvements needed related to post-graduate outcomes include stronger
  data support infrastructure, coordinated and aligned experiential education opportunities, and
  embedded career education into the classroom. All these areas are included in and aligned with the
  new university strategic plan.
- Continued focus on **modernizing systems** and process improvements is needed.



**BOISE STATE UNIVERSITY** Annual Progress Report | 49

# **INSTITUTIONAL DATA**

# **Employees**

Employees (Nov 2020	Full-time	Part-time	FTE	%
snapshot for IPEDS				
report)				
Instructional Faculty	784	584	979	35.6%
Professional Staff	1,274	57	1,293	47.0%
Classified Staff	471	27	480	17.4%
Total	2,529	668	2,752	100%

<sup>\*</sup>Due to enterprise HR system implementation, fall 2021 data for IPEDS HR reporting will not be available until closer to the IPEDS submission date of April 2022.

# **Revenue and Expenditures for FY2021**

Operating Revenue	FY2021
Challed T. Winnerd France (Cons.)	000 750 011
Student Tuition and Fees (Gross)	200,760,211
Scholarship Discounts and Allowances	(29,075,000)
Federal Grants and Contracts	46,090,662
State and Local Grants and Contracts	8,312,869
Private Grants and Contracts	3,246,982
Sales and Services of Educational Activities	7,542,618
Sales and Services of Auxiliary Enterprises	35,204,126
Other	1,425,149
Total Operating Revenues	273,507,617

Operating Expenses	
Instruction	137,476,195
Research	38,261,728
Public Service	24,565,873
Libraries	5,900,730
Student Services	18,539,063
Operation & Maintenance of plant	26,332,090
Institutional Support	36,931,656
Academic Support	32,485,747
Auxiliary Enterprises	62,938,076
Scholarships and Fellowships	18,218,665
Depreciation	26,667,709
Total Operating Expenses	428,317,532
Operating Income/(Loss)	(154,809,915)



**BOISE STATE UNIVERSITY** Annual Progress Report | 50

<sup>\*\*</sup>FTE calculation for IPEDS is full-time plus one-third part-time.

Non-operating revenues/(expenses)	
State Appropriation - General	104,253,395
State Appropriation - Maintenance	2,854,992
Pell Grants	20,093,950
Gifts	27,123,074
Net Investment Income	1,259,670
Change in Fair Value of Investments	(689,048)
Interest	(5,715,724)
Gain/Loss on Retirement of Assets	(277,081)
CARES Act revenue	30,876,959
Other Non-operating Revenue/(Expense)	558,173
Net Non-operating Revenues/(Expenses)	180,338,360

Other Revenue and Expenses	
Capital Appropriations	2,052,336
Capital Gifts and Grants	873,449
Total Other Revenues and Expenses	2,925,785

Increase in Net Position	28,454,230
Net Position - Beginning of Year	\$495,972,179
Net Position - End of Year	\$524,426,409

# **Enrollment**

Enrollment Fall 2021 (October 15 census)	Headcount
Undergraduate Degree-seeking	17.077
Graduate Degree-seeking	3,068
Early College/Dual-credit	5,169
Other Non-degree Seeking (Undergraduate and Graduate Combined) and Audit Only	515
Total	25,829

# **2020-2021 Graduates**

Degree and Graduate Certificate Graduates	Distinct Number of Graduates
Baccalaureate Degree (Academic)	3,749
Graduate Certificate	166
Master's Degree	1,074
Educational Specialist Degree	23
Doctoral Degree	50
Total Distinct Graduates	5,120*

<sup>\*</sup>The total of distinct graduates does not equal the sum of the graduates at each level because there is some duplication of individuals between levels (e.g., earning both a graduate certificate and a master's degree). This total also includes associates and undergraduate certificate graduates.



# **Research and Economic Development**

	FY2017	FY2018	FY2019	FY2020	FY2021	
	Office of Te	Office of Technology Transfer				
Invention Disclosures	14	14	20	22	16	
Patent Applications Filed	10	14	18	28	20	
Patents Issued	3	3	2	5	1	
Licenses/Options/Letters of Intent	28	24	25	19	22	
License Revenue	\$39,231	\$24,820	\$57,136	\$15,996	\$8,500	
Startups	0	1	1	0	0	
FTEs	1	1	1.5	2.25	2.1	

Number of protocols reviewed by:	Office of Res	Office of Research Compliance					
Institutional Biosafety Committee	41	43	65	68	68		
Institutional Animal Care and Use Committee	98	93	101	82	68		
Social and Behavioral Institutional Review Board	408	514	526	494	509		
Medical Institutional Review Board	38	19	24	32	33		

	Office of Sponsored Programs				
Total # of Proposals Submitted	598	606	560	506	598
Total # of Awards	361	368	378	411	425
Total Sponsored Projects Funding	\$50.1M	\$56M	\$53.5M	\$58.2M	\$65.3M
Total Research and Development Expenditures as reported to NSF	\$34.9M	\$41.4M	\$39.8M	\$43.3M	not available at this time
Externally Funded Research Expenditures	\$21.1M	\$27.7M	\$27M	\$29.8M	\$34.7M



# **UNIVERSITY ADVANCEMENT**

The future of the university and our state remains bright despite the uncertainty we've all experienced this year. Times like these underscore the importance of philanthropy and its impact on Boise State University and our students.

Boise State is a place where students from every walk of life and academic discipline have the opportunity to go on to become leaders in their respective careers and communities. We are a place where top-flight faculty blaze new trails in their fields and work side by side with their students to address some of the most challenging questions facing society today. The generosity of our donors ensures our students have a transformative academic experience and prepare them for rewarding careers.

In FY21, the donors gave nearly \$42 million in total private support - exceeding the previous fiscal year by \$7.6 million. Alumni gave \$15.9 million - a 54% increase over the previous fiscal year - while friends, parents, faculty and staff gave \$13.7 million. Corporations, foundations and other organizations gave a total of \$12 million.



University programs received \$14.9 million; \$3.1 million allocated to faculty and staff support, and \$14.7 million designated for student financial aid. In addition, donors contributed \$9.1 million to key facilities projects.

The university welcomed 22 new members to the Barnwell Society, recognizing donors who gave nearly **\$10** million this year through their deferred charitable state plans. Boise State's Chaffee Guild Society recognized 40 new members whose cumulative **lifetime giving exceeds \$100,000** and 3,201 President's Club members, the annual giving society recognizing donors who give \$1,000 or more annually, gave more than **\$24** million.





**BOISE STATE UNIVERSITY** Annual Progress Report | 53



# UNIVERSITY ADVANCEMENT AND FOUNDATION SHARED CORE VALUES

- COLLABORATION We engage all stakeholders to the benefit of the University
- COMMUNICATION We are clear, concise and consistent in all forms of communication
- INTEGRITY We are direct, truthful and follow through on our commitments
- INCLUSION We proactively reach out to and embrace all stakeholders
- PERFORMANCE We plan, execute, measure and report
- OWNERSHIP We embrace responsibility and outcomes
- CONTINUOUS IMPROVEMENT We never settle and are always looking for ways to improve.

Because of this generosity, the Boise State University Foundation now has total net assets of \$215 million and distributed more than \$13.5 million to the university in FY21 for scholarships, facilities, programs and faculty support.

Such performance reflects the sound guidance of the Foundation's board of directors, our passionate volunteers. They manage our investments with the highest fiscal responsibility and accountability for the institution's benefit, its students and the communities it serves.

Under the direction of our vice president for University Advancement, Matthew Ewing, the advancement team continues to execute a significant restructure designed to create an integrated, university-wide advancement system and prepare to launch the university's next comprehensive philanthropic campaign.

This work is aligned with the university's strategic plan: *The Blueprint for Success 2021-2026* and a vision to create the best culture of philanthropy and alumni engagement of any public university in the country.

# UNIVERSITY ADVANCEMENT AND FOUNDATION SHARED VISION

Create the best culture of philanthropy and alumni engagement of any public university in the country.

### UNIVERSITY ADVANCEMENT AND FOUNDATION SHARED STRATEGIC FRAMEWORK

Secure funds for philanthropic priorities; Ensure mutually beneficial relationships with alumni and friends of Boise State; Enhance the alumni and donor experience; Create an integrated, university-wide advancement system; Prepare to launch the university's next comprehensive campaign; Develop a culture of high-performing teams.

B

# **COLLEGE HIGHLIGHTS**

Innovation and a multidisciplinary approach drive work across all seven of Boise State's academic colleges, Honors College and Graduate College, and help us best meet the needs of our communities, industry and our state.



### **College of Arts and Sciences**

- College of Arts and Sciences, College of Innovation and Design, and College of Education launched **Bronco Gap**Year, demonstrating Boise State's ability to respond swiftly and meaningfully in challenging environments.
- FY21 research awards were up 60% to \$27.7M. This represents success across our college with 12 of 16 departments winning at least one award.
- Faculty research finds a broad national and international audience. A recent example would be Jeffery Johnson's work on volcanoes being featured by **National Geographic**.
- The Talkin' Broncos continue to be a national powerhouse in speech and debate, pivoting to prominence in
  online competition including at the 23rd Annual Gorlok Gala. This was the team's third win of this prestigious
  honor.
- College of Arts and Sciences partnered with Extended Studies to develop an online AA/AS which will provide
  the foundation for numerous stackable credentialing options.

### **College of Business and Economics**

• Ranked by U.S. and World Report in Undergraduate Business: #17; MBA Programs: #56 (Ranked 5th in the West); Business (non-MBA): #69 (MS Accountancy).



**BOISE STATE UNIVERSITY** Annual Progress Report | 55







 Mark Cowan, professor of accountancy in the College of Business and Economics, has written about mental health issues in the accountancy profession. His cover article in the Journal of Accountancy won an Eddie Award for Essays and Criticism. Mark was subsequently invited to present to a group of SEC reporting professionals and to the Virginia Society of CPAs.

### **College of Education**

- College of Education graduated 22 doctoral students in academic year 2021 - a new record of doctoral graduates in an academic year. Fourteen doctoral students graduated in Spring 2021 (four in Fall 2020 and four in Summer 2021) after an unprecedented year of persistence through a pandemic.
- College of Education faculty member Aida Midgett has trademarked an anti-bullying training campaign, STAC, with colleague in Counselor Education, Dr. Diana Doumas, and is training K-12 students across the state in her "howto-defuse" bullying strategies.

### **College of Engineering**

- Over \$10M of research expenditures last year, doubling its number in just four years.
- Ranked highest in the state by US News & World
  Report for its undergraduate engineering and tied with
  University of Idaho for graduate education.
- Construction Management students won top honors at the Associated Schools of Construction Student Competition for Rocky Mountain Region 6. They were awarded 1st place in Commercial. The Design Build and Mixed Use team were awarded 2nd place honors. In the National categories, the Concrete Solutions team took 1st place.
- Assistant Professor Erin Mannen received the Best Friend Award by Kids in Danger for her "groundbreaking infant sleep research that has led to policy changes and saved lives."

### **College of Health Sciences**

- Expanded the undergraduate nursing prelicensure program by 33% (from 60 to 80 cohorts size) to meet Idaho's nursing shortages.
- Continued to expand its online MSW program (~450 students currently) as part of its efforts to become a premier program in the Western United States.
- Partnered with Saint Alphonsus and their parent company Trinity Health to create a scholarship program

BOISE STATE UNIVERSITY Annual Progress Report | 56

B

through a three-million dollar loan. The program will award approximately **\$750,000-1M in scholarships** over the next 5 years.

- The School of Nursing increased the number of students in the nursing baccalaureate program by 33% (100 students) to help meet the health care needs of Idaho.
- Prior to the pandemic, Health Services did not provide any telehealth visits. Since that date, 10,000
   Counseling and 2,500 Medical visits have been done via telehealth across many parts of Idaho and other states. These visits allowed Health Services to stay in contact with patients during that time, and continue to be an important part of our service delivery going forward.



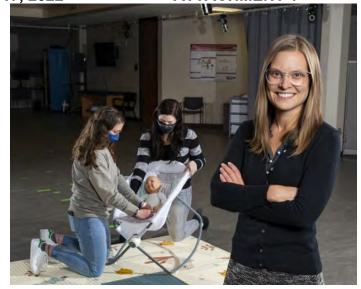
- Continued to lead the Apple Partnership with CWI, IDLA, and area K-12 districts to upskill Idaho public teachers working in historically underserved communities.
- Launched the Digital Innovation and Design degree.
   This innovative, online, stackable certificate, degree program is uniquely designed to prepare students for the modern digital workplace. This degree integrates digital and design skills with foundational training in collaboration, creativity, critical thinking, and communication, empowering students to be highly competitive for their first job and build a rewarding career.

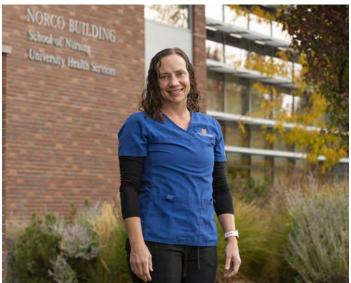
### **School of Public Service**

- Jared Talley, an Environmental Studies instructor,
  was selected as a recipient of an Idaho Science and
  Technology Policy Fellowship, to begin this fall. This
  opportunity allows Idaho scientists, social scientists,
  and engineers to learn firsthand about policymaking
  through a yearlong fellowship, a collaboration among
  three Idaho universities.
- Piloted a Working Lands Field School in Cascade, ID in partnership with a Boise State donor, whose land was used for the three-day experiential learning program.

### **Graduate College**

- Spring 2021 commencement saw a record number of doctoral (30) and master's (565) degrees conferred upon our graduates.
- Took first, second, and peoples' choice awards at the **State-wide 3MT**. A master's student took first place at the Western Association of Graduate School's 3MT,







**BOISE STATE UNIVERSITY** Annual Progress Report | 57







over entries from the 200+ graduate schools in the western United States, Canada and Mexico.

### **Honors College**

- Students who completed the Honors College program increased by 39% with a total of 200 students finishing their Honors experience.
- Honors College national fellowships program facilitated seven winning applications for fellowships, including a Truman scholar, three Fulbright scholars, and a Schwarzmann scholar.

### **Multidisciplinary College Efforts**

- A team of researchers from the College of Arts and Sciences, College of Engineering, and College of Education received a grant of nearly \$2M from the National Science Foundation to improve prospective elementary teachers' engagement through innovative, interdisciplinary, and inquiry-based approaches to address the need for integration of multiple disciplines in science, technology, engineering, and mathematics education.
- Composed of five research teams that span multiple departments and colleges, almost 30 faculty, professional staff and students, Boise State's Quantum DNA group received a Phase II renewal grant of \$5M for the DOE Basic Energy Sciences EPSCoR program.
- Project SCIENTIA is a team of College of Arts and Sciences faculty, graduate students and undergraduates working to translate science into Spanish, and make science more inclusive and accessible for the Hispanic community, both on and off campus. The project seeks to eventually widen its scope to include more languages. It receives support through a GEM3 (Genes by Environment- Modeling, Mechanisms, Mapping) grant.

B

# **ATHLETICS**

Boise State athletics led the Mountains West Conference in being recognized by NCAA for academic excellence.



- Student-athletes combined for 29 straight semesters with an all-department GPA above 3.0, setting benchmarks in Academic All-Mountain West and Mountain West Scholar-Athlete accolades.
- Established its all-time best NCAA Graduation Success Rate with 70 student-athletes earning their degrees in 2021.
- The volleyball team captured its first conference tournament championship in school history.
- The men's golf team made a postseason appearance, earning an invitation to the NCAA Regional Championships as a team for the first time since 1994.

- The men's basketball team earned a postseason bid, garnering a No. 2 seed in the NIT, the team's third such bid in the last four seasons.
- The women's cross country team competed at the NCAA Cross Country National Championships in the spring, garnering a ninth-place finish.
- The gymnastics team made its 13thconsecutive appearance at the NCAA Regional Championships.



**BOISE STATE UNIVERSITY** Annual Progress Report | 59



# **NEW FACILITIES**

# **Micron Center for Materials Research**

The top floor of the Micron Center for Materials Research is being built out as research laboratory space and will be home to Boise State's new Food and Dairy Innovation Center. The center will use a transdisciplinary science, engineering and technology systems approach to drive innovation for the food industry in Idaho.

The Micron Center for Materials Research received the **City of Boise's Excellence in Sustainability - Commercial award** (May 2021) and **Idaho Business Review's (IBR) 2021 Project of the Year award**. In addition, it was the People's Choice at the IBR event.

The \$50 million Micron Center for Materials Research opened in fall 2020 on the Boise State University campus. It is a campus and community innovation hub for materials research and serves as the home of the Micron School of Materials Science and Engineering.

The 97,000-square-foot building provides research laboratories and spaces, state-of-the-art learning environments, a 250-seat lecture hall, two large classrooms, offices and work spaces for faculty members, staff and graduate students advancing materials teaching and research at Boise State.

"The building is a state-of-the-art research facility with labs and spaces specifically designed for materials characterization and scholarship. In addition, the west end of the building houses some of the best teaching space on campus, and some 800 students will eventually pass through the building every class change — when we can," said College of Engineering Dean JoAnn Lighty.

The Micron Technology Foundation Inc. gave \$25 million — the largest single gift in Boise State history — for the Micron Center for Materials Research. Micron has been an incredible partner to Boise State since the company, and later the foundation, were formed. To date, their support of Boise State has exceeded \$75 million. In 2012, the Micron Foundation helped the university open the Micron College of Business and Economics Building, in 2019, the Fine Arts Building and, this fall, the Micron Center for Materials Research. Together, they are shaping the future of Idaho.

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**BOISE STATE UNIVERSITY** Annual Progress Report | 60



### **Center for the Visual Arts**

The new **Keith and Catherine Stein Luminary** in the Center for the Visual Arts opened for Boise State classes and small groups in January 2022. This all-digital museum space with touch-activated glass walls, 26K-lumen projectors, and 7.1 digital surround sound, produces a range of immersive, interactive and sensory experiences.

In fall 2021, 600 students, administrators, donors and faculty previewed and tested the space, and students built programming. It will be open for additional classes and community events later this year.

The Center for the Visual Arts opened in 2019. It brings together all of the Department of Art, Design, and Visual Studies programs — History of Art and Visual Culture, Art Jewelry and Metalsmithing, Art Education, Ceramics, Drawing and Painting, Graphic Design, Illustration, Photography, Printmaking, Time-Based Art, and Sculpture — into a single building of five-stories and nearly 90,000 square feet. Close to 4,000 students take courses annually in the CVA — courses which were previously spread among five buildings across the campus with aging technologies.

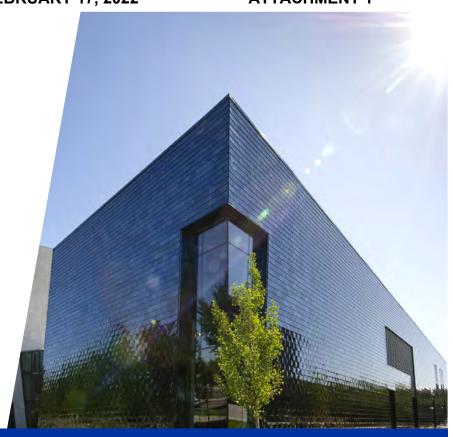






**BOISE STATE UNIVERSITY** Annual Progress Report | 61

This state-of-the-art, donor-supported facility, praised as one of the finest in the nation by the director of the National Endowment for the Arts, fosters the kind of interdisciplinary excellence that will help Boise State blaze new trails in higher education. The Center for the Visual Arts was awarded an American Architecture **Award** in the Cultures and Museums category for 2020 by The Chicago Athenaeum Museum of Architecture and Design along with The European Centre for Architecture Art Design and Urban Studies. This tremendous national and international award confirms that the Center for the Visual Arts project is a world class art research, teaching and learning facility. The CVA mirrors Boise State's commitment to the arts and significantly impacts the regional landscape with remarkable and dazzling contemporary architecture.



### **Blue Galleries**

The Blue Galleries, located on the first floor of the Center for the Visual Arts, host contemporary visual art exhibitions as a program of the Department of Art, Design, and Visual Studies. In the first two years in our new spaces, the Blue Galleries have organized exhibitions of work by national artists, alumni, and students and have welcomed thousands of visitors for exhibitions, online exhibitions, and in-person and virtual visiting artists lectures. Tours of the exhibitions were given to prospective and current students, classes from across disciplines, civic groups, arts leaders, and community members. New dedicated student gallery space highlighted the work of undergraduate and graduate students with solo exhibitions by MFA and BFA students, an annual student juried exhibition, and group BFA Exhibitions for graduates from the BFA Visual Art, Illustration, and Art Education programs each semester. The Blue Galleries are open to the public with free admission creating dynamic spaces for firsthand experiences with contemporary art for Boise State University and the region.



**BOISE STATE UNIVERSITY** Annual Progress Report | 62

# PLANNING, POLICY AND GOVERNMENTAL AFFAIRS FEBRUARY 17, 2022

### **IDAHO DIVISION OF CAREER TECHNICAL EDUCATION**

### **SUBJECT**

Idaho Division of Career Technical Education (IDCTE) - Annual Report

### APPLICABLE STATUTE, RULE, OR POLICY

Idaho State Board of Education Governing Policies & Procedures, Section I.M. Annual Planning and Reporting

### **BACKGROUND/DISCUSSION**

This agenda item fulfills the Board's requirement for Idaho Division of Career Technical Education to provide an annual progress report on the Division's strategic plan, status of goals and objectives and information on other points of interest in accordance with a schedule and format established by the Board's Executive Director.

### **IMPACT**

This annual report serves to provide a state of the Division update and inform the Idaho State Board of Education of the annual priorities and ow they are and will be used to guide the division' scope of work moving forward.

### **ATTACHMENTS**

Attachment 1 – IDCTE Annual Report 2021

### **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

The Division of Career Technical Education provides leadership, administrative and technical assistance, and oversight for career technical education programs in Idaho's public secondary schools and technical colleges. The Division is responsible for approximately \$46.7M in funding for postsecondary program, \$17.5M for secondary and general programs and an additional \$6.8M toward related programs such as adult education, workforce training centers, and apprenticeship programs in addition to career technical educator training and development.

### **BOARD ACTION**

This item is for informational purposes only.









# ANNUAL REPORT 2021

We prepare Idaho's youth and adults for high-skill, in-demand careers.

# Letter from the administrator



As we emerge from the cloud of the pandemic, one thing is clear: Never has the need for skilled workers been higher. Equally clear is the fact that employers and government see career technical education (CTE) as a significant component of our economic recovery, both across the state and

across the nation. As evidence of the growing importance of CTE, look no further than the \$3.5 million Governor Brad Little invested in expanding and modernizing Idaho's secondary and postsecondary CTE programs as part of his Building Idaho's Future initiative, or the \$600 million earmarked for Perkins V in the Build Back Better Act.

Because demand for CTE and the careers it generates is rising, the need to provide innovative services and support to help our educators and administrators is, too. That's why I charged the Idaho Division of Career Technical Education (IDCTE) team with five priorities during fiscal year 2021: solidifying internal processes and systems, expanding educator services, stabilizing and growing program services support, supporting student success, and increasing stakeholder engagement and communication.

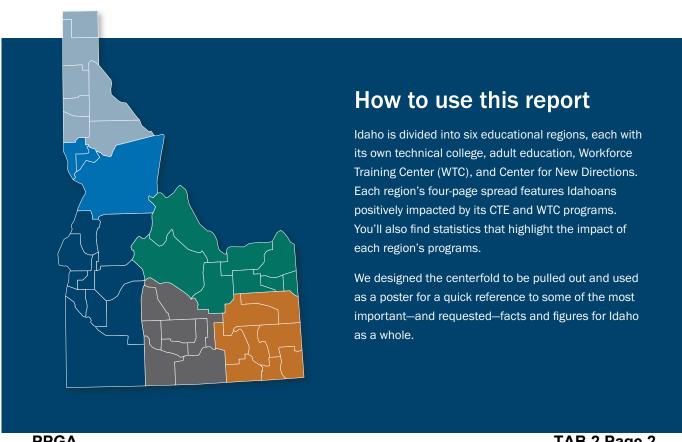
We've made substantial progress in achieving these objectives during the last fiscal year, as you'll see on the following pages. Highlights include helping more industry professionals become CTE teachers through our new InSpIRE Ready! program, promoting the value of SkillStack® to educators and employers and better communicating with stakeholders at all levels.

But we still have work to do. Though we've seen significant growth in secondary enrollment and received substantial financial support at the state and federal levels, we don't have enough facilities or qualified educators to meet Idaho employers' demand for CTE program graduates. Additionally, we can better reach out to and support adult learners who were unable to attain their educational goals during the pandemic.

In the year ahead, I look forward to your feedback and working with you to ensure we fulfill our mission: to prepare Idaho's youth and adults for high-skill, in-demand careers.

Best regards,

Clay Long, Ph.D., State Administrator



**PPGA** TAB 2 Page 2





# Table of contents

Region 1	1
Region 2	5
Region 3	9
SkillStack <sup>®</sup>	13
CTSO highlights	15
New secondary CTE facility	16
Year in review infographic	17
New postsecondary CTE facilities	19
Fire Service Training	20
Region 4	21
Region 5	25
Region 6	29
Centers for New Directions	33
Financial overview	35
Looking forward	36



# HVAC program provides seamless transition from secondary to postsecondary

The week before the fall 2017 semester began, Sean Sater received a call from the Trades and Industry Division Chair at North Idaho College (NIC), Doug Anderson. Anderson wondered if Sater would be willing to teach the heating, ventilation, and air conditioning technician (HVAC) class; if Sater said no, the program would be shut down.

Fortunately, Sater, who has 22 years of experience in the field, knew firsthand how much the Coeur d'Alene-Spokane area needed well-trained HVAC technicians. He'd also considered cutting back his hours at HollisterStier, where he worked as a consultant, so he agreed.

"I thought it was a great way to pay it forward and help the next generation change their stars." said Sater.

Though his first year was a baptism by fire of sorts, Sater enjoyed teaching. So when Anderson, who also served on the board of Kootenai Technical Education Campus (KTEC), asked if Sater would be interested in teaching HVAC at the secondary level the following year, he again agreed.

"I was head over heels to get a hold of them early and get them trained up right," said Sater. "When we first sat down, we didn't want the HVAC program to be a huge expense, so we decided it would be best to let the KTEC students use the NIC lab. It's within walking distance, and we didn't have to bring in more equipment, which helped us strengthen the partnership between the secondary and postsecondary programs. It was a win-win-win for the students, the schools, and the taxpayers."

Next, Sater had to strike a balance between offering enough dual credit to make the HVAC pathway appealing to secondary students but not reducing the course load so much that students wouldn't be considered full-time students and not qualify for financial aid once they transferred to NIC. Sater settled on offering the three-credit HVAC 165 course for his KTEC students, making it easy for them to transition to the second semester's coursework at NIC.

Sater's unique position at KTEC and NIC means he can ensure his students have a seamless path from secondary to postsecondary to career. And because there is such a demand for HVAC technicians, employers are eager to speak to his classes and offer opportunities for his students to job shadow or do ride-alongs with their employees.

44

They can talk with industry professionals and see how they operate, keep their vans, and figure out if it would be a good fit—and they get paid to do so.

-Sean Sater

"It gives them a chance to see if an employer's culture fits what they're looking for," said Sater. "They can talk with industry professionals and see how they operate, keep their vans, and figure out if it would be a good fit—and they get paid to do so."

These interactions with employers mean most postsecondary students in their second and final semester know where they want to work and have a job lined up after graduation. The jobs Saters' students walk into don't exactly pay minimum wage, either.

"They're paying \$9,000 for books and tuition and can be making \$52,000 a year to start, without the baggage of student debt," said Sater. "That's a pretty solid return on investment."

At the end of the day, Sater loves knowing he's setting future professionals up for success while helping to meet industry needs.

"I love the feeling of getting through to someone," said Sater. "They might ride the struggle bus for a while, but when things come together, they learn it and burn it into their memory. It's priceless to see the light come on."

1



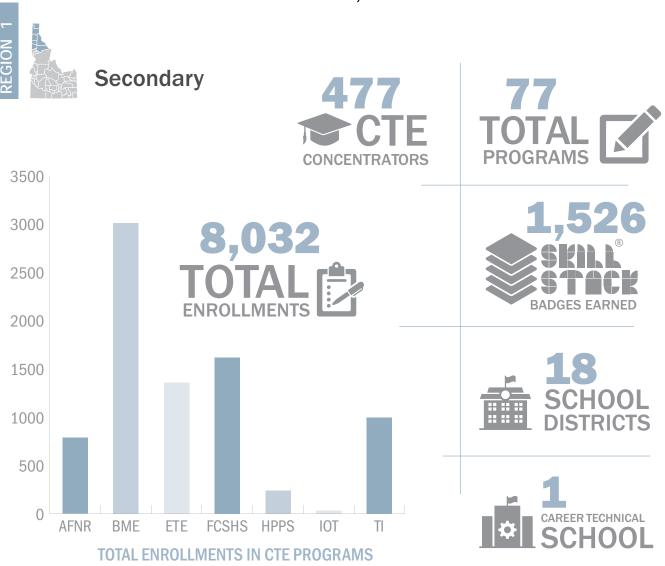




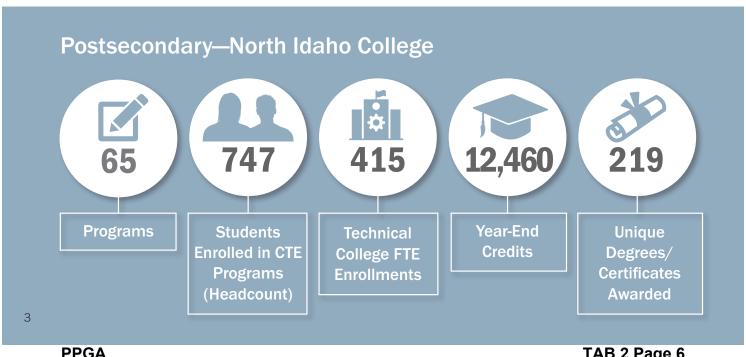
# ADVANCED OPPORTUNITIES AND CTE

There are multiple ways students can earn postsecondary credit for their high school CTE classes. These opportunities reduce the time and cost of obtaining a postsecondary credential.

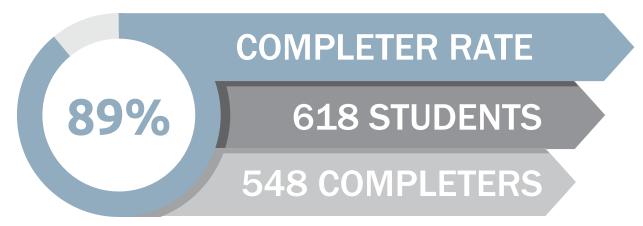
To ensure prior learning is correctly transcribed, each technical college employs transition coordinators. Transition coordinators do more than help students, parents, teachers, and counselors understand what credits will transfer and how they will impact a student's postsecondary goals. They also provide degree advising, host tech expos, open houses, and career information days, conduct program tours, and act as a liaison between students and parents. Finally, they're well-versed in employers' needs, expectations, and connection to postsecondary programs. That allows transition coordinators to provide timely and accurate information for career planning.



AFNR: Agriculture, Food and Natural Resources; BME: Business and Marketing Education; ETE: Engineering and Technology Education; FCSHS: Family and Consumer Sciences and Human Services; HPPS: Health Professions and Public Safety; IOT: Individualized Occupational Training; TI: Trades and Industry



# **Apprenticeships**



## **Workforce Training Center**



# **Employer Spotlight**

#### **PotlatchDeltic**

St. Maries, Idaho

Type of industry: Wood products

Employees: 390

**Training need:** PotlatchDeltic first started working with the Idaho Department of Labor (IDOL) and North Idaho College's (NIC) Workforce Training Center (WTC) in 2012 to assess training needs in the wood products industry. PotlatchDeltic has unique hiring challenges due to its location and demand for employees with specialized skills. The partnership focused on skill gaps for high-wage, high-demand occupations such as electricians, millwrights, programmable logic controllers, and log scalers.

How the WTC delivered: NIC currently offers workforce training for millwright, mechanic, welding, boiler operator, and carpenter positions, plus electrician apprenticeship classroom training, PLC 1-4 training, and log scaler prep and testing. Through apprenticeships and custom training, PotlatchDeltic and NIC's WTC have developed a robust skilled training program. All apprenticeships are recognized through the IDOL. As of February 2021, the electrician apprenticeship has been officially set up through the IDOL.

44

When there's been a need, NIC worked with us to develop the training needed in that area.

- Bonnie Siron, human resource manager, PotlatchDeltic





# LCSC grad takes over Collision Repair Technology program

Growing up in the unincorporated town of Laclede, Idaho, Luke Thomas didn't know what he wanted to do after high school—but he did know he loved working on cars.

"We had a neighbor who worked on cars, and he helped me restore my first vehicle," said Thomas.

From then on, Thomas was hooked. A family friend who taught at Lewis-Clark State College (LCSC) recommended its two-year Collision Repair Technology program. The program's reputation, hands-on application, small class size, and one-on-one time with the instructor all appealed to Thomas, who graduated with an Associate of Applied Science in 2008.

After graduation, Thomas' career was humming along. He had his own repair shop and worked on custom restorations, but he wanted to explore a different facet of the industry. Around that time, Thomas' professor, Clarence Griffin, decided to transition to teaching parttime, so Thomas saw an opportunity to teach in the same program from which he graduated.

"I was ready for a change and the opportunity to teach the collision program arose at the right time," said Thomas. "It sounded like a fun way to change things up and help make a difference in the industry."

During his first three years teaching,
Thomas was grateful to be teaching
alongside Griffin. And for the most part,
Thomas kept the program the same as
when he completed it. During the first
year, core instruction is provided, and
during the second year, students receive
in-depth instruction in more complex
systems and hands-on training in mock
and customer projects.

"Because it's a two-year program, students can go beyond just learning metal straightening or crash repairs," said Thomas. "That means we can focus on more advanced skills, and they can get exposure to more facets of the collision repair industry. They're qualified for a broad spectrum of industry segments by the end of the program, including some outside the collision field, like aviation refinishing, boat manufacturing refinishing, heavy trucks collision repair, custom cars, and hot rods."

A major component of the program is completing an eight-week internship with a local shop. Many students have jobs lined up after graduation at the shop where they completed their internship, which many keep until they decide to move on. The internship allows employers to tap into a talent pipeline to fill their needed positions, which Thomas says translates into more support for

44

Because it's a two-year program, students can go beyond just learning metal straightening or crash repairs. That means we can focus on more advanced skills, and they can get exposure to more facets of the collision repair industry.

- Luke Thomas



the program. Body shop owners have donated vehicles, parts, and uniforms or provided scholarships for the students, and vendors will come in for demonstrations or product training.

Six years later, Thomas has found what he was looking for as a career technical educator. Teaching gave him the freedom to continue running his repair shop and custom restoration business while having more time to pursue other interests. It's also given him a more holistic perspective of the industry he loves, deepening his appreciation for it.

Above all, Thomas says teaching has allowed him to share his passion with others.

"I like seeing someone make something of themselves," said Thomas. "It takes a lot of work to complete the two-year program, and it's very rewarding to see a student who completed the program working in the industry and enjoying it."

5





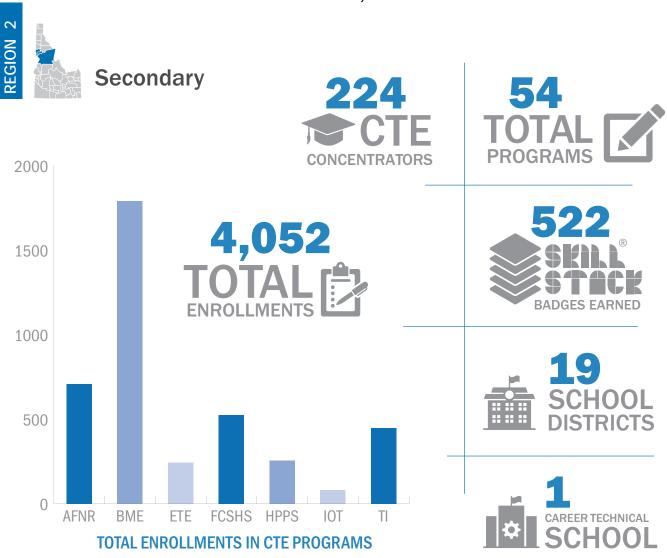
# HOW ARE PROGRAMS PRIORITIZED AND FUNDED?

Creating cutting-edge programs to meet the needs of Idaho's employers and workforce is expensive. Resources like software and equipment don't come cheaply, so how does IDCTE decide how to spend its allocated funding? We start by looking at the programs and pathways we currently have and use a variety of tools to make sure these CTE programs support regional employer needs, have sufficient growth to support a newly trained workforce, and have industry support and involvement to ensure programs provide students with the right skills, training, and experience.

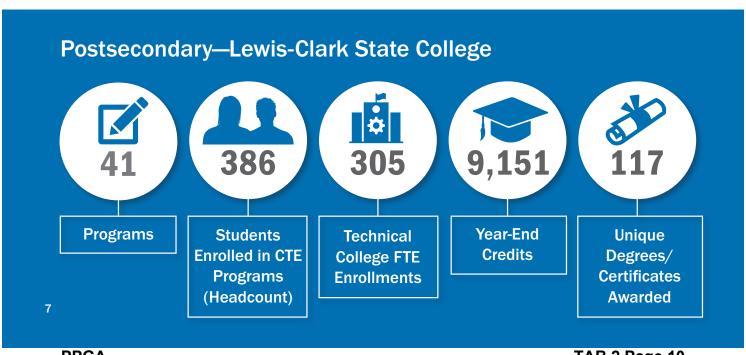
But evaluating how well programs meet those criteria is only part of the puzzle. Once we have that information, the Program Quality team has to decide whether to phase out a program, provide substantial changes to keep it current and relevant, and retrain educators to ensure they're prepared to share the latest technology and information with their students.

During fiscal year 2022, the Program Quality team was charged with developing a screening tool and rubric to make this process more transparent and consistent. Once we have a prototype complete, we'll invite employers, CTS administrators, and internal stakeholders to provide feedback before reviewing it with external stakeholders. For more information on the program prioritization process or to get involved, contact Program Quality Manager Chet Andes at chet.andes@cte.idaho.gov.

6



AFNR: Agriculture, Food and Natural Resources; BME: Business and Marketing Education; ETE: Engineering and Technology Education; FCSHS: Family and Consumer Sciences and Human Services; HPPS: Health Professions and Public Safety; IOT: Individualized Occupational Training; TI: Trades and Industry



## **Apprenticeships**



#### **Workforce Training Center**



## **Employer Spotlight**

#### **Nez Perce Tribal Enterprises**

Lewiston, Idaho

Type of industry: Hospitality and gaming

Employees: 254

**Training need:** To improve the overall customer experience, Nez Perce Tribal Enterprises identified a need for training on customer service, new employee onboarding, recruitment and retention, and developing new supervisors.

**How WTC delivered:** The Nez Perce Tribe contacted Lewis-Clark State College's (LCSC) Workforce Training Center to develop a course to help their employees in several areas. A targeted needs assessment was conducted, and a customized curriculum was developed to communicate and reinforce the company's training goals. Employees can use these transferable anywhere within the organization.



LCSC's Workforce Training Center has provided our staff great opportunities to learn and enhance their abilities in the workplace. We highly value our relationship with the WTC program and their ability to provide education and training to our staff here at the Nez Perce Tribal Enterprises.

- Julian Matthews, HR manager, Nez Perce Tribal Enterprises





# Relationships, certifications lead to 100% job placement for Diesel Technology program

Diesel mechanic John Montana knows firsthand how difficult it is to find skilled workers, especially for in-demand professions. In fact, his inability to find and hire qualified workers is what drove him to become a teacher in the first place (see sidebar).

"I couldn't hire decent help," said Montana. "I was training new employees on the job anyway for about 10 or 11 years, so when Canyon-Owyhee School Service Agency's (COSSA) old diesel technology teacher retired in 1999, I figured I'd give teaching a try."

Though Montana started teaching part-time, he soon discovered he loved working with the kids and was teaching full-time by his second year. In the two decades since, Montana has cultivated relationships with about a dozen farm implement companies, several of whom employ Montana's former students. These relationships benefit students and businesses alike—in many ways.

First, industry partners like John
Deere, Kenworth, Peterbilt, AgriService, Caterpillar, and Mountain View
Equipment are always willing to drop off
equipment and provide opportunities

for students to develop their skills via job shadowing and internships. They know they'll be able to hire skilled workers from the talent pool Montana produces, so they're willing to help his students develop career readiness skills by conducting mock job interviews or reviewing student resumes.

Second, industry partners provide additional feedback about new workers' skills and what needs to change or be updated in the program to prepare students for their careers. This also helps ensure Montana himself stays current.

"That's one positive thing about these kids staying local; they're an excellent reference for me," said Montana. "I don't get to work out in the field like I used to, so I bounce stuff off my former students all the time. I know I can call any of them up and ask, 'What have you run across?' or 'We've got this truck in here that's doing this and this; have you seen anything like that?'"

Most importantly, these relationships have resulted in 100% job placement over the past 14 years.

"Because the program teaches to NATEF standards, students can earn industry-



If a student walks out of a CTE program with these certifications, they can walk into a job immediately.

- Patricia Frahm

recognized certifications in electrical engines, transmissions, engine repair, brakes, and preventative maintenance," said Montana. "Students can also earn their OSHA 10 card and SP2 Safety and Pollution Prevention training certificates while still in high school. That means students may not need a lot of on-the-job training after they graduate."

This is a huge advantage to not only students but their employers as well.

"If there are 50 applicants for a job and you have these certificates—especially the safety certificates—you'll move to the top of the list because it cuts down on the number of hours an employer has to train you, and you can get right to work," said Montana.

COSSA's principal, Patricia Frahm, says the importance of this foundation can't be overstated.

"If a student walks out of a CTE program with these certifications, they can walk into a job immediately, and if they decide to go on to college, it gives them a skill they can use to pay their way through school," said Frahm. "They also learn work ethic and accountability in the process—things that can help them for the rest of their lives."



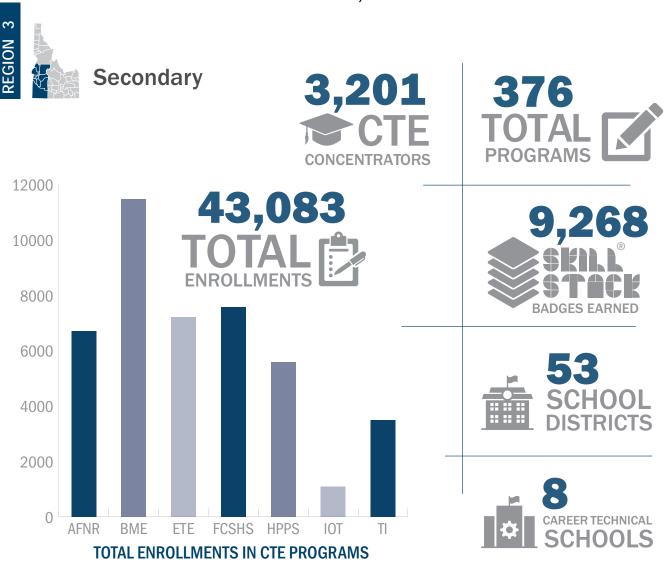




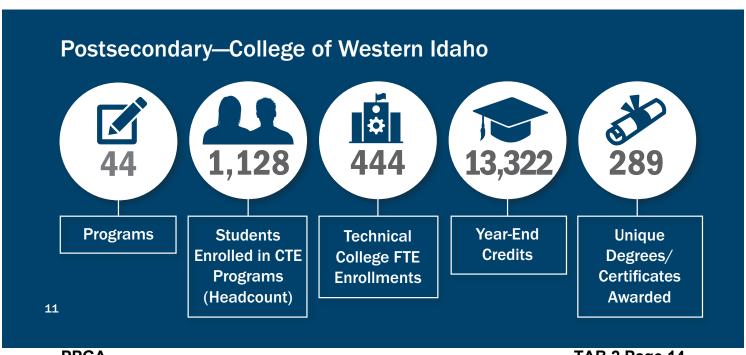
# BECOME A CTE EDUCATOR!

Some CTE educators train in a formal college preparatory program; others come to the classroom after acquiring valuable experience in their industry. But all CTE educators feel called to prepare Idaho's youth and adults for high-skill, in-demand careers. Regardless of your education or experience, there's a route to becoming a CTE educator that's right for you. Whether you're finishing college, are already certified to teach in Idaho, or are considering teaching as a second or third career, our knowledgeable Educator Certification and Professional Development teams can help you become certified to teach CTE in Idaho.

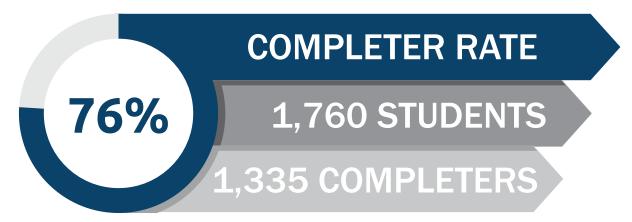
To learn more, visit https://cte.idaho.gov/educators-5/become-a-cte-educator/ or email certification@cte.idaho.gov.



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## **Apprenticeships**



### **Workforce Training Center**



# **5,878**WTC HEADCOUNT

# **Employer Spotlight**

#### In Time Tec

Meridian, Idaho

**Type of Industry:** Information technology, software services **Employees:** 130 in the United States

**Training need:** In Time Tec provides software development services. A lack of qualified DevOps engineer candidates meant that In Time Tech needed to train their developers in Amazon Web Services (AWS) and Azure DevOps to increase their ability to serve their clients.

**How the WTC delivered:** Four software development engineers were enrolled in the AWS Cloud Foundations course in fall 2021. In addition to developing critical skill competencies in AWS Cloud Computing and preparing for the AWS Certified Cloud Practitioner exam, they received a voucher for half the exam cost.



We could train our engineers more effectively in DevOps and fill the need for DevOps engineers. We are a software development services company, and our clients are asking for DevOps engineers, which we cannot fill currently. The AWS Cloud Foundations course gave our web, mobile, and cloud software engineers a better understanding of the cloud and AWS.

- Robert Tuft, vice president of client success, In Time Tec







I wasn't really planning on going into construction, but it was something positive to do. I like learning, and I like the educational environment.

- Daniel Dives

# SkillStack® and self-improvement are resident's formula for success

Self-improvement has always been important to Daniel Dives. When Dives worked for Metro by T-Mobile, he always strove to become a better manager and salesperson. But it wasn't until he read "Unlimited Power" by Tony Robbins and "The 7 Habits of Highly Effective People" by Stephen Covey that he unlocked his potential and realized that business wasn't about increasing your sales or moving product; it was about developing yourself spiritually, mentally, and physically and teaching others to do the same.

It's no surprise that Dives was one of 169 unique learners who earned the stacked Administrative Functions microcertification in SkillStack® last year (see sidebar). What is surprising is that he earned it at the Idaho State Correctional Center in Kuna.

Dives is one of 2,777 residents of the Idaho Department of Correction (IDOC) taking advantage of the opportunity to learn industry-recognized credentials and certifications while in residence in 2021. IDCTE partners with IDOC and Workforce Training Centers at each technical college to validate the credentials residents earn.

"Residents can leverage the skills they're learning to transition to the workforce," said Taylor Stump, IDCTE's SkillStack® and performance management coordinator. "Because the credits are transcribed through the technical colleges—and because they're demonstrating skills aligned with industry standards and credentials—they have a lot of credibility that can help residents upon reentry."

In addition to learning skills he can use to pursue his career goals upon his release, the classes Dives has taken while in residence have also helped him build his self-confidence. Dives, who has an associate degree in criminal justice,

never learned to use Microsoft Office programs, so he'd skip classes if he had to use PowerPoint or wouldn't speak up in meetings if he had to present.

"When I worked at Metro, we had to run reports two or three times a week. I didn't know how to create a report, so a lot of things didn't look right, but they let me wing it because I was good at other things," said Dives. "As a manager, I'd have rather had my reports look more professional. Had I known then what I know now, I'd have been more confident going to a meeting and saying, 'This is what I think.' Before, I would've stayed in the background a bit more because I wasn't confident enough to put myself forward."

Though Dives has always known he wanted to be an entrepreneur, he's also taken electrical wiring, electrical systems, and masonry courses through IDOC.

"I wasn't really planning on going into construction, but it was something positive to do. I like learning, and I like the educational environment," said Dives. "if you're going to take classes, you might as well give it your all."

Dives found he liked the hands-on nature of the construction classes and even earned certifications in electrical wiring, electrical systems technology and masonry from the National Center for Construction Education and Research.

"These classes helped me realize I have options and be more open-minded about my future," said Dives. "There are some guys who've been released and come back three times in the five years I've been here, and it's because they don't have any plans. They don't have any plans because they don't think they can do something different. But when you start to realize you are intelligent, you realize you can do these things. You can take these classes. You can have a different future."

#### WHAT IS SKILLSTACK®?

SkillStack® is Idaho's microcertification platform that allows educators to document, assess, and validate student skills using industry and disciplinary defined standards. Standards are developed for each badge through a collaborative process that engages industry, college/university faculty, secondary faculty, and other critical stakeholders.

# HOW DO DIGITAL BADGES WORK?

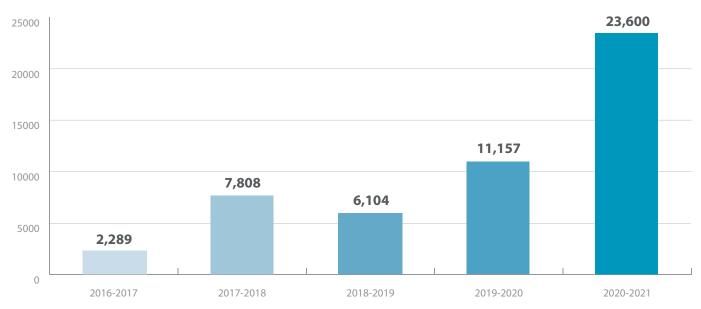
A microcertification is a recognized credential that confirms mastery of skills or concepts. Through demonstration and assessment, educators measure skills in SkillStack® that translate into a digital badge. Digital badges are a visual representation of a microcertification and are embedded with data that verifies an earner's skills and achievements.

# WHO USES SKILLSTACK®?

Programs and partners use SkillStack® for a variety of purposes. IDOC uses it to help residents develop re-entry skills, while the Idaho Department of Juvenile Corrections uses it to help their residents with career exploration. Secondary CTE pathways use the system for credit articulation and assessment validation, and postsecondary institutions stack the microcertifications so students can earn certificates or degrees. Workforce Training Centers use SkillStack® to track wage progression and local industry needs, and Boise State University uses it to track its employees' professional development.

## Statewide summary:

### Over 18,000 students have earned microcertifications



# CTSO highlights >13,000 AFFILIATED MEMBERS



Left to right: Madison Healy, Xavier Christy, Garett Christensen, Lucy Christensen, Samuel Beutler, Annely Magallanes, Madison Honn, Emma Pfaff, Liberty McGuire, Hannah Christensen, Kellen Nie, Shelby Hobbs, Michael Lin, Abigail Ballhagen, Kayla Hutchings, Audrey Norris, Claire Shelton, Kennedy Farden, Cassie Morey, Katie Hebdon, Kayden Driggs, Cassie Moody, Jaden Dawdy, Shea McGuire, and Karyssa Gowans. Not pictured: Gretchen Pals and Cree Milliron.

Career Technical Student Organizations (CTSOs) are intra-curricular programs designed to help students develop skills and connections needed for their future careers. They're also a key component of quality CTE programs. CTSOs allow students to develop leadership skills through chapter, community, and statewide involvement. Through CTSO competitive and leadership events, students hone their technical and professional skills and can gain a competitive advantage when applying for college and jobs. Idaho's seven CTSOs align with our six program areas and provide support and growth from secondary to postsecondary and beyond.

#### **Accomplishments:**

**BPA:** Of the **267 students** who qualified for nationals, **32** were top **10 finalists** and one student placed first in their event.

**FCCLA:** One chapter earned **Exemplary Chapter recognition, 19** members completed the Power of One program, **four members** completed the Stand Up community service project, and **20** advisers were recognized for their years of service (10 one-year, four five-year, two 10-year, one 25-year, and three 30-year).

**FFA:** 206 State Degrees and 33 American Degrees were earned, and three members qualified as national finalists for proficiency awards.

**DECA:** Several teams from across the state are participating in the **first Idaho DECA Marketing Challenge**. This contest gives students real-world experience by creating a marketing plan for Next Steps Idaho.

**HOSA:** Advisor Carie Staub of Meridian Medical Arts Charter High School was inducted into the **HOSA Hall of Fame**. In addition, **two postsecondary students** and **eight secondary students** earned top awards and honors at the international conference.

**SkillsUSA:** The state association earned the **Gold-**Level Standards of Excellence Award for the second consecutive year.

**TSA:** 17 members qualified and competed in 13 events at the TSA National Leadership Conference.

- 430 total chapters
- 9,524 affiliated members
- 3,661 State Conference attendees
- 1,359 National Leadership Conference, International Leadership Conference, or International Career Development Conference attendees
- 2 National/International Officer candidates
- 1 National/International Officer elected















15

PPGA

# **New secondary CTE facility**







Size: 40,000 square feet



Cost: \$10 million



#### **Programs housed:**

Automotive Maintenance and Light Repair, Construction Trades, Hospitality Services, Marketing, Nursing Assistant, Pharmacy Technician, Precision Machining, and Pre-Engineering



**Major donors:** Brien, Shelly, and Patricia DeAtley donated \$2 million.



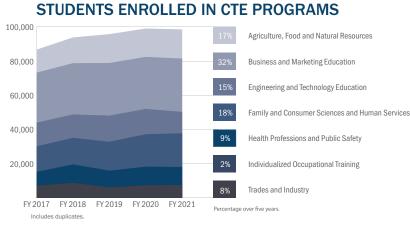
# Year in review

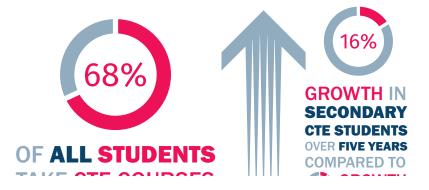


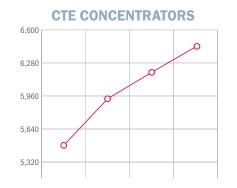
**SCHOOL DISTRICTS** 



# **OVER 66,000**









**TECHNICAL** 



Junior or senior in a capstone course.

60,000

50,000

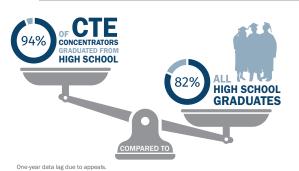
40.000

30,000

20,000

10,000

FY 2017





>3,000 (FTE)



YEAR-END CREDITS

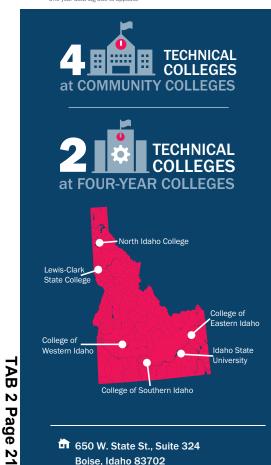
14%

Fire Service Training

**INCREASE** 

IN ONE YEAR

New methodology matches OSBE (fall data) and National Clearinghouse data.



208-429-5500 @ cte.idaho.gov





FY 2017

Total

headcount

FY 2018

FY 2019

6,000

5,000

4.000

3,000

2,000

1,000



FY 2020 FY 2021

Equivalent full-time

enrolled (FTE)





Workforce Training Center

FY2018 FY2019 FY2020 FY2021



>50,000/FIVE YEAR AVERAGE

IDCTE 2020/2021 Annual Report

# New postsecondary CTE facilities

**Schweitzer CTE Center** 







Size: 86,169 square feet



Cost: \$27 million



Programs housed: Auto
Mechanics Technology,
Computer Numerical Control
Machining Technology,
Engineering Technology,
HVAC Technology, Industrial
Electronics Technology,
Industrial Maintenance/
Millwright Technology, and
Information Technology



Major donors: Schweitzer Engineering Laboratories (SEL) donated \$2 million to the project, while SEL founder Edmund O. Schweitzer, III, and his wife Beatriz donated another \$1 million, as did the J.A. and Kathyrn Albertson Family Foundation.



William M. and Karin
A. Eames Advanced
Technical Education and
Innovations Complex







Size: 220,000 square feet



Cost: \$22 million





**Programs housed:** 

and Refinishing, Diesel Technology, Computer Aided Design Drafting, Computerized Machining Technology, and Welding



Major donors: William and Karin Eames donated \$2.5 million to the project, and the J.A. and Kathryn Albertson Family Foundation donated \$2 million.





# Fire Service Training returns to IDCTE

Most of Idaho's fire protection services are provided by volunteer fire departments that operate on a limited budget and volunteer staff. And since Idaho has no state-mandated minimum training requirements for firefighters, it falls on each department to establish its own minimum standards. To help them provide quality training and safety practices consistent with National Fire Protection Association standards and current national best practices, Fire Service Training (FST) was established in 1967.

Since then, FST has grown from serving about 250 firefighters per year to an average of 4,000. FST also administers the International Fire Service Accreditation Congress (IFSAC) certification program, establishes instructor/evaluator development and qualification standards, maintains centralized student training records, supports a coordinated statewide, multi-agency training and testing calendar, and supports leadership and curriculum development for regions without fire training programs at their technical colleges.

#### **FST ESTABLISHED**

FST was created to offer training to fire departments in Idaho and was initially housed under IDCTE (formerly known as the Idaho Division of Vocational Education).



#### **EITC BECAME COLLEGE OF EASTERN IDAHO (CEI)**

Voters approved to change EITC from a technical college to a community college, establishing their own governing board and providing independent oversight for the FST program. While running the program, CEI secured more than \$1 million in federal grant funding to purchase state-of-the-art fire training equipment to support more than 180 Idaho fire departments.



#### **FST RETURNED TO IDCTE**

At the start of fiscal year 2021, FST moved back to IDCTE.

After IFSAC accreditation is transferred from CEI, IDCTE begins engaging its partners in strategic planning to develop a shared vision for the future of FST in Idaho.



1967

# FST TRANSFERRED TO EASTERN IDAHO TECHNICAL COLLEGE (EITC)

The FST program was transferred to the technical college system to gain efficiencies. At that time, EITC began the IFSAC accreditation process, which was attained in April 2015.



2017

#### **IDCTE ANNOUNCED FST MOVING BACK TO BOISE**

IDCTE proposed moving FST back to the Division to create a statewide system that allows institutions to meet the needs of their region and industry and use SkillStack® for student record management.



2021







# Hard work, determination, translate into career in phlebotomy

Maria Lopez always knew she wanted to be a nurse. In Mexico City, where she lived before coming to the United States, she even began taking classes. While Lopez didn't complete her studies, she never abandoned her dream. So when Lopez saw a flyer at the Mexican store advertising the Integrated Certified Nursing Assistant (I-CNA) course at the College of Southern Idaho (CSI), she knew this was an opportunity to make her dream a reality.

At CSI, the I-CNA program is offered through a partnership between its College and Career Readiness (CCR) and Workforce Development Center programs and the Health Science and Human Services department. It is designed to help non-native English speakers learn or improve their English while pursuing their CNA certification. Participants include English-language-learning U.S. citizens, refugees, immigrants, and foreign nationals from various national backgrounds, including countries in Africa, the Middle East, Asia, and Latin America.

"Because the program integrates
English language and civics instruction
into the standardized CNA curriculum,
it takes a whole semester to complete,
as opposed to the eight weeks of the
general population version of the CNA
class at CSI," said Philip Valenta, industry
training coordinator for CCR. "Otherwise,

our students are completing the same clinicals and exams as the students of any other CNA section offered on campus."

The I-CNA program provides a dedicated English Language Acquisition (ELA) instructor to help students improve their language skills and support them during their CNA instruction. The program also includes support outside the classroom, including securing funding assistance, figuring out transportation and childcare options, and creating study groups. And because the cohorts are small—about 10 students are served each semester-CCR can follow up with program graduates to see how they're doing, personally and professionally. The program was perfect for Lopez, so she enrolled on Jan. 10, 2021.

Lopez, who has been in the U.S. for 26 years, found the customer service and guest relations skills she acquired working at a casino, first as a housekeeper, then as a desk clerk, translated well to being a CNA. But studying medical terminology in her second language proved to be particularly challenging. Fortunately, her children, ages 17, 35, and 38, have been supportive and encouraging.

"They've been incredible. I'm 56, so going back to school was a little hard, especially at my age. But when I begin something, I don't stop," said Lopez.

44

I had the best teachers. Every patient is different, and they showed me so many ways to get the job done and make sure every patient has a good experience.

- Maria Lopez

"Sometimes, I'd take a picture of something I didn't understand and send it to my daughter-in-law and have her explain it to me."

Lopez also studied with her youngest daughter.

"She'll be graduating early in February, and she wants to be a CNA, too," said Lopez. "She helps me a lot, and I always practice with her."

In addition to support from her family, Lopez also appreciates the help she received from her instructors at CSI.

"I had the best teachers. Every patient is different, and they showed me so many ways to get the job done and make sure every patient has a good experience," said Lopez. "They made everything look so easy, but they also made me feel like I could do it. They were so encouraging."

Through hard work and determination, Lopez finished the I-CNA program in June and passed her exams in August. After getting hired as a CNA at St. Luke's Magic Valley in September, Lopez decided to take the 80-hour phlebotomy course at CSI, which she completed in December. She continues to improve her

21



skills-in both nursing and English.

"When I was taking the CNA course, I had to read some chapters four or five times in English and one or two times in Spanish. I even downloaded a translation app on my phone to help me," said Lopez. "But now, in my phlebotomy class, I need minimal translation to understand."

Lopez loves her new job, but she hasn't forgotten the importance of customer service and hard work.

"It doesn't matter what language you speak," said Lopez. "It matters how you do your job, how you handle difficult situations, and how you choose to care for people."



#### ADULT EDUCATION IN IDAHO

Nearly 3,000 adults were served by the adult education programs IDCTE oversees. These programs are designed to help Idahoans over age 16 who aren't currently enrolled in a public high school obtain the education and training they need to achieve their career goals. Services like the program Maria Lopez was enrolled in at CSI are offered through our partners at Idaho's six technical colleges and are designed to meet the specialized needs of adult learners:

#### Adult education

This free service can help adults improve their math, reading, writing, and English language skills. These services are available to any adult—even high school or college graduates—with skills below the 12th-grade level. Adult education programs also serve students learning to read, write, and speak the English language.

#### **Centers for New Directions (CND)**

CNDs are designed to help single parents and displaced homemakers complete the technical programs in which they are enrolled. Services include personal, career and educational counseling, assessment and testing, life-skills training, pre-employment preparation, and emergency financial assistance. See pp. 33-34 for more details.

#### **GED testing**

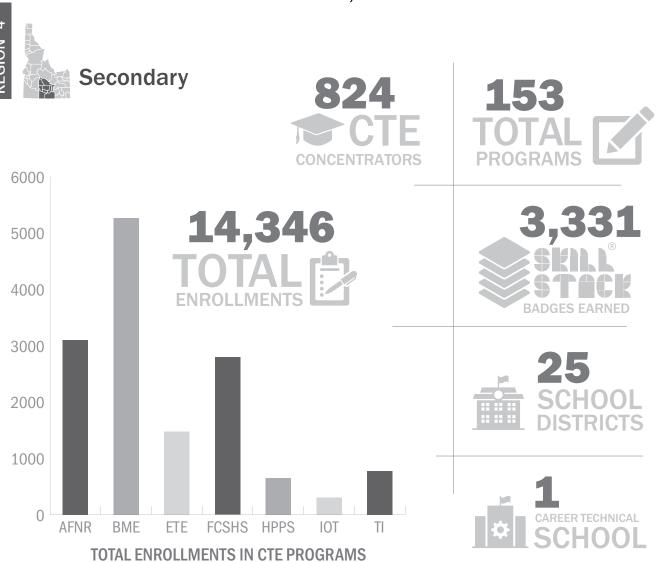
The GED is a series of four tests that indicate whether someone has achieved a high school level of education. A high school diploma or equivalent—like the GED—is required for many jobs or to pursue post-secondary education.

#### **Workforce Training Network (WTN)**

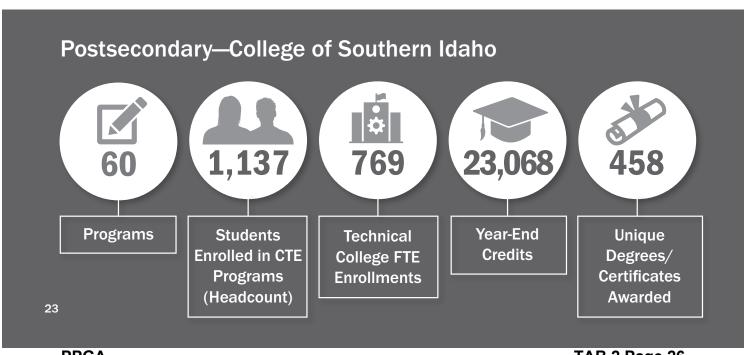
WTN's mission is to coordinate the delivery of statewide customized training to meet the needs of Idaho's employers and citizens. Programs can be customized to help employers fill gaps in their workforce or retrain and upskill employees.

For more information on Idaho's adult education programs, contact Korey Mereness, program director of adult education and GED, at korey.mereness@cte.idaho.gov or visit https://cte.idaho.gov/programs-2/postsecondary-and-adult-education/.

22



AFNR: Agriculture, Food and Natural Resources; BME: Business and Marketing Education; ETE: Engineering and Technology Education; FCSHS: Family and Consumer Sciences and Human Services; HPPS: Health Professions and Public Safety; IOT: Individualized Occupational Training; TI: Trades and Industry



### **Apprenticeships**



### **Workforce Training Center**



# **Employer Spotlight**

#### **Minidoka Memorial Hospital**

Rupert, Idaho

Type of Industry: Healthcare

Employees: 305 full-time employees and over 400

part-time or PRN employees

**Training need:** Minidoka Memorial is a county-owned critical access hospital that includes a long-term care facility and a rural health clinic on its facility campus. They currently employ a broad scope of medical professionals from entry level to specialized doctors to meet the needs of their growing rural county.

How WTC delivered: The College of Southern Idaho's (CSI) Workforce Training Center (WTC) collaborates closely with Minidoka Memorial Hospital as an employer and clinical facility for CNA and phlebotomy students. In addition to training, CSI's WTC partners with Minidoka as an American Heart Association site to train new CPR instructors and maintain certifications for existing instructors.

44

Being the premier healthcare organization that delivers exceptional care close to home while progressively meeting the needs of our growing community is our continuing priority. Having the opportunity to collaboratively work with CSI and my peers is one way we can accomplish our goals. Sharing our knowledge and ambition helped keep student healthcare programs on course for graduation during the COVID-19 pandemic. Investing in our students today produces employees invested in our future.

- Jennifer Titus, director of education, Minidoka Memorial Hospital



# High school fire program helps fill workforce need in the Portneuf Valley

When veteran firefighter Mark Brood agreed to do a presentation on volunteer firefighting at Pocatello High School in 2015, he had no idea where it would lead.

"Right after my presentation, I got hauled down to the principal's office," said Brood. "Lisa (Delonas) told me they had a first responder academy, but they didn't have an EMT or a fire component. She asked if I would be interested in helping get it up and running. I guess it was a case of being in the right place at the right time."

In his 29 years in the fire service, Brood had trained a lot of new firefighters, so he was up for the challenge. As an active fire chief with the North Bannock Fire Department, he could also rely on his industry connections to establish the program. Fortunately, Brood received much support from Superintendent Dr. Douglas Howell, the school board, the school district, and the fire community. Throughout Eastern Idaho, donations poured in, including turnouts (the protective gear worn by firefighters) from the city of Chubbuck, various equipment from the city of Pocatello, and fire hoses from the Idaho Falls Fire Department.

One of the reasons the community rallied around the program is the growing need for first responders and the fact that so many small communities in Idaho rely on the service of volunteer firefighters.

"In these communities, shopkeepers, farmers, ranchers, and neighbors just drop whatever they're doing when the bell rings and hop on the fire truck as it goes by," said Rhonda Naftz, career technical education administrator for School District No. 25. "It's like training them to fulfill their civic duty. This CTE program can bring this service to smaller communities."

The Pocatello/Chubbuck School District renovated a building to house the career technical school program and purchased a retired fire engine using Perkins funds. Brood built all the other props necessary for the program, so it was ready to accept its first students when the 2016-2017 school year began.

"When you walk into the classroom, I wanted it to feel like you were walking into a fire department," said Brood. "I teach to International Fire Service Accreditation Congress (IFSAC) standards. We start each class with the textbook and didactics, then get into the skill work. We try to do everything just like in a fire department, including breaking the class into three platoons, each with its own captain."

Every day, Brood's students go through all the equipment to make sure it's ready and even participate in timed drills, like putting on all their gear in under three minutes. Just like in a real fire department, they have competitions to

"The need for first responders is only going to increase as Idaho's population grows, and this program helps to fill some of that need."

- Mark Brood

see which platoon finishes first. Students also can assist on calls, do a ride-along and practice practical skills towards the end of the program.

Everything about the program is designed to ensure students are prepared to be first responders upon graduation. For example, Brood follows the Candidate Physical Ability Test curriculum, the recognized standard for measuring an individual's ability to handle the physical demands of being a firefighter. Also, all students earn the National Heart Association CPR for Healthcare Providers certification. Finally, most students take the firefighting course as juniors and the EMT course as seniors because most fire departments require EMT certification.

Upon completion, students have received training to earn their IFSAC and National Wildfire Coordinating Group certifications in Hazardous Materials, Extrication, and Wildland Fire. Students still have to take the industry test, which involves the use of a specialized burn trailer. Students need to be 18 and graduated from high school to complete this component; this activity is usually completed the summer following graduation.

25





As proof of Brood's students' achievements, the SkillsUSA chapter he advises swept the podium during the 2019\* state competition. After graduation, many of the students begin their careers with municipal or volunteer fire departments, the Bureau of Land Management, or the U.S. Forest Service, and one student went on to graduate from the Idaho Police Officer Standards Training.

"The need for first responders is only going to increase as Idaho's population grows, and this program helps to fill some of that need," said Brood. "Now that we're six years into the program, we're starting to get success stories, which is really cool. I love it when you see a student achieve their goal, or even better, achieve something they didn't think they could do."

\*Due to the COVID-19 pandemic, 2019 was the most recent year the SkillsUSA state competition was held in person.

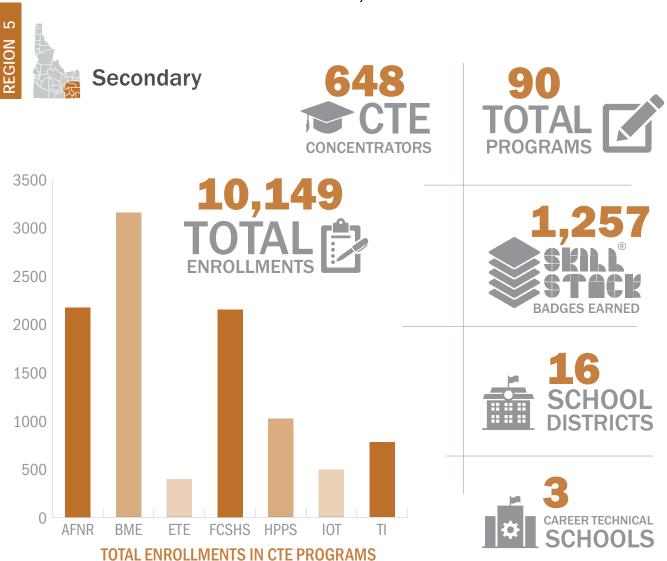


# WHAT'S THE DIFFERENCE BETWEEN TRAINING AND CERTIFICATION?

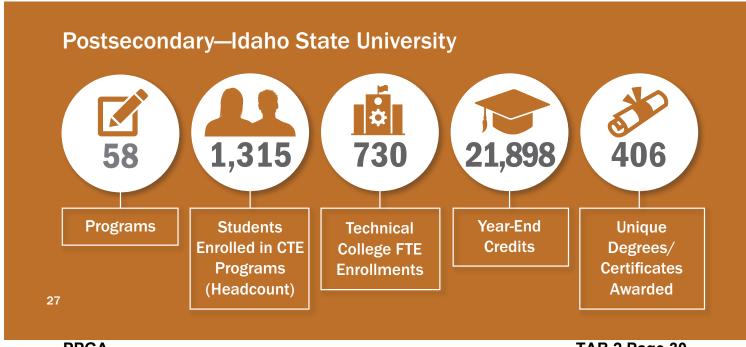
Fire Service Training (FST) is the program that ensures Idaho fire departments have access to quality training and safety practices consistent with National Fire Protection Association standards and current national best practices (see p. 20)

Fire departments—or programs like Pocatello High School's—train firefighters on the skills they need to perform their job duties successfully and safely. Once training is complete, the fire department chief or training officer will submit a certification exam request. Candidates must pass both a written exam and demonstrate they have mastered the requisite skills. Once a candidate has successfully passed their exams, the fire chief or training officer will sign the candidate's certification test application to verify the applicant is adequately trained and qualified for the requested level of certification testing.

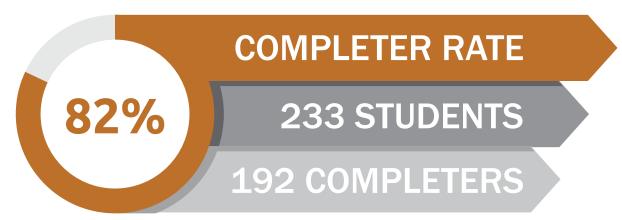
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## **Apprenticeships**



#### **Workforce Training Center**



### **Employer Spotlight**

#### **Portneuf Medical Center**

Pocatello, Idaho

**Type of Industry:** Healthcare **Employees:** More than 1,300

**Training need:** Emergency medical technicians in the emergency department need to be involved in patient care post transport to understand what happens once a patient arrives at the hospital. Connecting pre-hospital and inhospital care is essential to understanding the continuity of care.

**How the WTC delivered:** These students' training at ISU allows them to quickly onboard for employment.





Portneuf Medical Center has provided outstanding support for our EMT training program, certificate programs, and clinical site training. We've collaborated on job training opportunities and future workforce training needs, and they're the title sponsor of our Emergency Management Conference. Their support is integral to the growth of health programs, which impacts our state and nation.

- Gary Salazar, director of continuing education and workforce development, ISU

# Leadership Institute helps business educator achieve career goal, promote CTE

Twelve years ago, Shelley High School business educator Pam Kantack was a big proponent of every student needing a college degree—until she saw what CTE programs were doing for students.

"I didn't really understand what CTE was until I got into the schools," said Kantack. "There are all these different pathways that allow students to explore what they love without spending a lot of money to get the training they need to enter the workforce."

Since then, Kantack has been an ardent supporter of CTE programs and was eager to help more administrators, teachers, parents, and students see their value. So when she received an email from the Idaho Division of Career Technical Education (IDCTE) promoting its Leadership Institute (see sidebar) program in 2017, she thought it would be a good way to champion CTE—and achieve her goal of becoming an administrator.

"I didn't think I would be accepted, but I thought our school could benefit from more leadership on the CTE side, so I applied anyway," said Kantack.

To her surprise, she was accepted. Over the next three years, Kantack balanced her responsibilities as a business educator with the requirements of the Leadership Institute program, which included attending seminars on state and national CTE policy, completing the Idaho Association of School Administrators Project Leadership program, creating a professional development plan to obtain an Idaho CTE administrator's endorsement, and attending state and national meetings to expand her knowledge of CTE. Kantack said the state and national policy initiative was the most helpful of all the opportunities Leadership Institute provided.

"My overall goal was to make CTE a priority in our district, but I didn't know how or who to talk to," said Kantack. "Through Leadership Institute, I gained the confidence to talk to legislators, tell them what was going on in our classrooms, and ask for their support."

Though the time commitment was at times intense, Kantack says the most challenging thing about the program was developing confidence in her leadership skills.

"It probably took until the second year of the program for me to realize I had the capability to be a leader, accept that power, and move forward with it," said Kantack. "It was truly life-changing. I didn't consider myself a leader before Leadership Institute, but my leadership qualities have tripled since I started."

44

My overall goal was to make CTE a priority in our district. Through Leadership Institute, I gained the confidence to talk to legislators, tell them what was going on in our classrooms, and ask for their support.

- Pam Kantack

77

Kantack used her newfound confidence to ask her administration if she could teach part-time and spend the rest of her time serving as the school's CTE administrator; he agreed. Kantack has also used what she learned through Leadership Institute in her new role as president-elect of Career Technical Educators of Idaho, the professional association for career technical educators, administrators, and stakeholders in Idaho.

Now that Kantack has graduated from Leadership Institute, she's more driven than ever to elevate the perception of CTE and advocate for a career technical school in the Shelley School District.

"Now everybody in my school knows what CTE means, and they respect it," said Kantack. "When people see what's going on and what we're producing, it's making a difference."









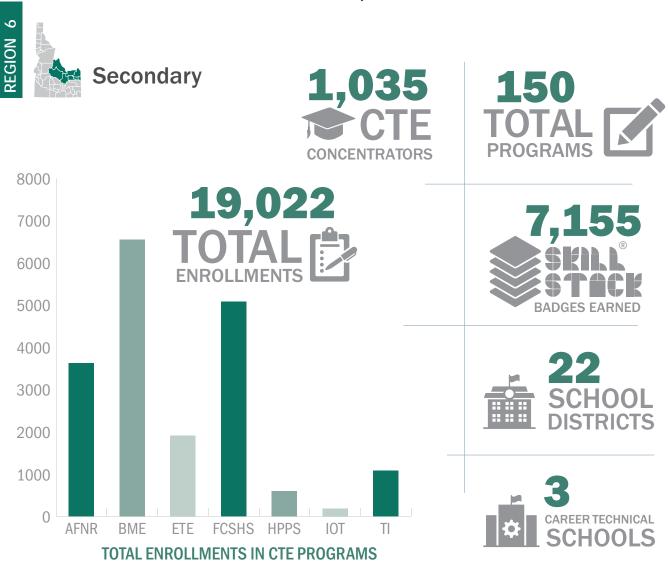
Leadership Institute is a professional development experience to prepare upcoming leaders to face the opportunities and challenges of administering CTE programs. The three-year program is designed to increase participants' knowledge, skills, and abilities in governance, policy and advocacy, leadership, and administration.

Up to five new cohort members are selected each year through an application-based, competitive process, and applicants must be nominated by and supported in their participation by their employer (an Idaho district or institution) and hold an ACTE membership.

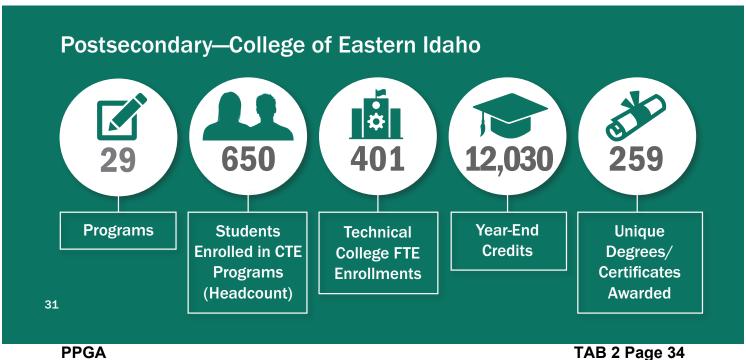
Throughout the program, participants build and strengthen relationships with CTE thought leaders from across the state as they get exposure to leadership opportunities and earn university credits for their participation.

For more information about Leadership Institute, email professionaldevelopment@cte.idaho. gov or visit https://cte.idaho.gov/ educators-5/professional-development/ leadership-institute/.

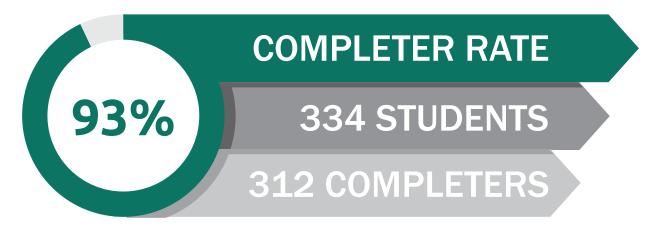
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# **Apprenticeships**



## **Workforce Training Center**



## **Employer Spotlight**

#### **Premier Technology, Inc.**

Blackfoot, Idaho

Type of Industry: Custom fabrication

Employees: 320

**Training need:** Premier is actively searching for qualified welders to meet their project workload. In addition, they have many other skilled trades and professional positions open. They asked for on-site training so their employees could be trained during work hours.

**How the WTC delivered:** The College of Eastern Idaho (CEI) met these needs with an advanced welding program held on campus and on-site. CEI also started a welding apprenticeship program for Premier employees last spring. Five employees completed their first year and will be starting their second year in 2022.

44

The WTC program has been a great resource in training our craftsmen to become a valuable asset to our company.

- David Phinney, production controller, Premier Technology, Inc.



# Center for New Directions helps student finish program, support family

Josh Mortensen was making good money in construction. A father of three, Mortensen could easily work 15-hour days when he didn't have his kids, ages 11, 13, and 15. But when his exwife passed away, he found himself rethinking his career choice.

"I had to find a new job with more pay and fewer hours so I could take care of my kids," said Mortensen.

Mortensen heard about the Energy Systems Technology program at the College of Eastern Idaho from some acquaintances and was drawn to the challenge of the field and the fact that it was less labor-intensive than construction but still allowed him to work with his hands. He could complete the first year of his two-year program in Idaho Falls, where his kids were well established in their elementary, middle, and high schools. However, Mortensen had to complete the second year of his program at Idaho State University in Pocatello—a 100-mile commute round-trip. And he had to do it five days a week.

A few weeks after midterms, Mortensen received an unexpected bill in the mail. He didn't know how he would pay the bill and afford gas for his car, which was critical to his ability to attend classes. Fortunately, one of Mortensen's instructors told him about the Center for New Directions (CND) shortly before midterms. He remembered they offered emergency assistance scholarships to help students like him juggle the demands of completing their education while caring for them themselves and their families (see sidebar).

Mortensen used the scholarship to put gas in his car and complete the semester.

"The Center for New Directions helped me through a challenging time," said Mortensen. "Because of them, I didn't have to choose between putting fuel in my car and food in my kids' bellies."

















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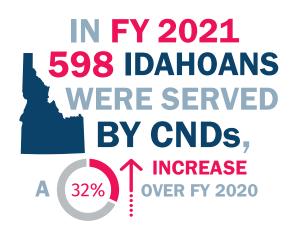
Because of [the Center for New Directions], I didn't have to choose between putting fuel in my car and food in my kids' bellies.

- Josh Mortensen

Mortensen was grateful for the assistance and has since used the CND's career readiness services to help with his resume and prepare for job interviews. Mortensen attributes this support as one of the reasons he could secure an internship as an electrical and instrumentation technician at the J.R. Simplot company last summer.

"A lot of older students tend to think they need to carry everything on their shoulders, and they need help, but they don't know where to go," said Mortensen. "I think a lot of students would be surprised at what's available. Having someone point you in the right direction saves so much time, and it's really helped me take care of my kids while going to school."





# WHAT ARE THE CENTERS FOR NEW DIRECTIONS?

Idaho's six CNDs are located at each technical college and are designed to help students who are single parents or displaced homemakers receive the job training and skills they need to become self-sufficient. Less than half of Idaho's single parents are in the labor force, demonstrating a real need for CNDs to help these students overcome barriers to completing their courses or program.

CNDs are supported by dedicated funds generated by a \$20 fee for each divorce filing, totaling \$136,619 in fiscal year 2021. Each CND collaborates with the Department of Commerce, Department of Labor, Department of Health and Welfare, local job service offices, workforce investment boards, correctional facilities and technical colleges to avoid duplication of efforts and ensure each participant has access to:

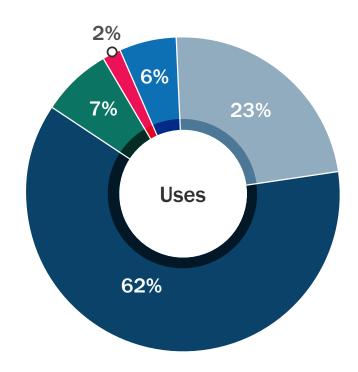
- Job counseling services designed to leverage their existing skills and job experiences.
- Job training and placement services developed in cooperation with public and private employers.
- Assistance gaining admission to public and private job training programs.
- Health education and counseling services concerning preventative health care, mental health, substance abuse and other health care matters.
- Financial management services, including assistance regarding insurance, taxes, estate and probate problems, mortgages, loans and other related financial matters.
- Information about courses offering credit through secondary and postsecondary education programs.

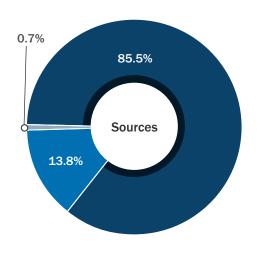
In addition to serving displaced homemakers and single parents, CNDs expand their services to support special populations and individuals preparing for nontraditional occupations. A nontraditional occupation has less than 25% gender representation in a field. CNDs increase awareness of these nontraditional careers and support students leading the way in these fields. Many CNDs provide nontraditional occupational students with scholarships, networking student groups, special STEM events, volunteer opportunities, and specialized career and personal counseling.

# Financial overview

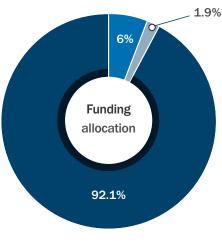
	44 500 000
<ul> <li>Administrative services</li> </ul>	\$4,532,200
Personnel costs	3,819,500
Operating expenses	712,700
<ul> <li>Secondary and general programs</li> </ul>	\$17,528,400
Added-cost operating support	12,398,400
Perkins grant programs	3,809,900
Program Quality Initiative	657,500
Agriculture and Natural Resources	340,000
Workforce Readiness Incentives	190,000
Other programs	132,600
<ul> <li>Postsecondary programs</li> </ul>	\$46,734,800
Related programs	\$5,519,900
Adult education	3,365,900
Workforce Training Centers	1,148,000
Apprenticeship programs	530,300
Fire Service Training	223,900
Centers for New Directions	170,000
Other programs	81,800
<ul><li>Educator services</li></ul>	\$1,308,300
Teacher pipeline development	981,700
REACH conference	281,600
Leadership Institute	45,000



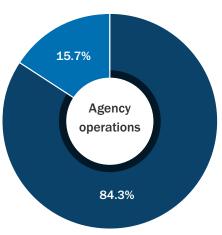




- State funds
- Federal funds
- Other



- Program distributions
- Agency operations
- Program support



- Personnel costs
- Operation expenses

35

# Looking forward

Keeping up with the growing demand for CTE means aligning our goals and priorities is more important than ever. In fiscal year 2022, the IDCTE team is structuring our work around five overarching goals:



Enhancing professional development and program recognition opportunities. In response to feedback from stakeholders and the desire to connect the dots between secondary, postsecondary, and employers, we'll be moving from a single annual professional development conference to three rotating regional conferences in 2022. This approach will allow secondary and postsecondary CTE educators to collaborate and connect while making and maintaining strong relationships with industry partners in their region. Partnering with our technical colleges also provides an opportunity for them to highlight their programs and facilities, which we hope will result in better program alignment and collaboration. We also look forward to highlighting the achievements of our secondary and postsecondary programs by reinstating our program awards and implementing awards for adult education programs.



**Streamlining the CTE educator certification process.** More demand for CTE programs means more demand for CTE educators. In addition to providing clearer guidance for industry professionals interested in teaching CTE, we'll also be identifying a digital certification platform to make it simpler for us to track and certify our occupationally certified teachers.



**Facilitating regional relationships, program support, and employer engagement.** When we look at CTE from a regional perspective, we can better understand workforce needs and prioritize resources accordingly. To that end, we're exploring the concept of regional versus program management. For example, rather than being responsible for agriculture or engineering, program quality managers would be responsible for one of the six educational regions and work with the middle school, secondary, postsecondary and industry partners in that region.



Establishing a program prioritization model and standards that support state and regional employer needs.

In addition to understanding regional workforce needs, we also need to make sure our programs generate graduates with the skills to meet them. At the secondary level, that means updating program standards, adjusting our schedules and timelines to be more forward-thinking, aligning certifications for students and faculty, and adjusting funding levels as necessary. At the postsecondary level, we'll be exploring our methodology for postsecondary funding.



Ensuring our services and support meet our customers' needs. As we continue to facilitate two-way communication with our stakeholders, we'll be focusing specifically on promoting the value of SkillStack® to educators, employers and students, and enhancing the experience and usability of SkillStack®. And now that we've brought Fire Service Training (FST) back in-house, we'll be exploring how to become a Pro Board-accredited state, implementing a new record management system, and engaging our

2021

As you can see, we have a lot of work ahead of us. But our commitment to our mission remains unwavering: To prepare Idaho's youth and adults for high-skill, in-demand careers.

stakeholders in developing a strategic plan for FST.



2022



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- instagram.com/IdahoCTE/
- in linkedin.com/company/idaho-career-and-technical-education

#### PLANNING, POLICY AND GOVERNMENTAL AFFAIRS FEBRUARY 17, 2022

#### IDAHO PUBLIC CHARTER SCHOOL COMMISSION

#### **SUBJECT**

Idaho Public Charter School Commission Annual Report

#### APPLICABLE STATUTE, RULE, OR POLICY

Section 33-5213, Idaho Code

#### **BACKGROUND/DISCUSSION**

The Idaho Public Charter School Commission (Commission) serves as authorizer for 57 operating charter schools and 6 pre-operational schools. Annually, the Commission presents a report to the State Board of Education. During the 2021 legislative session, legislation was passed (SB 1115) that established the Commission as an independent agency under the umbrella of the State Board of Education.

#### **IMPACT**

This report will provide the Board with an update on the status and performance of charter schools authorized by the Commission as well as the progress of the Commission's transition to agency status.

#### **ATTACHMENTS**

Attachment 1 – Commission FY21 Annual Report

Attachment 2 – School Choice Publication

Attachment 3 – Stakeholder Survey Results

#### **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

Section 33-5213, Idaho Code, established the Public Charter School Commission within the Office of the State Board of Education in 2004. During the 2021 Legislative Session, the Commission was moved out from within the Office of the State Board of Education and established as a commission under the State Board of Education. The Director of the Commission is responsible for the enforcement of Chapter 52, Title 33 (Public Charter Schools) and the Commission is charged with making recommendations to the State Board of Education regarding the oversight of Idaho public charter schools.

In Idaho, public charter schools must be authorized prior to starting operations. Pursuant to Section 33-5202A, Idaho Code, authorized chartering entities consist of: local boards of trustees of a school district, the Commission, Idaho public college or university, or a private Idaho-based nonprofit nonsectarian college or university accredited by the same organization that accredits Idaho public colleges and universities. Currently, only the Commission and local boards of trustees have authorized public charter schools in Idaho. The authorized chartering entity of a charter school is responsible for executing a performance certificate that sets forth the academic and operational performance expectations and measures by which

## PLANNING, POLICY AND GOVERNMENTAL AFFAIRS FEBRUARY 17, 2022

the charter school's performance will be judged and used in consideration of renewal or non-renewal.

Additionally, pursuant to Section 33-5209C, Idaho Code, the authorized chartering entity shall continually monitor the performance and legal compliance of the public charter schools it oversees and annually publish and make available to the public a performance report for each public charter school it oversees.

#### **BOARD ACTION**

This item is for informational purposes only.



## Portfolio Performance Report 2020-2021 School Year

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Boise, ID 83720
208-332-1561
pcsc@osbe.idaho.gov



Alan Reed, Chairman Term Ends 2022



Sherrilynn Bair, Vice Chair



Brian Scigliano Term Ends 2024



Wanda Quinn





Nils Peterson Term Ends 2023



Term Ends 2024

Julie Van Orden Term Ends 2022



Jenn Thompson

**IPCSC Director** 

## The IPCSC's mission is to cultivate exemplary charter schools.

The Idaho Public Charter School Commission (IPCSC) is Idaho's independent chartering entity. Composed of seven Governor-appointed commissioners and a small staff, we provide oversight for approximately 60 public charter schools in our state.

The commission is primarily tasked with protecting taxpaver and student interests in the charter sector. This important work requires that we evaluate the risk to student and taxpayer dollars posed by new charter school applications. It also requires that we evaluate the return on investment of those public dollars as we consider charter school renewal applications.

Our mission of cultivating exemplary charter schools reminds us that our day-today tasks are in service of students and families.

We envision a healthy charter school

**IPCSC** 

landscape focused on:

Quality—Idaho families have exemplary charter school options.

Autonomy—Charter schools design and implement unique educational programs.

Accountability—Charter schools meet the standards defined in the IPCSC's performance framework.

Compliance—Charter schools operate in compliance with laws, rules, and regulations.

Advocacy—The IPCSC advocates for student and public interests.

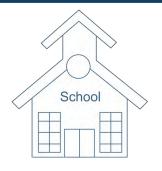
We believe that by engaging in our mission with professionalism, integrity, and transparency, Idaho's charter schools and our educational landscape as a whole will continue to thrive.

**PPGA** 

TAB 3 Page 2

## Fiscal Year 2021—Just the Facts

57
Operating Schools





29,049 Students Served



and Public



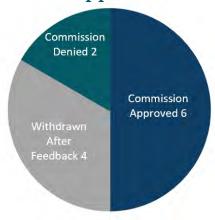
## **Authorizers Balance**

Autonomy

Accountability

**50**%

**Petition Approval** 



Idaho Students
Served by
Charter
Schools

8.26%

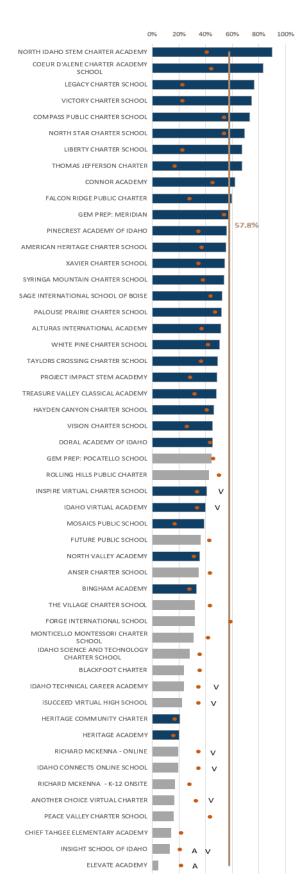
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Portfolio Performance Report FY21

Page 3 of 12

**PPGA** 

TAB 3 Page 3



## **Math Proficiency**

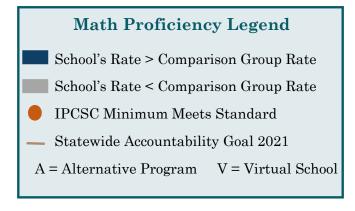
The inherent variability of charter schools makes it difficult to effectively evaluate assessment outcomes. As we seek to better understand the relative performance of each of our schools, the IPCSC revised its performance framework to provide more nuanced data.

The Math ISAT proficiency chart on this page presents each school's average rate of proficiency in comparison to both a minimum standard (orange dots) and a reach goal (brown line).

The reach goal is the statewide goal for 2021 established in Idaho's Consolidated Plan (ESSA). Just under 10% of all Idaho schools met this goal. The minimum standard is established by the IPCSC and represents the average proficiency rate of each charter school's "identified comparison group".

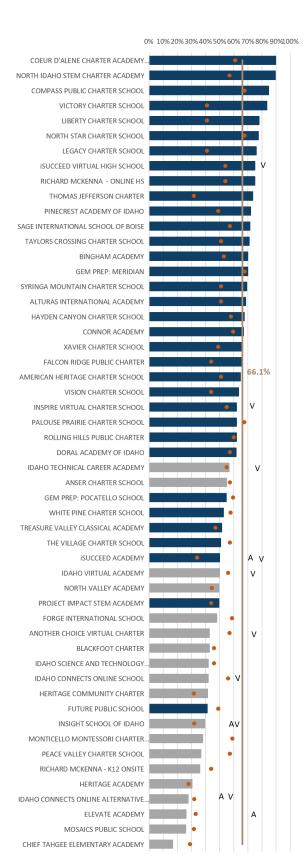
Why is the minimum meets standard different for each school? This is because the IP-CSC's minimum expectation is that each charter school performs as well or better than the average of its peers. In most cases the comparison group is defined as the traditional school district in which the charter school is physically located.

In a handful of cases in which the student population is markedly dissimilar to the district, a custom comparison group was identified based on schools with similar percentages of student groups, such as economically disadvantaged or special education.



IPCSC Portfolio Performance Report FY21

Page 4 of 12



## **ELA Proficiency**

The ELA ISAT proficiency chart on this page presents each school's rate of proficiency in comparison to both a minimum standard (orange dots) and a reach goal (brown line).

Each year, the IPCSC provides an annual performance report to each school. These individual reports are made available to the public on our website. Schools are encouraged to use this information to inform their strategic planning process each year.

A school that meets all standards at renewal is guaranteed another five year term of operations. On the other hand, a school that does not meet the minimum standard on one or more measure (academic, operational, or financial) is not guaranteed a next operating term.

#### Math and ELA Data Highlights

<u>Well done!</u> - In their first year of operations, both Doral Academy and Pinecrest Academy performed well on all academic measures.

<u>Challenge accepted!</u> - Among the schools that have not yet met the minimum standard, several are within 10% of the goal and with focused effort, this goal is achievable.

<u>High flyers!</u> - Kudos to the schools consistently performing at the top of the charts! These schools meet the IPSC's minimum standard and exceed the reach goal year after year.

**Shout Out!** - iSucceed Virtual performed particularly well in ELA. Your efforts are appreciated!

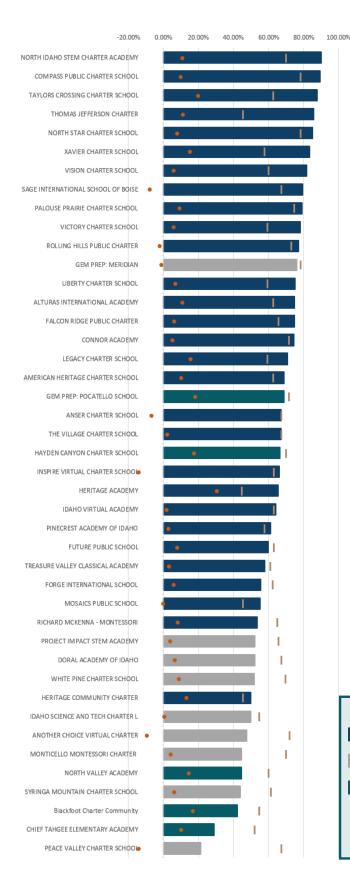
## **ELA Proficiency Legend**

- School's Rate > Comparison Group Rate
- School's Rate < Comparison Group Rate
- IPCSC Minimum Meets Standard
- Statewide Accountability Goal 2021

A = Alternative Program V = Virtual School

IPCSC Portfolio Performance Report FY21

Page 5 of 12



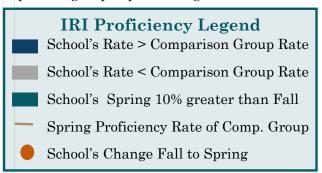
### IRI Proficiency

IRI Proficiency is a new measure in the IPCSC's framework. Blue bars indicate a school that outperformed its comparison group on the spring administration of the IRI. Teal bars indicate that the school did not outperform it's comparison group, but did improve its own proficiency rate by at least 10% between fall and spring.

Several aspects of this data are worth noting. First, schools such as Chief Tahgee and Blackfoot Community did not achieve high outcomes, but did make significant gains with their own students between fall and spring. Second, schools such as Thomas Jefferson and Heritage Academy outperformed their comparison groups by a significant margin. Third, some schools, such as Sage International saw a drop in their own proficiency rate, but still outperformed their peers. These are all wins, especially during a pandemic year.

Of concern are schools such as Peace Valley and Another Choice who did not perform as well as their comparison groups by a significant margin. In both cases, fewer students achieved proficiency in the spring than in the fall, indicating that these schools lost significant ground during the school year.

As the IPCSC considers fine-tuning these new measures, Gem Prep Meridian's outcomes make a case for considering a ceiling for this measure. For example, the IPCSC may choose to consider whether 80% meets standard, regardless of how a school's comparison group is performing.



IPCSC Portfolio Performance Report FY21

Page 6 of 12

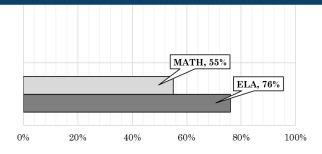
#### **Alternative Measures**

At-risk students face additional barriers to success. The IPCSC's revised framework includes measures designed to provide a more complete picture of how well a school meets the academic needs of its students. Alternative measures serve to complement standard measures.

#### MATH AND ELA CONTENT MASTERY

Why This Matters: At-risk students are often behind in grade-level proficiency in both Math and ELA. This measure is a complement to Math and ELA proficiency.

This measure considers the percentage of students who were continuously enrolled at



the school who earned 2 credits in Math and ELA, regardless of the grade-level of the course taken. This measure acknowledges that a student enrolled in 8<sup>th</sup> grade, may not perform well on the 8<sup>th</sup> grade ISAT assessment if his or her skills are at the 6<sup>th</sup> grade level; however, if that student mastered the content (earned full credit) in the next course in his/her own academic progression, that success should be noted for the student and the school.

#### PROGRESS TOWARD GRADUATION

Why This Matters: At-risk students may change schools frequently and fall behind in credits earned. As traditional academic measures only reflect the school's success with students who were continuously enrolled for the whole school year, alternative measures are necessary to evaluate whether a school is serving all students well.

For students who are at-risk of failing to graduate, it is crucial to ensure that they earn enough credit while enrolled at a school to not fall further behind, regardless of whether they are enrolled for the whole school year or only one grading term. The 9-12 progress toward graduation measure considers whether a student successfully completed at least as many credits as expected during the time they attended the charter school.

#### ADDITIONAL GRADUATES

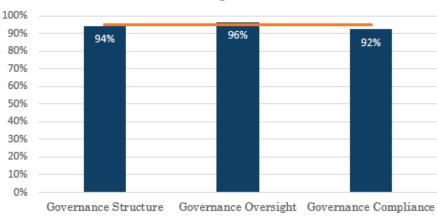
Why This Matters: 4 and 5 Year ACGR measures capture the percentage of students who graduate 4 and 5 years after they began 9th grade. These measures are designed to speak to *student* success. They only speak to *school* success in cases where the school retained the student for the entire 4 or 5 years. As at-risk students are a more mobile population and generally enroll in several high schools throughout their high school career, ACGR alone does not sufficiently help us understand whether an alternative school is serving students well.

This additional graduation measure allows the IPCSC to consider the percentage of students who were in enrolled as 12<sup>th</sup> grade students and graduated, regardless of when the student should have graduated. As this measure includes students who may be in their 6<sup>th</sup> or 7<sup>th</sup> year of high school, this measure provides a clearer "data story" for at-risk students and the schools that serve them.

IPCSC Portfolio Per

## Operational Measures: Board Stewardship





For public charter schools, the line between success and failure often comes down to the quality of board stewardship and school leadership they experience. School teams that respond quickly and competently to issues as they arise help ensure a school's overall success. Conversely, teams that do not respond quickly or competently foster a riskier environment.

The IPCSC's operational measures are designed to identify signs of distress in a charter school. While charter school failure is most commonly linked to financial failure, financial failure is always precipitated by signs of distress in a school's operations.

For example, a governing board in distress might hold many executive sessions, have long board meetings, experience Open Meeting Law violations, or may not evaluate their school leader thoroughly. A leadership team in distress may experience staff turn-over, have "findings" in student services reviews, fail to turn reports in on time, or lose track of the "little things", such as updating the website.

The operational measures are divided by board stewardship and leadership/

management in order to help a school identify which party is responsible for the issue and who can take action to address it. Through these measures we hope to help our schools identify issues before they get out of hand

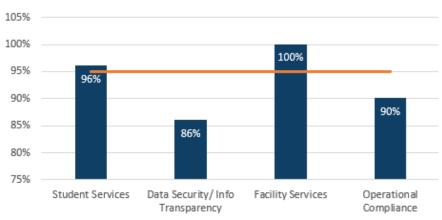
The IPCSC evaluates three Board Stewardship measures. The Governance Structure measure considers whether the board's guiding documents (such as bylaws and meeting procedures) are compliant and in use. The Governance oversight measure considers whether the board is performing its duty to the school and taxpayers by ensuring the school has effective leadership, policy, and financial oversight. The Governance compliance measure considers whether more serious investigations into issues such as ethics were necessary.

The IPCSC evaluates four leadership and management measures, some of which require inter-agency cooperation to fully address. First, the student services measure considers whether the State Department of Education's (SDE) expert teams in special education and federal programs are satisfied with the school's services.

 $\operatorname{IPCSC}$ 

## Operational Measures: Leadership and Management

## % of IPCSC Schools Meeting Leadership/Management Standards



Second, the data security and transparency measure considers whether the school is engaging in compliant financial transparency and is keeping student data safe.

Third, the facility services measure considers whether a school's facilities are being well maintained and ancillary programs, such as meal service and transportation, are adequate, requiring collaboration with the building safety team and several SDE expert teams.

Finally, the operational compliance measure considers the compliance of a school's enrollment process and its response to any issued corrective action plans.

In order to evaluate a school's performance against these measures, the IPCSC staff conduct an extensive desk audit, reading reports and working with other agencies to make sure all parties are all on the same page with expectations and that ratings earned by a school on any particular measure are directly connected to a data source.

The IPCSC's goal is to have 95% of our schools meet standard on the board stewardship and leadership/management

measures. In fiscal year 2021, two investigations into governance compliance were necessary. In both cases, the issues were ultimately joint failures of board stewardship and school leadership.

At the time of this report, both schools are on a path toward resolution. A third school has been identified as struggling with board stewardship and efforts have been made to provide support.

The lower percentage of schools meeting standard on the information transparency measure is specifically related to website compliance. Overall, schools are compliant with Idaho's transparency laws; however, as the law is somewhat vague, each school posts reports in different formats and in different locations. In some cases, information was difficult to find on the school's website. In some cases expenditure reports include more detail than in others. The issue of which contracts to post is also somewhat unclear.

The IPCSC is working with schools to clarify the expectations. We are also working internally to better streamline our processes.

IPCSC

## Financial Oversight

In addition to academic and operational oversight, the IPCSC evaluates each school's financial performance against a set of nearterm measures and against a set of sustainability measures. Near-term measures are designed to identify whether a school is able to meet its financial obligations in the next year; sustainability measures are designed to identify whether a school is able to meet its long-term financial obligations. Our overall goal is to see 95% of our schools meet standard on all financial measures.

The data below indicates that while the results are close to goal on most measures, only 72% of IPCSC schools were able to meet their enrollment projections in fiscal year 2021. This is likely due to student mobility caused by the pandemic during the 2020-2021 school year. However, as a charter school's budget is directly impacted by student enrollment, the ability to meet and maintain projections is an important factor in a charter school's financial viability.

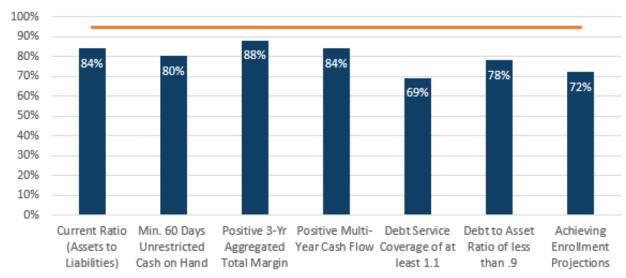
Schools with lower enrollment generally also evidence a decrease in their cash on

hand in compensation for the lesser revenue received. The data in the chart below reflects a drop from previous years on both the enrollment projection and cash on hand measures. Post-pandemic, schools are expected to bounce back in these areas.

Another obvious area of concern is the percentage of schools able to maintain a sufficiently high debt service coverage ratio and a sufficiently low debt to asset ratio. This is a more difficult needle to move as it is reflective of facility costs. While a few schools have poorly structured leases they are working to improve or move away from, most of the schools impacting this measure have long-term loans that are not likely to change.

In addition to the seven measures below, the IPCSC also considers whether any school is in default of its financial obligations. During fiscal year 2021, two schools were in default: one with chronic late payments, and another in default of loan covenants. Both schools have taken action to address the issues.

## % of IPCSC Schools Meeting Financial Standards



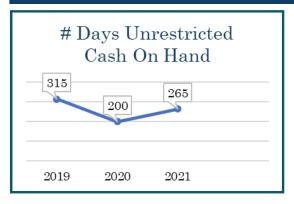
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Portfolio Performance Report FY21

Page 10 of 12

## **Drilling Down**

While high level information is useful in guiding the IPCSC toward its goal, it is important that our work is also useful at the school level. Below are a few examples of the charts each individual school might see on its annual performance report.



Why cash on hand matters: This measure estimates a school's average daily cost of operations and considers the number of days a school could operate using only its available cash and investments.

A school with at least 60 days cash on hand would be able to meet its immediate financial obligations with available cash, buying the time it might take to access other assets. A school with less than 15 days cash on hand is in financial distress and is at risk of automatic closure.

#### Why debt to asset ratio matters:

The Debt to Asset Ratio compares a school's total liabilities to its total assets.

A school whose total liabilities are 90% or less of its total assets is likely to be able to repay all short-term debts and still manage to set its long-term affairs in order in a worst-case scenario. A school with more liabilities than assets would not be able to meet all its financial obligations in a worst-case scenario.





Why total margin matters: The Total Margin compares a school's total revenue to its net income. A school with a positive total margin spent less than it brought in. That is, the school is living within its means and can plan for future purchases and investments.

An occasional negative total margin may indicate that a planned or necessary purchase has taken place. This is not necessarily a negative indicator. However, if the Total Margin is chronically negative or severe decreases appear, the school may be in financial distress. Aggregating this margin over three years helps identify long-term trends.

IPCSC Portfolio Performance Report FY21

Page 11 of 12

## FAQ and Additional Resources

### How are new petitions evaluated?

Statute outlines a 12-week process. The IP-CSC provides guidance for applications and evaluations. The guidance document outlines the timeline and procedures for new applicants. The Standards of Quality describes what a high-quality response might look like in each category. This is the tool by which applications are evaluated.

New Petitioner Guidance
Standards of Quality

#### How are schools performing?

To serve the needs of schools, policy-makers and Idaho families, the IPCSC maintains a webpage for each school on which annual performance reports are accessible.

Sample School Performance Report

#### What is the renewal process?

Charter schools are approved for 5-year terms and must apply for renewal every 5 years. The renewal process was revised ahead of 2021 renewals to ensure alignment to statute. The guidance document outlines timelines and procedures. The performance framework describe the standards each school is expected to meet for a nonconditional renewal.

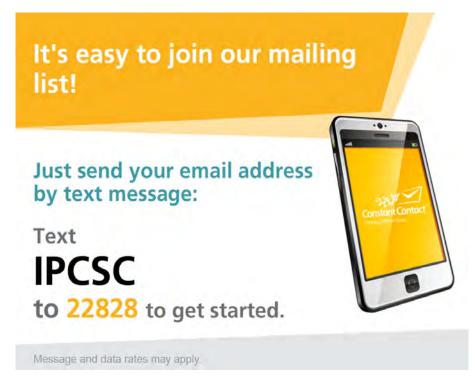
Renewal Guidance

Performance Framework

### What are the IPCSC's plans?

The Commission's 5-year strategic plan outlines goals in communication, school achievement, and organizational growth.

Strategic Plan



IPCSC

Portfolio Performance Report FY21

Page 12 of 12



#### AN IDAHO PUBLIC CHARTER SCHOOL COMMISSION PUBLICATION

 ${\bf SCHOOL\ YEAR\ 2022\text{--}2023}$ 

**UPDATED:** December 2021

**AUTHORED BY: IPCSC STAFF** 

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 $\underline{https://charter commission.idaho.gov/}$ 

AUTONOMY | ACCOUNTABILITY | ACCESS

## **Table of Contents**

Who is the Idaho Public Charter School Commission?	4
Mission Statement	4
About the IPCSC	4
What is a Public Charter School?	5
Why Choose a Public Charter School?	5
Idaho Charter Schools	6
Charter School Accountability	6
Charter Schools by Model	
North Idaho   Region 1 Schools	
Coeur d'Alene Charter Academy	
Elevate Academy   North	
North Idaho STEM Academy	
North Idaho   Region 2 Schools	
Mountain Community School	
Palouse Prairie Charter School	
Treasure Valley   Region 3 Schools	
Anser Charter School	
Cardinal Academy	
Compass Academy	
Doral Academy of Idaho	
Elevate Academy   Caldwell	12
Elevate Academy   Nampa	
Falcon Ridge Public Charter School	
FORGE International Academy	
Future Public School	
Gem Prep-Meridian	
Gem Prep-Meridian (North)	
Gem Prep-Meridian (South)	
Legacy Charter School	
Liberty Charter School	
MOSAICS	
North Star Charter School	
Peace Valley Charter School	
Project Impact STEM Academy	
Richard McKenna Charter School   Montessori Program	
Richard McKenna Charter School   On-Site Program	
Rolling Hills Public Charter School.	
Sage International School of Boise	
The Village Leadership Academy  Thomas Jefferson Charter School	
momas generson Charter School	18

Treasure Valley Classical Academy	19
Victory Charter School	19
Vision Charter School	19
Central Idaho   Region 4 Schools	20
Gem Prep   Twin Falls	20
Heritage Academy	20
North Valley Academy	20
Pinecrest Academy of Idaho	21
Syringa Mountain School of Idaho	21
Xavier Academy	21
Eastern Idaho   Region 5 Schools	22
Chief Tahgee Elementary Academy	22
Connor Academy	
Gem Prep-Pocatello	
Eastern Idaho   Region 6 Schools	
Alturas International Academy	23
Alturas Preparatory Academy	23
American Heritage Charter School	23
Bingham Academy	24
Blackfoot Community Charter Learning Center	24
Idaho Science & Technology Charter School	24
Monticello Montessori Charter School	25
Taylor's Crossing Public Charter School	25
White Pine Charter School.	25
Statewide Virtual Schools	26
Another Choice Virtual Charter School	26
Idaho College & Career Readiness Academy (ITCA)	26
Idaho Connects Online Alternative (Idaho Connects Online Virtual)	27
Idaho Virtual Academy (Insight Academy)	
Inspire Connections Academy (Empower Academy)	
iSucceed Academy (iSucceed Virtual)	28
Kootenai Bridge Academy	28
Richard McKenna Charter School   Virtual Program	28
Richard McKenna Charter School   Virtual Alternative Program	29

## **Idaho Public Charter School Commission**

## **Mission Statement:**

The Public Charter School Commission's mission is to cultivate exemplary public charter schools.

"School Choice is one of the strongest ways we have to educate our children."- Ari Fleischer

## **About the IPCSC:**

**Commissioners:** The IPCSC is made up of 7 volunteers who serve 4-year terms. Our commissioners bring a broad scope of experience in public education, business and governance and share a desire to encourage innovation and quality school

choice for Idaho families.

IPCSC Staff: IPCSC Staff performs the dayto-day work of school authorizing and oversight. We are happy to answer any questions you have.

**Authorizer:** The role of an authorizer is to provide oversight for charter schools, balancing the autonomy of the schools with accountability to taxpayers and students.

## Why Choose a Public Charter School?

Charter schools are public, tuition-free schools that are open to all students. They provide unique instructional models and have the autonomy to choose how best to implement that model if they work within the boundaries of the law and meet established performance outcomes.

"The possibilities are endless, but charter schools aim to provide a range of options so that parents can choose the public school that best fits their child." (2020 National Alliance for Public Charter Schools)



"The reasons that parents choose charter schools for their children are just as unique as the student themselves. They choose charter schools because of the strong, dedicated teachers, because the school's focus matches their child's needs, or simply because their child was struggling in their assigned public school and needed to try something new."

"Charter schools provide families with options in public education, allowing parents to take a more active role in their child's education."

(2020 National Alliance for Public Charter Schools)

## **Idaho Charter Schools**

The IPCSC is Idaho's largest authorizer, with a portfolio comprising 76% of Idaho's 71 charters. IPCSC Portfolio schools are located across the state, in both rural and urban communities, and serve approximately 26,000 students. Their time in operation ranges from one to nineteen years.



In this publication you will find a list of all of Idaho Public Charter Commission's charter schools, primarily sorted by location. These pages provide information about the model and mission of IPCSC portfolio schools in each region as well as their contact information. We'd encourage you to read this document in its entirety and reach out to the school's of choice that best meet the needs of your students.

Academic models range widely from Montessori to STEM to International Baccalaureate. An index of schools sorted by model is also provided in this publication.

## **Charter School Accountability**

All charter schools operate under a contract with charter school authorizer that holds them accountable to the high standards outlined in their "performance certificate". In Idaho, performance reports are published each year to inform the school and the public of the school's performance.

Every five years, the authorizer evaluates the school's performance and determines whether to renew the school's certificate for another five years of operation. This publication also includes links to each school's certificate an annual report.

6 | Page

## **Charter School by Model**

#### Alternative

Cardinal Academy

Elevate Academy- Caldwell

Elevate Academy-Nampa

Elevate Academy-North

Idaho Virtual Academy

Idaho Connects Online Alternative

Insight Virtual School

iSucceed Academy (iSucceed Virtual)

Kootenai Bridge Academy

Richard Mckenna Charter School

#### American Heritage - Core Knowledge

American Heritage Charter School

North Valley Academy

White Pine Charter School

#### **Blended Learning**

Gem Prep-Meridian

Gem Prep-Meridian (North)

Gem Prep-Meridian (South)

Gem Prep-Pocatello

#### Career Technical Education

Elevate Academy-Caldwell

Elevate Academy-Nampa

Elevate Academy-North

#### Classical

Coeur d'Alene Charter Academy

Treasure Valley Classical

Vision Charter School

Xavier Academy

#### **Expeditionary Learning**

Anser Charter School

Hayden Canyon Charter School

Palouse Prairie Charter School

#### The Harbor School Method

Connor Academy

Legacy Charter School

Liberty Charter School

Thomas Jefferson Charter School

Taylor's Crossing Public Charter School

Victory Charter School

#### International Baccalaureate

Altura International Academy

Alturas Preparatory Academy

Forge International Academy

North Star Charter School

Sage International School of Boise

#### **Montessori**

Monticello Montessori Charter School

Richard McKenna Charter School

#### **Project Based Learning**

Compass Academy

Idaho Science & Technology Charter School

Mountain Community School

## Science, Technology, Engineering, Arts, and

#### Math (STEAM)

Blackfoot Community Charter Learning

Idaho Science & Technology Charter School

Mosaics Public School

Pinecrest Academy of Idaho

#### Science, Technology, Engineering, & Math

#### (STEM)

Bingham Academy

Future Public School

North Idaho STEM Academy

Project Impact STEM Academy

#### <u>Virtual:</u>

Another Choice Virtual Charter School

Idaho Connects Online

Idaho Virtual Academy

Insight Virtual Academy

Inspire Connections Academy

iSucceed Academy (iSucceed Virtual)

Idaho College & Career Readiness Academy

(ITCA)

Kootenai Bridge Academy

Richard Mckenna Virtual High School

Richard McKenna Virtual High School

(Alternative)

7 | Page

<u>Waldorf</u>

Peace Valley Charter School Syringa Mountain School of Idaho <u>Other</u>

Blackfoot Community Charter Learning Center |

**Brain Based Learning Model** 

Chief Joseph Elementary Academy |

Cultural/Global Theme

(Immersion)

Doral Academy of Idaho |

**Arts-Integration** 

Falcon Ridge Public Charter School |

**Direct Instruction** 

Heritage Academy |

School Enrichment Model (SEM)

Heritage Community Charter School |

**Dual-Language Classical** 

(Immersion)

Rolling Hills Public Charter School

Personalized Learning Model

The Village Charter School |

The Limitless Learning Model

## Northwest Idaho Schools | Region 1

Beautiful Northern Idaho is home to a few, high quality charter schools. These schools have traditionally boasted steady enrollment and strong academic outcomes.

#### • Coeur d'Alene Charter Academy (Coeur d'Alene)



- Grades 6-12 | Post-Secondary Prep
- o Contact: 208-676-1677 | <u>info@cdacharter.org</u>
- Website: <a href="https://www.cdacharter.org/">https://www.cdacharter.org/</a>
- Year Opened: 1999 | Enrollment Capacity: 812 | Term Renewal: 2022
- o Certificate/Reports: CCA Performance Certificate & Reports)

"Coeur d'Alene Charter Academy is dedicated to providing a rigorous, content-rich, college preparatory education for any students who are willing to accept the challenge."

#### • Elevate Academy (North)

o Grades 6-12 | Career Technical



- Contact: Pending |
- Website: <a href="https://www.elevate2c.org/">https://www.elevate2c.org/</a>
- Year Opened: 2022 | Enrollment Capacity: 486 | Term Renewal: 2027
- o Certificate/Reports: (Elevate Performance Certificate & Reports)

"Elevate Academy Nampa is a 6<sup>th</sup>-12<sup>th</sup> learning environment committed to serving at-risk students. Through purposeful instruction students will take responsibility for leading their own lives and studying a career track that may include vocational and college paths or a combination thereof. By owning their educational pathway, students will become contributing members of their community and local economy upon graduation."

#### Hayden Canyon Charter School (Hayden)





- Contact: (208) 477-1812
- Website: <a href="https://haydencanyoncharter.org/">https://haydencanyoncharter.org/</a>
- o Year Opened: 2015 | Enrollment Capacity: 668 | Term Renewal: 2025
- o Certificate/Reports: (HCC Performance Certificate & Reports)

"Achieving breakthroughs in academic excellence and character development by inspiring passion for inquiry and lifelong learning – utilizing hands-on discovery, real world application, collaboration and community; preparing each student for engagement in productive, thoughtful citizenship."

#### • North Idaho STEM Charter Academy (Rathdrum)



- o Grades K-12 | STEM
- o Contact: (208) 687-8002
- o Website: https://www.northidahostemcharteracademy.org/
- O Year Opened: 2012 | Enrollment Capacity: 724 | Term Renewal: 2023
- o Certificate/Reports: (NISTEM Performance Certificate & Reports)

"The mission of the school is as follows: To prepare students, through rigorous and relevant content, to be productive and successful citizens by developing a strong work ethic and the higher-level critical thinking skills needed to solve problems in the real world."

## Northeast Idaho Schools | Region 2

• Mountain Community School (McCall)



- o Grades K-8 | Place Based
- o Contact: (208) | info@mccallcommunityschool.org
- o Website: <a href="https://mccallcommunityschool.org/">https://mccallcommunityschool.org/</a>
- o Year Opened: 2019 | Enrollment Capacity: 225 | Term Renewal: 2025
- o Certificate/Reports: (McCall Performance Certificate & Reports)

"The mission of the McCall Community School is to inspire curiosity, engagement, and leadership through transformative place-based education."

Palouse Prairie Charter School (Moscow)



- o Grades K-8 | Expeditionary Learning
- o Contact: (208) 882-3684 | office@palouseprairieschool.org
- o Website: <a href="https://palouseprairieschool.org/">https://palouseprairieschool.org/</a>
- o Year Opened: 2009 | Enrollment Capacity: 230 | Term Renewal: 2023
- o Certificate/Reports: (PPCS Performance Certificate & Reports)

"The mission of Palouse Prairie Charter School is to engage the children and the community of the Palouse in a rigorous and collaborative education of the highest standards by fostering a spirit of inquiry, a persistence towards excellence, a responsibility for learning, and an ethic of service."

## Southwest Idaho Schools | Region 3

The Treasure Valley is home to the greatest number and variety of charter schools in the state. Families in Boise, Meridian, Kuna, Caldwell, Eagle, Nampa, and Middleton can choose from many high-quality options.

### • Anser Charter School (Garden City)



o Contact: (208) 426-9840 |

Website: <a href="https://www.ansercharterschool.org/">https://www.ansercharterschool.org/</a>

O Year Opened: 1998 | Enrollment Capacity: 709 | Term Renewal: 2024

o Certificate/Reports: (Anser Performance Certificate & Reports)

"To educate the whole child in a collaborative learning community where individuals are inspired to be self-motivated and to feel a sense of connection and responsibility to the world."

#### • Cardinal Academy (Boise)

o Grades: 9-12 | Alternative

o Contact: <a href="https://cardinalacademycharter.org/contact/">https://cardinalacademycharter.org/contact/</a>

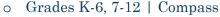
o Website: <a href="https://cardinalacademycharter.org/">https://cardinalacademycharter.org/</a>

o Opened: 2020 | Enrollment Capacity: 140 | Term Renewal: 2025

o Certificate/Reports: Pending Update\*

"Cardinal Academy Public Charter School, Inc. will provide a rigorous academic program to pregnant and parenting teens in a supportive environment where students are prepared for parenthood, college, career, and life."

### Compass Public Charter School (Meridian)



o Contact (208) 888-5847 |

a personal worldview."

Website: <a href="https://compasscharter.org/">https://compasscharter.org/</a>

O Year Opened: 2005 | Enrollment Capacity: 1600 | Term Renewal: 2024

o Certificate/Reports:(Compass Performance Certificate & Reports)

"Compass Public Charter School's Mission is to provide a safe and challenging learning community that prepares students for lifelong excellence through exceptional academics, character development, and the ability to define and defend

#### • Doral Academy of Idaho (Meridian)

o Grades K-8 | Arts Integration



o Contact: (208) 901-8281

Website: <a href="https://www.doralidaho.org/">https://www.doralidaho.org/</a>

o Year Opened: 2020 | Enrollment Capacity: 489 | Term Renewal: 2025

o Certificate/Reports:(DAI Performance Certificate & Reports)

"Through arts integration, individual student focus, and rigorous academics, Doral Academy of Idaho will place all students on a path for success at the college and career level".

#### • Elevate Academy (Caldwell)

o Grades 6-12 | Career Technical



o Contact: (208) 779-4086 |

Website: <a href="https://www.elevate2c.org/">https://www.elevate2c.org/</a>

o Year Opened: 2019 | Enrollment Capacity: 488 | Term Renewal: 2023

o Certificate/Reports: (Elevate Performance Certificate & Reports)

"Elevate Academy's mission is for all students to take responsibility for leading their own lives and studying a career track that may include vocational and college paths or a combination thereof."

### • Elevate Academy (Nampa)

o Grades 6-12 | Career Technical





o Website: https://www.elevate2c.org/

o Year Opened: 2022 | Enrollment Capacity: 486 | Term Renewal: 2027

o Certificate/Reports: (Elevate Performance Certificate & Reports)

"Elevate Academy Nampa is a 6<sup>th</sup>-12<sup>th</sup> learning environment committed to serving at-risk students. Through purposeful instruction students will take responsibility for leading their own lives and studying a career track that may include vocational and college paths or a combination thereof. By owning their educational pathway, students will become contributing members of their community and local economy upon graduation."

#### Falcon Ridge Public Charter School (Kuna)

FALCON

PUBLIC CHARTER SCHOOL

- o Grades K-8 | Direct Instruction
- Contact: (208) 922-9228 | office@falconridgecharter.org
- Website: <a href="https://falconridgecharter.org/">https://falconridgecharter.org/</a>
- o Year Opened: 2005 | Enrollment Capacity: 276 | Term Renewal: 2023
- o Certificate/Reports:(FRPCS Performance Certificate & Reports)

"Developing students who are competent, productive and responsible by promoting the academic skills and character to succeed in life.

### Forge International Academy (Middleton)

- o Grades K-12 | International Baccalaureate
- o Contact: (208) 244-0577
- o Website: <a href="http://forge.sageintl.org/">http://forge.sageintl.org/</a>
- o Year Opened: 2019 | Enrollment Capacity: 700 | Term Renewal: 2024
- o Certificate/Reports: (Forge Performance Certificate & Reports)

"Forge International School engages students within an inclusive international learning community, challenging all members to take risks and contribute locally and globally through open-minded inquiry."

#### • Future Public School (Garden City)





o Website: https://www.futurepublicschool.org/

Year Opened: 2018 | Enrollment Capacity: 576 | Term Renewal: 2023

o Certificate/Reports: (Future Performance Certificate & Reports)

"Future Public School equips engineers with the knowledge, skills and character to succeed in college and the future world."

### • Gem Prep Meridian (Meridian)

- o Grades K-8 | Blended Learning
- o Contact: (208) 917-9150
- o Website: <a href="https://gemprep.org/meridian/">https://gemprep.org/meridian/</a>
- o Year Opened: 2018 | Enrollment Capacity: 732 | Term Renewal: 2023
- o Certificate/Reports: (GPM Performance Certificate & Reports)

"To prepare students for success in college and professional technical careers by providing a high quality, personalized, relevant and rigorous education through exceptional teaching, innovative uses of technology and partnerships with families."

### • Gem Prep Meridian-North (Meridian)

o Grades K-12 | Post-Secondary Prep

o Contact: (208) 373-9950

o Website: <a href="https://gemprep.org/meridiannorth/">https://gemprep.org/meridiannorth/</a>

o Year Opened: 2021 | Enrollment Capacity: 676 | Term Renewal: 2026

o Certificate/Reports: <u>GPMN Performance Certificate & Reports</u>)

"To prepare students for success in college and professional technical careers by providing a high quality, personalized, relevant and rigorous education through exceptional teaching, innovative uses of technology and partnerships with families."

### • Gem Prep Meridian-South (Meridian)

o Grades K-12 | Post-Secondary Prep

o Contact: (208) 373-9950

o Website: <a href="https://gemprep.org/meridiannorth/">https://gemprep.org/meridiannorth/</a>

Year Opened: 2022 | Enrollment Capacity: 676 | Term Renewal: 2027

o Certificate/Reports: (GPS Performance Certificate & Reports)

"To prepare students for success in college and professional technical careers by providing a high quality, personalized, relevant and rigorous education through exceptional teaching, innovative uses of technology and partnerships with families."

## • Heritage Community Charter School (Caldwell)

o Grades K-8 | Classical; Dual Language

o Contact: (208) 453-8070 | <u>info@hccs481.org</u>

o Website: <a href="http://heritagecommunitycharter.com/">http://heritagecommunitycharter.com/</a>

Year Opened: 2011 | Enrollment Capacity: 540 | Term Renewal: 2023

o Certificate/Reports: (HCCS Performance Certificate & Reports)

"The Mission of Heritage Community Charter School is to create: an atmosphere of mutual respect where students feel safe and are challenged to become their best selves as they develop a curiosity and love of learning that will continue throughout their lives and prepares them for post-secondary education, careers, and service in their communities as well educated leaders who desire to preserve a democratic society and who act with integrity and character."

### • Legacy Public Charter School (Nampa)



o Grades K-12 | Harbor

Contact: (208) 467-0947Website: http://www.legacycharterschool.net/

o Year Opened: 2011 | Enrollment Capacity: 325 | Term Renewal: 2023

Certificate/Reports: (Legacy Performance Certificate & Reports)

"Legacy's mission is to develop students who are competent, confident, productive and responsible young adults who possess the habits, skills and attitudes to succeed in life."

### • Liberty Charter School (Nampa)

o Grades K-6 | Harbor

o Contact: (208) 466-7952

o Website: <a href="http://www.libertycharterschool.com/">http://www.libertycharterschool.com/</a>

Year Opened: 1999 | Enrollment Capacity: 440 | Term Renewal: 2024

o Certificate/Reports: (Liberty Performance Certificate & Reports)

"Liberty Charter School's mission is to develop students who are competent, confident, productive and responsible young adults who possess the habits, skills and attitudes to succeed in life."

### • MOSAICS (Caldwell)

**OSAICS** 

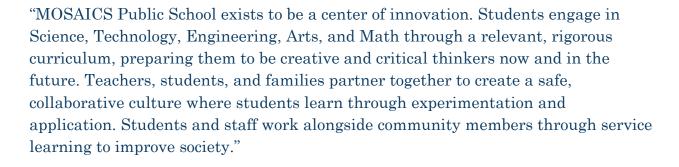
o Grades K-8 | STEAM

o Contact: (208) 402-8899 | <u>info@mosaicsps.org</u>

o Website: <a href="https://www.mosaicsps.org">https://www.mosaicsps.org</a>

o Year Opened: 2018 | Enrollment Capacity: 540 | Term Renewal: 2025

o Certificate/Reports: (Mosaics Performance Certificate & Reports)



### • North Star Charter School (Eagle)



o Grades K-12 | International Baccalaureate

o Contact: (208) 939-9600

Website: <a href="https://www.northstarcharter.org/">https://www.northstarcharter.org/</a>

Year Opened: 2004 | Enrollment Capacity: 1020 | Term Renewal: 2023

o Certificate/Reports: (NSCS Performance Certificate & Reports)

"North Star Charter School provides students a world-class education characterized by a safe, supportive and structured learning climate that encourages high academic achievement, intellectual confidence, leadership and virtuous citizenship."

### • Peace Valley Charter School (Boise)



Grades K-8 | Waldorf

Contact: (208) 205-8818

Website: <a href="https://www.peacevalleycharter.org/">https://www.peacevalleycharter.org/</a>

o Year Opened: 2018 | Enrollment Capacity: 540 | Term Renewal: 2023

o Certificate/Reports: (PVCS Performance Certificate & Reports)

"To provide a developmentally appropriate, arts and nature-based education, nurturing children's innate creativity and inspiring them to become lifelong learners who are mindful, active, and engaged global citizens."

## • Project Impact STEM Academy (Kuna)



Grades K-12 | STEM; Project-Based Learning

o Contact: (208) 576-4811 | office@pistem.org

o Website: <a href="http://www.pistem.org/">http://www.pistem.org/</a>

o Year Opened: 2018 | Enrollment Capacity: 429 | Term Renewal: 2023

o Certificate/Reports: (PI STEM Performance Certificate & Reports)

"Project Impact STEM Academy will provide an engaging, adaptive learning environment through the use of personalized learning plans, intentionally integrated curriculum, mastery-based progression, and with authentic projects embedded in science, technology, engineering and math. In this environment, students will gain confidence, practice failure until it is no longer intimidating, and become invested in the life-long pursuit of knowledge."

### • Richard McKenna Charter School-Montessori (Mountain Home)

- o Grades K-8 | Montessori
- Contact: (208) 580-2347 | info@rmckenna.org
- o Website: <a href="https://www.rmckenna.org/">https://www.rmckenna.org/</a>
- o Year Opened: 2002 | Enrollment Capacity: 291 | Term Renewal: 2022
- o Certificate/Reports: (RMCS Performance Certificate & Reports)

"The mission of Richard McKenna Charter Schools is to provide a non-traditional educational environment for our students by emphasizing: 1) project-based learning; 2) personal responsibility; 3) outstanding citizenship."

#### • Richard McKenna Charter School-Onsite (Mountain Home)

- o Grades 9-12 | Alternative
- o Contact: (208) 580-2347 | info@rmckenna.org
- o Website: <a href="https://www.rmckenna.org/">https://www.rmckenna.org/</a>
- o Year Opened: 2002 | Enrollment Capacity: 291 | Term Renewal: 2022
- o Certificate/Reports: (RMCS Performance Certificate & Reports)

"The mission of Richard McKenna Charter Schools is to provide a non-traditional educational environment for our students by emphasizing: 1) project-based learning; 2) personal responsibility; 3) outstanding citizenship."

## • Rolling Hills Public Charter School (Boise)

- o Grades K-8 | Personalized Learning
- o Contact: (208) 939-5400 |
- o Website: <a href="https://www.rhpcs.org/">https://www.rhpcs.org/</a>
- o Year Opened: 2005 | Enrollment Capacity: 278 | Term Renewal: 2023
- o Certificate/Reports: (RHPCS Performance Certificate & Reports)

"Rolling Hills Public Charter School will develop educated and engaged citizens through high expectations for student behavior and academic success in a small, safe, structured environment."

### • Sage International School of Boise (Boise)

o Grades K-12 | International Baccalaureate



o Website: http://www.sageinternationalschool.org/

Year Opened: 2010 | Enrollment Capacity: 1200 | Term Renewal: 2024

o Certificate/Reports: Sage Performance Certificate & Reports)

"Sage International School engages students within an inclusive IB learning community, challenging all members to take risks and contribute locally and globally through open-minded inquiry."

### • The Village Leadership Academy (Boise)

o Grades K-8 | 7 Habits & Leadership

Contact: (208) 336-2000 | info@thevillagecharterschool.org

o Website: <a href="https://www.thevillagecharter.org/">https://www.thevillagecharter.org/</a>

o Year Opened: 2011 | Enrollment Capacity: 550 | Term Renewal: 2023

o Certificate/Reports: (TVCS Performance Certificate & Reports)

"The Village Charter School provides a challenging, hands-on curriculum to cultivate students who are critical thinkers and confident leaders in a safe, supportive and loving environment."

## • Thomas Jefferson Charter School (Caldwell)

o K-12 | Harbor

VIII AGE

o Contact: (208) 455-8772 | tjcs@tjcharterschool.org

o Website: <a href="http://www.tjcs.org/">http://www.tjcs.org/</a>

o Year Opened: 2004 | Enrollment Capacity: 402 | Term Renewal: 2025

o Certificate/Reports: (TJCS Performance Certificate & Reports)

"To develop virtuous citizen leaders. Instilling and developing virtue is accomplished by examining lives of noble and great people to ascertain the value of their virtues and then strive to emulate those virtues to serve the interests of family, community, professional vocation, and our nation."

## • Treasure Valley Classical Academy (Fruitland)



- o Grades K-12 | Classical
- o Contact: (208) 779-4088 | info@tvcacademy.org
- Website: <a href="https://www.tvcacademy.org/">https://www.tvcacademy.org/</a>
- o Year Opened: 2019 | Enrollment Capacity: 702 | Term Renewal: 2024
- o Certificate/Reports: (TVCA Performance Certificate & Reports)

"Our mission is to train the minds and improve the hearts of students through a classical, content-rich curriculum that emphasizes virtuous living, traditional learning, and civic responsibility."

#### • Victory Charter School (Nampa)



- o Grades K-12 | Harbor
- o Contact: (208) 442-9400 | office@victorycharterschool.net
- o Website: <a href="http://victorycharterschool.net/">http://victorycharterschool.net/</a>
- o Year Opened: 2003 | Enrollment Capacity: 440 | Term Renewal: 2024
- o Certificate/Reports: (Victory Performance Certificate & Reports)

"Victory Charter School's mission is to develop students who are competent, confident, productive and responsible young adults who possess the habits, skills and attitudes to succeed in life."

### • Vision Charter School (Caldwell)





- o Contact: (208) 455-9220 |
- o Website: https://visioncsd.wpcomstaging.com/
- o Year Opened: 2007 | Enrollment Capacity: 910 | Term Renewal: 2024
- o Certificate/Reports: (Vision Performance Certificate & Reports)

"To create well educated, respectful citizen leaders in a K-12th grade College Prep Science and Art School."

## Central Idaho Schools | Region 4

From rapidly growing Twin Falls to small rural communities, Central Idaho has a varied charter landscape. Families are invited to take a closer look at charters in Central Idaho. Many have seats available.

#### • Gem Prep (Twin Falls)

- o Grades K-12 | Blended Learning
- Contact: *Pending*
- o Website: <a href="https://gemprep.org/pocatello/">https://gemprep.org/pocatello/</a>
- o Year Opened: 2023 | Enrollment Capacity: 676 | Term Renewal: 2028
- o Certificate/Reports: (GPP Performance Certificate & Reports)

"To prepare students for success in college and professional technical careers by providing a high quality, personalized, relevant and rigorous education through exceptional teaching, innovative uses of technology and partnerships with families."

#### • Heritage Academy (Jerome)

- o Grades K-8 | School Enrichment
- o Contact: (208)595-1617 | tcarver@heritageacademyid.org
- o Website: https://heritageacademyid.org/
- o Year Opened: 2011 | Enrollment Capacity: 207 | Term Renewal: 2022
- o Certificate/Reports: (HA Performance Certificate & Reports)

"Heritage Academy is a public school that welcomes all students Kindergarten through 8th grade. The school provides programs designed to meet the needs of diverse learners including students with disabilities, English language learners, and gifted and talented students."

#### • North Valley Academy (Gooding)

- o Grades K-12 | Core Knowledge
- o Contact: (208) 934-4567 | info@nvapatriots.us
- Website: <a href="https://www.northvalleyacademy.org/">https://www.northvalleyacademy.org/</a>
- o Year Opened: 2008 | Enrollment Capacity: 442 | Term Renewal: 2023
- o Certificate/Reports: (NVA Performance Certificate & Reports)

"Our mission is to provide an excellent educational choice where students have the opportunity to become an informed and involved citizenry."

### • Pinecrest Academy of Idaho (Twin Falls)



o Grades K-8 | STEM

o Contact: (208) 944-2129

Website: <a href="https://www.pinecrestidaho.org/">https://www.pinecrestidaho.org/</a>

Year Opened: 2020 | Enrollment Capacity: 489 | Term Renewal: 2025

o Certificate/Reports: (PAI Performance Certificate & Reports)

"The Mission of Pinecrest Academy, Inc. Charter School Organization is focused on Providing Individual instruction, in a Nurturing environment, Ensuring College and Career success, using Rigor, relevance, and relationships to Empower Students to become Tomorrow's global leaders."

### • Syringa Mountain School (Hailey)



o Grades K-6 | Waldorf

o Contact: (208) 806-2880 | info@syringamountainschool.org

o Website: <a href="https://syringamountainschool.org/">https://syringamountainschool.org/</a>

O Year Opened: 2014 | Enrollment Capacity: 520 | Term Renewal: 2022

o Certificate/Reports: (SMS Performance Certificates & Reports)

"Cultivating the Head, Heart, and Hand | We provide a rigorous, arts-integrated educational program guided by the Core Principles of Public Waldorf Education to meet and exceed the Idaho Common Core State Standards."

### • Xavier Charter School (Twin Falls)



O Grades K-12 | Classical

O Contact: (208) 734-3947 | Xavier@xaviercharter.org

O Website: https://xaviercharter.org/

o Year Opened: 2007 | Enrollment Capacity: 810 | Term Renewal: 2024

o Certificate/Reports: (XCS Performance Certificate & Reports)

"Xavier Charter Schools are dedicated to providing a classical, academically rigorous, content-rich, liberal arts education, preparing students to excel in every duty and guiding them toward wisdom and virtue."

## Southeast Idaho Schools | Region 5

Eastern Idaho families are passionate about their charter schools. Many of the charters in the area have long waitlists and have expanded their enrollment capacities in recent years. From patriotism to personalized learning to native language immersion, there's a program for every child.

#### • Chief Tahgee Elementary Academy (Chubbuck)



Grades K-6 | Native Language & Culture

o Contact: (208) 237-2710

o Website: <a href="http://www.cteacademy.org/">http://www.cteacademy.org/</a>

o Year Opened: 2013 | Enrollment Capacity: 210 | Term Renewal: 2022

o Certificate/Reports: (CTEA Performance Certificates & Reports)

"The mission of CTEA is to provide every student the Power of Two. The Power of Two is the ability to speak, read, write, and think in both English and another language. Students who have the Power of Two are better prepared to meet the challenges of a global society because they have these life advantages: Enhanced cognitive skills; Greater success in cross-cultural communication; More career opportunities; Enhanced problem-solving skills; Preparation for the global economy; Increased academic achievement."

#### • The Academy (Connor Academy) (Chubbuck)

Grades K-8 | Direct Instruction



Contact: (208) 232-1447

Website: <a href="https://www.academycharter.net/">https://www.academycharter.net/</a>

O Year Opened: 2006 | Enrollment Capacity: 558 | Term Renewal: 2024

o Certificate/Reports: (Connor Performance Certificate & Reports)

"The vision of the Academy is to provide teachers, parents, and students with innovative teaching tools and methods so that together they create a school that will develop students who are competent, confident, productive, and responsible young adults who possess the habits, skills and attitudes necessary to succeed in post-secondary education, find satisfying employment and succeed in life."

#### • Gem Prep Pocatello (Pocatello)



Grades K-8 | Blended Learning

Contact: (208) 238-1388

o Website: <a href="https://gemprep.org/pocatello/">https://gemprep.org/pocatello/</a>

o Year Opened: 2016 | Enrollment Capacity: 732 | Term Renewal: 2024

o Certificate/Reports: (GPP Performance Certificate & Reports)

"To prepare students for success in college and professional technical careers by providing a high quality, personalized, relevant and rigorous education through exceptional teaching, innovative uses of technology and partnerships with families."

# Eastern Idaho Schools | Region 6

Eastern Idaho families are passionate about their charter schools. Many of the charters in the area have long waitlists and have expanded their enrollment capacities in recent years. From patriotism to personalized learning to native language immersion, there's a program for every child.

#### • Alturas International Academy (Idaho Falls)

- o Grades: K-8 | International Baccalaureate
- o Contact: (208) 522-5145
- Website: <a href="https://www.alturasacademy.org">https://www.alturasacademy.org</a>
- o Year Opened: 2016 | Enrollment Capacity: 594 | Term Renewal: 2024
- o Certificate/Reports: (AIA Performance Certificate & Reports)

"Alturas International Academy promotes academic distinction while empowering students to be principled and intellectual leaders as they explore, create, investigate, and analyze in a safe, engaged, collaborative environment that inspires them to make a genuine difference in their loc all and global community."

### • Alturas Preparatory Academy (Idaho Falls)

- o Grades 6-12 | International Baccalaureate
- o Contact: (208) 522-5145
- o Website: <a href="https://www.alturasacademy.org/apa/">https://www.alturasacademy.org/apa/</a>
- o Year Opened: 2021 | Enrollment Capacity: 672 | Term Renewal: 2026
- o Certificate/Reports: (APA Performance Certificate & Reports)

"Alturas International Academy promotes academic distinction while empowering students to be principled and intellectual leaders as they explore, create, investigate, and analyze in a safe, engaged, collaborative environment that inspires them to make a genuine difference in their loc al and global community."

### • American Heritage Charter School (Idaho Falls)

- o Grades K-12 | Core-Knowledge
- o Contact: (208)-529-3344
- o Website: <u>clerk@ahcspatriots.us</u>
- o Year Opened: 2013 | Enrollment Capacity: 442 | Term Renewal: 2022
- o Certificate/Reports: (AHCS Performance Certificate & Reports)

"At American Heritage Charter School, our mission is to create patriotic and educated leaders. We believe in James Madison's statement that, "The advancement and diffusion of knowledge is the only guardian of true liberty."

## Idaho STEM Academy (Bingham Academy) (Blackfoot)

o Grades 9-12 | STEM



- o Contact: 208: 557-4003 | office@bingham.academy
- Website: <a href="http://www.bingham.academy/">http://www.bingham.academy/</a>
- o Year Opened: 2014 | Enrollment Capacity: 400 | Term Renewal: 2022
- o Certificate/Reports: (Bingham Performance Certificate & Reports)

"The mission of Bingham Academy (BA) is to prepare students to make intelligent and appropriate decisions about their education and future careers. Students who are motivated will be able to complete an Associate Degree by the time they graduate from high school."

## • Blackfoot Charter Community Learning Center (Blackfoot)

Grades K-8 | Brain-Based; STEAM

Contact: (208)-782-0744

o Website: <a href="https://www.bcclc.com/">https://www.bcclc.com/</a>

Year Opened: 2000 | Enrollment Capacity: 810 | Term Renewal: 2024

o Certificate/Reports: (BCCLC Performance Certificate & Reports)

"The mission of the Blackfoot Charter Community Learning Center is to know each student well enough to challenge and meet their individual academic and developmental needs. This is accomplished through a goal-driven environment that utilizes small groups, interactive technology, and brain-based learning. These are supported by a high level of teacher collaboration and professional development."

## • Idaho Science & Technology Charter School (Blackfoot)

- o Grades K-8 | Project Based Learning; STEAM
- o Contact: 208-785-7827
- o Website: https://www.idahoscience.com/
- o Year Opened: 2009 | Enrollment Capacity: 460 | Term Renewal: 2023
- o Certificate/Reports: (ISTCS Performance Certificate & Reports)

"To engage students in independent learning through authentic, complex projects in a positive collaborative setting."

### • Monticello Montessori Charter School (Ammon)



- o Grades K-8 | Montessori
- Contact: (208) 419-0742
- Website: <a href="http://www.monticellomontessori.com/">http://www.monticellomontessori.com/</a>
- o Year Opened: 2010 | Enrollment Capacity: 345 | Term Renewal: 2023
- o Certificate/Reports: (Monticello Performance Certificate & Reports)

"The mission of the School is as follows: Through a Montessori-inspired approach to learning, students will maximize their inner potentials and experience purpose and meaning in life, take responsibility for their own education, cultivate personal dignity and develop independence and purpose in life."

## Taylors Crossing Public Charter School (Idaho Falls)

- o Grades K-12 | Direct Instruction; Harbor Education
- o Contact: (208) 552-0397
- o Website: <a href="https://www.tceagles.com/">https://www.tceagles.com/</a>
- o Year Opened: 2006 | Enrollment Capacity: 440 | Term Renewal: 2024
- o Certificate/Reports: (TCPCS Performance Certificate & Reports)

"By giving our students a firm foundation built on a core curriculum of mathematics, science, reading, writing and social studies, with an enhanced emphasis on American History and the Constitution, Taylor's Crossing Public Charter School will guide our students across the bridge from childhood into adulthood. The students will be prepared to accept challenges with the confidence, courage, and skills needed to achieve success. In a highly challenging academic environment, which nurtures respect and care for all, our students will become people of integrity, vision and virtue."

## • White Pine Charter School (Ammon)



- o Contact: (208) 522-4322 | office@wpcscougars.org
- o Website: <a href="https://whitepinecharterschool.org/">https://whitepinecharterschool.org/</a>
- o Year Opened: 2000 | Enrollment Capacity: 1049 | Term Renewal: 2024
- o Certificate/Reports: (WPCS Performance Certificate & Report)

"Success for Every Student. To maximize our student's success, our mission is to provide a dynamic, safe, and challenging learning environment, holding students to the highest academic standards and behavioral expectations."

# Idaho Statewide Virtual Schools

Idaho families have embraced the variety of virtual school options in the state. From career technical to drop out recovery to programs specialized in serving students with learning differences, Idaho's virtual charter schools are another option for families.

### • Another Choice Virtual Charter School

o Grades K-12 | Virtual

Contact: (208) 475-4255

Choice o Website: https://www.anotherchoicecharter.org/

o Year Opened: 2010 | Enrollment Capacity: 514 | Term Renewal: 2022

o Certificate/Reports: (ACVCS Performance Certificate & Reports)

"Another Choice Virtual Charter School seeks to provide a safe, individualized, standards-based education for Idaho's students, K through 12, with and without disabilities, to enable them to meet their full potential both intellectually and socially. Our focus is to offer an individualized education for all, specializing in individuals with learning differences, to become full and active contributing members of society through a virtual and experiential format. Another Choice Virtual Charter School is built on

- i. Academic achievement
- ii. Development of social competence,
- iii. Post-secondary preparedness
- iv. And the development and advancement of student's technological skills."
- Idaho College & Career Readiness Academy (Idaho Technical Career Academy)
  - o Grades K-12 | Career-Technical



READINESS ACADEMY

- COLLEGE & CAREER O Website: https://itca.k12.com/
  - o Year Opened: 2014 | Enrollment Capacity: \*unlimited | Term Renewal: 2022
  - o Certificate/Reports: (ITCA Performance Certificates & Reports)

"Our mission is to give students a head start on their career goals and college aspirations. At our innovative online school, students can graduate high school with technical and specialty trade credentials, workplace experiences, skills that will lead to real-world success, and a jump start on college."

#### • Idaho Connects Online



- o Grades K-6-12 | Alternative
- Contact: (208) 475-3093
- o Website: <a href="https://www.iconschool.org/">https://www.iconschool.org/</a>
- O Year Opened: 2009 | Enrollment Capacity: unlimited | Term Renewal: 2022
- o Certificate/Reports: (ICON Performance Certificate & Reports)

"The mission of ICON is to provide middle and high school students with a personalized education alternative that integrates one-to-one support, a robust curriculum, flexible instruction, and innovative technology in an Idaho Public Charter School."

## Idaho Virtual Academy (Insight Virtual Academy)



- o Grades K-12 | Alternative
- o Contact: (866) 339-9065
- Website: <a href="https://idva.k12.com">https://idva.k12.com</a>
- o Year Opened: 2002 | Enrollment Capacity: \*unlimited; TBD by school board annually | Term Renewal: 2023
- o Certificate/Reports: (IDVA Performance Certificates & Reports)

"Building a community of engaged learners."

## • Inspire Connections Academy (Empower Academy)



- o Grades K-12 | Alternative
- o Contact: (208) 322-4002 | info@inspire.connectionsacademy.org
- o Website: https://www.connectionsacademy.com
- Year Opened: 2005 | Enrollment Capacity: \*unlimited | Term Renewal: 2023
- o Certificate/Reports: (Inspire Performance Certificate & Reports)

"We will help each student maximize his or her potential and meet the highest performance standards. Connections Academy is a high-quality, high-tech, hightouch "school without walls" that brings out the best in every student."

## • iSucceed Virtual High School

- o Grades 9-12 | Alternative
- o Contact: (208) 375-3116 | <u>info@isucceedvhs.net</u>
- Website: <a href="https://www.isucceedvhs.net/">https://www.isucceedvhs.net/</a>
- o Year Opened: 2008 | Enrollment Capacity: \*unlimited | Term Renewal: 2022
- o Certificate/Reports: (iSucceed Performance Certificate & Reports)

"To engage and motivate all students in a quality personalized education that promotes individual success and lifelong learning."

## Kootenai Bridge Academy



tual High School

- o Grades 11-12 | Virtual
- o Contact: (208) 930-4515
  - Website: <a href="https://www.kootenaibridgeacademy.org/">https://www.kootenaibridgeacademy.org/</a>
- o Year Opened: 2009 | Enrollment Capacity: 320 | Term Renewal: 2022
- o Certificate/Reports: (KBA Performance Certificate & Reports)

"To provide every student an academically excellent education and to facilitate graduation for alternative students. We will provide bridges to success through education, self-motivation and community responsibility."

## • Richard McKenna Charter School | Virtual



- Grades 9-12 |
- Contact: (208) 580-2347 | info@rmckenna.org
- Website: https://www.rmckenna.org/
- Year Opened: 2002 | Enrollment Capacity: \*unlimited; TBD six weeks prior to the end of a school year | Term Renewal: 2022
- o Certificate/Reports:

"The mission of Richard McKenna Charter Schools is to provide a non-traditional educational environment for our students by emphasizing: 1) project-based learning; 2) personal responsibility; 3) outstanding citizenship."

## • Richard McKenna Charter School - Virtual Alternative



Contact: (208) 580-2347 | <u>info@rmckenna.org</u>

Website: <a href="https://www.rmckenna.org/">https://www.rmckenna.org/</a>

- o Year Opened: 2002 | Enrollment Capacity: \*unlimited; TBD six weeks prior to the end of a school year | Term Renewal: 2022
- o Certificate/Reports: (RMCS Performance Certificate & Reports)

"The mission of Richard McKenna Charter Schools is to provide a non-traditional educational environment for our students by emphasizing: 1) project-based learning; 2) personal responsibility; 3) outstanding citizenship."

1/12/22, 5:12 PM

IPCSC Stakeholder Survey

# IPCSC Stakeholder Survey

33 responses

Please indicate your stakeholder role:

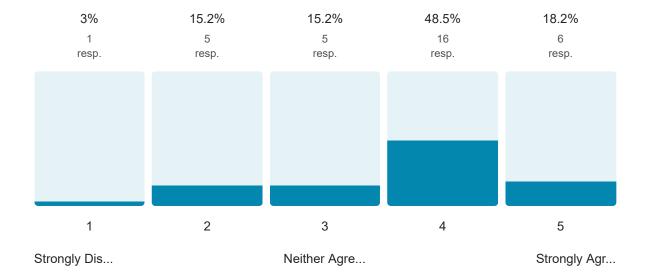
33 out of 33 answered

Charter School Administrator	26 resp. <b>78.8%</b>
Charter School Board Director	4 resp. 12.1%
Charter School Parent or Employee	3 resp. 9.1%
Other Community Member	0 resp. 0%

The IPCSC's mission is to cultivate exemplary charter schools. Achieving this mission is realistic in light of the agency's size and resources.

33 out of 33 answered

# 3.6 Average rating



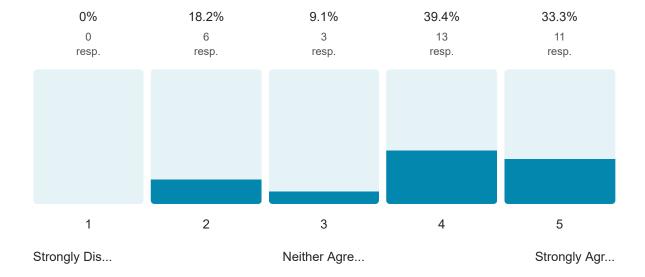
 $https://pcsc.typeform.com/report/aY69LiLL/6JSOZwjx47TIGwVy?view\_mode=print$ 

IPCSC Stakeholder Survey

The decisions made by the IPCSC's governing body (the commission) demonstrate an understanding that the agency serves the public.

33 out of 33 answered

# 3.9 Average rating

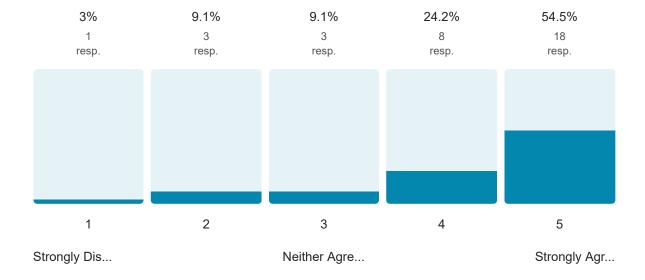


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The IPCSC protects each school's autonomy to make decisions at the school board level.

33 out of 33 answered

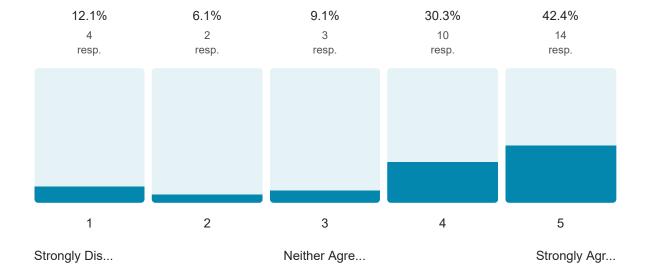
## 4.2 Average rating



The IPCSC holds each school accountable to the terms and metrics of the school's performance certificate.

33 out of 33 answered

## 3.8 Average rating

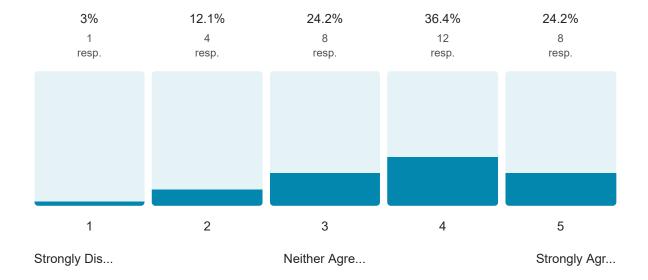


IPCSC Stakeholder Survey

#### The IPCSC's policies are clear.

33 out of 33 answered

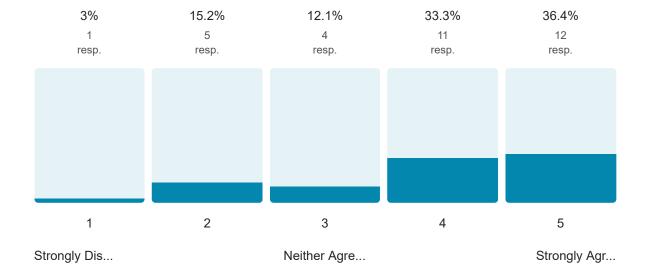
## 3.7 Average rating



The IPCSC's expectations for school performance are clear.

33 out of 33 answered

## 3.8 Average rating

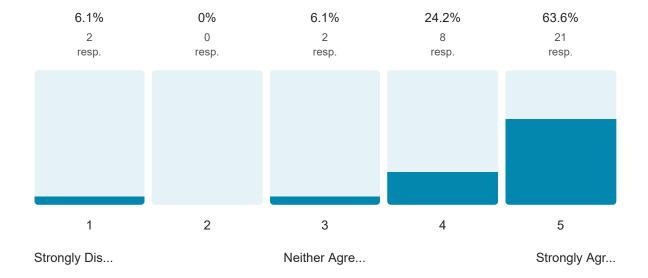


IPCSC Stakeholder Survey

IPCSC staff are approachable and helpful.

33 out of 33 answered

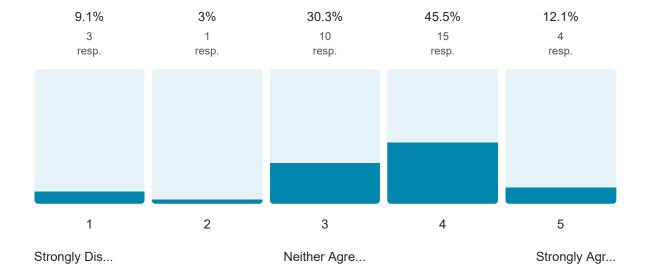
## 4.4 Average rating



Stakeholders have sufficient opportunity to provide feedback on matters of agency planning.

33 out of 33 answered

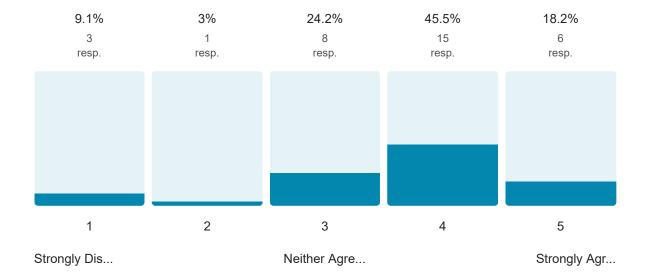
## 3.5 Average rating



The IPCSC delivers valuable services and resources to schools.

33 out of 33 answered

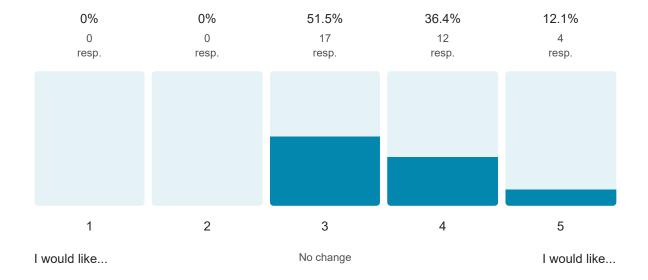
## 3.6 Average rating



#### Regarding opportunity to communicate with the IPCSC:

33 out of 33 answered

## 3.6 Average rating

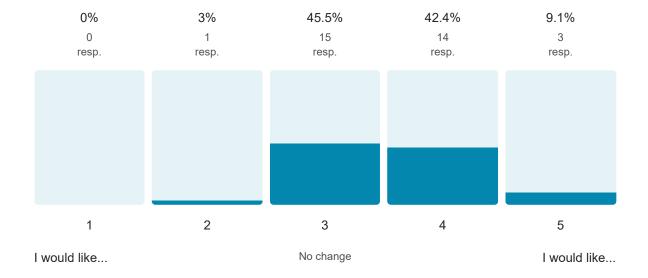


IPCSC Stakeholder Survey

#### Regarding communication received from the IPCSC:

33 out of 33 answered

## 3.6 Average rating

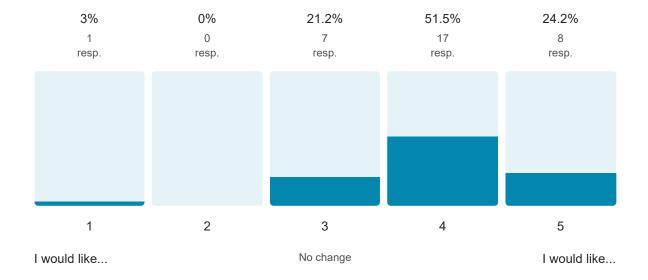


IPCSC Stakeholder Survey

#### Regarding opportunity to network with other IPCSC schools:

33 out of 33 answered

## 3.9 Average rating



#### **SUBJECT**

2022 Legislative Update

#### REFERENCE

June 2021 The Board approved legislative ideas for the 2022

legislative session.

August 2021 The Board approved legislative proposals for the 2022

legislative session.

#### APPLICABLE STATUTE, RULE, OR POLICY

Section 33-107(5)(b), Idaho Code

#### **BACKGROUND/DISCUSSION**

This item will provide the Board with an update on the Board's pending administrative rules and education-related legislation that has been introduced during the 2022 Legislative Session. This will be the Board's first opportunity to consider education-related legislation for the current session.

## **Board Submitted Legislation:**

At the August 2021 Regular Board meeting the Board approved eight legislative proposals and discussed a ninth proposal regarding the Extended Employment Services program. As part of the Executive Agency Legislative process, the Division of Financial Management (DFM) approved four of the Board's legislative proposals to be introduced to the 2022 Legislature and approved legislation moving the Extended Employment Services from the Idaho Division of Vocational Rehabilitation (IDVR) to the Department of Health and Welfare (DHW) be proposed.

The four legislative proposals approved to go forward as Board bills included:

- Charter School Authorizer Clarification
- Career Technical School Added Cost Funding eligibility <u>SB 1247</u>
- Postsecondary Credit Scholarship Matching Scholarship HB 505
- Armed Forces/Peace Officer Scholarship Disability Determination HB 506

Of these four, SB 1247 has passed out of the Senate as has been assigned to the House Education Committee, HB 505 is on the third reading calendar in the House and HB 506 has been approved by the House and moved to the Senate. The Public Charter School Commission decided not to move forward with the charter school authorizer clarification legislation

#### Administrative Rules Update:

The Board's five pending rules have all been heard in the House of Representatives and Senate Education Committees and are awaiting action. The five pending rules include one fee rule. Unlike other rules, fee rules must be adopted by both the House and Senate through a concurrent resolution and

become effective at the end of the current legislative session. The other three rules will take effect at the end of the current legislative session unless they are rejected in whole or in part by concurrent resolution. Due to the expiration of the previously codified rules on June 30, 2021, the education rules that are before the legislature this year are presented as all new language. The legislature may reject any numerated portion of the rules as part of the process. If there was a codified version of the rule, any change rejected by the legislature would revert to the previously codified language. When the rules expire and the legislature is considering pending rules the following session they are presented as all new language. If rejected, the provision is rejected in its entirety and not codified in Idaho's administrative code.

#### **Education Related Legislation**

Attachment 1, lists all of the education-related legislation that has been introduced at the time of agenda production. An updated list will be provided at the Board meeting and Board staff will be prepared to walk the Board through any of the listed legislation to answer questions regarding the impact that a given piece of legislation may have on the state educational system or explain specific details of the legislation. The Board may choose to support, oppose, or remain neutral/silent on any of the legislation discussed.

At this time the Board is being asked to consider taking a position on three pieces of legislation:

#### Extended Employment Services

This legislation would move the Extended Employment Services program from IDVR to DHW. At the August 2021 Regular Board meeting the Board was updated on discussions with the Governor's Office regarding potential legislation to move the program from IDVR to another state agency or create an independent council to govern the program. The Governor's Office requested the proposal move the program to DHW. Board staff have work with IDVR and DHW to draft the proposed legislation and are providing it for Board consideration as Attachment 2.

#### School Age

Attachment 3 – RS2918 amends Section 33-201, Idaho Code, allowing students who do not meet the existing birthday cut off (fifth or sixth birthday on or before the first day of September, as applicable to the grade) for kindergarten or first grade to be able to still attend if they meet the age requirement by the thirty-first day of December and the parent or guardian and local education agency have determined the child is school-ready.

#### Rural Teacher Incentive Program

Attachment 4 – Would create a rural teacher incentive program that would provide for graduated amounts of education loan repayment or reimbursement for eligible education expenses to teachers serving in rural school district or charter schools.

This proposal is in substantial conformance to the legislative proposal approved by the Board at the August 2021 Regular Board meeting.

#### **Dyslexia**

Attachment 5 - creates a new section in Chapter 18, citing the importance of identifying students with characteristics of dyslexia and its relation to students becoming proficient in literacy and establishing dyslexia screening requirements.

#### **IMPACT**

This update provides the Board with the status of education-related legislation that has been introduced or the Board has been requested to weigh in on. Any items the Board chooses to support or oppose will provide Board staff with the authorization to share the Board's position with legislators, including to testify for or against bills based on the Board's action(s).

#### **ATTACHMENTS**

Attachment 1 – Introduced Education Related Legislation

Attachment 2 – Extended Employment Services Legislative Proposal

Attachment 3 – School Age Amendment

Attachment 4 – Rural Teacher Incentive Program

Attachment 5 – Dyslexia

#### **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

Attachment 1 provides a list of education-related legislation and legislation impacting state agencies and institutions, including those under the Board's governance. The status of each bill, at the time the agenda material was prepared is provided. Staff will provide updates to the Board at the Board meeting regarding any intervening changes that have occurred. Additional education-related legislation that has been introduced prior to the Board meeting, but not included in Attachment 1, may also be discussed.

Board staff recommends support of the proposed legislation provided in Attachments 2 through 5.

#### **BOARD ACTION**

I move to	approve	the	Extended	Employment	Services	legislative	proposal	as
provided in	า Attachm	ent:	2.					

Moved by	Seconded by _	 Carried Yes <sub>-</sub>	 No _	
AND				

I move the Board support RS 29318, Amending Section 33-201, Idaho Code, School Age, as provided in Attachment 3. Moved by \_\_\_\_\_ Seconded by \_\_\_\_ Carried Yes \_\_\_\_ No \_\_\_\_ **AND** I move the Board support SB 1290, creating a rule teacher incentive program as provided in Attachment 4. Moved by \_\_\_\_\_ Seconded by \_\_\_\_\_ Carried Yes \_\_\_\_ No \_\_\_\_ AND I move the Board support SB 1280, creating statewide dyslexia screener parameters as provided in Attachment 5. Moved by \_\_\_\_\_ Seconded by \_\_\_\_ Carried Yes \_\_\_\_ No \_\_\_\_ OR I move the Board (oppose/endorse) (House bill #/Senate bill #) Moved by \_\_\_\_\_ Seconded by \_\_\_\_ Carried Yes \_\_\_\_ No \_\_\_\_

## UPDATED 02/16/2022 ATTACHMENT 1

Bill No	Description	Last Action	Note
<u>H0437</u>	Ed, content standards, adoption	01/14/2022 House - Reported Printed and Referred to Education	EDUCATION – Adds to existing law to provide for the adoption of the content standards prepared by the 2020-2021 content standards review committees.
<u>H0438</u>	School trustees, elections	01/14/2022 House - Reported Printed and Referred to State Affairs	SCHOOL TRUSTEE ELECTIONS – Amends existing law to revise provisions regarding filling vacant school trustee positions following a recall or resignation resulting from a recall petition.
<u>H0443</u>	Ed, leadership premiums, insurance	01/24/2022 – House - PASSED - 55-14-1 02/03/2022 – Senate - PASSED - 32-3-0 02/08/2022 House - Reported Signed by Governor on February 8, 2022	DEPARTMENT OF ADMINISTRATION – Adds to existing law to create the Public School Health Insurance Fund.
<u>H0444</u>	Coronavirus, immunity, sunset	01/31/2022 House - PASSED - 70-0-0 02/11/2022 Senate - Read second time; filed for Third Reading	EDUCATION – Amends existing law to revise eligibility requirements for Armed Forces and Public Safety Officer Scholarships.
<u>H0461</u>	Scholarships, armed forces	02/09/2022 House - PASSED: 67-0-3, title approved, to Senate 02/15/2022 Senate - Read second time; filed for Third Reading	EDUCATION – Amends existing law to revise eligibility requirements for Armed Forces and Public Safety Officer Scholarships.
<u>H0463</u>	Public works projects, costs	01/27/2022 House - Reported Printed and Referred to Commerce & Human Resources	DEPARTMENT OF ADMINISTRATION – Amends existing law to increase the authorized limitation for public works projects.
<u>H0482</u>	Sales tax, monthly distribution	02/08/2022 House - U.C. to be returned to Revenue & Taxation Committee	SALES TAX – Amends existing law to revise the distribution of sales tax revenue from quarterly to monthly. Amends distribution amount to schools from 1/4 to 1/12.
<u>H0488</u>	Ed, nondescrimination, standing	01/31/2022 House - Reported Printed and Referred to Ways & Means	NONDESCRIMINATION IN SCHOOLS – Amends 33-138 existing law to provide for a private cause of action. Any taxpay against any school district teacher CRT.
<u>H0504</u>	State employees, ed reimbursement	01/31/2022 House - Reported Printed and Referred to Commerce & Human Resources	PERSONNEL SYSTEM – Adds to existing law to establish an educational reimbursement program.
<u>H0505</u>	Postsecondary credit scholarship	02/14/2022 House - U.C. to be returned to Education Committee	EDUCATION – Amends existing law to revise provisions regarding the postsecondary credit scholarship.
<u>H0506</u>	Scholarships, armed forces	02/09/2022 House - Passed: Ayes 66 Nays 0 Abs/Excd 4, title approved, to Senate 02/16/2022 Senate - Reported out of Committee with Do Pass Recommendation; Filed for second reading	Education – Amends existing law to provide that for purposes of the Armed Forces and Public Safety Officer Scholarships, a member of the armed forces will be considered totally and permanently disabled if the disability determination is made or recognized by the Idaho Division of Veterans Services.
<u>H0512</u>	Bond elections, failure, 11 months	02/16/2022 House - U.C. to hold place on third reading calendar one legislative day	BOND ELECTIONS – Amends existing law to prohibit holding another bond election within 11 months of a failed bond election.

UP	UPDATED 02/16/2022 ATTACHMENT 1					
<u>H0514</u>	Mask mandates	02/16/2022 House - U.C. to be returned to State Affairs Committee	MASK MANDATES – Adds to existing law to establish provisions regarding the prohibition of mask mandates.			
<u>H0533</u>	Master educator premiums	02/16/2022 House - Passed: Ayes 52 Nays 15 Abs/Excd 3, title approved, to Senate	PUBLIC SCHOOLS – Amends existing law to allow for certain employees to continue to receive master educator premiums.			
<u>H0544</u>	Career ladder, out of state staff	02/08/2022 House - Reported Printed and Referred to Education	EDUCATION – Amends existing law to provide for placement on the career ladder of certain staff for those previously certified out of state.			
<u>H0545</u>	Charter school revolving loan fund	02/16/2022 House - U.C. to hold place on third reading calendar one legislative day	CHARTER SCHOOLS – Repeals and adds to existing law to remove the public charter school debt reserve fund and to provide for a revolving loan fund.			
<u>H0555</u>	PERSI, reemployment	02/09/2022 House - Reported Printed and Referred to Commerce & Human Resources	PERSI – Amends, adds to, and repeals existing law to provide for the contribution rates and reemployment of school members.			
<u>H0571</u>	School buses, speed limit	02/10/2022 House - Reported Printed and Referred to Transportation & Defense	SCHOOL BUSES – Amends existing law to allow school buses to travel up to 70 miles per hour on the interstate.			
<u>H0594</u>	State employees	02/11/2022 House - Reported Printed and Referred to Commerce & Human Resources	HUMAN RESOURCES DIVISION – Amends and repeals existing law to provide for consistency of terminology with respect to state employees			
<u>H0595</u>	State emp, compensation, increases	02/11/2022 House - Reported Printed and Referred to Commerce & Human Resources	HUMAN RESOURCES DIVISION – Amends existing law to provide for compensation increases based on performance as well as consideration of certain internal and external factors.			
<u>H0627</u>	Ed, enrollment based, alternative	02/15/2022 House - Reported Printed and Referred to Education	EDUCATION – Amends existing law to provide for enrollment based funding and to allow for alternative education programs.			
<u>H0631</u>	Mask mandates, prohibition	02/16/2022 House - Reported Printed; Filed for Second Reading	MASK MANDATES – Adds to existing law to establish provisions regarding the prohibition of mask mandates.			
<u>H0634</u>	Approp, pub schls teachers, addl	02/16/2022 House - Reported Printed; Filed for Second Reading	APPROPRIATIONS – PUBLIC SCHOOLS – Relates to the appropriation to the Public Schools Educational Support Program's Division of Teachers and Division of Children's Programs for fiscal year 2022.			
<u>H0639</u>	Driver's ed, parents	02/16/2022 House - Reported Printed and Referred to Transportation & Defense	MOTOR VEHICLES – Amends existing law to allow private parental driver's education.			
<u>H0645</u>	Community college trustee elections	02/16/2022 House - Introduced, read first time, referred to JRA for Printing	COMMUNITY COLLEGES – Amends existing law to provide for filling vacancies on a community college board of trustees and to revise provisions regarding trustee elections.			
<u>H0649</u>	Supplemental curriculum, approval	02/16/2022 House - Introduced, read first time, referred to JRA for Printing	SCHOOL CURRICULUM – Amends existing law to require approval of supplemental curricular material.			
<u>H0650</u>	Curricular materials adoption cmtes	02/16/2022 House - Introduced, read first time, referred to JRA for Printing	SCHOOL DISTRICT TRUSTEES – Amends existing law to revise provisions regarding curricular materials adoption committees.			

UP	DATED 02/16/2022		ATTACHMENT 1
<u>H0651</u>	Teachers, drug testing	02/16/2022 House - Introduced, read first time, referred to JRA for Printing	EDUCATION – Amends existing law to require drug testing and criminal background tests for certain teachers.
<u>H0652</u>	Pub sch employees, health insurance	02/16/2022 House - Introduced, read first time, referred to JRA for Printing	PUBLIC SCHOOL EMPLOYEES – Amends and adds to existing law to provide that funds appropriated for employee health insurance shall be used for such insurance and to provide for the payment of certain premiums by the retirement board.
<u>H0653</u>	School levies, disclosure, purpose	02/16/2022 House - Introduced, read first time, referred to JRA for Printing	SCHOOL LEVIES – Adds to existing law to provide that a ballot question for a supplemental levy must be accompanied by a disclosure about the purposes for which the levy revenues will be used and to provide that school districts must use levy revenues for the purposes identified in the disclosure.
<u>H0654</u>	School counselors, professional	02/16/2022 House - Introduced, read first time, referred to JRA for Printing	EDUCATION – Amends existing law to authorize certain professionals to work as school counselors.
<u>H0655</u>	Education, dyslexia	02/16/2022 House - Introduced, read first time, referred to JRA for Printing	EDUCATION – Amends existing law to provide for dyslexia intervention and screening programs in certain grades.
<u>H0656</u>	Career ladder	02/16/2022 House - Introduced, read first time, referred to JRA for Printing	EDUCATION – Amends existing law to provide for placement on the career ladder of certain staff for those previously certified.
HCR027	Rule rejection, content standards	01/14/2022 House - Reported Printed and Referred to Education	RULE REJECTION – States findings of the Legislature and rejects certain rules of the State Board of Education relating to Idaho content standards.
<u>HCR029</u>	Traumatic childhood experiences	02/03/2022 – House - ADOPTED - 42- 25-3 02/11/2022 Senate - Reported out of Committee with Do Pass Recommendation; to 10th order; held one legislative day	HEALTH – States findings of the Legislature and encourages certain officers, agencies, and employees of the State to become informed about the impacts of traumatic childhood experiences and implement interventions and practices to develop resiliency in children and adults who suffered from traumatic childhood experiences.
HCR030	PANDAS/PANS awareness	01/31/2022 House - Referred to Health & Welfare	HEALTH – States findings of the Legislature and recognizes October 9, 2022, as PANDAS/PANS Awareness Day. Encourages Board and schools to assure accurate information is available.
<u>S1226</u>	Self-directed learners	01/19/2022 Senate - Reported Printed; referred to Education	EDUCATION – Adds to existing law to establish the self-directed learner designation.
<u>S1238</u>	Ed, self-directed learners	02/02/2022 Senate - PASSED 32-0-3 02/16/2022 House - U.C. to hold place on third reading calendar one legislative day	EDUCATION – Adds to existing law to establish the self-directed learner designation.
<u>S1242</u>	Empowering parents grant program	01/28/2022 Senate - Reported Printed; referred to Education	EDUCATION – Amends existing law to establish the Empowering Parents Grant Program, which provides funds to eligible

UP	DATED 02/16/2022		ATTACHMENT 1
			students for certain education expenses.
<u>S1247</u>	Career Technical School – Added Cost Funding – Coop Serv Agency	02/07/2022 Senate - PASSED - 33-1-1 02/08/2022 House - Read First Time, Referred to Education	Replaced with SB1255.  EDUCATION – Amends existing law to establish the Empowering Parents Grant Program, which provides funds to eligible students for certain education expenses.
<u>S1255</u>	Empowering parents grant program	02/10/2022 Senate - Passed: 34-1-0; title approved; to House 02/16/2022 House - Reported out of Committee with Do Pass Recommendation, Filed for Second Reading	EDUCATION – Amends existing law to establish the Empowering Parents Grant Program, which provides funds to eligible students for certain education expenses.
<u>\$1271</u>	School districts, state support	02/07/2022 Senate - Reported Printed; referred to Education	EDUCATION – Amends and adds to existing law to provide for state support of discretionary spending by school districts.
<u>S1280</u>	Education, dyslexia programs	02/16/2022 Senate - PASSED: 33-0-2; title approved; to House	EDUCATION – Amends and adds to existing law to establish programs for dyslexia.
<u>S1287</u>	Rural nursing loan repayment prgm	02/16/2022 Senate - Reported out of Committee with Do Pass Recommendation; Filed for second reading	RURAL NURSING LOAN REPAYMENT PROGRAM – Adds to existing law to establish the rural nursing loan repayment program.
<u>\$1290</u>	Rural, underserved ed program	02/11/2022 Senate - Reported Printed; referred to Education	EDUCATION – Adds to existing law to establish the Rural and Underserved Educator Incentive Program.
<u>S1291</u>	Charter schools, certifications	02/16/2022 Senate - Reported out of committee; to 14th Order for amendment	CHARTER SCHOOLS – Amends existing law to provide alternative methods of obtaining certain certifications.
<u>\$1292</u>	Approp, edu bd, office, add'l	02/15/2022 Senate - Read second time; filed for Third Reading	APPROPRIATIONS – OFFICE OF THE STATE BOARD OF EDUCATION – Relates to the appropriation to the Office of the State Board of Education for fiscal year 2022.
<u>\$1294</u>	Sick leave, employees, penatly	02/14/2022 Senate - Reported Printed; referred to Commerce & Human Resources	EMPLOYMENT CONTRACTS – Adds to existing law to provide that an employer may not penalize an employee for using earned or accrued sick leave.
<u>\$1302</u>	School levies, taxes	02/14/2022 Senate - Reported Printed; referred to Local Government & Taxation	TAXATION – Amends and adds to existing law to provide sales tax revenues to school districts and to revise provisions regarding school levy authority.
<u>S1306</u>	Youth athletes, chiropractors	02/14/2022 Senate - Reported Printed; referred to Health & Welfare	YOUTH ATHLETES – Amends existing law to provide that certain chiropractic physicians are qualified health professionals for purposes of returning athletes to play after suspected concussions or head injuries.
<u>S1314</u>	Literacy intervention, funding	02/15/2022 Senate - Reported Printed; referred to Education	EDUCATION – Amends existing law to revise provisions regarding funding for literacy intervention.
<u>S1315</u>	Full-time kindergarten	02/15/2022 Senate - Reported Printed; referred to Education	by EDUCATION COMMITTEE EDUCATION – Amends existing law to provide for full-day kindergarten and to revise provisions regarding certain support units and funding distributions.

UP	DATED 02/16/2022	•	ATTACHMENT 1
<u>S1316</u>	Full-time kindergarten	02/15/2022 Senate - Reported Printed; referred to Education	EDUCATION – Amends and adds to existing law to provide for full-day kindergarten.
<u>S1317</u>	Kindergarten savings accounts	02/15/2022 Senate - Reported Printed; referred to Education	EDUCATION – Adds to existing law to establish a kindergarten savings account.
<u>S1318</u>	Kindergarten	02/15/2022 Senate - Reported Printed; referred to Education	EDUCATION – Amends existing law to establish provisions regarding certain kindergarten students.
<u>S1319</u>	School bus, contracts, fed funding	02/15/2022 Senate - Reported Printed; referred to Education	TRANSPORTATION OF PUPILS – Amends existing law to provide an exception for certain contracts.
<u>\$1329</u>	Extended employment srvcs prgm	02/15/2022 Senate - Reported Printed; referred to Health & Welfare	HEALTH AND WELFARE – Repeals and adds to existing law to establish the Extended Employment Services Program in the Department of Health and Welfare.
SCR114	Ed Cheff, honoring	02/11/2022 Senate - Reported Printed; referred to 10th order; held one legislative day	EDUCATION – States findings of the Legislature and honors the life and achievements of Ed Cheff, the longtime head baseball coach for Lewis-Clark State College.
SCR115	Education, civics standards	02/11/2022 Senate - Reported Printed; referred to 10th order; held one legislative day	EDUCATION – Stating findings of the Legislature and supporting the development of civics standards for Idaho students.
<u>SCR118</u>	Education, U.S. history	02/15/2022 Senate - Recommitted to Education	EDUATION – States findings of the Legislature and encourages Idaho schools to teach students the whole and honest history of our nation. Including a requirement to teach natural law.

#### **ATTACHEMENT 2**

SECTION 1. That chapter 63, title 33, Idaho Code, be, and the same is hereby repealed.

SECTION 2. That title 56, Idaho Code, be and the same is hereby amended by the addition thereto of a <u>NEW CHAPTER</u>, to be known and designated as Chapter 17, Title 56, Idaho Code, and to read as follows:

# CHAPTER 17 EXTENDED EMPLOYMENT SERVICES PROGRAM

56-1701. DEFINITIONS. As used in this chapter: (1) "Department" means the department of health and welfare.

- (2) "Competitive integrated employment" means work that is performed on a full-time or part-time basis for which an individual: (a) is compensated at a rate that shall be not less than the higher of the rate specified in section 6(a)(1) of the Fair Labor Standards Act of 1938 or the rate specified in the applicable State or local minimum wage law; and is not less than the customary rate paid by the employer for the same or similar work performed by other employees who are not individuals with disabilities, and who are similarly situated in similar occupations by the same employer and who have similar training, experience, and skills; or in the case of an individual who is self-employed, yields an income that is comparable to the income received by other individuals who are not individuals with disabilities, and who are self-employed in similar occupations or on similar tasks and who have similar training, experience, and skills; and is eligible for the level of benefits provided to other employees;
- (b) that is at a location where the employee interacts with other persons who are not individuals with disabilities (not including supervisory personnel or individuals who are providing services to such employee) to the same extent that individuals who are not individuals with disabilities and who are in comparable positions interact with other persons; and
- (c) that presents opportunities for advancement that are similar to those for other employees who are not individuals with disabilities and who have similar positions.
- (4) "Extended employment services" means long-term maintenance services that assist participants in maintaining employment or gaining employment skills in preparation for community employment or that provide assistance to adult participants within an industry or a business setting or a community rehabilitation program intended to maintain paid employment. Extended employment services include individual supported employment, group community-based supported employment, and work services.
- (5) "Fading" means the incremental reduction of support on the job as the participant gains skills and independence. Fading begins once the participant has mastered parts of the job to ensure the participant does not become dependent.
- (6) "Group community-based supported employment" means self-employment or paid employment that is: (a) For a group of no more than eight (8) participants who are paid at least minimum wage and who because of their disabilities need ongoing support to maintain employment; (b) Conducted in a variety of community and industry settings where participants have opportunities to interact with coworkers or others without known paid work supports at least to the extent that those opportunities typically exist in that

### ATTACHEMENT 2

- work setting; (c) Supported by training and supervision needed to maintain that employment; and (d) Not conducted in the work services area of a provider.
- (7) "Individual community-based supported employment" means selfemployment or paid employment:
  - (a) For which a participant is paid a competitive wage;
- (b) For which the participant because of the participant's disability needs ongoing support to maintain the employment;
- (c) That is conducted in a community or industry setting where persons without known paid work supports are employed; and
- (d) Is supported by authorized activities needed to sustain paid work by persons with disabilities, including but not limited to supervision and training.
- (8) "Individual program plan" means a plan for extended employment services appropriate for an individual participant based on the participant's needs and personal goals.
- (9) "Non-competitive employment" means employment where individuals with disabilities are not paid the same rate as people without disabilities for doing the same or similar work, there are no opportunities for advancement, and wages are productivity-based with no lower limit.
- (10) "Non-integrated employment" means employment where work is performed at a location where the employee does not have the opportunity to interact with individuals without disabilities. Typically, these employment settings are created for the expressed purpose of employing people with disabilities in a provider-owned facility or group congregate setting.
- (11) "Participant" means a person eligible for and enrolled in the program established pursuant to this chapter.
- (12) "Program" means the extended employment services program established by this chapter.
- (13) "Provider" means a community rehabilitation program services provider approved by the department to provide extended employment services.
- (14) "Work services" means activities, typically conducted on provider premises, intended to assist participants in understanding the value and demands of work and developing functional capacities that increase or maintain the skill sets needed to achieve and maintain employment.
- 56-1702. PROGRAM ESTABLISHED. (1) There is hereby established in the department an extended employment services program for the purpose of increasing employment opportunities for program participants. The program shall be administered by the department. Extended employment services offered under this program are separate and apart from any federal program but may be collaborative with and supportive of federal programs.
  - (2) Program services shall be:
- (a) Provided when eligible individuals do not have access to comparable services or have fully utilized comparable services for which they are eligible; and
- (b) Separate and apart from and delivered subsequent to vocational rehabilitation services as defined in 29 U.S.C. 705(40), provided by the Idaho division of vocational rehabilitation.

#### **ATTACHEMENT 2**

56-1703. PROGRAM ELIGIBILITY AND ADMINISTRATION. (1) A person is eligible to participate in the program if the person:

- (a) Has a disability that constitutes a barrier to maintaining paid employment without long-term vocational support;
  - (b) Is sixteen (16) years of age or older; and
  - (c) Is an Idaho resident.
- (2) The department will annually review and evaluate a participant's service level needs, encourage the exercise of informed choice, and address any specific concerns.
- (3) Program participants may request that the program conduct an additional case review to evaluate service level needs at any time. The process will be collaborative with the participant and other stakeholders, as appropriate, and include the exchange of information on the array of employment type options.
- (a) Case file reviews, interviews, and other methods may be used to determine an individual's service level needs.
- (b) Individuals may be referred to other programs that provide employment, or other supports that the extended employment services program does not provide.
- (c) In order to receive extended employment services, a participant must either take part in an annual case review or request that the program assume the responsibility for developing an individual program plan with the participant.
- (5) Each participant has the right to select the provider used, as applicable to the type and level of services identified, and may choose to receive services from a different provider at any time, subject to provider availability. A participant will contact the program manager to request services from a different approved provider.
- (6) A participant may be referred for group community-based supported employment options with documentation of a qualifying disability if the individual participates in a choice meeting facilitated by the department pursuant to 34 CFR 397.40, and the individual requests group community-based supported employment service of a program provider and accepts a non-competitive employment placement; or if the department finds demonstrated need after the individual was found ineligible for federal vocational rehabilitation services pursuant to 34 CFR 397.
- (7) A program participant may choose work services for non-competitive employment or non-integrated employment. Eligible applicants for non-competitive employment or non-integrated employment must provide documentation of a qualifying disability, excluding youth where subminimum wage is applied pursuant to 34 CFR 397, must request services and accept non-integrated non-competitive employment, and must complete career counseling with the department; or the department may establish demonstrated need after the individual was found ineligible for the federal vocational rehabilitation program pursuant to 34 CFR 397.
- (8) Eligible program participants receiving services in any category may choose to receive services in a different category if criteria established by the department are met.
- (9) An individual who is unable to participate in program services for any period exceeding ten (10) consecutive calendar days will be placed into interrupted service status. Interrupted service for documented medical reasons may not exceed six

#### **ATTACHEMENT 2**

- (6) months. Interrupted service for non-medical reasons may not exceed three (3) months.
- (a) Interrupted service timelines do not apply to competitive integrated employment participants who remain connected to the competitive integrated employment employer.
- (b) Interrupted service extended beyond the specified timeframe may result in case closure.
- (c) Providers will notify the program within five (5) business days of receipt of notice that a participant is not participating in program services.
- (10) Case closures require written notification to the participant by the provider. A good faith effort must be made to notify the participant if the case is closed. Cases will be closed from the program if one or more of the following reasons are met and must include documentation in the case record that supports such reason:
  - (a) Participant has moved out of state;
  - (b) Participant has retired from employment;
  - (c) Participant no longer needs program services;
- (e) Participant is eligible for or utilizing Medicaid waiver employment supports for competitive integrated employment;
  - (f) Employer is providing long term supports;
  - (g) Employment type transfer;
  - (h) Participant is no longer interested in pursuing employment;
- (i) Participant is medically not released to work for an extended period of time;
- (j) Participant is non-compliant, not following through with program requirements or is no longer able to utilize the program, such as with death;
  - (k) Program manager is unable to locate or contact participant;
  - (11) When there is a statewide waitlist:
  - (a) Applicants will be placed on the waitlist by date of program eligibility;
- (b) Service hours for all new participants will be limited to 20 hours per week until such time as there is no longer a waitlist;
- (c) Service hours for existing participants will be limited to existing authorized hours until such time as there is no longer a waitlist;
- (d) Exceptions to exceed 20 hours for demonstrated need will be considered by the program, contingent upon funding availability.
- (12) The department will review program service rates and contract with a third-party vendors to conduct cost surveys every five (5) years. The department will survey one-hundred (100) percent of providers. The program may terminate or revoke the approval status and discontinue authorizing or purchasing services from providers that refuse or fail to respond to the periodic state surveys.

56-1704. COVERED SERVICES -- INDIVIDUAL PROGRAM PLAN. (1) Subject to available funding, the program shall provide the following services to participants, as appropriate:

- (a) Individual community-based supported employment;
- (b) Group community-based supported employment; and

(c) Work services.

#### ATTACHEMENT 2

- (2) The services provided to a participant shall be based on the participant's individual program plan.
  - (3) Program services must:
- (a) Be individually planned by using person-centered principles and personor people-first language;
- (b) Provide assistance to participants as unique individuals with varying interests, preferences, and aptitudes;
- (c) Be in the most integrated employment setting appropriate to the needs of a participant and consistent with the choice of the participant regarding services, providers, and goals;
- (d) Provide the participant compensation for work performed pursuant to federal and state wage and hour laws. Uncompensated or volunteer work is not billable under the program;
- (e) Safeguard participants against conflicts of interest, whether real or perceived;
- (f) Allow a participant to pursue an alternate employment type and assist the participant with referral to the applicable state agency or program provider. Any changes to the employment type must be approved by the department.
  - (4) Individual community-based supported employment services include:
- (a) Competitive integrated employment allowable activities are limited to competitive integrated employment job coaching that:
- (i) Increases the participant's independence, inclusion, integration, and opportunities with the competitive integrated employment employer;
  - (ii) Reinforces employer training and expectations;
- (iii) Develops, encourages, and reinforces natural supports with employer supervisors and co-workers;
- (iv) Provides short-term additional supports for employer-directed job task changes within the same job title; or
  - (v) Ensures job stability and fading as appropriate.
- (b) Offsite job coaching may be included in an individual's program plan when determined by the individual, provider, and program staff to be the most appropriate strategy to meet the participant's needs.
- (c) Provider directed supervision of a participant will be approved when the general community employer requires it as part of the terms of the participant's employment.
- (d) Focused mentoring and extended or ongoing job coaching for competitive integrated employment.
- (5) Group community-based supported employment allowable activities are limited to:
- (a) Promoting and advocating for increasing the participant's independence, inclusion, integration, and community employment goals;
- (b) Supervising, observing, and job coaching of the participant to maintain employment; and
  - (c) Training for specific job duties and tasks.
  - (6) Work services area allowable activities are limited to:

#### **ATTACHEMENT 2**

- (a) Promoting and advocating for increasing the participant's independence, inclusion, integration, and community employment goals;
- (b) Supervising, observing, and job coaching the participant to maintain employment;
  - (c) Training for specific job duties and tasks;
- (d) Training in other skills that increase the participant's employability for group community-based supported employment or competitive integrated employment;
  - (e) Providing onsite personal assistance;
- (f) Providing simulated work training and work activities, including, career counseling/information and referral support services, which assist a participant receiving subminimum wage to participate in career counseling/information and referral provided by Idaho division of vocational rehabilitation staff; and
- (g) Increasing the participant's understanding of various career pathways and expectations of general community employers. These activities will include a component in the greater community, away from the provider-owned facility, where the participant can observe various competitive integrated jobs, based on the participant's interests.
- (7) Preapproval is required for needed supports that exceed the quarterly individual program plan service level, including:
  - (a) Short-term additional supports; and
  - (b) Transportation
- (i) Group transportation delivered by the provider to community-based supported employment participants between home or the provider premises to the group community-based supported employment worksite using provider-insured vehicles. One (1) unit of transportation equals one (1) round trip.
- (ii) Work services area transportation where the provider transports a work services area participant between home and the work services area of a provider using provider-insured vehicles. One (1) unit of transportation equals one (1) round trip.
- (8) Providers are required to report any allegations or suspicions of participant abuse to the program manager, the adult protection authority, and any other entity required under state or federal law, including as required by Section 39-5303, Idaho Code.
  - (9) The following services are not allowable services:
- (a) Initial training. The program will not fund initial competitive integrated employment or self-employment job training.
- (b) Recreational activities such as parties, social gatherings, outings, and community events outside of work schedule and employer requirements.
- (c) Day habilitation activities typically conducted by an adult day services setting such as crafts, movies, relaxation, and outings.
- (d) Career exploration or career training activities provided to individuals opposed to pursuing competitive integrated employment. The program may authorize a maximum of two (2) career exploration activities annually before requiring an amended individual program plan with updated goals to reflect the participant's interest in pursuing competitive integrated employment.
- (e) Supports for which the provider's individual staff is unqualified to perform such as, professional counseling (e.g., suicide counseling, grief counseling, and marriage

### ATTACHEMENT 2

or relationship counseling) and medical services (e.g., medication management, medical services, and medical transportation).

- (f) Personal support activities that support staff provide on an ongoing basis to ensure employment requirements (e.g., daily reminder phone calls for hygiene needs or other personal care needs) are met.
- (g) Any available service provided by another government program, which may require an individual to apply for such services. The program may request documentation of application and denial of comparable services.
  - (10) Development of individual program plan.
- (a) The participant and provider will develop the participant's individual program using the program template. The individual program plan will include a brief summary of the participant's involvement.
- (b) Individual program plans must be signed by the participant, or legal guardian if applicable, and the provider staff who assisted with the plan preparation.
- (c) The provider will not receive payment for any services provided without an approved individual program plan.
- (d) Providers are not required to provide services after an individual program plan expires.
- (e) An individual program plan must use person-centered principles and people first language and detail vocational goals, corresponding meaningful measurable objectives, and the participant's desired employment outcomes. A participant's individual program plan goals will be discussed, modified, revised, and updated yearly, based on data from the participant's progress reports to help the participant achieve employment goals.
- (f) The participant's provider is responsible for submission of the individual program plan to the program. Revisions may be requested by the program to the individual program plan before approval. If a conflict of interest exists, the program will assume responsibility to complete the individual program plan. Timelines for submission of the individual program plan will be detailed in the provider agreement and the participant rights and responsibilities document.
- (g) The participant and provider will review progress toward vocational goals and next steps necessary to meet vocational goals. The participant will sign the progress report to acknowledge review of the report. The provider will submit a semi-annual progress report for each participant to the program for each six (6) months period, starting with the individual program plan start date. Progress reports are due no later than one (1) month after the reporting period. The provider will submit an annual progress report for the twelve (12) months after the individual program plan start date, due no later than one (1) month after the end of the term date. Failure to submit a progress report in a timely manner will subject the provider to administrative review and corrective action.
- 56-1705. PROGRAM PROVIDERS -- REQUIREMENTS -- REVOCATION OF APPROVAL -- AGREEMENT REVIEW. (1) Extended employment services providers must be approved by the department prior to participation in the program. The department shall enter an agreement with each approved provider. The agreement shall specify:

(a) Minimum provider requirements:

#### **ATTACHEMENT 2**

- (i) Provider must be accredited by approved national or regional accrediting body, specific to vocational supports for individuals with disabilities. Approved program accrediting bodies will be published annually to the department's website.
  - (ii) Providers must remain in good standing with their accreditor.
- (iii) Providers must ensure staff that deliver program services have 40 hours or more of employment supports training annually; maintain first aid and CPR certification and pass a criminal history background check annually.
  - (b) Services to be offered by the provider;
  - (c) Scope of work under the agreement;
  - (d) Service fees; and
  - (e) Other terms, conditions, and provisions as determined by the department.
- (2) The department may terminate or revoke the approval status and discontinue authorizing or purchasing services from providers for actions in violation of the agreement or program requirements.
- (3) A provider agreement shall be reviewed annually by the department and is subject to revision as required by the department.
- (4) Providers must maintain program participant files for five (5) years from the last date of service.
- (5) The program may audit billing records and other documentation submitted by providers to verify the accuracy of such records.
- (6) The program may deny, revoke, or recover service payments if the provider fails to comply with the terms of the provider agreement.

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Sixty-sixth	Legislature	Second Regula	ar Session - 2022
	IN THE		
	BILL NO.		
	BY	-	

AN ACT

RELATING TO SCHOOLS; AMENDING SECTION 33-201, IDAHO CODE, TO REVISE PRO-VISIONS REGARDING SCHOOL AGE AND TO MAKE A TECHNICAL CORRECTION; AND DECLARING AN EMERGENCY AND PROVIDING AN EFFECTIVE DATE.

Be It Enacted by the Legislature of the State of Idaho:

SECTION 1. That Section 33-201, Idaho Code, be, and the same is hereby amended to read as follows:

33-201. SCHOOL AGE. The services of the public schools of this state are extended to any acceptable person of school age. "School age" is defined as including all persons resident of the state, between the ages of five (5) and twenty-one (21) years. For the purposes of this section, the age of five (5) years shall be attained when the fifth anniversary of birth occurs on or before the first day of September of the school year in which the child is to enroll in kindergarten or the thirty-first day of December for a child the parent or guardian and the local education agency have determined is school-ready. For a child enrolling in the first grade, the age of six (6) years must be reached on or before the first day of September of the school year in which the child is to enroll or the thirty-first day of December for a child who has previously been determined to be school-ready. Any child of the age of five (5) years who has completed a private or public out-of-state kindergarten for the required four hundred fifty (450) hours but has not reached the "school age" requirement in Idaho shall be allowed to enter the first grade.

For resident children with disabilities who qualify for special education and related services under the federal individuals with disabilities education act (IDEA) and subsequent amendments thereto, and applicable state and federal regulations, "school age" shall begin at the attainment of age three (3) <u>years</u> and shall continue through the semester of school in which the student attains the age of twenty-one (21) years.

SECTION 2. An emergency existing therefor, which emergency is hereby declared to exist, this act shall be in full force and effect on and after July 1, 2022.

LEGISLATURE OF THE STATE OF IDAHO Sixty-sixth Legislature Second Regular Session - 2022

IN THE SENATE

#### SENATE BILL NO. 1290

### BY EDUCATION COMMITTEE

1 2 3 4 5 6 7 8 9	AN ACT RELATING TO THE RURAL AND UNDERSERVED EDUCATOR INCENTIVE PROGRAM; AMENDING TITLE 33, IDAHO CODE, BY THE ADDITION OF A NEW CHAPTER 65, TITLE 33, IDAHO CODE, TO ESTABLISH PROVISIONS REGARDING THE RURAL AND UNDERSERVED EDUCATOR INCENTIVE PROGRAM, TO DEFINE TERMS, TO PROVIDE FOR CERTAIN DUTIES REGARDING CRITICAL QUALITY EDUCATOR SHORTAGES, TO PROVIDE FOR LOAN REPAYMENT ASSISTANCE IN CERTAIN INSTANCES, AND TO PROVIDE FOR AWARD PROTOCOLS AND STATUTORY CONSTRUCTION; AND DECLARING AN EMERGENCY AND PROVIDING AN EFFECTIVE DATE.
10	Be It Enacted by the Legislature of the State of Idaho:
11 12 13	SECTION 1. That Title 33, Idaho Code, be, and the same is hereby amended by the addition thereto of a NEW CHAPTER, to be known and designated as Chapter 65. Title 33, Idaho Code

## CHAPTER 65 RURAL AND UNDERSERVED EDUCATOR INCENTIVE PROGRAM

33-6501. RURAL AND UNDERSERVED EDUCATOR INCENTIVE PROGRAM. A rural and underserved educator incentive program as set forth in this chapter shall be administered by the state board of education. The program shall provide for the direct repayment of educational loans of eligible educators or the reimbursement of eligible educational expenses such as additional degrees, advanced degrees, career technical certifications, or other educational expenses. The state board of education may promulgate rules to implement the provisions of this chapter.

33-6502. DEFINITIONS. As used in this chapter:

ter 65, Title 33, Idaho Code, and to read as follows:

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- (1) "Educational loans" means all loans made pursuant to a federal loan program, except federal parent loans for undergraduate students (PLUS), as provided in 20 U.S.C. 1078-2.
- (2) "Federal loan program" means educational loans authorized by 20 U.S.C. 1071 et seq., 20 U.S.C. 1087a et seq., and 20 U.S.C. 1087aa et seq.
- (3) "Rural and underserved educator" means a full-time, standard certificated individual employed as an instructional or pupil service employee in an eligible Idaho school district or at an eligible public charter school.
- 33-6503. CRITICAL QUALITY EDUCATOR SHORTAGES. (1) The state board of education shall identify specific schools that are impacted by critical quality educator shortages using the following criteria:
  - (a) Rural isolation of the school pursuant to section 33-319, Idaho Code; or

- (b) Economic disadvantage of the school based on eligibility for funds pursuant to title I, part A of the federal elementary and secondary education act, as amended.
- (2) Rural and underserved educators who are employed at schools identified in subsection (1) of this section are eligible for repayment of all or part of any such educator's outstanding educational loans existing at the time of application in accordance with the eligibility and award criteria eslablished in this chapter up to the amount specified in section 33-6504, Idaho Code, or eligible education expenses established by the state board of education and in rules promulgated by the state board of education.
- 33-6504. LOAN REPAYMENT ASSISTANCE -- EDUCATIONAL EXPENSES REIM-BURSEMENT -- ELIGIBILITY AND AWARD CRITERIA. (1) Loan repayment assistance or the reimbursement of eligible education expenses may be provided on behalf of a rural and underserved educator who:
  - (a) Is employed in a school identified pursuant to section 33-6503, Idaho Code;
  - (b) Has a signed contract with such school; and

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- (c) Has an educational loan that is not in default and that has a minimum unpaid current balance of at least one thousand dollars (\$1,000) or has at least one thousand dollars (\$1,000) in eligible education expenses at the time of application; or
- (d) Has eligible education expenses that may be reimbursed pursuant to this chapter.
- (2) To qualify for loan repayment assistance or education expense reimbursement under this chapter, a rural and underserved educator shall submit an application to the state board of education. For loan repayment applications, the application must include official verification or proof of the applicant's total unpaid accumulated educational loan debt and any other documentation as required by the state board of education for verification of the applicant's eligibility.
- (3) A rural and underserved educator is eligible for loan repayment assistance or eligible educational expenses for up to four (4) years, provided that the educator remains employed at the same school or by the same school district. The state board of education may remit payment of the loan on behalf of the rural and underserved educator in accordance with the requirements of this chapter and rules promulgated by the state board of education.
  - (4) The total incentive award shall be:
  - (a) One thousand five hundred dollars (\$1,500) for the first year;
  - (b) Two thousand five hundred dollars (\$2,500) for the second year;
  - (c) Three thousand five hundred dollars (\$3,500) for the third year; and
  - (d) Four thousand five hundred dollars (\$4,500) for the fourth year.

33-6505. AWARD PROTOCOLS -- CONSTRUCTION. (1) The state board of education may promulgate rules to establish protocols for determining the number of incentive awards that will be made annually based on available appropriations for the program.

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	(2)	The	state	board	of	educat	ion	shall	def	fine	the	criteria	for	de-
ter	mining	g the	schoo	ls tha	t ar	e most	imp	acted	by	crit	ical	quality	educa	ator
sho	rtages	3 .												

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- (3) Nothing in this chapter may be construed to require the provision of incentive awards without an appropriation for that purpose.
- SECTION 2. An emergency existing therefor, which emergency is hereby declared to exist, this act shall be in full force and effect on and after July 1, 2022.

LEGISLATURE OF THE STATE OF IDAHO
Sixty-sixth Legislature Second Regular Session - 2022

#### IN THE SENATE

#### SENATE BILL NO. 1280

#### BY EDUCATION COMMITTEE

1	AN ACT
2	RELATING TO EDUCATION; AMENDING SECTION 33-1802, IDAHO CODE, TO DEFINE A
3	TERM; AMENDING CHAPTER 18, TITLE 33, IDAHO CODE, BY THE ADDITION OF A NEW
4	SECTION 33-1811, IDAHO CODE, TO ESTABLISH PROGRAMS REGARDING DYSLEXIA;
5	AND DECLARING AN EMERGENCY AND PROVIDING AN EFFECTIVE DATE.

Be It Enacted by the Legislature of the State of Idaho:

SECTION 1. That Section 33-1802, Idaho Code, be, and the same is hereby amended to read as follows:

#### 33-1802. DEFINITIONS. As used in this chapter:

- (1) "Dyslexia" means a specific learning challenge that is neurological in origin. It is characterized by difficulties with accurate or fluent, or both, word recognition and by poor spelling and decoding abilities, which typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction.
- (2) "Idaho comprehensive literacy plan" means the state board of education-approved, evidence-based plan outlining the minimum statewide literacy comprehension expectations and framework. This plan shall include details on data literacy, the statewide reading assessment, and best practices.
- (23) "Local education agency" or "LEA" means a school district, including charter school districts, or a public charter school identified as an LEA pursuant to chapter 52, title 33, Idaho Code.
- (34) "Statewide reading assessment" means the state board of education-approved assessment for facilitating continuous improvement, tailoring student-level instruction, and providing summative results.
- SECTION 2. That Chapter 18, Title 33, Idaho Code, be, and the same is hereby amended by the addition thereto of a  $\underline{\text{NEW SECTION}}$ , to be known and designated as Section 33-1811, Idaho Code, and to read as follows:
- 33-1811. DYSLEXIA. (1) The state department of education shall identify reliable, valid, universal, and evidence-based screening, intervention measures, and professional development that evaluate the literacy skills of students enrolled in kindergarten through grade 5 using a multisensory structured literacy program for students with characteristics of dyslexia.
- (2) Starting in the 2022-2023 school year, the state department of education shall administer a statewide tier 1 dyslexia screening measure for identifying students with characteristics of dyslexia. Starting in the 2023-2024 school year and each school year thereafter, the state department of education shall administer a tier 1 and tier 2 dyslexia screening measure.

The tier 1 dyslexia screening measure shall be administered to all students enrolling in a local education agency for the first time in kindergarten through grade 5. A local education agency may administer a tier 2 dyslexia screening measure to students who were identified based on the tier 1 screening measure as having characteristics of dyslexia, who have been identified by their classroom teacher, or at the request of the student's parent or guardian. All parents or guardians of students identified with characteristics of dyslexia shall be notified and provided with the local education agency's options for school interventions.

- (3) Local education agencies shall provide evidence-based interventions in alignment with the Idaho comprehensive literacy plan and any supporting documents applicable to students identified with characteristics of dyslexia. The state department of education shall provide technical assistance by:
  - (a) Assisting local education agencies in establishing multidisciplinary teams to support the identification, intervention, and remediation of dyslexia;
  - (b) Developing reporting mechanisms for local education agencies to submit information and required data as determined by the state board of education for evaluating the effectiveness of the dyslexia intervention programs; and
  - (c) Identifying reliable, valid, universal, and evidence-based screening and intervention measures that evaluate the literacy skills of students enrolled in kindergarten through grade 5 using a multisensory structured literacy program.
- (4) The state department of education shall provide multisensory structured literacy program professional development for teachers in evidence-based dyslexia screening and intervention practices. Each approved course shall align with the Idaho comprehensive literacy plan, be evidence-based, and require instruction and training for identifying characteristics of dyslexia and understanding the pedagogy for instructing students with dyslexia.
  - (a) No later than the beginning of the 2023-2024 school year, each instructional staff member employed by a local education agency who provides instruction for students in elementary grades, including those providing special education instruction, shall be required to have completed one (1) or more semester credits in professional development specific to providing instruction and intervention to students with characteristics of dyslexia.
  - (b) No later than the beginning of the 2025-2026 school year, all instructional certificates will require one (1) or more credits toward recertification in identifying characteristics of dyslexia and understanding the pedagogy for instructing students with dyslexia and providing dyslexia-focused interventions.
  - (c) The state department of education shall maintain a list of courses that fulfill the professional development requirements prescribed in this section. The list may consist of online or classroom learning models. Each identified course must align with the Idaho comprehensive literacy plan and any supporting documents applicable to students identified with characteristics of dyslexia.

SECTION 3. An emergency existing therefor, which emergency is hereby declared to exist, this act shall be in full force and effect on and after 3 July 1, 2022.

TAB 4 Page 3 **PPGA** 

#### STEM ACTION CENTER

#### **SUBJECT**

Summer Learning and After School Program Collaborative Proposal Update

#### REFERENCE

October 2021 Board approved use of ARP ESSER SEA Set Aside

funds for the Accountability Oversight Committee's use and an Accelerated Math Collaborative and approved the distribution methodology for 2.5% of the funds for LEA's who receive no or low funds through the US

DOE Title I methodology.

January 6, 2022 Board approved allocations of the ESSER SEA Set

Aside funds to specific programs, including the STEM Action Center Summer Learning and After School

Network Collaborative.

## APPLICABLE STATUTE, RULE, OR POLICY

Section 33-110, Idaho Code American Rescue Plan Act of 2021, Public Law 117-2

#### **BACKGROUND/DISCUSSION**

The American Rescue Plan (ARP) Act was enacted on March 11, 2021. It provides a third installment of funding for Elementary and Secondary Emergency Relief, referred to as ARP ESSER. Of the \$439,942,041 allocated to Idaho, 90% (\$395,947,837) was required to be distributed directly to the local education agencies based on the US Department of Education's Title I methodology and 10% (\$43,994,204) could be set aside to be used by the state education Agency (SEA). The 10% SEA Set Aside is required to be used in the following manner:

- 5% of total ARP ESSER for implementation of evidence-based interventions aimed specifically at addressing learning loss
- 1% of total ARP ESSER for evidence-based summer enrichment programs
- 1% of total ARP ESSER for evidence-based comprehensive after school programs
- Up to ½ of 1% of total ARP ESSER for administrative costs and emergency needs (\$2,199,710)
- The remainder (at least 2.5%) "for emergency needs as determined by the SEA to address issues responding to coronavirus, which may be addressed through the use of grants or contracts."

An SEA must award ARP ESSER funds not allocated to LEAs within one year of the date the SEA receives those funds." The funds are available for "obligation" by SEAs and sub-recipients through September 30, 2023.

At the October 2021 Regular Board meeting, the Board approved recommendations for funding an accelerated learning mathematics collaborative, and set the methodology for distributing 2.5% of the funds to LEAs that received low or no funds based on the US Department of Education Title I methodology used for distributing the 90% of the to the LEAs.

At the January 6, 2022 Special Board meeting, the Board approved proposals for a statewide professional development and mentoring platform, development of a dyslexia handbook, ISEE enhancements to accommodate the new ESSER reporting requirements and to provide assistance to school districts and charter schools for meeting the ESSER reporting requirements, and the STEM Action Center's proposal for a collaborative approach addressing summer school and after school programs providing targeted programs for students to address the unfinished learning.

All of the proposals approved by the Board, with the exception of the funding to the non-Title I and low Title I schools are approved as amounts not exceed. This will provide some flexibility should a program be under spent as the funding period nears to shift funding between programs as long as the amount does not go over the maximum amount approved by the Board.

#### **IMPACT**

Approval of this request will increase the total dollar amount available for the activities in this proposal and meet the federal requirements around the percentage of funding that must be used toward after school programs.

#### **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

The Unfinished Learning Work Group recommendations focus on the three areas the Board identified as priority areas for addressing the student impacts due to the pandemic. The three areas of focus are:

- Accelerated Learning/Grow Kindergarten Grade 4 Literacy
- Accelerated Learning Grades 4-9 Mathematics
- High School Credit Recovery

The US Department of Education requires the funds be set aside for specific categories, due to this, the funding for some initiatives was broken out over multiple categories that make up the 10% SEA Set Aside. Allocations approved by the Board to date include:

Total 10% SEA Set Aside	\$44,013,192*	Proposed Use	Remaining
3% of Total - Emergency Needs	\$13,203,958	2.5% Non-Title, Low-Title	\$605,407
		\$10,998,551	
		Statewide PD and mentoring	
		Platform \$1,600,000	
5% of Total - Learning Loss	\$22,006,596	AOC Use \$100,000	
		Mathematics Accelerated Learning	\$306,596
		Collaborative \$3,500,000	ŕ
		Dyslexia Handbook \$100,000	

		School Learning Initiative Increase \$2,400,000 Allocated (after pending action)	\$915,221
		Pending Action – Summer/After	
		Summer/After School Learning Initiative \$998,101	
1% of Total - After School Programs	\$4,401,319	ISEE Enhancement \$1,000,000	\$3,218
		Initiative \$3,401,319	
1% of Total - Summer Enrichment	\$4,401,319	ISEE Enhancement \$1,000,000 Summer/After School Learning	\$0
		ISEE Enhancements \$18,000,000	

<sup>\*</sup> Updated total from previous Board meeting total based on revised second distribution notification from the US Department of Education.

The amounts identified are "up to" amounts; once the state procurement process is completed and the actual dollar amounts are obligated, any unobligated funds will be released for the Board's reconsideration on use for other identified priorities in alignment with the State Plan.

At the January 6, 2022 Special Board meeting the State Superintendent requested the FY 2022 appropriation and any ongoing appropriations for the ARP ESSER SEA set aside funds, excluding those amounts that the Board set for non-Title I and low-Title I funding distributions, be moved from the public schools budget to the Office of the State Board of Education (OSBE) budget. Board staff, Department staff, and the Division of Financial Management staff have been working over the last three weeks to identify the exact amount that would need to be moved into the OSBE budget.

Following the January 6, 2022 Special Board meeting, the STEM Action Center proposed expanding the initial proposal to provide more resources for after school programs. The 1% of the SEA set aside for after school programs is the area the Board had, to date, received the fewest proposals for. The STEM Action Center was invited to update the proposal already approved by the Board to include additional resources for after school programs. The updated proposal is provided in Attachments 1. Approval of the updated proposal would allocate the remainder of the ARP ESSER SEA set aside funds for use toward after school programs that directly benefit students. The updated proposal would increase funding for after school programs by \$2.4M.

Staff recommends approval.

#### **BOARD ACTION**

I move to approve the request to update the total amount for the STEM Action Center, Commission for Libraries, and Out-of-School Network collaborative proposal as provided in Attachment 1 for an updated amount not to exceed the \$6,800,000.

Moved by	/ Seconded by	Carried Y	es No	
IVIOVEU D	/ Seconded by	Callieu I	55 INU	

Idaho ARP State Plan Proposal for ESSER III Evidence-Based Summer Learning and Enrichment Programs January 2022

## Empowering Summer Enrichment and Year Long Afterschool Programming: Idaho's Out-of-school networks Collaborate to Address Unfinished Learning

The Idaho Out-of-School Network (ION), Idaho Commission for Libraries (ICfL), and Idaho STEM Action Center propose a statewide partnership to empower summer and out-of-school time learning across Idaho. Each has a solid track record of success using networks and local partnerships to minimize the summer slide, provide support and enrichment in afterschool time and reach underserved students throughout the state. Students spend 80% of their time outside of school and these partners are uniquely poised to help mitigate the impacts of lost school time and unfinished learning. These organizations are now seeking funds to work together to accomplish the following goals: 1) Identify programs and gaps in services across the state; 2) Tailor existing high-quality programs, tools and practices to address those gaps; 3) Disseminate these tools and practices to all youth programs in the state, and 4) Provide training to educational agencies and community-based service providers, with the goal of embedding these high quality practices and tools in American Rescue Plan (ARP)-funded programs in Idaho.

This proposal will leverage the strengths and knowledge of existing community-based organizations across the state. As a result of this program, students and families will have improved access to services already established in their communities, even as funding for those services might shift and change over time. These partners will leverage the \$4.4 million in ARP Summer Learning set aside funds for evidence-based summer learning and enrichment programs. In addition, the 2.4 million intended for Afterschool to extend learning throughout the school year in programming times before and after school statewide.

#### **How Requested Funds Will be Used:**

# Idaho Out-of-School Network will be the lead partner on 3 Tasks and will expend a \$2,150,000 for Summer Learning investments and \$1,400,000 to expand and enhance After School Programs for a total of \$3,550,000 to ION

The Idaho Out-of-School Network, established in 2013, is the State's only Network supporting the out-of-school time field and professionals and serves over 525 programs statewide, providing guidance on quality, technical assistance and training and assistance with sustainability planning and data collection.

ION is currently distributing \$1.5 million of ARP funds to afterschool programs serving 5-13 year old youth. These funds are from the Idaho Department of Health and Welfare for school year enrichment specifically to address social and emotional needs and unfinished learning in out-of-school time. ION received more requests than they were able to award with this funding.

Idaho ARP State Plan Proposal for ESSER III Evidence-Based Summer Learning and Enrichment Programs January 2022

If granted the \$3,550,000 from ESSER III funds, ION will lead the following tasks in this partnership:

- 1) Facilitate and distribute the *Summer of Innovation* in Out-of-School Time Grants as well as Idaho Community Programs for Youth Grants for after and before school programming;
  2) Provide training and technical assistance to grantees to build capacity and support program quality using the *Idaho Out-of-School Time Building Blocks for Quality* training, and ensure consistent evidence based practices (EBP) in out-of-school programs. ION will share EBP and resources from the Summer Learning and Enrichment Collaborative with youth services program across the state. ION utilizes the extensive information and support available through the organization, You for Youth (Y 4 Y) who are contracted by the Federal government to provide support to the Nita M. Lowey, 21st CCLC programs. ION will coach the grant recipients in accessing these resources. Trainers from Y4Y come to ION's in person annual Power Up Summit conference in the Fall, the State's only professional development conference solely for out-of-school time professionals. ION offers a great deal to afterschool programs, including the Behavior Management Institute, the two day Power Up Summit, and on-line and in person technical assistance, including program and projects of the ICfL and the Idaho STEM Action Center:
- 3) Lead data collection and evaluation of impacts for the \$6.8 million of the ESSER III funds supporting out-of-school time and summer learning initiatives.

ION is a program of Jannus Inc., based in Boise, which supports programs statewide. In December, ION's program staff (and a Jannus accountant) attended a State-endorsed training in fiscal management of stimulus funds to ensure all fiduciary obligations and record keeping are met at the highest level of fidelity.

## <u>Idaho Commission for Libraries (ICfL) will lead Task 4 of this proposal and expend</u> \$1,250,000.

Over 100,000 Idaho youth participate in free library summer reading programs annually helping students maintain or improve the reading skills they develop during the school year. Library summer reading programs have been part of the fabric of nearly every Idaho community for decades and research shows that children who actively participate reduce their summer learning loss. ICf has been a longtime supporter of these programs by providing training and support for outreach programs aimed at reaching underserved children at summer food distribution sites and through partnerships with Boys and Girls Clubs and other out-of-school learning programs.

ARP funds in the amount of \$750,000 would allow the ICfL to build the capacity and implementation of best practices for library summer learning programs and help keep more school libraries open during the summer months. Funds would be awarded through competitive tier grants based on population size and would help fund personnel needed to expand access to serve more youth with an emphasis on underserved children and communities, provide more hands-on learning activities, and ensure that more books are available for Idaho students and families. Grants would be made available to over 700 public, school, and tribal libraries statewide. The ICfL would utilize a portion of these funds to aid training efforts and enhance turn-key programs and resources that increase participation of smaller libraries.

Idaho ARP State Plan Proposal for ESSER III Evidence-Based Summer Learning and Enrichment Programs January 2022

\$500,000 will be designated to build the capacity of library-based after school programming. Idaho's libraries offer students safe and enriching environments when school is out of session. These funds will help libraries invest in needed materials, personnel, and operating expenses to ensure no K-12 student is charged to participate in engaging out-of-school library programs. Grant funding will be provided to libraries with existing after school programs to improve the quality and number of students served and funds will also help libraries new to after school programming begin to offer these services in their communities. A portion of the funds will be utilized by the ICfL to enhance turn-key programs and resources enabling smaller libraries to participate in these efforts.

#### Idaho STEM Action Center will lead Task 5 and expend \$2,000,000.

STEM educational opportunities build 21<sup>st</sup> century skills such as problem solving, critical thinking, and innovation, while helping students build content knowledge in science, technology, engineering, and math. Research shows that integrated STEM learning improves math and reading scores, which are lead predictors of student success. A key component of the STEM education landscape is out-of-school programs and summer opportunities such as camps, robotics clubs, competitions, and other youth programs offer hands-on, real-world applications of STEM knowledge.

STEM Action Center works with out-of-school organizations across the state to expand these offerings and provide access to underserved students. ARP funding would allow STEM AC to serve more students, especially in underserved and rural communities, by enhancing turn-key programs and supporting newly developed programming. This expansion of programming would provide the long-term infrastructure to continue offering these programs in more communities throughout the state. STEM Action Center would provide funds to after school and summer programs through a grant program. To ensure regional and local needs are being met through this grant opportunity, STEM AC would utilize the Idaho STEM Ecosystem Regional Hubs and their partner networks to recruit potential applications, help support potential applicants through the application process, and provide training on reporting requirements (in collaboration with ION). Funding in the amount of \$2 million would be distributed regionally through the grant program, similar to how other STEM AC grant programs are designed, with half dedicated to summer programming and half dedicated to after school programming.

Tasks	Organization	Amount
1. Summer of Innovation in	ION	\$1,500,000
Out-of-School Time		
Grants		
2. Idaho Out-of-School	ION	\$500,000
Time Building Blocks for		
Quality & Professional		

### Idaho ARP State Plan Proposal for ESSER III Evidence-Based Summer Learning and Enrichment Programs January 2022

Development on Evidence Based Practices in Summer Learning and After School time		
programming 3. Data Collection and Evaluation	ION	\$450,000
4. Idaho Community Programs for Youth Grants to After School Programs	ION	\$1,100,000
5. Library Summer Learning Programs	ICfL	\$750,000
6. Library	ICfL	\$500,000
Summer STEM Programs	STEM AC	\$1,000,000
After School STEM Programs	STEM AC	\$1,000,000
Total		\$6,800,000

<u>The evidence base for afterschool and summer</u> https://y4y.ed.gov/ Evidence Based for After School Programming

#### **SUBJECT**

Board Policy I.P. Idaho Indian Education Committee – First Reading

#### REFERENCE

December 6-7, 2007	The Board was provided an update on the Native
	American Higher Education Committee's progress.
June 20, 2008	The Board approved the Committee moving forward with scheduling future meetings with each of the Tribes and charged the Committee with reviewing how Board policy can meet the underserved need in the communities through advanced opportunities.
February 21, 2013	The Board approved the first reading of Board Policy I.P.
April 18, 2013	The Board approved the second reading of Board Policy I.P.
April 14, 2016	The Board approved the first reading of Board Policy I.P, which removed sections covering logistical and meeting requirements and development of meeting materials to proposed new bylaws.
June 16, 2016	The Board approved the second reading of Board Policy I.P.

### APPLICABLE STATUTE, RULE, OR POLICY

Idaho State Board of Education Governing Policies & Procedures, Section I.P. Idaho Indian Education Committee

#### **BACKGROUND/DISCUSSION**

The Idaho Indian Education Committee serves as an advisory committee to the State Board of Education (Board) and the State Department of Education (Department) on educational issues and how they impact opportunity, success, and access for Idaho's American Indian student population.

Board Policy I.P. outlines the role and purpose of the committee, committee structure, and terms of membership. Currently the Idaho Indian Education Committee is comprised of one representative from each of Idaho's eight public postsecondary institutions, two representatives from each of the five tribes of Idaho, one representative from each of the two Bureau of Indian Education/tribal schools and one representative from the State Board of Education. Based on a member self-evaluation of the Idaho Indian Education Committee conducted in September 2021, it was determined by the committee that an important piece to this committee was missing -- representation of Indian Education subject matter experts in the areas of educator preparation programs, in-service educators, school administrators, tribal experts, and researchers. Proposed amendments to Board Policy I.P. would add two at-large members to the current membership.

#### **IMPACT**

Approval of amendments will provide additional expertise on a consistent and ongoing basis as the committee works on educational issues impacting American Indian students across the K-20 system.

#### **ATTACHMENTS**

Attachment 1 – Board Policy I.P. Idaho Indian Education Committee

### **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

Board staff worked with the Indian Education Committee to develop amendments that will add two at-large members to the membership. Amendments were shared with the Indian Education Committee on December 17, 2021 and the committee voted in support of proposing the policy amendments to the Board at the Board's Regular February Board meeting.

Staff recommends approval.

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I move to approve the	first reading of	amendments	to Board	Policy	I.P.	Idaho
Indian Education Commi	ttee, as provide	ed in Attachme	nt 1.			

Moved by	Seconded by	Carried	Yes	No
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ATTACHMENT 1

## Idaho State Board of Education GOVERNING POLICIES AND PROCEDURES

**SECTION: I. General Policies** 

SUBSECTION: P. Idaho Indian Education Committee June 2016

## 1. Purpose

The purpose of the Idaho Indian Education Committee (Committee) is to advocate for American Indian students, act as an advisory body to the State Board of Education and the State Superintendent of Public Instruction, and serve as a link between the five Idaho tribes. The mission of the Committee is to create the conditions for and support of the efforts of raising the bar and eliminating the academic achievement gap.

## 2. Roles and Responsibilities

In order to ensure all American Indian students in Idaho thrive, reach their full potential, and have access to educational services and opportunities, the scope of responsibilities shall include the following:

- a. Advocate and inform stakeholders and make recommendations for educational policy as it relates to American Indian student access, retention, graduation, and achievement.
- b. Review and make recommendations on instructional materials to ensure inclusion of tribal cultural knowledge and context at all education levels.
- c. Review and make recommendations on educator certification and recertification programs to ensure inclusion of tribal cultural knowledge and context.
- d. Review and make recommendations on educator preparation program standards to ensure inclusion of tribal cultural knowledge and context.
- e. Review and make recommendations to ensure integration and use of tribal cultural knowledge and context as a component of instructional practice in schools that serve predominantly American Indian students.
- f. Review and make recommendations on funding and programs that serve American Indian students.
- g. Review relevant education data to make recommendations on statewide policies, procedures, and to collaborate with Idaho tribes to reflect accurate statistics for making policy recommendations.
- h. Identify and promote best practices in supporting the success of American Indian students.

ATTACHMENT 1

i. The Committee shall meet at a minimum quarterly.

### 3. Membership

The Idaho Indian Education Committee membership shall be composed of the following:

- One representative from each of the eight public postsecondary institutions
  - Nominations will be submitted from the Institution President
- One representative from each of the five tribal chairs or designee
- One representative from each of the five tribal education departments
- One representative from each of the two Bureau of Indian Education schools
  - o Representatives must be a school board member, administrator, or designee
- One representatives from the State Board of Education
- Two at-large members

Original appointments shall be for terms that are initially staggered to provide a rolling renewal of appointments. Thereafter, appointments shall be for five years, commencing on July 1st. All members of the Committee shall have equal voting privileges. Appointments to vacant positions during the previous incumbent's term shall be for the remainder of the open term.

The Committee shall elect officers, to include a chairperson and vice-chairperson. Officers are elected to a two (2) year term at a regularly scheduled spring meeting. No elected officer may serve more than two (2) consecutive terms.

Staff support will come from the State Department of Education through the Indian Education Coordinator position and the Office of the State Board of Education and will include the following:

- Advisor to the Chair and Committee
- Liaison between Committee and the State Board of Education, State Department of Education, Colleges and Universities, and other stakeholders
- Preparation of the agenda with input from the Committee
- Notification to Committee of upcoming meetings and other communications
- Compilation of records, publications and disseminating minutes of meetings

#### **SUBJECT**

Board Policy - Bylaws - First Reading

#### **REFERENCE**

June 2016 The Board approved the first reading of proposed

amendments to the Board Bylaws regarding actions at meetings that were not in existing Board policy and

amendments to the Audit Committee.

August 2016 The Board approved the second reading of

amendments to the Board Bylaws.

August 2019 The Presidents' Council presented to the Board a new

proposed role for the Council and proposed changes

to the name of the Council.

December 2019 Board approved the first reading of proposed

amendments to the Board Bylaws eliminating nonfunctioning committees and restructuring the

Presidents Council reporting.

February 2020 Board approved second reading of proposed

amendments

#### APPLICABLE STATUTE, RULE, OR POLICY

Idaho State Board of Education Governing Policies and Procedures - Bylaws Idaho Code Chapter 2, Title 74, Transparent and Ethical Government

#### **BACKGROUND/DISCUSSION**

Idaho's open meeting laws are premised on the policy that the formation of public policy is a public business and must be conducted in public. In 2015, Idaho's requirements pertaining to meetings conducted by governing bodies were updated and consolidated into a new Title 74, Transparent and Ethical Government. The open meeting law requirements are codified in Chapter 2 of that Title.

The Board, as a governing body may only act as a whole in open meetings that have been properly noticed. The Board's bylaws set out the Board's operating procedures including the establishment of the Board's standing committees and the purpose of the standing committees. Board policies established in Section I of the Board's Governing Policies and Procedures further establish Board procedures for Board meeting requirements as well as parameters for additional "ad hoc" committees of the Board and the associated standing committee through which they report to the Board.

The Board's bylaws require agenda items come to the Board through one of the standing committees. This provides the opportunity for those Board members that sit on the committees to ask questions, direct staff on additional information that may be provided to the Board and to gain greater insight on the issues that may be coming to the Board through the specific committees. This process helps to better inform the discussion at the Board meetings. Additionally, the Board's

standing committees are used to: (i) provide updates to the Board on various matters, as applicable to the committee; (ii) gather feedback from the standing committee's working groups; (iii) direct staff at institutions and agencies under the Board's governance on information that needs to come to the Board; and (iv) provide oversight on the implementation of Board actions as may be delegated by the Board as whole.

#### **IMPACT**

The proposed amendment to the Board bylaws would update the language used to describe the purpose of the Board's standing committees in alignment with the language in the state open meeting laws.

#### **ATTACHMENTS**

Attachment 1 – Bylaws – First Reading

#### **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

The Office of the Attorney General (AG) is charged with enforcing Idaho's open meeting laws. The AG's Office, from time to time, provides training on the open meeting law and puts out guidance for governing boards on the requirements of the open meeting law. On January 5, 2020, the AG's Office provided an Open Government Seminar (Video and Materials Available from January 5 Open Government Seminar - Idaho Office of Attorney General).

Working with the Board's Deputy Attorney General, staff have identified amendments to the description of the Board's standing committees' responsibility in the bylaws that should be updated to assure they do not violate provisions in Idaho's open meeting law. The proposed amendments are provided in Attachment 1.

Staff recommends approval.

## **BOARD ACTION**

I move to approve Attachment 1.	the first reading	of Board	policy - Bylaws	as submitted	d in
Moved by	Seconded by		Carried Yes _	No	

**ATTACHMENT 1** 

## Idaho State Board of Education GOVERNING POLICIES AND PROCEDURES

**SECTION: I. BYLAWS (Operational Procedures)** 

February 2020 April 2022

#### A. Office of the State Board of Education

The Board maintains an Office of the State Board for the purpose of carrying out the administrative, financial, and coordinating functions required for the effective operation of the institutions and agencies under the governance of the Board. The staff of the Office of the State Board serve under the direction of the Executive Director, who is responsible directly to the Board.

## **B.** Meetings

- The Board will maintain a 12-month rolling meeting schedule. To accomplish this, the Board will, at each of its regularly scheduled meetings, update its 12-month rolling schedule of Board meetings, provided, however, that the Board by majority vote, or the Board president after consultation with Board members, may reschedule or cancel any meeting.
- 2. The Board may hold special meetings by vote of a majority of the Board taken during any regular meeting or by call of the Board president.
- 3. All meetings of the Board are held at such place or places as may be determined by the Board.
- 4. Actions that impact ongoing future behavior of agencies and institutions shall be incorporated into Board policy. Actions limited to a specific request from an institution or agency, if not acted on within one year of approval, must be brought back to the Board for reconsideration prior to action by the institution or agency. This requirement does not apply to program approval time limits.

#### C. Rules of Order

- Meetings of the Board are conducted in accordance with controlling statutes and applicable bylaws, regulations, procedures, or policies. In the absence of such statutes, bylaws, regulations, procedures, or policies, meetings are conducted in accordance with the current edition of Robert's Rules of Order, Newly Revised.
- 2. A quorum of the Board consists of five (5) Board members.
- 3. With the exception of procedural motions, all motions, resolutions, or other propositions requiring Board action will, whenever practicable, be reduced to writing before submission to a vote.

#### ATTACHMENT 1

4. A roll-call vote of the Board is taken on all propositions involving any matters of bonded indebtedness; convening an executive session of the Board; or on any other action at the request of any Board member or upon the advice of legal counsel. The first voter is rotated on each subsequent roll-call vote.

## D. Officers and Representatives

- 1. The officers of the Board include:
  - a. A president, a vice president, and a secretary, who are members of the Board.
  - b. An executive secretary, who is the state superintendent of public instruction.
- 2. The president, vice president, and secretary are elected at the organizational meeting for one (1) year terms and hold office until their successors are elected. Vacancies in these offices are filled by election for the remainder of the unexpired term.
- 3. Board representatives to serve on other boards, commissions, committees, and similar bodies are appointed by the Board president.
- 4. The executive director is appointed by and serves at the pleasure of the Board unless the contract of employment specifies otherwise. The executive director serves as the chief executive officer of the Office of the State Board of Education.

### E. Duties of Board Officers

- 1. Board President
  - a. Presides at all Board meetings, with full power to discuss and vote on all matters before the Board.
  - b. Submits such information and recommendations considered proper concerning the business and interests of the Board.
  - c. Signs, in accordance with applicable statutes and Board action, all contracts, minutes, agreements, and other documents approved by the Board, except in those instances wherein the Board, by its procedures, has authorized the Board president to designate or has otherwise designated persons to sign in the name of or on behalf of the Board.
  - d. Gives prior approval for any official out-of-state travel of seven (7) days or more by Board members, institution heads, and the executive director.
  - e. Subject to action of the Board, gives notice and establishes the dates and locations of all regular Board meetings.
  - f. Calls special Board meetings at any time and place designated in such call in accordance with the Open Meeting Law.
  - g. Establishes screening and selection committees for all appointments of agency and institutional heads.
  - h. Appoints Board members to all standing and interim committees of the Board.
  - i. Establishes the Board agenda in consultation with the executive director.
  - j. Serves as chief spokesperson for the Board and, with the executive director,

**ATTACHMENT 1** 

carries out the Board's policies between meetings.

#### 2. Vice President

- a. Presides at meetings in the event of absence of the Board president.
- b. Performs the Board president's duties in the event of the Board president's inability to do so.
- c. Becomes the acting Board president in the event of the resignation or permanent inability of the Board president until such time as a new president is elected.

## 3. Secretary

- a. Presides at meetings in the event of absence of the Board president and vice president.
- b. Signs, in accordance with applicable statutes and Board action, all minutes, contracts, agreements, and other documents approved by the Board except in those instances wherein the Board, by its procedures, has authorized or has otherwise designated persons to sign in the name of or on behalf of the Board secretary.

## 4. Executive Secretary

The state superintendent of public instruction, when acting as the executive secretary, is responsible for:

- a. Carrying out policies, procedures, and duties prescribed by the Constitution of the State of Idaho, and Idaho Code or established by the Board for all elementary and secondary school matters.
- b. Presenting to the Board recommendations concerning elementary and secondary school matters and matters of the State Department of Education.

#### Executive Director

The executive director serves as the chief executive officer of the Board, as chief administrative officer of Office of the State Board of Education, and as chief executive officer of such federal or state programs as are directly vested in the State Board of Education. The position description for the executive director, as approved by the Board, defines the scope of duties for which the executive director is responsible and is accountable to the Board.

#### F. Committees of the Board

The Board may organize itself into standing and other committees as necessary. Committee members are appointed by the Board president after informal consultation with other Board members. Any such standing or other committee may make recommendations to the Board responsible for performing work pursuant to Board policy or delegation. Such committees, but may not take any action, except when authority to act has been delegated by the Board. The Board president may serve as

#### ATTACHMENT 1

an ex-officio member of any standing or other committee. The procedural guidelines for Board committees appear in the Board Governing Policies and Procedures.

For purposes of the bylaws, the University of Idaho, Boise State University, Idaho State University, Lewis-Clark State College, College of Eastern Idaho, College of Western Idaho, College of Southern Idaho, and North Idaho College are included in references to the "institutions;" and Idaho Public Television, the Division of Vocational Rehabilitation, the Division of Career Technical Education, and the State Department of Education, are included in references to the "agencies." \* An institution or agency may, at its option and with concurrence of the Board president, comment on any committee report or recommendation.

## 1. Planning, Policy and Governmental Affairs Committee

#### a. Purpose

The Planning, Policy and Governmental Affairs Committee is a standing advisory committee of the Board. It is responsible for developing and presenting recommendations guidance to the agencies and institutions under the Board Board on the implementation of Board action on matters of policy, planning, and governmental affairs. The committee, in conjunction with the chief executive officers and chief administrators of the Board governed agencies and institutions, will develop and recommend to the Board futureguidance on the implementation of the Board's planning initiatives and goals. This committee shall also advise provide more detailed information to the Board on collaborative and cooperative measures for all education entities and branches of state government necessary to provide for the general supervision, governance and control of the state educational institutions, agencies and public schools, with the goal of producing a seamless educational system.

## b. Composition

The Planning, Policy and Governmental Affairs Committee is composed of two (2) or more members of the Board, appointed by the president of the Board, who designates one (1) member to serve as the chairperson and spokesperson of the committee, and is staffed by the Board's Chief Planning and Policy Officer. The Planning, Policy and Governmental Affairs Committee may form working unit or units, as necessary, to advise the committee. The chairperson presents all committee and working unit recommendations updates to the Board.

<sup>\*</sup> Definition provided for purposes of the Bylaws only. Recognizing the Board governance relationship varies with each of these entities, the intent in including representatives of each of the agencies and institutions as much as possible in the committee structure is to ensure proper and adequate representation, but is not intended to obligate or interfere with any other local boards or governing entities.

**ATTACHMENT 1** 

### c. Responsibilities and Procedures

The Planning, Policy and Governmental Affairs Committee is responsible for making recommendations providing updates to the Board in the following general areas:

- i. Long range planning and coordination;
- ii. Initial discussions and direction on strategic policy initiatives and goals;
- iii. Legislative proposals and administrative rules for Board agencies and institutions;
- iv. Coordination and communication with the Governor, the Legislature, and all other governmental entities with regard to items of legislation, Board policy and planning initiatives;
- v. Review and revision of Board policies, administrative rules and education-related statutes for consistency and compatibility with the Board's strategic direction;
- vi. Reports and recommendations from workgroups and committees pertaining to education policy, planning and governmental affairs, including career technical education;
- vii. Other matters as assigned by the Board.

At the direction of the Board President, any matter before the Board may be removed to the Planning, Policy and Governmental Affairs Committee for initial action or consideration.

The Planning, Policy and Governmental Affairs Committee may establish necessary procedures to carry out its responsibilities. Such procedures must be consistent with the Board's Governing Policies and Procedures. The Board's Chief Planning and Policy Officer, under the direction of the chairperson, prepares the agenda for the Planning, Policy and Governmental Affairs Committee work that is under consideration at each meeting of the Board.

#### 2. Instruction, Research and Student Affairs Committee

#### a. Purpose

The Instruction, Research and Student Affairs Committee is a standing advisory committee of the Board. It is responsible for <u>implementing Board action and developing and presenting recommendations guidance</u> to the <u>Board institutions and agencies</u> on matters of policy and procedure concerning instruction, research and student affairs.

### b. Composition

The Instruction, Research and Student Affairs Committee is composed of two (2) or more members of the Board, appointed by the president of the Board,

#### ATTACHMENT 1

who designates one (1) member to serve as chairperson and spokesperson of the committee, and is staffed by the Board's Chief Academic Officer. The Instruction, Research and Student Affairs Committee may appoint a working unit or units, as necessary, to advise the committee. One such working unit shall be the Council on Academic Affairs and Programs (CAAP), which shall be composed of the Board's Chief Academic Officer and the chief academic officers of the institutions and agencies. The chairperson presents all committee and working group recommendations to the Board.

## c. Responsibilities and Procedures

The Instruction, Research and Student Affairs Committee is responsible for making recommendationsupdates to the Board in the following general areas:

- Agency and institutional instruction, research and student affairs agenda items;
- ii. Instruction, academic or career technical program approval;
- iii. Instruction, academic or career technical program review, consolidation, modification, and discontinuance, and course offerings;
- iv. Outreach, technology and distant learning impacting programs and their delivery;
- v. Long-range instruction, academic and career technical planning;
- vi. Registration of out-of-state institutions offering programs or courses in Idaho;
- vii. Continuing education, professional development, workforce training, programs for at-risk populations, career guidance;
- viii. Student organizations' activities and issues; and
- ix. Other matters as assigned by the Board.

The Instruction, Research and Student Affairs Committee may establish necessary procedures to carry out its responsibilities. Such procedures must be consistent with the Board's Governing Policies and Procedures. The Board's chief academic officer, under the direction of the chairperson, prepares the agenda for the Instruction, Research and Student Affairs Committee work that is under consideration at each meeting of the Board.

#### 3. Business Affairs and Human Resources Committee

#### a. Purpose

The Business Affairs and Human Resources Committee is a standing advisory committee of the Board. It is responsible for developing and presenting recommendations updates to the Board on matters of policy and procedures concerning business affairs and human resources affairs.

#### b. Composition

#### ATTACHMENT 1

The Business Affairs and Human Resources Committee is composed of two (2) or more members of the Board appointed by the president of the Board, who designates one (1) member to serve as chairperson and spokesperson of the committee, and is staffed by the Board's Chief Fiscal Officer. The Business Affairs and Human Resources Committee may appoint a working unit or units, as necessary, to advise the committee. One such working unit shall be the Financial Vice Presidents council, which shall be composed of the Board's Chief Fiscal Officer and the chief financial officers of the institutions and agencies. The chairperson presents all committee recommendations updates to the Board.

### c. Responsibilities and Procedures

The Business Affairs and Human Resources Committee is responsible, through its various working unit or units, for making recommendations to the Board providing guidance on the implementation of Board action to the institutions and agencies under the Board in the following general areas:

- i. Agency and institutional financial agenda items;
- ii. Coordination and development of guidelines and information for agency and institutional budget requests and operating budgets;
- iii. Long-range fiscal planning;
- iv. Fiscal analysis of the following:
  - 1) New and expanded financial programs;
  - 2) Establishment, discontinuance or change in designation of administrative units;
  - 3) Consolidation, relocation, or discontinuance of programs;
  - 4) New facilities and any major modifications to facilities which would result in changes in programs or program capacity;
  - 5) Student fees and tuition; and
  - 6) Other matters as assigned by the Board.

The Business Affairs and Human Resources Committee may establish necessary procedures to carry out its responsibilities. Such procedures must be consistent with the Board's Governing Policies and Procedures. The Board's chief fiscal officer, under the direction of the chairperson, prepares the agenda for the Business Affairs and Human Resources Committee work that is under consideration at each meeting of the Board.

#### 4. Audit Committee

a. Purpose

#### **ATTACHMENT 1**

The Audit Committee is a standing committee of the Board. The Audit Committee provides oversight to the organizations under its governance (defined in Idaho State Board of Education, Policies and Procedures, Section I. A.1.) for: financial statement integrity, financial practices, internal control systems, financial management, and standards of conduct.

### b. Composition

The Audit Committee members shall be appointed by the Board and shall consist of five or more members. Three members of the Committee shall be current Board members and at least two members shall be independent non-Board members who are familiar with the audit process and permanent residents of the state of Idaho. No employee of an institution or agency under the governance of the Board shall serve on the Audit Committee. Each Audit Committee member shall be independent, free from any relationship that would interfere with the exercise of her or his independent judgment. Audit Committee members shall not be compensated for their service on the committee, and shall not have a financial interest in, or any other conflict of interest with, any entity doing business with the Board, or any institution or agency under the governance of the Board. Audit Committee members who are Board members may be compensated for Board service. The Audit Committee may appoint a working unit or units, which could include the chief financial officers of the institutions and financial officers of the Board office.

All members shall have an understanding of the Committee and financial affairs and the ability to exercise independent judgment, and at least one member of the Committee shall have current accounting or related financial management expertise in the following areas:

- i. An understanding of generally accepted accounting principles, experience in preparing, auditing, analyzing, or evaluating complex financial statements, and;
- ii. The ability to assess the general application of such principles in the accounting for estimates, accruals, and reserves, and;
- iii. Experience in preparing or auditing financial statements and;
- iv. An understanding of internal controls.

Members may be reappointed. The Audit Committee chair shall be appointed by the Board President and shall be a Board member.

### c. Responsibilities and Procedures

It is not the Committee's duty to plan or conduct audits or to determine that the institution's financial statements are complete, accurate and in accordance with generally accepted accounting principles. Management of the applicable institutions and agencies shall be responsible for the preparation, presentation,

ATTACHMENT 1

and integrity of the financial statements and for the appropriateness of the accounting principles and reporting policies used. The following shall be the principle duties and responsibilities of the Committee:

- i. Recommend the appointment and compensation to the Board of the independent auditors for Board action. Evaluate and oversee the work of the independent auditors. The Committee must approve any services prior to being provided by the independent auditor. The independent auditing firm shall report directly to the Committee as well as the Board and the auditor's "engagement letter" shall be addressed to the Committee and the President of each institution. The Committee shall have the authority to engage the Board's legal counsel and other consultants necessary to carry out its duties.
- ii. Discuss with the independent auditors the audit scope, focusing on areas of concern or interest;
- iii. Review the financial statements, adequacy of internal controls and findings with the independent auditor. The independent auditor's "management letter" shall include management responses and be addressed to the Audit Committee and President of the institution.
- iv. Ensure the independent auditor presents the financial statements to the Board and provides detail and summary reports as appropriate.
- v. Oversee standards of conduct (ethical behavior) and conflict of interest policies of the Board and the institutions and agencies under its governance including establishment of confidential complaint mechanisms.
- vi. Monitor the integrity of each organization's financial accounting process and systems of internal controls regarding finance, accounting and stewardship of assets;
- vii. Monitor the independence and performance of each organization's independent auditors and internal auditing departments;
- viii. Provide general guidance for developing risk assessment models for all institutions.
- ix. Provide an avenue of communication among the independent auditors, management, the internal audit staff and the Board.
- x. Maintain audit review responsibilities of institutional affiliates to include but not limited to foundations and booster organizations.

The Audit Committee will meet as needed. The Committee may establish necessary procedures to carry out its responsibilities. Such procedures must be consistent with the Board's Governing Policies and Procedures. The Board's Chief Fiscal Officer, under the direction of the chair, prepares the agenda for work that is under consideration at each meeting of the Board.

#### G. Committee Presentations

#### ATTACHMENT 1

- The agenda for each regular meeting of the Board shall be organized using the areas of responsibility provided for in regard to each permanent standing committee of the Board, as described in Subsection F above, with the exception of the Audit Committee.
- 2. The Board member who is the chair of the permanent standing advisory committee and spokesperson shall present the agenda items in the area of the committee's responsibility. This presentation may include calling on institutional/agency representatives and/or other individuals. In the event of an absence or conflict with respect to the committee chairperson, the Board President may designate a substitute Board member or Board officer to present the agenda items.

## H. Presidents Leadership Council

## 1. Purpose

The Presidents Leadership Council convenes to serve the public good by providing a common leadership voice to educate, innovate, advocate and advance a vision and blueprint for higher education in Idaho at the direction of the Board. The Presidents Leadership Council may also choose or be directed by the Board to meet with other workgroups and committees for exchanges of information or to discuss projects of benefit to the entire system. The Presidents Leadership Council reports to the Board in the manner directed by the Board President.

### 2. Composition

The Presidents Leadership Council is composed of the presidents of the University of Idaho, Idaho State University, Boise State University, Lewis-Clark State College; and the presidents of North Idaho College, College of Eastern Idaho, College of Western Idaho and the College of Southern Idaho, each of whom has one (1) vote. One (1) of the voting members shall serve as chair of the Council, with a chair selected each academic year generally rotating among the respective members. The administrator of the Division of Career Technical Education and the Board's Executive Director shall be ex-officio members of the Council.

**ATTACHMENT 1** 

3. Duties of the Chair

The Chair:

- a. Presides at all Presidents Leadership Council meetings with full power to discuss and vote on all matters before the Council;
- b. Establishes the Presidents Leadership Council agenda in consultation with the Executive Director; and
- c. Maintains open communications with the Board on agenda matters through the Planning, Policy and Governmental Affairs Committee.
- 4. The Executive Director will communicate openly and in a timely manner with the Presidents Leadership Council.

## **SUBJECT**

2023-2028 K-20 Education Strategic Plan

REF	ER	EN(	CE
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EFERENCE	
October 2018	Board reviewed the K-20 Educational System performance measures and directed staff to remove a number of performance measures and bring forward annual degree production targets for consideration in the updated K-20 Education Strategic Plan for the December 2018 Board meeting.
December 2018	Board reviewed the draft K-20 Education Strategic Plan and discussed setting institution level credential production goals by level of credential.
February 2019	Board approved updated K-20 Education Strategic Plan and reviewed data on Idaho's workforce education gap and potential credential production targets. Directed staff to do additional work with the Department of Labor, Department of Commerce, Workforce Development Council, and Governor's Office on identifying workforce need and production targets.
October 2019	Board reviewed K-20 Education System performance during the Work Session and Literacy Growth Targets during the Planning, Policy and Governmental Affairs portions of the agenda
February 2020	Board approved amendments to the FY21 K-20 Education Strategic Plan.
May 2020	The Board discussed amendments to the Board's K-20 Strategic plan as part of a facilitated Board retreat.
August 2020	Board approved a new mission and vision statement for the K-20 Education Strategic plan.
October 2020	Board reviewed K-20 Education System performance measures.
December 2020	Board discussed possible amendments to the FY 22 K-20 Education Strategic Plan.
February 2021	Board approved amendments to the FY22 K-20 Education Strategic Plan.
May 2021	Board discussed identifying three focus areas for K- 12 Education, K-4 Literacy, 5-8 Math, and HS credit recovery.
June 2021	Board approved the institutions' and agencies' strategic plans and delegated approval of the health and special program plans to the Executive Director.
October 2021	Board reviewed K-20 Education System performance measures.
December 2021	Board discussed possible amendments to the FY 23 K-

**PPGA** TAB 8 Page 1

20 Education Strategic Plan, including the addition of three focus areas for postsecondary education.

#### APPLICABLE STATUTE, RULE, OR POLICY

Idaho State Board of Education Governing Policies & Procedures, Section I.M. Planning and Reporting Section 67-1903, Idaho Code

#### **BACKGROUND/ DISCUSSION**

Idaho State Constitution, Article IX, Section 2, provides that the general supervision of the state educational institutions and public school system of the State of Idaho, "shall be vested in a state board of education, the membership, powers and duties of which shall be prescribed by law." Through obligations set in the State Constitution and Idaho statutes, the State Board of Education (Board) is charged with the general supervision, governance and control of all educational institutions and agencies supported in whole or in part by the state. This includes public schools, colleges and universities, Department of Education, Division of Career Technical Education, Idaho Public Television, and the Division of Vocational Rehabilitation. The Board and its executive agencies are charged with enforcing and implementing the education laws of the state.

Due to these broad responsibilities, the Board serves multiple roles. The Board sits as a policy-making body for all public education in Idaho, provides general oversight and governance for public K-20 education, and has a direct governance role as the Board of Regents for the University of Idaho and the board of trustees for the other public four-year college and universities. The K-20 Education strategic plan must encompass and serve all of these aspects of Idaho's public education system.

At the October regular Board meeting, the Board reviews performance measures from the K-20 Education Strategic Plan as well as the performance of the agencies and institutions. Unlike the strategic plan work, the performance measure review is a backward look at progress made during the previous four years toward reaching the strategic plan goals and objectives. At the December regular Board meeting Work Session, the Board reviews the K-20 strategic plan and provides direction for any proposed changes to be considered at the February regular Board meeting.

Section 67-2903, Idaho Code, sets out minimum planning elements that are required to be in every agency and institution strategic plan as well as the annual review and updating requirement that is the basis for the Board's strategic planning cycle.

#### **IMPACT**

Once the Board has approved the updated strategic plan, the agencies, institutions and special/health programs will update their strategic plans for the Board's consideration in April 2022 with final approval scheduled for June 2022.

#### **ATTACHMENTS**

Attachment 1 – FY 2023–2028 K-20 Education Strategic Plan Attachment 2 – K-20 Education Strategic Plan Performance Measures

#### **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

Starting with the Board's May 2021 Board Meeting, the Board has been discussing ways to focus the K-20 strategic plan while still meeting all of the state strategic planning requirements. To this end, the Board directed staff to add focus areas for the K-12 side of the education continuum and the postsecondary side of the education continuum. The identified focus areas are:

- K-4 Literacy Intervention
- 5-9 Mathematics
- High school credit recovery and completion
- Postsecondary recruitment and access
- Postsecondary retention
- Postsecondary transfer and completion

Staff have received feedback from two of the Board's standing committees and institutions, including amendments to the K-12 focus areas. Proposed amendments are identified in Attachments 1.

Staff recommends approval.

#### **BOARD ACTION**

I move to approve the FY 2023-2028 K-20 Educat	ion Strategic plan as provided
in Attachment 1.	

Moved by	Seconded by	Carried Yes	No

**ATTACHMENT 1** 



#### FY2023-2028

#### Idaho K-20 Public Education - Strategic Plan

MISSION

To drive improvement of the K-20 education system for the citizens of Idaho, focusing on quality, results, and accountability.

VISION

A student-centered education system that creates opportunities for all Idahoans to improve their quality of life.

An Idaho Education: High Potential – High Achievement

## GOAL 1: EDUCATIONAL SYSTEM ALIGNMENT –

Ensure that all components of the educational system are integrated and coordinated to maximize opportunities for all students.

**GOAL 2: EDUCATIONAL** 

READINESS — Provide a rigorous, uniform, and thorough education that empowers students to be lifelong learners and prepares all students to fully participate in their community and postsecondary and work force opportunities by assuring they are ready to learn at the next educational level.

**GOAL 3: EDUCATIONAL** 

ATTAINMENT – Idaho's public colleges and universities will award enough degrees and certificates to meet the education and forecasted workforce needs of Idaho residents necessary to survive and thrive in the changing economy.

**GOAL 4: WORKFORCE** 

READINESS - The educational system will provide an individualized environment that facilitates the creation of practical and theoretical knowledge leading to college and career readiness.

- Objective A: Data Access and Transparency Support data-informed decision-making and transparency through analysis and accessibility of our public K-20 educational system.
- <u>Objective B: Alignment and Coordination</u> Ensure the articulation and transfer of students throughout the education pipeline (secondary school, technical training, postsecondary, etc.).
- <u>Objective A: Rigorous Education</u> Deliver rigorous programs that challenge and prepare students to transition through each level of the educational system.
- Objective B: School Readiness Explore opportunities to enhance school readiness
- Objective A: Higher Level of Educational Attainment Increase completion of certificates and degrees through Idaho's educational system.
- <u>Objective B: Timely Degree Completion</u> Close the achievement gap, boost graduation rates and increase on-time degree completion through implementation of the Game Changers (structured schedules, math pathways, co-requisite support).
- <u>Objective C: Access</u> Increase access to Idaho's robust educational system for all Idahoans, regardless of socioeconomic status, age, or geographic location.
- Objective A: Workforce Alignment Prepare students to efficiently and effectively enter and succeed in the workforce.
- Objective B: Medical Education Deliver relevant education that meets the health care needs of Idaho and the region.

ATTACHMENT 1



### FY2023-2028 Idaho K-20 Public Education - Strategic Plan

An Idaho Education: High Potential – High Achievement

#### MISSION STATEMENT

To drive improvement of the K-20 education system for the citizens of Idaho, focusing on quality, results, and accountability.

#### **VISION STATEMENT**

A student-centered education system that creates opportunities for all Idahoans to improve their quality of life.

#### **GUIDING VALUES**

- Access
- Innovation
- Preparedness
- Resilience

#### **MID-TERM PRIORITY FOCUS AREAS**

#### **Elementary and Secondary Education**

- Literacy Proficiency and Growth kindergarten through grade 4
- Mathematics Proficiency and Growth grades 5 through 9
- High School Credit Recovery, and Completion, and Transition (Workforce or Postsecondary)

#### **Postseconday Education**

- Recruitment and Access
- Retention
- Transfer and Completion

ATTACHMENT 1

**GOAL 1: EDUCATIONAL SYSTEM ALIGNMENT (systemness)** – Ensure that all components of the educational system are integrated and coordinated to maximize opportunities for all students.

<u>Objective A: Data Access and Transparency</u> - Support data-informed decision-making and transparency through analysis and accessibility of our public K-20 educational system.

#### **Performance Measures:**

I. Development of a single K-20 data dashboard and timeline for implementation.

Benchmark: Completed by FY2022

<u>Objective B: Alignment and Coordination</u> – Ensure the articulation and transfer of students throughout the education pipeline (secondary school, technical training, postsecondary, etc.).

#### **Performance Measures:**

I. Percent of Idaho community college transfers who graduate from fouryear institutions.

Benchmark: 25% or more

II. Percent of postsecondary first time freshmen who graduated from an Idaho high school in the previous year requiring remedial education in math and language arts.

**Benchmark:** 2 year – less than 20% 4 year – less than 20%<sup>3</sup>

**GOAL 2: EDUCATIONAL READINESS (student-centered)** – Provide a rigorous, uniform, and thorough education that empowers students to be lifelong learners and prepares all students to fully participate in their community and postsecondary and workforce opportunities by assuring they are ready to learn for at the next educational level.

<u>Objective A: Rigorous Education</u> – Deliver rigorous programs that challenge and prepare students to transition through each level of the educational system.

#### **Performance Measures:**

I. Performance of students scoring at grade level or higher on the statewide reading assessment (broken out by grade level, K-3).

Benchmark:

Idaho Reading Assessment	Benchmark
Kindergarten	70%
1st Grade	70%

ATTACHMENT 1

	<b>A</b>
2nd Grade	80%
3rd Grade	80%

II. Growth Fall to Spring of student cohorts scoring at grade level or higher on the statewide reading assessment (broken out by grade level, K-3).

#### Benchmark:

201101111111111	
Idaho Reading Assessment	Benchmark
Kindergarten Cohort	55%
1st Grade	55%
2nd Grade	65%
3rd Grade	65%

II. Percentage of students meeting proficient or advance on the Idaho Standards Achievement Test (broken out by subject at each transition grade level, 5, 8, high school).

#### Benchmark:

Delicilliark.	
Idaho Standards Achievement Test	Benchmark
Math	
5th Grade	58.59%
8th Grade	57.59%
High School	53.30%
ELA	
5th Grade	68.04%
8th Grade	67.64%
High School	73.60%
Science	_
5th Grade	FY22 Baseline
High School	FY22 Baseline

III. High School Cohort Graduation rate.

Benchmark: 95%<sup>3</sup> or more

IV. Percentage of Idaho high school graduates meeting college placement/entrance exam college readiness benchmarks.

**Benchmark:** SAT – 60%<sup>1</sup> or more ACT – 60%<sup>1</sup> or more

V. Percent of high school graduates who participated in one or more advanced opportunities.

Benchmark: 8090%1 or more

VI. Percent of dual credit students who graduate high school with an associates degree.

Benchmark: 3%<sup>2</sup> or more

ATTACHMENT 1

### VII. Percent of high school graduates who enroll in a postsecondary institution:

Within 12 months of high school graduation.

Benchmark: 60%3 or more

Within 36 months of high school graduation.

Benchmark: 80%4 or more

Objective B: School Readiness – Explore opportunities to enhance school readiness.

#### **Performance Measures:**

I. Percentage of students scoring at grade level on the statewide reading assessment during the Fall administration in Kindergarten.

Benchmark: 70%

GOAL 3: EDUCATIONAL ATTAINMENT (opportunity) – Idaho's public colleges and universities and career technical education programs will award enough degrees and certificates <u>credentials</u> to meet the education and forecasted workforce needs of Idaho residents necessary to survive and thrive in the changing economy fuel a strong workforce pipeline evidenced through a greater numbers of student completing certificates and/or degrees, including workforce credentials.

<u>Objective A: Higher Level of Educational Attainment</u> – Increase completion of certificates and degrees through Idaho's educational system.

#### **Performance Measures:**

- II. Total number of certificates/degrees conferred, by institution per year:
  - a) Workforce Credentials (pending definition)
  - b) Certificates
  - c) Associate degrees
  - d) Baccalaureate degrees
  - e) Graduate degrees

Total number of certificates/degrees produced,	Benchmark	Benchmark
by institution annually	FY 2025	FY2027
Workforce Certificates (based on		
certificates of less than one academic year)		
College of Eastern Idaho		
College of Southern Idaho	142	150
College of Western Idaho	301	335
North Idaho College	92	
Certificates of at least one academic year	4437 <sup>1</sup> /1262 <sup>2</sup>	2154

<sup>&</sup>lt;sup>1</sup> Targets based on projected work force need

PPGA TAB 8 Page 5

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<sup>&</sup>lt;sup>2</sup> Institution recommended target based on current awards and projected growth in student enrollment, retention, and completion.

		ATTACHN	IENT 1
College of Eastern Idaho	241	300	
College of Southern Idaho	195	207	
College of Western Idaho	365	402	
North Idaho College	117	764	
Boise State University	NA	NA	
Idaho State University	319	455	
Lewis-Clark State College	25	26	
University of Idaho	NA	NA	
Associate degrees	4070/4157	4378	
College of Eastern Idaho	517	530	
College of Southern Idaho	1067	1132	
College of Western Idaho	981	1049	
North Idaho College	700	800	
Boise State University	150	NA	
Idaho State University	467	579	
Lewis-Clark State College	275	288	
University of Idaho	NA	NA	
Baccalaureate degrees	11897/7896	12911	1
Boise State University	4351	6668	
Idaho State University	1209	2306	
Lewis-Clark State College	534	559	
University of Idaho	1802	3378	
Masters degrees	2146	2226	
Doctoral or Professional degrees	1069	1305	

III. Percentage of new full-time degree-seeking students who return (or who graduate) for second year in an Idaho postsecondary public institution. (Distinguish between new freshmen and transfers)

**Benchmark:** (2 year Institutions) 75%<sup>3</sup> or more (4 year Institutions) 85%<sup>3</sup> or more

IV. Percent of full-time first-time freshman graduating within 150% of time or less (2yr and 4yr).

Benchmark: 50%³ or more (2yr/4yr)

<u>Objective B: Timely Degree Completion</u> – Close the achievement gap, boost graduation rates and increase on-time degree completion through implementation of the Game Changers (structured schedules, math pathways, co-requisite support).

#### **Performance Measures:**

I. Percent of undergraduate, degree-seeking students completing 30 or more credits per academic year at the institution reporting.

Benchmark: 50% or more

ATTACHMENT 1

II. Percent of new degree-seeking freshmen completing a gateway math course within two years.

Benchmark: 60% or more

III. Median number of credits earned at completion of associate's or baccalaureate degree program.

**Benchmark:** Transfer Students: 69/138<sup>2</sup> or less **Benchmark:** non-transfer students: 69/138<sup>2</sup> or less

<u>Objective C: Access</u> - Increase access to Idaho's robust educational system for all Idahoans, regardless of socioeconomic status, age, or geographic location.

#### Performance Measures:

I. Annual number of state-funded scholarships awarded and total dollar amount.

Benchmark: 3,000<sup>5</sup> or more, \$16M<sup>6</sup> or more

#... Proportion of postsecondary graduates with student loan debt.

Benchmark: 5040% or less<sup>7</sup>

Percent of students who complete the Free Application for Federal Student Aid (FAFSA).

Benchmark: 60% or more

**IV.III.** Percent cost of attendance (to the student)

**Benchmark:** 96%<sup>4</sup> or less of average cost of peer institutions

**V.IV.** Average net cost price to attend public institution.

**Benchmark:** 4-year institutions - 90% or less of peers<sup>4</sup> (using IPEDS calculation)

V. Average net price differential. (This new measure looks at the average net price between students in the highest family income band and the lowest family income band)

**Benchmark:** TBD (using IPEDS calculation)

VI. Expense per student FTE

Benchmark: \$20.000<sup>4</sup> or less

VII. Number of degrees produced Unduplicated headcount of graduates, by highest level attained.

Benchmark: 15,000<sup>3</sup> or more

**ATTACHMENT 1** 

**GOAL 4: WORKFORCE READINESS (opportunity)** – The educational system will provide an individualized environment that facilitates the creation of practical and theoretical knowledge leading to college and career readiness.

<u>Objective A: Workforce Alignment</u> – Prepare students to efficiently and effectively enter and succeed in the workforce.

#### **Performance Measures:**

I. Percentage of <u>high school student participating in apprenticeships and postsecondary</u> students participating in internships.

Benchmark: 10%4 or more New measure

II. Percentage of undergraduate students participating in undergraduate research.

Benchmark: Varies by institution<sup>4</sup>

Percent of non - STEM to STEM baccalaureate degrees conferred in STEM fields (CCA/IPEDS Definition of STEM fields).

Benchmark: 25%

IV.III. Increase in <u>secondary career technical programs and</u> postsecondary programs tied to workforce needs per year.

Benchmark: 10508 or more

<u>Objective B: Medical Education</u> – Deliver relevant education that meets the health care needs of Idaho and the region.

#### **Performance Measures:**

- I. Number of University of Utah Medical School or WWAMI graduates who are residents in one of Idaho's graduate medical education programs.

  Benchmark: 89 graduates at any one time
- II. Idaho graduates who participated in one of the state sponsored medical programs who returned to Idaho.

Benchmark: 60%<sup>10</sup> or more

III. Percentage of Family Medicine Residency graduates practicing in Idaho.

Benchmark: 6080% 10 or more

IV. Percentage of Psychiatry Residency Program graduates practicing in Idaho.

Benchmark: 50%<sup>10</sup> or more

V. Medical related postsecondary programs (other than nursing).

**Benchmark:** 1009\_1208 or more

ATTACHMENT 1

#### **KEY EXTERNAL FACTORS**

Idaho public universities are regionally accredited by the Northwest Commission on Colleges and Universities (NWCCU). To that end, there are 24 eligibility requirements and five standards, containing 114 subsets for which the institutions must maintain compliance. The five standards for accreditation are statements that articulate the quality and effectiveness expected of accredited institutions, and collectively provide a framework for continuous improvement within the postsecondary institutions. The five standards also serve as indicators by which institutions are evaluated by national peers. The standards are designed to guide institutions in a process of self-reflection that blends analysis and synthesis in a holistic examination of:

- > The institution's mission and core themes;
- > The translation of the mission's core themes into assessable objectives supported by programs and services;
- > The appraisal of the institution's potential to fulfill the Mission;
- The planning and implementation involved in achieving and assessing the desired outcomes of programs and services; and
- > An evaluation of the results of the institution's efforts to fulfill the Mission and assess its ability to monitor its environment, adapt, and sustain itself as a viable institution.

#### **EVALUATION PROCESS**

The Board convenes representatives from the institutions, agencies, and other interested education stakeholders to review and recommend amendments to the Board's Planning, Policy and Governmental Affairs Committee regarding the development of the K-20 Education Strategic Plan. Recommendations are then presented to the Board for consideration in December. Additionally, the Board reviews and considers amendments to the strategic plan annually, changes may be brought forward from the Planning, Policy, and Governmental Affairs Committee, Board staff, or other ad hoc input received during the year. This review and re-approval takes into consideration performance measure progress reported to the Board in October.

Performance towards meeting the set benchmarks is reviewed and discussed annually with the State Board of Education in October. The Board may choose at that time to direct staff to change or adjust performance measures or benchmarks contained in the K-20 Education Strategic Plan. Feedback received from the institutions and agencies as well as other education stakeholders is considered at this time.

PPGA TAB 8 Page 9

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<sup>&</sup>lt;sup>1</sup> Benchmark is set based on the increase needed to meet the state educational attainment goal (60%).

<sup>&</sup>lt;sup>2</sup> Benchmark is set based on analysis of available and projected resources (staff, facilities, and funding).

<sup>&</sup>lt;sup>3</sup> Benchmark is set based on an analysis of historical trends combined with the desired level of achievement and available and projected resources (staff, facilities and funding). Desired level of achievement is based on projected change needed to move the needle on the states 60% educational attainment goal.

<sup>&</sup>lt;sup>4</sup> Benchmark is set based on an analysis of historical trends combined with the desired level of achievement and available and projected resources (staff, facilities and funding).

**ATTACHMENT 1** 

<sup>&</sup>lt;sup>7</sup> Benchmarks are set based on analysis of available and projected resources (staff, facilities, and funding) and established best practices and what can realistically be accomplished while still qualifying as a stretch goal and not status quo.

<sup>&</sup>lt;sup>8</sup> New measure.

<sup>&</sup>lt;sup>9</sup> Benchmark is set based on projected and currently available state resources.

<sup>&</sup>lt;sup>10</sup> Benchmark is set based on an analysis of historical trends combined with the desired level of achievement and available and projected resources (staff, facilities and funding). Desired level of achievement is set at a rate greater than similar programs in other states.

**ATTACHMENT 2** 

	FEDRU	ART 17, 20	22			ATTACHWENT 2			
	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	Benchmark		
Goal 1: EDUCATIONAL SYSTEM ALIGNMENT - Ensure that all components o	f the education	al system are in	tegrated and o	coordinated to ma	aximize opportu	nities for all stud	ents.		
Objective A: Data Access and Transparency - Support data-informe	d decision-mak	ing and transpa	rency through	analysis and acce	ssibility of our p	ublic K-20 educa	tional system.		
Development of a single K-20 data dashboard and timeline for									
implementation							FY2022		
Objective B: Alignment and Coordination -Ensure the articular and	transfer of stud	lents throughou	t the educatio	n pipeline.					
Percent of graduates from Four-year institution who transferred from									
Idaho community college1	15%	15%	16%	17%	16%	13%	25% or more		
Percent of postsecondary first time freshmen who graduated from an Idaho									
high school in the previous year requiring remedial education in math	2014-15	2015-16	2016-17						
and/or language arts <sup>1</sup>	graduates	graduates	graduates	2017-18 graduates	2018-19 graduates	2019-20 graduates			
Two-year institution							Less than 20%		
Math	50.5%	49.4%	45.6%	41.5%	39.1%	29.8%			
English	23.9%	25.1%	19.0%	15.0%	15.3%	14.1%			
Four-year institution							Less than 20%		
Math	35.6%	37.1%	35.8%	33.1%	29.9%	26.7%			
English	14.7%	15.2%	18.3%	18.1%	14.5%	14.1%			
Goal 2: EDUCATIONAL READINESS - Provide a rigorous, uniform, and thoro	ugh education t	hat empowers	students to be	lifelong learners	and prepares all	students to fully	participate in		
their community and postsecondary and workforce opportunities.	•			<b>0</b>		· · · · · · · · · · · · · · · · · · ·			
Objective A: Rigorous Education - Deliver rigorous programs that cl	hallenge and pr	epare students	to transition th	rough each level	of the educatio	nal system.			
	у да така ра								
Performance of students scoring at grade level or higher on the statewide	6 : 2016	6 : 2017	6 : 2010	6 : 2010	s : 2020	6 : 2024			
reading assessment	Spring 2016	Spring 2017	Spring 2018	Spring 2019	Spring 2020 NA <sup>10</sup>	Spring 2021	700/		
Kindergarten				63.1%	NA NA <sup>10</sup>	61.3%	70%		
1st Grade				66.7%	NA NA <sup>10</sup>	59.5%	70%		
2nd Grade 3rd Grade				75.3%	NA NA <sup>™</sup>	69.2% 70.1%	80% 80%		
				73.2%	IVA	70.1%	80%		
Growth Fall to Spring of student cohorts scoring at grade level or higher on									
the statewide reading assessment (broken out by grade level, K-3)	Fall 2015	Fall 2016	Fall 2017	Fall 2018	Fall 2019	Fall 2020			
Kindergarten				44.9%	42.3%	43.4%	55%		
1st Grade				42.9%	48.9%	41.7%	55%		
2nd Grade				60.3%	62.9%	54.3%	65%		
3rd Grade				61.2%	64.0%	58.3%	65%		
Growth									
Kindergarten				18.2%	NA <sup>10</sup>	17.9%	55%		
1st Grade				23.8%	NA <sup>10</sup>	17.8%	55%		
2nd Grade				15.0%	NA <sup>10</sup>	14.9%	65%		
3rd Grade				12.0%	NA <sup>10</sup>	11.8%	65%		

### **ATTACHMENT 2**

2 of 6

	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	Benchmark
Percentage of students meeting proficient or advanced on the Idaho							
Standards Achievement Test <sup>10</sup>	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	
Math			- <del>-</del>				
5th Grade		42.3%	43.8%	45.5%	NA <sup>10</sup>	39.8%	58.59%
8th Grade		39.5%	42.1%	41.6%	NA <sup>10</sup>	35.8%	57.59%
High School		33.2%	34.2%	34.7%	NA <sup>10</sup>	32.6%	53.30%
ELA							
5th Grade		54.2%	55.8%	57.3%	NA <sup>10</sup>	55.3%	68.04%
8th Grade		52.9%	54.7%	54.4%	NA <sup>10</sup>	55.5%	67.64%
High School		60.3%	60.6%	60.3%	NA <sup>10</sup>	60.1%	73.60%
Science							
5th Grade		66.5%	65.6%	64.8%	NA <sup>10</sup>	NA	FY21 Baseline
High School		65.2%	67.3%	62.8%	NA <sup>10</sup>	NA	FY21 Baseline
	2014-15	2015-16	2016-17				
	graduates	graduates	graduates	_	=	2019-20 graduates	4.1 .050/
High School Cohort Graduation Rate	78.9%	79.7%	79.7%	80.6%	80.7%	82.1%	At least 95%
Percentage of Idaho high school graduates meeting college	2016	2017	2018	2019	2020	2021	
placement/entrance exam college readiness benchmarks	graduates	graduates	graduates	graduates	graduates	graduates	
ACT	36%	33%	34%	35%	37%		At least 60%
English	77%	71%	72%	73%	74%		
Mathematics	54%	49%	49%	51%	52%		
Reading	59%	57%	57%	59%	61%		
Science	46%	44%	45%	47%	49%		
SAT		34%	33%	32%	32%		At least 60%
Evidence-Based Reading and Writing (ERW)		63%	60%	58%	57%		
Mathematics	Test changed	36%	35%	34%	34%		
Percent of high school graduates who participated in one or more advanced	2016	2017	2018	2019	2020	2021	
opportunities <sup>2</sup>	graduates	graduates	graduates	graduates	graduates	graduates	
Any Advanced Opportunities	87%	89%	90%	90%	87%	83%	At least 90%
Specific Advanced Opportunities							
Advanced Placement	39%	38%	39%	39%	40%	41%	
International Baccalaureate	7%	3%	2%	1%	1%	1%	
Dual Credit (Earned) <sup>2</sup>	42%	48%	54%	58%	60%	60%	
Technical Competency Credit	54%	62%	59%	56%	44%	24%	
Industry Certification			2%	2%	3%	3%	
Percent of dual credit students who graduate high school with an							
Associate's Degree	1.15%	1.55%	1.42%	1.39%	1.68%	NA	At least 3%
-	2016	2017	2018	2019	2020	2021	
Percent of high school graduates who enroll in a postsecondary institution	graduates	graduates	graduates	graduates	graduates	graduates	

### **ATTACHMENT 2**

	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	Benchmark	
Fall Immediately after high school graduation	49.3%	49.7%	47.6%	45.5%	38.0%			
Within 12 months of high school graduation	53.0%	53.0%	52.0%	49.0%			At least 60%	
Within 36 months of high school graduation	64.2%	63.0%					At least 80%	
Objective B: School Readiness - Explore opportunities to enhance school readiness.								
	Fall 2015	Fall 2016	Fall 2017	Fall 2018	Fall 2019	Fall 2020		
Percentage of students scoring at grade level on the statewide reading								
assessment during the Fall administration in Kindergarten.	NA	NA	NA	44.9%	42.3%	43.4%	70.0%	

Idaho residents necessary to survive and thrive in the changing economy.  Objective A: Higher Level of Educational Attainment - Increase con	npletion of certi	ficates and degr	rees through Ida	ho's educationa	l system.		
Percent of Idahoans (ages 25-34) who have a college degree or certificate							
requiring one academic year or more of study <sup>3</sup>	42.4%	42.4%	41.8%	42.2%	43.8%		At least 60%
Total number of certificates/degrees produced, by institution per year <sup>1</sup>	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	
Certificates of at least one year	1,059	1,221	1,564	1,685	2,293	2,294	2154
College of Eastern Idaho	102	109	110	108	110	96	300
College of Southern Idaho	192	151	154	146	129	147	207
College of Western Idaho	229	240	402	508	1264	1158	402
North Idaho College	259	431	556	604	619	639	764
Boise State University	0	0	0	0	0	0	NA
Idaho State University	200	194	200	215	171	304	455
Lewis-Clark State College	22	18	19	12	14	19	26
University of Idaho	0	0	0	0	0	0	NA
Associate degrees	3,637	3,541	3,580	3,461	3,583	3,584	4378
College of Eastern Idaho	118	121	93	147	164	227	530
College of Southern Idaho	919	816	800	839	947	947	1132
College of Western Idaho	996	979	984	886	949	944	1049
North Idaho College	749	687	690	681	657	717	800
Boise State University	145	116	119	133	111	132	NA
Idaho State University	362	405	472	428	420	494	579
Lewis-Clark State College	351	414	425	347	365	218	288
University of Idaho	0	0	0	0	0	0	NA
Baccalaureate degrees	6,808	6,865	6,924	7,033	7,101	7,102	12911
Boise State University	3,174	3,317	3,373	3,472	3,680	3,929	6668
Idaho State University	1,228	1,168	1,166	1,233	1,155	1,284	2306
Lewis-Clark State College	541	528	587	626	505	599	559
University of Idaho	1,865	1,852	1,798	1,702	1,761	1,631	3378
Percentage of new full-time degree seeking students who return (or who	Fall 2015	Fall 2016	Fall 2017	Fall 2018	Fall 2019	Fall 2020	<del></del>
graduate) for second year in an Idaho postsecondary institution <sup>1</sup>	cohort	cohort	cohort	cohort	cohort	cohort	

### **ATTACHMENT 2**

·							
	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	Benchmark
Two-year institution							
New student	52%	56%	55%	54%	58%	60%	At least 75%
Transfer	58%	61%	65%	57%	63%	61%	At least 75%
Four-year institution							
New student	74%	74%	75%	74%	75%	72%	At least 85%
Transfer	72%	76%	76%	75%	76%	74%	At least 85%
Percent of full-time, first-time freshman graduating within 150% of time or							
less <sup>1</sup>							
	2013-14 cohort	2014-15 cohort	2015-16 cohort	2016-17 cohort	2017-18 cohort	2018-19 cohort	
Two-year institution	20%	22%	25%	26%	28%	29%	At least 50%
	2010-11 cohort	2011-12 cohort	2012-13 cohort	2013-14 cohort	2014-15 cohort	2015-16 cohort	
Four-year institution	41%	42%	46%	47%	49%	50%	At least 50%
Objective B: Timely Degree Completion - Close the achievement ga	p, boost gradua	tion rates and i	ncrease on-time	degree complet	tion through im	plementation of	the Game
Changers (structured schedules, math pathways, co-requisite suppo	ort).						
Percent of undergraduate, degree-seeking students completing 30 or more							
credits per academic year at the institution reporting <sup>1</sup>	21%	21%	22%	23%	23%	22%	50% or more
Two-year institution	7%	7%	7%	8%	7%	7%	
Four-year institution	26%	27%	28%	30%	31%	30%	
Percent of new degree-seeking freshmen completing a gateway math	2013-14 cohort	2014-15 cohort	2015-16 cohort	2016-17 cohort	2017-18 cohort	2018-19 cohort	
course within two years <sup>1</sup>	40%	44%	47%	48%	47%	26%	60% or more
Median number of credits earned at completion of Associate's or							
Baccalaureate degree program <sup>1</sup>							
Transfer students							
Associate - Two Year Institution	79	75	75	80	75	83	69
Associate - Four Year Institution	129	131	127	116	118	96	
Baccalaureate	145	145	145	146	143	143	138
Non-transfer students							
Associate - Two Year Institution	77	71	71	71	69	69	69
Associate - Four Year Institution							
Baccalaureate	112	106	106	106	101	81	
Objective C. Assess Insurance assess to Ideb de unbook advectional	112 137	106 137	106 136	106 136	101 133	81 135	138
Objective C: Access - Increase access to Idaho's robust educational	137	137	136	136	133	135	138
Annual number of state-funded scholarships awarded and total dollar	137	137	136	136	133	135	138
	137	137	136	136	133	135	138
Annual number of state-funded scholarships awarded and total dollar	137 system for all Id	137 lahoans, regard	136 less of socioecor	136 nomic status, ag	133 e, or geographic	135 clocations.	138 At least 7,000
Annual number of state-funded scholarships awarded and total dollar amount	137 system for all Io FY2016	137 dahoans, regard FY2017	136 less of socioecor FY2018	136 nomic status, ag FY2019	133 e, or geographic FY2020	135 c locations.	
Annual number of state-funded scholarships awarded and total dollar amount Total Scholarships Awarded	137 system for all lo FY2016 1,774	137 Jahoans, regard FY2017 3,487	136 less of socioecor FY2018 3,795	136 nomic status, ag FY2019 4,403	133 e, or geographio FY2020 4,988	135 c locations. FY2021 6,356	
Annual number of state-funded scholarships awarded and total dollar amount Total Scholarships Awarded Armed Forces and Public Safety Officer Scholarship	137 system for all lo FY2016 1,774	137 Jahoans, regard FY2017 3,487 10	136 less of socioecor FY2018 3,795 11	136 nomic status, ag FY2019 4,403 13	133 e, or geographio FY2020 4,988 12	135 c locations. FY2021 6,356	

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#### **ATTACHMENT 2**

	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	Benchmark
Total Dollar Amount of Scholarships Awarded	\$5,300,248	\$10,074,212	\$11,822,718	\$14,641,323	\$16,263,535	\$20,874,646	At least \$21 M
Armed Forces and Public Safety Officer Scholarship	\$176,000	\$152,038	\$174,497	\$185,627	\$158,777	\$98,915	
Opportunity Scholarship	\$5,124,248	\$9,901,424	\$11,585,371	\$14,237,582	\$15,628,220	\$20,439,343	
Opportunity Scholarship for Adult Learners	\$0	\$0	\$0	\$104,564	\$357,088	\$324,909	
Postsecondary Credit Scholarship	\$0	\$20,750	\$62,850	\$113,550	\$119,450	\$11,479	
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	
	graduates	graduates	graduates	graduates	graduates	graduates	
Proportion of postsecondary graduates with student loan debt	50%	45%	45%	44%	42%	40%	
Two-year institution	48%	41%	42%	40%	38%	35%	
Four-year institution	50%	46%	46%	46%	43%	42%	Less than 40%
		2016-17	2017-18	2018-19	2019-20	2020-21	
Percent of students who complete the Free Application for Federal Student	NI A	graduates	graduates	graduates	graduates	graduates	C00/
Aid (FAFSA) - Limited to graduating class cohort	NA	60%	61%	52%	51%	46%	60% or more
Percent cost of attendance (to the student) <sup>3</sup>							
In-State First Time, Full Time Degree Seeking Undergraduate living on							
campus (In-District for Two-Year)	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	
Two-year institution							
Students living off campus (w family)	88%	92%	94%	97%	91%	92%	96%
Four-year institution							
Students living on campus	96%	91%	88%	90%	88%	90%	96%
Students living off campus (w family)	102%	98%	88%	88%	88%	89%	96%
Average net cost to attend public institution. <sup>3</sup>							
First Time, Full Time Degree Seeking Undergraduate awarded grant or							
scholarhip	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	
Four-year institution	101.1%	94.4%	98.1%	94.3%	93.1%		90% of peers
Expense per student FTE <sup>3</sup>	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	•
IPEDS Total expenses and deductions / 12 Month FTE (Undergrad, Grad							
& PhD)	\$22,140	\$23,758	\$24,516	\$25,111	\$25,415		Less than \$20,000
Two-year institution	\$13,883	\$15,168	\$15,432	\$15,196	\$15 <i>,</i> 339		,
Four-year institution	\$25,118	\$26,691	\$27,706	\$28,766	\$29,168		
Number of degrees produced (Undergraduate) <sup>1</sup>	11,489	12,944	13,299	13,239	13,656	14,620	At least 15,000

Goal 4: WORKFORCE READINESS - Ensure the educational system provides an individualized environment that facilitates the creation of practical and theoretical knowledge leading to college and career readiness.

Objective A: Workforce Alignment - Prepare students to efficiently and effectively enter and succeed in the workforce.									
Percentage of students participating in internships	5%	5%	8%	6%	6%	6%	10% or more		
Percentage of undergraduate students participating in undergraduate									
research. <sup>1</sup>									
BSU	35%	37%	37%	43%	43%	34%	Greater than 40%		
ISU	43%	42%	41%	38%	36%	37%	Greater than 50%		

#### **ATTACHMENT 2**

	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	Benchmark
UI	64%	65%	61%	58%	60%	56%	Greater than 60%
LCSC	10%	14%	16%	20%	12%	11%	
Ratio of non-STEM to STEM baccalaureate degrees conferred in STEM							
fields <sup>1</sup>	1:0.21	1:0.22	1:0.22	1:0.22	1:0.22	1:0.20	25% or more
Increase in postsecondary programs tied to workforce needs	23	20	20	22	45	46	50
Objective B: Medical Education - Deliver relevant education that m	eets the heal	th care needs of Io	laho and the re	gion.			
Number of University of Utah Medical School or WWAMI graduates who							
are residents in one of Idaho's graduate medical education programs. <sup>5</sup>	NA	4	8	11	11	21	8
Idaho graduates who participated in one of the state sponsored medical							
programs who returned to Idaho	NA	WWAMI - 50%	WWAMI-51%	WWAMI-51%	WWAMI-51%	WWAMI-50%	At least 60%
Percentage of Family Medicine Residency graduates practicing in Idaho							
Boise	47%	56%	53%	73%	63%	38%	At least 60%
ISU	43%	71%	29%	43%	43%	71%	At least 80%
CDA	NA	50%	83%	72%	67%	71%	At least 80%
	7,77	30,0	2370	. 270	2770	. 270	
Percentage of Psychiatry Residency Program graduates practicing in Idaho.	NA	NA	NA	NA	NA	NA	At least 50%
Medical related postsecondary programs (other than nursing)	79	84	91	102	111	115	120

#### Notes:

PPGA TAB 8 Page 6 6 of 6

<sup>&</sup>lt;sup>1</sup> FY20 performance measures for the postsecondary institutions are preliminary.

<sup>&</sup>lt;sup>2</sup> SDE report card data except Dual Credit has been modified to only include students with earned course credits

<sup>&</sup>lt;sup>3</sup> This metric is contingent on the IPEDS data release.

<sup>&</sup>lt;sup>4</sup> The Public Use Microdata Sample of the American Community Survey is published In November ea year.

<sup>&</sup>lt;sup>5</sup> An expansion in the number of graduate medical programs in the state resulted in increased gradutes in FY21

<sup>&</sup>lt;sup>10</sup> Spring IRI tests results not tabulated, ISAT not administered due to COVID closures

#### **SUBJECT**

Educator Preparation Program (EPP) Performance Measures Report (FY22)

#### REFERENCE

October 2016 Board was updated on progress made toward

developing educator preparation program

effectiveness/performance measures.

December 2016 Board approved the proposed measures for

determining Educator Preparation Provider program

effectiveness.

December 2018 Board accepted the pilot report on the approved

measures and set the regular December 2019 Board

meeting as the deadline for the full report.

#### APPLICABLE STATUTE, RULE, OR POLICY

Higher Education Act of 1965, §§207 (2008) Idaho Code § 33-1207A

#### **BACKGROUND/DISCUSSION**

Annually, the Office of the State Board of Education (OSBE) certifies and submits Idaho's Title II report to the U.S. Department of Education (USDOE). The report includes data from public and private educator preparation programs (EPPs) authorized by the State Board of Education (the Board) to prepare individuals for certification in Idaho. On October 16, 2016 the USDOE released the revised Title II requirements. The rule imposed new reporting measures—beyond the basics required for annual reports under the Higher Education Act—which identified levels of program effectiveness to drive continuous improvement.

These federal regulations intended to promote transparency about the effectiveness of all EPPs (traditional, alternative routes, and distance) by requiring states to report annually—at the program level—on the following measures:

- Feedback from graduates and their employers on the effectiveness of program preparation;
- Student learning outcomes measured by novice teachers' student growth, teacher evaluation results, and/or another state-determined measure that is relevant to students' outcomes, including academic performance, and meaningfully differentiates amongst teachers;
- Placement and retention rates of graduates in their first three years of teaching, including placement and retention in high-need schools; and
- Other program characteristics, including assurances that the program has specialized accreditation or graduates candidates with content and pedagogical knowledge, and quality clinical preparation, who have met rigorous exit requirements.

States were allowed flexibility in determining how to weigh all outcome measures but were required to categorize program effectiveness using at least three levels of performance: Effective, At-Risk, and Low-Performing. These federal requirements were designed to facilitate ongoing feedback amongst programs, prospective teachers, schools and districts, states, and the public.

In early 2013, while the proposed Title II (Higher Education Act) rule was moving through the process of negotiated rulemaking at the federal level, Idaho's educator preparation leaders—the Idaho Coalition for Educator Preparation (ICEP) and the Idaho Association of Colleges of Teacher Education (IACTE)—were already working toward defining how Idaho programs would meet these requirements.

In December 2016, the Board approved the proposed performance measures designed by ICEP and IACTE, and recommended by the Professional Standards Commission (PSC). Although the 2016 reauthorization of Title II never came to fruition, the State Board stayed the course in requiring the reporting measures. At the time of approval in December 2016, the implementation plan was for preliminary or baseline data to be collected and reported to the Board in December 2018 and full reporting to the Board starting in December 2019.

In December 2018, a pilot report with incomplete preliminary data from four EPPs was presented to the Board. This pilot identified data collection obstacles and discussed the intention of convening a "consultation group" to make final recommendations for implementing the performance measures. Although the Board voted to accept the preliminary report and keep the December 2019 deadline for full reporting, several complications (including OSBE staff turnover and the later COVID-19 pandemic) delayed this work and prevented it from being completed as planned.

Work on the performance measures was recently resumed as OSBE returned to full staffing in the summer of 2021. With the first full report now two years overdue, the process was expedited—relying on the most recent draft of the implementation plan to develop a baseline report for all currently-approved EPPs. This report is presented as Attachment 1.

Significant issues with the performance measures were revealed in the process of preparing this report. These include a lack of data uniformity among EPPs, substantial unavailable/missing data, concerns about the validity of certain measures, and major changes to relevant standards and statute since the original development and adoption of the rubric. This prevented the scoring of some categories of the rubric, as well as the determination of overall performance ratings for the EPPs. Detailed explanations for these gaps are provided in the report's footnotes.

#### **IMPACT**

Educator preparation program performance measures promote transparency around the effectiveness of public educator preparation providers. Once fully implemented, such measures allow the Board to identify and incentivize excellent preparation programs as necessary, particularly in light of Idaho's teacher pipeline challenges and disparate program review standards.

#### **ATTACHMENTS**

Attachment 1 – FY22 EPP Performance Report

#### STAFF COMMENTS AND RECOMMENDATIONS

Since the adoption of the EPP Performance Measures used in this report, Idaho Code § 33-1207A has changed in a way that directly impacts program reviews. Specifically, reviews of nonpublic EPPs are now limited in scope to only focusing on the knowledge (or equivalent) standards set forth in the initial standards for teacher certification. This has created a scenario where reviews of public and nonpublic programs are no longer uniform—and where some programs will lack data relevant to the EPP Performance Measures as currently written.

Additionally, there are concerns regarding the availability of some data (such as the alumni and employer surveys) as well as the reliability of certain metrics that could fluctuate wildly from year to year (especially for programs with few completers). This makes continuing forward with the EPP Performance Measures in their current form untenable. Without changes, generating a complete and meaningful report that supports continuing improvement and allows for ongoing apples-to-apples comparisons will be impossible.

However, this can be seen as an opportunity to improve these measures by bringing them in-line with the current statutory context and making them comparable across all EPPs (both public and nonpublic). With the added statutory limitation on evaluating non-public programs in the context of renewal or non-renewal—and the increased skepticism of the value of requiring EPPs to meet a minimum standard—it will be even more critical moving forward that the Board has strong performance measures for evaluating the effectiveness of all EPPs in relation to student outcomes.

As such, it is recommended that the Board refer the EPP Performance Measures back to Board staff for revision.

Such a revision process will also allow for the consideration of recent literature regarding the measurement of EPP effectiveness—potentially leading to more validated, outcome-based metrics that can better inform policy and improvement decisions. Although this could involve the consideration of new data collection processes, efforts would be made to capitalize on metrics that are already being collected to avoid creating unnecessary burdens.

## **BOARD ACTION**

I move to adopt the edu in Attachment 1.	icator preparation program	performance report	as provided
Moved by	Seconded by	Carried Yes	. No
AND			
performance measures	ard staff to revise the early as recommended and set to present the new measu	the regular August	
Moved by	Seconded by	Carried Yes	No

# FY22 Educator Preparation Program (EPP) Performance Measures

A Report Utilizing Data from the 2020-2021 Academic Year and the Most Recent Program Reviews for Each EPP

These measures were adopted by the State Board of Education in December 2016 for assessing the performance of Idaho's Educator Preparation Programs (EPPs). There are four individually weighted categories, each of which are broken into subcategories with their own available point value. The EPPs receive a rating (i.e., effective, at risk, low performing) on each subcategory, which is determined by comparing relevant data to the attached scoring rubric.

Finally, each EPP receives an OVERALL PROGRAM RATING based on the total sum earned out of the 100 available points.

	Category 1: Student Learning Outcomes (15% Weighting)										
Student Growth  (10 Points Available)  2020-2021 data on 1 <sup>st</sup> year teachers reported by districts as part of Career Ladder requirement (% "yes" vs "no" indicating if students met educator's Measurable Student Achievement targeting (% "yes" vs "no" indicating if students met educator's Measurable Student Achievement targeting (% "yes" vs "no" indicating if students met educator's Measurable Student Achievement targeting (% "yes" vs "no" indicating if students met educator's Measurable Student Achievement targeting (% "yes" vs "no" indicating if students met educator's Measurable Student Achievement targeting (% "yes" vs "no" indicating if students met educator's Measurable Student Achievement targeting (% "yes" vs "no" indicating if students met educator's Measurable Student Achievement targeting (% "yes" vs "no" indicating if students met educator's Measurable Student Achievement targeting (% "yes" vs "no" indicating if students met educator's Measurable Student Achievement targeting (% "yes" vs "no" indicating if students met educator's Measurable Student Achievement targeting (% "yes" vs "no" indicating if students met educator's Measurable Student Achievement targeting (% "yes" vs "no" indicating if students met educator's Measurable Student M									•		
Boise State University	University of Idaho	Idaho State University	Southern BYU – Idaho Nazarene ABCTE America –						America –		
94% Effective	89% Effective	87% Effective	77% At Risk	100% Effective	85% Effective	85% Effective	83% Effective	94% Effective	72% At Risk		
	<b>Evaluation N</b> 5 Points Available			2	020-2021 data o	•		e average # of "o he state evaluat	•		
Boise State University	University of Idaho	Idaho State University	Lewis-Clark State College	College of Southern Idaho	BYU – Idaho	Northwest Nazarene University	College of Idaho	ABCTE	Teach for America – Idaho		
0.04 Effective	0.01 Effective	0.21 Effective	0.18 <b>Effective</b>	0.00 <b>Effective</b>	0.09 <b>Effective</b>	0.00 Effective	0.46 <b>Effective</b>	0.11 Effective	0.53 <b>At Risk</b>		

		Categor	y 2: <b>Teach</b>	er Employ	yment Ou	tcomes (89	% Weighting)		
	lacement Rat (2 Points Available				Data con	mparing 2019-20	)20 program cor teac	npleters to Idah hing assignmen	•
Boise State University	University of Idaho	Idaho State University	Lewis-Clark State College	College of Southern Idaho	BYU – Idaho	Northwest Nazarene University	College of Idaho	ABCTE	Teach for America – Idaho
69.8% <b>Effective</b>	44.6% <b>At Risk</b>	72.8% Effective	57.9% <b>At Risk</b>	100% Effective	23.4% Low Performing	66.7% Effective	100.0% Effective	76.6% Effective	100% Effective
	eed Placeme (2 Points Available			•	ring 2019-2020 <sub> </sub> in federally desi				•
Boise State University	University of Idaho	Idaho State University	Lewis-Clark State College	College of Southern Idaho	BYU – Idaho	Northwest Nazarene University	College of Idaho	ABCTE	Teach for America – Idaho
42.7% Effective	31.7% At Risk	63.0% Effective	44.7% Effective	100% Effective	15.6% Low Performing	55.6% Effective	66.7% Effective	50.0% Effective	84.2% Effective
	Retention Rat (2 Points Available		Data com	nparing 2016-20	17 new teachers	to those still te	eaching in Idaho	•	as of 2020-2021 r Retention Rate)
Boise State University	University of Idaho	Idaho State University	Lewis-Clark State College	College of Southern Idaho	BYU – Idaho	Northwest Nazarene University	College of Idaho	ABCTE	Teach for America – Idaho
80.6% <b>Effective</b>	70.3% Effective	82.0% Effective	84.8% Effective	<b>N/A</b> (New Program)	50.7% Low Performing	84.4% Effective	73.7% Effective	70.3% Effective	33.3% Low Performing
	leed Retention (2 Points Available		Data comp		new teachers in ls to those still t				
Boise State University	University of Idaho	Idaho State University	Lewis-Clark State College	College of Southern Idaho	BYU – Idaho	Northwest Nazarene University	College of Idaho	ABCTE	Teach for America – Idaho
79.3% Effective	68.8% Effective	82.0% Effective	90.3% Effective	<b>N/A</b> (New Program)	50.0% Low Performing	83.9% Effective	75.0% Effective	70.2% Effective	35.7% Low Performing

	Category 3: Survey Outcomes (25% Weighting)									
Alumni Feedback (15 Points Available)  15-question survey regarding quality of preparation sent from EPPs to completers (Rated on the same rubric scale as the state's evaluation framework)										
Boise State University	University of Idaho	f Idaho State University  Lewis-Clark State College Southern Idaho  State College Idaho  Northwest Nazarene University  College of Nazarene University  College of Idaho  ABCTE America — Idaho								
N/A¹	N/A¹	N/A¹	N/A¹	N/A¹	N/A¹	N/A¹	N/A¹	N/A <sup>2</sup>	N/A²	
,	ployer Feedb 10 Points Available			15-	question survey		ty of preparatio me rubric scale as			
Boise State University	University of Idaho	Idaho State University	Lewis-Clark State College	College of Southern Idaho	BYU – Idaho	Northwest Nazarene University	College of Idaho	ABCTE	Teach for America – Idaho	
N/A¹	N/A¹	N/A¹	N/A¹	N/A¹	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>2</sup>	N/A²	

<sup>&</sup>lt;sup>1</sup>The alumni and employer survey data collected by the EPPs could not be used for this report. The survey invitation that respondents received only indicated a single use-case for the response data: guiding discussions within IACTE (the Idaho Association of Colleges for Teacher Education) and the individual EPPs. As this invitation essentially served as the informed consent disclosure for the survey, using the data for any other purpose would be ethically inappropriate. To use the data from these surveys as a comparative performance measure going forward, the invitation would need to be adjusted to disclose such potential data uses.

Additional steps may also be necessary, as using the data in this fashion could result in the surveys being legally classifiable as *human subjects research*. Surveys for internal program improvement are not generally considered *research* from a legal standpoint. However, generalized public reporting to inform policy decisions may cross this threshold. If so, it is possible that Institutional Review Board (IRB) approval may be necessary.

<sup>&</sup>lt;sup>2</sup> The alumni and employer feedback surveys were developed within IACTE and have thus far only been targeted towards completers from those programs.

Arrangements would need to be made with ABCTE and TFA Idaho to collect such survey data going forward. At this time, it is unknown if both programs would be willing and able to do so.

	Category 4: Characteristics of Teacher Preparation Programs (52% Weighting)										
	<b>Pedagogical</b> 26 Points Available	•	Asses	ssed through prog		ommendations ba	sed on evidence o	Ill programs eve of meeting the req on of Professional S	uirements of the		
Boise State University	University of Idaho	Idaho State University	Lewis-Clark State College	College of Southern Idaho	BYU – Idaho	Northwest Nazarene University	College of Idaho	ABCTE	Teach for America – Idaho		
100% Approved or Conditionally Approved	100% Approved or Conditionally Approved	96% Approved or Conditionally Approved	100% Approved or Conditionally Approved	N/A³	100% Approved or Conditionally Approved	100% Approved or Conditionally Approved	92% Approved or Conditionally Approved	N/A <sup>4</sup>	100% Approved or Conditionally Approved		
Effective	Effective	Effective	Effective		Effective	Effective	Effective		Effective		
Rigorou	Clinical Preparations Exit Qualification 26 Points Available	ications		ed through programs of for certification (	m approval rating (including a succe	s on State Specific ssful score on stat	Requirements (SS ewide Common S	ate reviews and GRs) related to clin ummative Assessr ualized Profession	nical practice and ment of Teaching		
Boise State University	University of Idaho	Idaho State University	Lewis-Clark State College	College of Southern Idaho	BYU – Idaho	Northwest Nazarene University	College of Idaho	ABCTE	Teach for America – Idaho		
N/A <sup>5</sup>	N/A <sup>5</sup>	N/A <sup>5</sup>	N/A <sup>5</sup>	N/A <sup>3,5</sup>	N/A <sup>5</sup>	N/A <sup>5</sup>	N/A <sup>5</sup>	N/A <sup>4,5</sup>	N/A <sup>5</sup>		

<sup>&</sup>lt;sup>3</sup> The College of Southern Idaho is new enough that it has not received a full program review or a focused visit. The program design has conditional approval until such time as a full state review is conducted. However, that does not provide the data necessary for this report measure.

<sup>&</sup>lt;sup>4</sup> In December 2019, the Board moved to table any action on the American Board for Certification of Teacher Excellence (ABCTE) full program review. As that review was not accepted by the Board, there is no applicable program review to consider for this report.

<sup>&</sup>lt;sup>5</sup> Across the most recent reviews for each EPP, there are at least three different versions of the State Specific Requirements (SSRs). Each of these versions has been structured differently and do not consistently address the evidence cited in the approved measures. These disparities preclude any uniform method for determining points in this subcategory. Additionally, the structure of some non-traditional programs and recent changes to statute make it unlikely that future reviews will yield data that allows for fair comparisons in this subcategory without at least some revision.

### **EDUCATOR PREPERATION PROGRAM RATINGS**

#### **OVERALL PROGRAM RATING**

(Based on 100 Available Points)

**Sum of Points from All 4 Categories** 

70 Points or More = Program is rated as **Effective** 

41 to 69 Points = Program is At Risk of becoming Low Performing

0 to 40 Points = Program is rated as **Low Performing** 

Boise State University	University of Idaho	Idaho State University	Lewis-Clark State College	College of Southern Idaho	BYU – Idaho	Northwest Nazarene University	College of Idaho	ABCTE	Teach for America – Idaho
N/A <sup>6</sup>	N/A <sup>6</sup>	N/A <sup>6</sup>	N/A <sup>6</sup>	N/A <sup>6</sup>	N/A <sup>6</sup>	N/A <sup>6</sup>	N/A <sup>6</sup>	N/A <sup>6</sup>	N/A <sup>6</sup>

<sup>&</sup>lt;sup>6</sup> The Survey Outcomes (Category 3) and Characteristics of Teacher Preparation Programs (Category 4) were considered the most significant categories of evidence during the development of these measures. For this reason, those two categories were weighted to account for a combined 77 of the 100 available points—enough to potentially earn an "Effective" rating without even considering the remaining categories.

However, these are also the measures that present significant issues for the current report. All EPPs currently lack externally usable survey data for Category 3. Meanwhile, Category 4 relies on state program reviews. These cannot be considered uniformly because some EPPs have yet to receive a Board-accepted program review and those that have were not all reviewed against the same State Specific Requirements. Additionally, changes to statute since these measures were adopted have drastically altered how non-public EPPs may be reviewed in comparison to public EPPs. These issues result in an inability to determine overall program ratings that represent the approved performance measures with fidelity.

Although it is possible to determine modified ratings—scaled to account only for the data available from each EPP—doing so would not represent program performance fairly and would prevent any meaningful apples-to-apples comparison between EPPs (a stated intention for these performance measures). Additionally, the relative weighting given to Category 3 & 4 indicates that any ratings which do not appropriately consider those categories would be an invalid representation of the measures as developed and currently approved by the Board.

# PLANNING, POLICY AND GOVERNMENTAL AFFAIRS FEBRUARY 17, 2022 ATTACHMENT 1

# **EPP Performance Scoring Rubric**

Category 1:	Category 1: Student Learning Outcomes (15% Weighting)										
Subcategory	Description	Source	Effective	At Risk	Low Performing						
Student Growth	% of completers in their first year who had a majority of their students meet measurable student achievement / student success indicator targets.	Career ladder data reporting	> 80% <b>10 points</b>	50% to 80% 5 points	< 50% <b>0 points</b>						
Teacher Evaluation Measures	Average # of components on the state framework rated as "unsatisfactory" for first year completers.	Career ladder data reporting	< 0.5 <b>5 points</b>	0.5 to 1.5  2 points	> 1.5 <b>0 points</b>						

Category 2:	Teacher Employmer	nt Outcomes	(8% Weighting)		
Subcategory	Description	Source	Effective	At Risk	Low Performing
Placement Rate	% of completers who obtained a teaching assignment in Idaho public schools in the following school year	Derived from ISEE & Title II reporting data	> 60% 2 points	40% to 60%  1 point	< 40% <b>0 points</b>
High Need Placement Rate	% of completers who obtained a teaching assignment in an Idaho high need public school the following school year (as defined by federal Teacher Cancellation Low-Income designation)	Derived from ISEE & Title II reporting data	> 40% 2 points	25% to 40%  1 point	< 25% <b>0 points</b>
Retention Rate	% of completers who started teaching in Idaho and are still teaching in an Idaho public school in their 5th year.	Derived from ISEE & Title II reporting data	> 70% 2 points	60% to 70%  1 point	< 60% <b>0 points</b>
High Need Retention Rate	% of completers who started teaching in an Idaho high need public school and are still teaching in an Idaho high need public school in their 5 <sup>th</sup> year (as defined by federal Teacher Cancellation Low-Income designation)	Derived from ISEE & Title II reporting data	> 65% 2 points	55% to 65%  1 point	< 55% <b>0 points</b>

# PLANNING, POLICY AND GOVERNMENTAL AFFAIRS FEBRUARY 17, 2022 ATTACHMENT 1

Category 3: Survey Outcomes (25% Weighting)										
Subcategory	Description	Source	Effective	At Risk	Low Performing					
Alumni Feedback	Average rating on the 15 questions posed on a survey regarding quality of preparation (rated 1-4 using the Danielson Framework scale, rounded to nearest tenth)	Alumni survey distributed annually by IACTE members	≥ 3.3 → 15 pts 3.2 → 14 pts 3.1 → 13 pts 3.0 → 12 pts 2.9 → 11 pts 2.8 → 10 pts 2.7 → 9 pts 2.6 → 8 pts 2.5 → 7 pts	$2.4 \rightarrow 6 \text{ pts}$ $2.3 \rightarrow 5 \text{ pts}$ $2.2 \rightarrow 4 \text{ pts}$ $2.1 \rightarrow 3 \text{ pts}$ $2.0 \rightarrow 2 \text{ pts}$ $1.9 \rightarrow 1 \text{ pts}$	≤ 1.8 <b>→ 0 pts</b>					
Employer Feedback	Average rating on the 15 questions posed on a survey regarding quality of preparation (rated 1-4 using the Danielson Framework scale, rounded to nearest tenth)	Employer survey distributed annually by IACTE members	$\geq 3.0 \Rightarrow 10 \text{ pts}$ $2.9 \Rightarrow 9 \text{ pts}$ $2.8 \Rightarrow 8 \text{ pts}$ $2.7 \Rightarrow 7 \text{ pts}$ $2.6 \Rightarrow 6 \text{ pts}$	$2.5 \rightarrow 5 \text{ pts}$ $2.4 \rightarrow 4 \text{ pts}$ $2.3 \rightarrow 3 \text{ pts}$ $2.2 \rightarrow 2 \text{ pts}$ $2.1 \rightarrow 1 \text{ pts}$	≤ 2.0 <b>→ 0 pts</b>					

Category 4: 0	Characteristics of Te	acher Prepara	ntion Programs	(52% Weighting)	
Subcategory	Description	Source	Effective	At Risk	Low Performing
Content & Pedagogical Knowledge	% of programs approved or conditionally approved by state review process. (Evidence may include evaluation of syllabi, Praxis scores, GPA, exams, and artifacts of candidate work)	Full state review of all programs every seven years.	> 90% 26 points	75% to 90%  10 points	< 75% <b>0 points</b>
Quality Clinical Preparation & Rigorous Exit Qualifications	% of standards in SSRs related to clinical practice and qualifications for certification that are rated better than "unacceptable." (Evidence may include performance on the statewide Common Summative Assessment of Teaching and development of an IPLP)	Reviewed every third/fourth year, both as part of the full state program reviews and focused visits.	> 90% <b>26 points</b>	75% to 90%  10 points	> 75% <b>0 points</b>

#### **SUBJECT**

Temporary Omnibus Fee Rule Docket 08-0000-2200F

#### **REFERENCE**

May 2019 Board approved temporary and proposed rules

extending all rules codified June 30, 2019.

February 2020 Board approved temporary omnibus fee rule August 26, 2020 Board approved proposed omnibus fee rule,

Docket 08-0000-2000F, re-codifying existing

fees established in IDAPA 08.

November 2, 2020 Board approved pending omnibus fee rule,

Docket 08-0000-2000F.

October 21, 2021 Board approved proposed omnibus fee rule

Docket 08-0000-2100F, re-codifying existing

fees established in IDAPA 08.

November 29, 2021 Board approved pending omnibus fee rule

Docket 08-0000-2100F

#### **BACKGROUND/DISCUSSION**

Each year Idaho's codified administrative code is scheduled to expire on June 30<sup>th</sup>. As part of the legislature's annual duties during the legislative session, historically it has passed legislation to extend the codified rules until June 30<sup>th</sup> of the following year. However, during the 2019, 2020, and 2021 Legislative Sessions this action was not taken, so all previously codified rules expired and all state agencies were required to go through an omnibus rule process codify the expired rules. To mitigate the potential confusion this could cause and ensuing potential liability to the state for not implementing many provision required by statute or the state constitution, the Governor has authorized the approval of temporary rules through an omnibus process that would reinstate the rules on a temporary basis and start the rule promulgation process with a temporary rule for each section of the Idaho Administrative Procedures Act (IDAPA). Any fee sections of the rules are separated out and promulgated through a separate fee rule.

Each section of Administrative Code is divided by an IDAPA number, then title and chapter. As an example, IDAPA 08.02.01 is IDAPA 08, Title 02, Chapter 01. Administrative rules promulgated by the Board of Education encompass three sections of IDAPA including 15 chapters. Two chapters are found in IDAPA 55 pertaining to Career Technical Education. Twelve chapters are found in IDAPA 08 and pertain to all other public education.

The Division of Financial Management has requested each agency or board responsible for administrative rules submit one proposed rule that covers all fees. This is the same consolidation of rule sections that was used for the temporary rules approved by the Board in 2019, 2020, and 2021.

The proposed fee rule will cover the following sections and fees:

- 08.01.11, Registration of Postsecondary Educational Institutions and Proprietary Schools (Collected by the Office of the State Board of Education):
  - Subsection 200.07 Registration Fee, Postsecondary Educational Institutions
  - Subsection 300.06 Registration Fee, Proprietary Schools
    - Annual registration fee for initial registration or renewal of registration is equal to one-half of one percent (.5%) of the gross Idaho tuition revenue of the institution and proprietary schools during the previous tax reporting year (Jan 1 Dec 31), but not less than one hundred dollars (\$100) and not to exceed five thousand dollars (\$5,000).
- 08.02.02, Rules Governing Uniformity
  - Subsection 066 Fees, Educator Certification(Collected by the State Department of Education)
    - ➤ Initial Certificate \$75.00
    - > Renewal Certificate \$75.00
    - ➤ Alternate Route Authorization \$100
    - Additions or Changes to an Existing Certificate \$25
    - Replace an Existing Certificate \$10
    - Subsection 075.03, Fingerprinting and Background Investigation Checks(Collected by the State Department of Education)
  - o Fingerprinting Processing Fee, All Applicants (excluding volunteers) \$28.25
    - Fingerprinting Processing Fee, Volunteers \$26.25
- 08.02.03, Rules Governing Thoroughness
  - Subsection 128, Curricular Materials Selection and Online Course Approval(Collected by the State Department of Education)
    - Curricular Materials Review submission fee \$60 or an amount equal to the retail price of each curricular material

#### **IMPACT**

Approval of the temporary omnibus fee rule will ensure the current fees stay in place, should the legislature not adopt the pending fee rules that are before them for consideration during the 2022 Legislative Session.

#### **ATTACHMENTS**

Attachment 1 – Temporary Fee Rule Docket 08-0000-2200F

Attachment 2 – DFM Fee Rules Memo

#### STAFF COMMENTS AND RECOMMENDATIONS

Temporary rules go into place upon approval by the Board or on a date set by the Board through Board action at the time of approval. The date for approval of these temporary rules is when the legislature adjourns *sine die*. The Office of Administrative Rules in the Division of Financial Management updates the effective date of pending rules upon adjournment of the legislature. Temporary rules will

expire at the end of the next legislative session and only go to the legislature if there is a request to extend them beyond the current year. This temporary rule would only go into effect if the legislature does not adopt the pending fee rule, Docket 08-0000-2100F, which is before it during the 2022 legislative session. The fees re-established through the temporary rule are the same as they have been since 2019.

Staff recommends approval.

#### **BOARD ACTION**

Pursuant to Section 67-5226, Idaho Code, the Governor has found that temporary adoption of this rule is appropriate to protect the public health, safety, and welfare of the citizens of Idaho and confer a benefit on its citizens.

These rules implement the duly enacted laws of the state of Idaho, provide citizens with the detailed rules and standards for complying with those laws, and assist in the orderly execution and enforcement of those laws.

The expiration of these rules without due consideration and processes would undermine the public health, safety and welfare of the citizens of Idaho and deprive them of the benefit intended by these rules.

The Governor has also found that the fees or charges being imposed or increased is/are justified and necessary to avoid immediate danger to the agency/department/board/commission's budget, to the state budget, to necessary state functions and services, and to avoid immediate danger of a potential violation of Idaho's constitutional requirement that it balance its budget.

Therefore, the Board is approving the temporary rule provided in Attachment 1, to be effective upon sine die of the 2022 session of the Idaho Legislature. This action is conditional and will only become effective if the rules are not otherwise approved or rejected in part by the Legislature.

Moved by	y Seconded	by	Carried Yes	No	

### PLANNING, POLICY AND GOVERNMENTAL AFFAIRS **OCTOBER 21, 2021**

**ATTACHMENT 1** 

#### 08.01.11 - REGISTRATION OF POSTSECONDARY EDUCATIONAL INSTITUTIONS AND PROPRIETARY SCHOOLS

#### (BREAK IN CONTINUITY OF SECTIONS)

200. REGISTRA	ATION OF POSTSECONDARY EDUCATIONAL	INSTITUTIONS.
and the Office of	<b>Delegation.</b> Section 33-2403, Idaho Code, provides certificate of registration issued by the Board. The Boar the State Board of Education to administer the registrath Title 33, Chapter 24, Idaho Code, and this rule.	d delegates authority to its Executive Director
02.	Registration Requirement.	( )
state of Idaho, sh	Unless exempted by statute or this rule, as provided has presence within the state of Idaho, or that operates or hall register and hold a valid certificate of registration offer, or sell a course or courses of study, or degree un	purports to operate from a location within the issued by the Board. An institution shall not
	Registration shall be for the period beginning on the June 30 of the next succeeding year. A registered post egistration annually, and renewal of registration is not	secondary educational institution must renew
c. June 30 of the nex	Renewal of registration shall be for the period beginning at succeeding year.	ng on July 1 of any year, and continue through
a proprietary scho in another state, a which specialized	A new or start-up entity that desires to operate as a poster accredited by an accreditation organization recognized until accreditation is obtained. A new or start-up entend which desires to operate as a postsecondary educated program accreditation is required, may be granted as h program accreditation within the regular p	zed by the Board must register and operate as ity that is accredited and authorized to operate ional institution in Idaho offering degrees for approval to operate subject to the successful creditation cycle required by the accreditor. (
	orly authorized to operate in Idaho under these rules.	( )
03.	Idaho Presence.	( )
location in Idaho Internet website,	An institution shall be deemed to have a presence in location within the state of Idaho, if it owns, rents, least, including a mailing or shipping center, or if it represents to have an Idaho street or mailing address, including adding, offering or selling a course or courses of study of the state of th	es, or uses any office or other type of physical sents in any way, such as on an electronic or g a post office box in Idaho, for purposes of
of Idaho as part of between such clir	Idaho presence shall include medical/osteopathic educ of a course of study leading to a degree pursuant to a nic and an institution providing medical/osteopathic educ stitution are physically present simultaneously at a sing	formal multi-year arrangement or agreement ucation instruction where eleven (11) or more
c.	Idaho presence shall not include:	( )
i. students in this sta 200.03.a.	Distance or online education delivered by an institute when the institution does not otherwise have physical of	

TAB 8 Page 1 **PPGA** 

# **PLANNING, POLICY AND GOVERNMENTAL AFFAIRS** OCTOBER 21, 2021

AII	ACHMENI 1
ii. Medical education instruction occurring in the state of Idaho by an institution purse education program funded by the state of Idaho;  iii. Internship or cooperative training programs occurring in the state of Idaho whemployed by or provide services to a business or company in this state and receive course credit for related to such activities; or  iv. Activities limited to the recruiting or interviewing of applicants or potential stude Idaho, whether conducted by a compensated employee, agent, or representative of an institution alumnus of an institution, even if such individual is physically located in this state.	( ) nere students are om an institution
04. Institutions Exempt from Registration.	( )
<b>a.</b> Idaho public postsecondary educational institutions. Section 33-2402(1), Idaho Co a public institution supported primarily by taxation from either the state of Idaho or a local source is be required to register.	
b. Certain Idaho private, nonprofit, postsecondary educational institutions. A propostsecondary educational institution that is already established and operational as of the date when the into effect (Brigham Young University - Idaho, College of Idaho, Northwest Nazarene University, Net College, Boise Bible College), and located within the state of Idaho, and that is accredited by organization recognized by the Board, as set forth in Section 100 of this rule, shall not be required private, nonprofit, institution is located within the state of Idaho only if it has been lawfully organization and its principal place of business is located within the state of Idaho. An institution established and its principal place of business is located within the state of Idaho. An institution established and its principal place of business is located within the state of Idaho. An institution established and its principal place of business is located within the state of Idaho. An institution established and institution is located within the state of Idaho and its principal place of business is located within the state of Idaho. An institution established and institution is located within the state of Idaho and its principal place of business is located within the state of Idaho.	his rule first went w Saint Andrews an accreditation red to register. A red in the state of
<b>c.</b> Idaho religious institutions. A religious institution located within the state of Idah controlled, operated, and maintained by a religious organization lawfully operating as a nonprofit religion that grants only religious degrees shall not be required to register.	
<b>05. Institutions That Must Register.</b> Unless exempt under Subsection 200.04 of the that desires to operate as a postsecondary educational institution in Idaho must register as provided by	
<b>O6. Application.</b> A postsecondary educational institution that is required to register un submit to the Board office an application for registration (either an application for initial registration; as applicable), on the form provided by the Board office. The application must include course, course of study, and degree the applicant institution intends to conduct, provide, offer, or set the registration year.	on or renewal of ide a list of each
<b>07. Registration Fees.</b> The Board shall assess an annual registration fee for initiarenewal of registration of a postsecondary educational institution. The registration fee must accompand for registration, and shall be in the amount of one-half of one percent (.5%) of the gross Idaho tuition institution during the previous tax reporting year (Jan 1 - Dec 31), but not less than one hundred do not to exceed five thousand dollars (\$5,000). The institution must provide financial documentation to amount of revenue reported. Registration fees are nonrefundable.	ny the application on revenue of the ollars (\$100) and
<b>O8. Deadline for Registration.</b> An initial application for registration may be submitted anytime. An institution should expect the Board's review process for an initial registration to take application for (5) months. An application for renewal of registration must be submitted to the Board on business day of May that precedes the registration year. The renewal will be processed within Institutions that do not adhere to this schedule and whose renewals are not processed by July 1st mu operations until approval of registration is received.	proximately three or before the first thirty (30) days.
09. Information Required.	( )

TAB 8 Page 2 **PPGA** 

a.

An application must include all the information requested on the application form, as well as the

# PLANNING, POLICY AND GOVERNMENTAL AFFAIRS OCTOBER 21, 2021

		A	TTACHMENT	Г1
followin	ng inform	ation:	(	)
	i.	Copy of most recent accreditation letter showing the period of approval;	(	)
( )	ii.	Current list of chief officers - e.g. president, board chair, chief academic office	r, chief fiscal offic	cer;
( )	iii.	Enrollment data for current and past two (2) years;	(	)
executiv	iv. ve director	Copy of annual audited financial statement, or other financial instrument arr;	as established by	the
	v.	Any additional information that the Board may request.	(	)
students clinical, clinical, courses	s in making practicument, practicument of study to	All advertising, pamphlets, and other literature used to solicit students and all ent the purpose of the school, its courses or courses of study, and other relevanting an informed decision to enroll. Institutions offering courses or courses of more internship components must provide students in writing information regim or internship positions available and the location of said positions. Institution that have not been fully accredited must disclose to prospective students in the editation status of the program and anticipated date for full accreditation.  The Board may, in connection with a renewal of registration, request that an in	information to as study which requ arding the number tions with courses se courses or cour	sist uire r of s or rses
and/or c	tion that o	documents changes from the previous year, provided that the institution certification submitted in a previous registration year remains current. The annual regis 0.07 of this rule, shall remain applicable.	s that all informat	ion
		(BREAK IN CONTINUITY OF SECTIONS)		
	300.	REGISTRATION OF PROPRIETARY SCHOOLS.		
of the S	State Boar	<b>Delegation</b> . Section 33-2403, Idaho Code, provides that a proprietary schostration issued by the Board. The Board delegates authority to its Executive D rd of Education to administer the registration of proprietary schools, in accord Code, and this rule.	rector and the Off	fice
	02.	Registration Requirement.	(	)
shall re provide	gister ann , offer, or	Unless exempted by statute or this rule, as provided herein, a proprietary school he state of Idaho, or which operates or purports to operate from a location with aually and hold a valid certificate of registration issued by the Board. A school sell a course or courses of study unless registered. A school shall not solicit stur advertise in this state, unless registered.	nin the state of Ida ol shall not condi	iho, uct,
period l succeed	beginning ling year.	Registration shall be for the period beginning July 1 of any year and continuing year. For a school that has not previously registered with the Board, registron the date of issuance of a certificate of registration and continue through A registered proprietary school must renew its certificate of registration annual automatic.	ration shall be for June 30 of the n	the next
through	<b>c.</b> June 30 o	Renewal of registration shall be for the period beginning on July 1 of an of the next succeeding year.	y year, and contin	nue )
	03.	Idaho Presence.	(	)

PPGA TAB 8 Page 3

from a location within the state of Idaho, or if it owns, rents, leases, or uses any office or other type of physical

A school shall be deemed to have a presence in Idaho, or to be operating or purporting to be operating

# PLANNING, POLICY AND GOVERNMENTAL AFFAIRS OCTOBER 21, 2021

#### **ATTACHMENT 1**

location in Idaho, including a mailing or shipping center, or if it represents in any way, such as on an electronic or Internet website, to have an Idaho street or mailing address, including a post office box in Idaho, for the purposes of conducting, providing, offering or selling a course or courses of study or degrees. **b.** Idaho presence shall not include: i. Distance or online education delivered by an institution located outside of the state of Idaho to students in this state when the institution does not otherwise have physical presence in Idaho, as provided in Subsection 300.03.a. of this rule: Internship or cooperative training programs occurring in the state of Idaho where students are employed by or provide services to a business or company in this state and receive course credit from an institution related to such activities; or iii. Activities limited to the recruiting or interviewing of applicants or potential students in the state of Idaho, whether conducted by a compensated employee, agent, or representative of an institution, or by volunteer alumnus of an institution, even if such individual is physically located in this state. Exemptions from Registration. The following individuals or entities are specifically exempt from the registration requirements of this rule: An individual or entity that offers instruction or training solely avocational or recreational in nature, as determined by the Board. An individual or entity that offers courses recognized by the Board which comply in whole or in part with the compulsory education law. An individual or entity that offers a course or courses of study sponsored by an employer for the training and preparation of its own employees, and for which no tuition fee is charged to the student. An individual or entity which is otherwise regulated, licensed, or registered with another state agency pursuant to Title 54, Idaho Code. An individual or entity that offers intensive review courses designed to prepare students for certified public accountancy tests, public accountancy tests, law school aptitude tests, bar examinations or medical college admissions tests, or similar instruction for test preparation. An individual or entity offering only workshops or seminars lasting no longer than three (3) calendar days and offered no more than four (4) times per year. A parochial or denominational institution providing instruction or training relating solely to religion and for which degrees are not granted. An individual or entity that offers postsecondary credit through a consortium of public and private colleges and universities under the auspices of the Western Governors University. An individual or entity that offers flight instruction and that accepts payment for services for such training on a per-flight basis after the training occurs, or that accepts advance payment or a deposit for such training in a de minimus amount equal to or less than fifteen (15) percent of the total course or program cost. **Application**. A proprietary school that is required to register under this rule must submit to the Board office an application for registration (either an application for initial registration, or renewal of registration, as applicable), on a form provided by the Board office. The application must include a list of each course or courses of study the applicant school intends to conduct, provide, offer or sell in Idaho during the registration year. 06. Registration Fees. The Board shall assess an annual registration fee for initial registration or renewal of registration. The registration fee must accompany they application for registration, and shall be one-half of one

### PLANNING, POLICY AND GOVERNMENTAL AFFAIRS OCTOBER 21, 2021

ATTACHMENT 1 percent (.5%) of the gross Idaho tuition revenue of the school during the previous tax reporting year (Jan 1 - Dec 31), but not less than one hundred dollars (\$100) and not to exceed five thousand dollars (\$5,000). The school shall provide documentation to substantiate the amount of revenue reported. Registration fees are nonrefundable. ( Deadline for Registration. An initial application for registration may be submitted to the Board at anytime. A school should expect the Board review process for an initial registration to take approximately three (3) to five (5) months. An application for renewal of registration must be submitted to the Board on or before the first business day of May that precedes the registration year. The renewal will be processed within thirty (30) days. Institutions that do not adhere to this schedule and whose renewals are not processed by July 1st must cease all active operations until approval of registration is received. 08. Information Required. Such application must include all the information requested on the application form. In addition, a school must attest by signature of the primary official on the application form that it is in compliance with Standards I through V set forth in Section 301 of this rule and must provide verification of compliance with Standards I through V set forth in Section 301 of this rule upon request. The Board may, in connection with a renewal of registration, request that a school only submit information that documents changes from the previous year, provided that the school certifies that all information and/or documentation submitted in a previous registration year remains current. The annual registration fee, described in Subsection 300.06 of this rule, shall remain applicable. 08.02.02 - RULES GOVERNING UNIFORMITY (BREAK IN CONTINUITY OF SECTIONS) 066. FEES. The state Department of Education shall maintain a record of all certificates issued, showing names, dates of issue and renewal, and if revoked, the date thereof and the reason therefor. A nonrefundable fee shall accompany each application for a prekindergarten through grade twelve (12) certificate, alternate certificate, change in certificate or replacement as follows: **01. Initial Certificate.** All types, issued for five (5) years -- seventy-five dollars (\$75). **02. Renewal Certificate**. All types, issued for five (5) years -- seventy-five dollars (\$75). **03.** Alternate Route Authorization. All types, issued for one (1) year -- one hundred dollars (\$100). 04. Additions or Changes During the Life of an Existing Certificate. Twenty-five dollars (\$25). **05.** To Replace an Existing Certificate. Ten dollars (\$10). ) (BREAK IN CONTINUITY OF SECTIONS) 075. FINGERPRINTING AND BACKGROUND INVESTIGATION CHECKS All individuals who are required by the provisions of Section 33-130, Idaho Code, must undergo a background investigation check. ( )

a. Applicant. An individual completing a background investigation check as identified in Subsection 075.02 of these rules.

01. Definitions.

**b.** Background Investigation Check. The submission of a completed applicant fingerprint card or scan by an authorized entity submitted under an enacted state statute/local ordinance or federal law, approved by the Attorney General of the United States allowing a search of the state and federal criminal history indices for noncriminal justice

TAB 8 Page 5 **PPGA** 

# PLANNING. POLICY AND GOVERNMENTAL AFFAIRS

OCTOBER 21, 2021		
ATTACHM	ENT	Γ1
purposes including employment suitability, licensing determinations, immigration and naturalization matt national security clearances.	ers, a	and )
<b>c.</b> Background Investigation Check Result. The response to a state and federal background investigated by a fingerprint submission from an authorized entity for non-criminal justice purposes. Referenced to the submitting authorized entity by the state criminal history repository (Idaho State Police Beneficial Investigation).	sults	are
d. Break-in-Service. A voluntary or involuntary termination in employment, including retirement.	(	)
e. Candidate. An individual attending a postsecondary program.	(	)
<b>f.</b> Contractor. An agency, company/business, or individual that has signed a contract or agreement to services to an LEA and private or parochial school.	prov	ride )
<b>g.</b> Employee. A person who is hired for a wage, salary, fee, or payment to perform work for an employee.	ploye	er. (
<b>h.</b> Fingerprint Card or Scan. The process for obtaining impressions of an individual's fingerprint both ten (10) individual finger impressions rolled from nail to nail and slap or flat impressions taken simulta without rolling. Fingerprints may be recorded utilizing either an inked standard fingerprint card or using a l device. Standard fingerprint cards may also be scanned for submission to the state repository for bac investigation check purposes.	aneou ive so	isly can
i. Rejected Fingerprint Cards or Scans. A fingerprint card or scan that has been returned by the Ida Police Bureau of Criminal Identification or Federal Bureau of Investigation for poor quality prints.	ho St	tate )
<b>j.</b> Unsupervised Contact. Direct contact or interaction with students not under the direct supervision LEA employee in a K-12 setting. This includes contact or interaction with students in scheduled school activated of the school or outside of normal school hours.		
02. Individuals Required to Complete a Background Investigation Check.	(	)
a. All applicants for certificates;	(	)
<b>b.</b> Certificated and noncertificated employees;	(	)
c. Substitute teachers;	(	)
<b>d.</b> Contractors who have unsupervised contact with students in a public K-12 setting, including con who are providing student services;	ıtract (	tors )
<b>e.</b> Student teachers or any postsecondary candidates who have unsupervised contact with students in K-12 setting;	a pul	blic )
f. Volunteers who have unsupervised contact with students in a public K-12 setting;	(	)
g. Any individuals who have unsupervised contact with students in a public K-12 setting.	(	)

TAB 8 Page 6 **PPGA** 

**a.** When a fingerprint card has been rejected a new completed fingerprint card is required.

03. Fee. The SDE shall charge a fee for undergoing a background investigation check pursuant to Section

)

33-130, Idaho Code.

**04.** Rejected Fingerprint Cards or Scans.

# PLANNING, POLICY AND GOVERNMENTAL AFFAIRS OCTOBER 21, 2021

#### **ATTACHMENT 1**

<b>b.</b> The rejected fingerprint card will be sent back to the originating LEA, private or parochial contractor, postsecondary program, or individual.	scho	ool, )	
<b>c.</b> A new fingerprint card must be completed by a law enforcement agency to ensure legible finger Both the rejected fingerprint card and the new fingerprint card must be returned to the SDE within thirty (30) days.			
<b>d.</b> If the new fingerprint card and rejected fingerprint card are returned after thirty (30) calendar day pursuant to Subsection 075.03 of these rules, is required to be paid.	′s, a f (	ee,	
<b>05. Secured Background Investigation Check Website</b> . The SDE will maintain a background invest check website listing the background investigation check results for review by the LEA, private or parochial contractor or postsecondary program. Each LEA, private or parochial school, contractor and postsecondary will have access to the background investigation check secure site listing their employees, statewide substitute teacher list, and student teacher list.	scho	ool,	
06. Background Investigation Checks for Certification.	(	)	
	(	,	
<b>a.</b> The SDE will make the final determination if an applicant is eligible for Idaho certification.	(	)	
<b>b.</b> If the SDE makes a determination that the applicant is not eligible for Idaho certification, the SI deny the applicant Idaho certification. Upon receiving the written denial, the applicant may request a hearing p to Section 33-1209, Idaho Code.			
<b>07. Substitute Teachers</b> . Substitute teachers as defined in Section 33-512(15), Idaho Code, must undergo a background investigation check. The SDE shall maintain a statewide substitute teacher list. To remain on the list a substitute teacher shall undergo a background investigation check every five (5) years in accordance with Section 33-512, Idaho Code.			
08. Break In Service.	(	)	
<b>a.</b> When an employee returns to any LEA, private or parochial school, or contractor after a break in a new background investigation check must be completed pursuant to Section 33-130, Idaho Code.	servi	ce,	
<b>b.</b> When an employee changes employment between LEAs a new background investigation check completed pursuant to Section 33-130, Idaho Code.	must (	be )	
09. Postsecondary.	(	)	
<b>a.</b> The postsecondary program will submit a completed fingerprint card or scan for all candidates who are applying for unsupervised contact with students in a public K-12 setting including student teaching, internships, or other types of candidate training.			
<b>b.</b> The SDE will make a preliminary determination based on the CHC result if the candidate is eligibility cardidate.			

#### 08.02.03 – RULES GOVERNING THOROUGHNESS

(BREAK IN CONTINUITY OF SECTIONS)

#### 128. CURRICULAR MATERIALS SELECTION AND ONLINE COURSE APPROVAL

The State Board of Education will appoint a committee to select curriculum materials. Committee appointments will

## PLANNING, POLICY AND GOVERNMENTAL AFFAIRS OCTOBER 21, 2021

#### ATTACHMENT 1

be for a period of five (5) years. Committee appointments shall consist of not less than ten (10) total members from the following stakeholder groups: certified Idaho classroom teachers, Idaho public school administrators, Idaho higher education officials, parents, trustees, local board of education members, members of the Division of Career Technical Education, and State Department of Education personnel. The Executive Secretary will be an employee of the State Department of Education and will be a voting member of the committee. The State Department of Education shall charge publishers submission fees of sixty dollars (\$60) or equal to the retail price of each, whichever is greater, to defray the costs incurred in the curricular material review and adoption process.

**01. Subject Areas**. Curricular materials are adopted by the State Board of Education for a period of six (6) years in the following subject areas: reading, English, spelling, speech, journalism, languages other than English, art, drama, social studies, music, mathematics, business education, career education and counseling, career technical education, science, health, physical education, handwriting, literature, driver education, limited English proficiency. ()

02. Multiple Adoptions. Multiple adoptions are Made in Each Subject Area.	(
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- **03. Bids**. Each publisher must deliver, according to the committee schedule, a sealed bid on all curricular materials presented for adoption.
- **04. Depository**. The State Board will appoint a depository for the state-adopted curricular materials. Resource materials are a local option.
- **05. Local Policies**. School districts will follow their own policies for adoption in subject areas offered by a school district for which materials are not covered by the state curriculum materials committee.
- **06.** Online Course Review and Approval Process. The State Department of Education shall administer the review and approval of online course providers and courses. Reviewers shall be certified Idaho classroom teachers. Online course providers are approved for a period of four (4) years. The State Department of Education shall charge online course providers submission fees based on the number of courses offered, not to exceed the actual costs incurred in the online course and course provider review and approval process.

PPGA TAB 8 Page 8

## PLANNING, POLICY AND GOVERNMENTAL AFFAIRS FEBRUARY 17, 2022 ATTACHMENT 2

CHAT SEAL OF OH

## State of Idaho DIVISION OF FINANCIAL MANAGEMENT

Executive Office of the Governor

BRAD LITTLE Governor

ALEX J. ADAMS Administrator

February 9, 2022

#### <u>MEMORANDUM</u>

TO: Executive Branch Agency/Department Heads Rules Review Officers

FROM: Alex J. Adams

SUBJECT: Preparing Administrative Fee Rules for Post-Sine Die

alex P. aclans

Once more, in order to ensure the continuity of administrative rules following the adjournment of the 2022 Legislative session, this memo outlines the fee rule reauthorization process that agencies will need to complete prior to **February 28, 2022**. While each agency must take these steps now, these temporary fee rules are conditional and will only become effective at *sine die* if the pending fee rules submitted to the 2022 Legislative session are not otherwise approved or rejected in part by concurrence of the Legislature.

- 1. Agencies must submit a completed Notice of Adoption of Temporary Rule form to DFM by February 28th.
  - A template Notice is enclosed for fee rules.
  - Rules should be adopted as submitted to the 2022 Legislature.
    - a. Fee Rules expire upon sine die if not approved by the legislature.
    - b. Non-Fee Rules are likely to become final and effective unless specifically rejected by concurrent resolution of both the House and Senate.
  - No ARRF will be required.
  - Please submit completed Notices to adminrules@dfm.idaho.gov.
- **2.** If rulemaking authority is vested in a board or commission not agency staff the board or commission must convene to properly authorize the Notice. This is required by law. Please work closely with your attorney to ensure the Notice is properly authorized.
  - The meeting must be scheduled in a timeframe to submit a completed Notice to DFM prior to the February 28th deadline.
  - The motion should be made as follows:

"Pursuant to Section 67-5226, Idaho Code, the Governor has found that temporary adoption of this rule is appropriate to protect the public health, safety, and welfare of the citizens of Idaho and confer a benefit on its citizens.

These rules implement the duly enacted laws of the state of Idaho, provide citizens with the detailed rules and standards for complying with those laws, and assist in the orderly execution and enforcement of those laws.

The expiration of these rules without due consideration and processes would undermine the public health, safety and welfare of the citizens of Idaho and deprive them of the benefit intended by these rules.

PPGA TAB 10 Page 1

## PLANNING, POLICY AND GOVERNMENTAL AFFAIRS FEBRUARY 17, 2022 ATTACHMENT 2

The Governor has also found that the fee(s) or charge(s) being imposed or increased is/are justified and necessary to avoid immediate danger to the agency/department/board/commission's budget, to the state budget, to necessary state functions and services, and to avoid immediate danger of a potential violation of Idaho's constitutional requirement that it balance its budget.

Therefore, we are adopting this temporary rule to be effective upon *sine die* of the 2022 session of the Idaho Legislature. This action is conditional and will only become effective if the rules are not otherwise approved or rejected in part by the Legislature."

- **3.** DFM will publish the fee notices of temporary rulemaking shortly after *sine die* with the rules having an effective date as of *sine die*.
- **4.** For these temporary rules only, agencies do not have to accept written comments pursuant to Idaho Code § 67-5222(a) as its requirement and deadline applies to "publication of the notice of *proposed* rulemaking in the bulletin" (emphasis added). The fee rules were acted upon in open public meetings/hearings that allowed public comment throughout the 2021 rulemaking process.
- **5.** Each agency must keep all records of this rulemaking process for at least two (2) years pursuant to Idaho Code § 67-5225. Please ensure the record is thorough and complete.

PPGA TAB 10 Page 2

TAB	DESCRIPTION	ACTION
1	AMENDMENT TO BOARD POLICY V R. – SECOND READING	Motion to approve
2	IDAHO STATE UNIVERSITY Bengal Pharmacy Contract Authority	Motion to approve
3	IDAHO STATE UNIVERSITY  Multi-Year Employment Agreement – Head Football  Coach	Motion to approve
4	UNIVERSITY OF IDAHO Performance Evaluation of Staff Employees Policy Amendments	Motion to approve
5	UNIVERSITY OF IDAHO Probation, Promotion, Demotion and Transfer of Classified Employees Policy Amendments	Motion to approve
6	UNIVERSITY OF IDAHO Idaho Center for Plant and Soil Health, Parma – Construction Authorization	Motion to approve

#### **SUBJECT**

Board Policy V.R. - Establishment of Fees - Second Reading

#### REFERENCE

February 2016 Board approved first reading of amendment to Board

Policy V.R. which removed professional licensure as a mandatory criterion for an academic professional program to be eligible for consideration for a

professional fee.

April 2016 Board approved second reading of amendment to

Board Policy V.R.

June 2018 Board approved the first reading of Board Policy V.R.

establishing a new fee effective for the 2019-2020

academic year.

December 2018 Board returned second reading of Board policy V.R.,

establishing a new fee to the Business Affairs and Human Resources Committee for further review and

analysis.

April 2020 Board set 2020-2021 Board approved tuition and fees.

June 2020 Board approved one year partial waiver requiring

student fees to be used only for the purpose for which

it was collected.

February 2021 Board approved second reading of amendments to

Policy V.R including the creation of a Consolidated

Mandatory Fee.

April 2021 Board approved second reading of amendments to

Policy V.R including the creation of a Consolidated

Mandatory Fee.

October 2021 Board approved the establishment of a common

nomenclature for student fees to be used when

submitting tuition and fees requests in April of 2022.

December 2021 Board approved the first reading of amendments to

Policy V.R. to amend the process through which fees

are established.

## APPLICABLE STATUTE, RULE, OR POLICY

Idaho State Board of Education Governing Policies & Procedures, Section V.R. Sections 33-3717A, and 33-3717C, Idaho Code H387 (2021)

#### **BACKGROUND/DISCUSSION**

Board Policy V.R. relates to the ways that tuition and fees are established by the Board and the categories into which they may fall. In 2021, the appropriation bill for the College and Universities' budget included the following intent language.

SECTION 6. STUDENT FEE REPORT. As soon as practicable, the State Board of Education shall: (1) make easily accessible a break-out of student activity fees on the institutions' websites; (2) develop a common naming convention for similar activity fees across the institutions; and (3) evaluate the current lists of activity fees assessed to students and determine how and which fees supporting student activities, clubs, and organizations focused on individual beliefs and values can be structured to address the need for access, affordability, and choice. The State Board of Education shall report results of this work to the Joint Finance-Appropriations Committee and the House and Senate Education Committees no later than December 17, 2021.

This policy amendment is to codify the decision made by the Board at the October 2021 Regular Board meeting, which includes one overall Consolidated Mandatory fee broken down into four categories:

## Student Enrollment, Engagement, and Success

The student enrollment, engagement and success fees provide funding to support the multitude of activities and services available to students, both on and off campus. Included in these fees are scholarships, student employment opportunities, funding to support student success initiatives, and enrollment (recruitment and retention) activities.

## Institutional Operations, Services, and Support

These fees support the departmental and infrastructure needs of the college and universities, including construction and maintenance of facilities; instructional and computing resources; student involvement services and participation with athletic, arts, and cultural events.

#### Student Health and Wellness

The student health and wellness fee support students physical and mental health and well-being. Students' fees also allow for access to the health and counseling centers throughout the year as well as utilize well-being and fitness programs and facilities for overall improvement of the student experience. Also included are the facilities, maintenance, and programs available through the recreation and intramural programs.

#### **Student Government**

This fee is to support the student government officers elected by students and support them, their initiatives, and their overall experience. Students are provided the means to engage in discussions, events, and opportunities that interest them, are new to them, and challenge them. A subset of this fee would be student activities, clubs, and organizations, and students would be allowed to opt-out of a subset of that fee.

#### **IMPACT**

Approval of the policy amendment will support the move to a simplified fee system that is consistent across all institutions and require institutions to list these fees in a consistent and easily accessed location on their websites.

## **ATTACHMENTS**

Attachment 1 – Proposed Amendment to Policy V.R. redline – Second Reading

#### **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

This amendment updates the policy to reflect the Board's October 2021 approval of an opt-out student fee structure and collapse of student fees into four categories.

Between the first and second reading, an incomplete sentence was discovered in the Student Government fee section. A minor edit was made to complete the sentence consistent with what the Board approved in October 2021.

Staff recommends approval.

## **BOARD ACTION**

I move to approve the second reading of Board policy V.R. to amend the process through which fees are established as set forth in Attachment 1.

Moved by	Seconded by	Carried Yes	No
,	•		

## Idaho State Board of Education ATTACHMENT 1

GOVERNING POLICIES AND PROCEDURES SECTION: V. FINANCIAL AFFAIRS

SUBSECTION: R. Establishment of Tuition and Fees April 2021 February 2022

## 1. Board Policy on Student Tuition and Fees

Consistent with the Statewide Plan for Higher Education in Idaho, the institutions shall maintain tuition and fees that provide for quality education and maintain access to educational programs for Idaho citizens. In setting tuition and fees, nothing in this policy shall preclude review and approval of tuition and fee setting based on market considerations. The Board may consider factors such as how tuition and fees compare to tuition and fees at peer institutions, how percent increases compared to inflationary factors, how tuition and fees are represented as a percent of per capita income and/or household income, and what share students pay of their education costs. Other criteria may be evaluated as is deemed appropriate. An institution cannot request more than a ten percent (10%) increase in the total full-time resident and/or non-resident student tuition and fee rate unless otherwise authorized by the Board. Each institution shall comply with Board policy V.D. in depositing tuition revenues.

It is the requirement of the Board that institutions communicate all tuition and fees to students in a clear and understandable format prior to their enrollment and that fees be as consolidated and limited as is practicable. Such communication shall include information about tuition and fees, and reference possible student-specific items that cannot be determined until enrollment, such as course fees.

## 2. Tuition and Fee Setting Process – Board Approved Tuition and Fees

#### a. Initial Notice

A proposal to alter any student tuition and fees covered by Subsection V.R.3. shall be formalized by initial notice of the chief executive officer of the institution at least six (6) weeks prior to the Board meeting at which a final decision is to be made.

Notice will consist of transmittal, in writing, to the student body president and to the recognized student newspaper of the proposal contained in the initial notice. The proposal will describe the amount of change, statement of purpose, and the amount of revenues to be collected.

The initial notice must include an invitation to the students to present oral or written testimony at the public hearing held by the institution to discuss the fee proposal. A record of the public hearing as well as a copy of the initial notice shall be made available to the Board. Public hearings may be held in person or virtually.

## b. Board Approval

Board approval for tuition and fees will be considered annually. This approval will be timed to provide the institutions with sufficient time to prepare the subsequent fiscal year operating budget.

#### **ATTACHMENT 1**

**SECTION: V. FINANCIAL AFFAIRS** 

SUBSECTION: R. Establishment of Tuition and Fees April 2021 February 2022

#### c. Effective Date

Any change in the rate of tuition and fees becomes effective on the date approved by the Board unless otherwise specified.

## 3. Definitions and Types of Tuition and Fees

The following definitions are applicable to tuition and fees charged to students at all the state colleges and universities under the governance of the Board.

#### a. Board Established Tuition

#### i. Institution Tuition

Tuition is the amount charged for any and all educational services at University of Idaho, Boise State University, Idaho State University, and Lewis-Clark State College. Tuition is assessed for, but is not limited to, academic services; instruction; the construction, maintenance, and operation of buildings and facilities; student services; or institutional support.

Special Tuition rates may include tuition for such items as specialized short-term courses or programs, summer courses, or other special kinds of courses for the purposes of furthering the educational mission of the institution.

Part-time Credit Hour tuition is defined as the charge per credit hour charged for educational services for enrolled, part-time students.

The Course Overload Tuition rate may be charged to full-time students whose credit hour workload is higher than the guidelines for a normal course load.

 a) Tuition – University of Idaho, Boise State University, Idaho State University, Lewis-Clark State College

Tuition shall be set as follows and may include both full-time and part-time rates:

- Undergraduate Resident Tuition
- Undergraduate Non-resident Tuition
- Graduate Resident Tuition
- Graduate Non-resident Tuition
- Special Resident Tuition
- Special Non-resident Tuition
- Course Overload Tuition

## ATTACHMENT 1

# Idaho State Board of Education GOVERNING POLICIES AND PROCEDURES

**SECTION: V. FINANCIAL AFFAIRS** 

SUBSECTION: R. Establishment of Tuition and Fees April 2021 February 2022

## ii. Systemwide Tuition

The Board may choose to establish a systemwide tuition rate for programs that span two or more institutions. Revenues from systemwide tuition will be deposited with the state for those institutions required to do so per statute.

## iii. Western Undergraduate Exchange (WUE) Tuition

The Western Undergraduate Exchange tuition is established as 150% of the resident tuition rate for full-time students participating in this program. Students in this program shall be subject to the Consolidated Mandatory Fee and all other applicable fees.

## Board Established Course and Program Fees

For purposes of board established course and program fees, "academic" means a systematic, usually sequential, grouping of courses that provide the student with the knowledge and competencies required for a baccalaureate, master's, specialist or doctoral degree as defined in policy III.E.1.

#### i. Career Technical Education Fee

The Career Technical Education fee is the fee charged for educational costs for students enrolled in Career Technical Education programs

## ii. Institutional Online Program Fee

An institutional online program fee may be charged for any fully online undergraduate, graduate, and certificate program. An online program fee shall be in lieu of resident or non-resident tuition (as defined in Idaho Code §33-3717B) and all other Board-approved fees. An online program is one in which all courses are offered and delivered via distance learning modalities (e.g. campus-supported learning management system, videoconferencing, etc.); provided however, that limited on-campus meetings may be allowed if necessary for accreditation purposes or to ensure the program is pedagogically sound.

## iii. Professional Program Fees

A profession is an occupation, for which a person has to undergo specialized training or internship for getting a high degree of education and expertise in the concentrated area.

a) Requirements. To designate a professional fee for a Board approved professional program, all of the following criteria must be met:

# Idaho State Board of Education GOVERNING POLICIES AND PROCEDURES

**SECTION: V. FINANCIAL AFFAIRS** 

**SUBSECTION: R. Establishment of Tuition and Fees** 

April 2021 February 2022

## 1) Credential or Licensure Requirement:

- (a) A professional fee may be charged for an academic professional program if graduates of the program obtain a specialized higher education certificate or degree that qualifies them to practice a professional service involving expert and specialized knowledge for which credentialing or licensing may be required.
- (b) Any such professional program must provide at least the minimum capabilities required for entry to the practice of a profession.
- 2) Accreditation Requirement: The program:
  - (a) is accredited within the institution's regional accreditation; or
  - (b) is actively seeking accreditation if a new program; or
  - (c) will be actively seeking program accreditation after the first full year of existence if a new program by a regional or specialized accrediting agency.
- 3) Demonstration of Program Costs: Institutions may propose professional fees for Board approval based on the costs to deliver the program and other related costs. An institution must provide justification for the pricing of the professional program. Professional program fees must be additional fees above and beyond the normal resident and non-resident tuition rates.

## b) Program Guidelines

- The program must be consistent with academic offerings of the institution serving a population that accesses the same activities, services, and features as full-time, tuition-paying students.
- 2) Upon the approval and establishment of a professional fee, course fees associated with the same program shall be prohibited.
- 3) Once a professional fee is initially approved by the Board, any subsequent change in a professional fee shall require prior approval by the Board at the same meeting institutions submit proposals for tuition and fees.

## iv. Self-Support Academic Program Fees

 Self-support programs fees are charged in lieu of resident or non-resident tuition for programs that lead to degrees or certificates. To bring a Self-

# Idaho State Board of Education GOVERNING POLICIES AND PROCEDURES

**SECTION: V. FINANCIAL AFFAIRS** 

SUBSECTION: R. Establishment of Tuition and Fees

April 2021 February 2022

support program fee to the Board for approval, all of the following criteria must be met:

- 1) An institution shall follow the program approval guidelines set forth in policy III.G.
- 2) The Self-support program shall be an academic program.
- 3) The Self-support program shall be distinct from the traditional offerings of the institution by serving a population that does not access the same activities, services and features as full-time, resident and non-resident tuition paying students, such as programs designed specifically for working professionals, programs offered off-campus, or programs delivered completely online.
- 4) No appropriated funds may be used in support of Self-support programs. The Self-support program fee shall be all-inclusive and no other fees shall be charged in connection with participation in the program.
- 5) Self-support program finances shall be segregated, tracked and accounted for separately from all other programs of the institution except as provided for in subsection 3.B.iv.b.
- b) If a Self-support program fee is approved for a new program, an institution may fund program start-up costs through reallocation or use of reserves., the program must demonstrate ability to support its costs, both direct and indirect, within a period not to exceed three years from program start-up.
- c) Once a Self-support program fee is initially approved by the Board, any subsequent change in a Self-support program fee shall require prior approval by the Board.
- d) Students enrolled in self-support programs may take courses outside of the program so long as they pay the required tuition and fees for those courses.

## v). Summer Bridge Program Fee

The Summer Bridge Program Fee fee is charged to students recently graduated from high school, who are admitted into a summer bridge program at an institution the summer immediately following graduation from high school, and who will be enrolling in pre-determined college-level courses at the same institution the fall semester of the same year for the express purpose of acquiring knowledge and skills necessary to be successful in college. The bridge program fee shall be set annually by the Board.

vi). Independent Study in Idaho

## **ATTACHMENT 1**

## Idaho State Board of Education GOVERNING POLICIES AND PROCEDURES

**SECTION: V. FINANCIAL AFFAIRS** 

**SUBSECTION:** R. Establishment of Tuition and Fees

April 2021 February 2022

This fee is charged for courses offered through the Independent Study in Idaho (ISI) cooperative program. Complete degree programs shall not be offered through the ISI. Credits earned upon course completion shall transfer to any Idaho public college or university. The ISI program shall receive no appropriated or institutional funding and shall operate alone on revenue generated through ISI student registration fees.

## c. Institution Established Program Fees

Institution Established Program Fees are charged in lieu of tuition. The Board delegates establishment of the following fees to the Chief Executive Officers. An annual report listing these fees shall be provided to the Board annually at the time of establishment of Board-established tuition and fees.

## i) Employee/Spouse/Dependent Fee

The fee for eligible participants shall be set by each institution. Eligibility shall be determined by each institution. Employees, spouses and dependents at institutions and agencies under the jurisdiction of the Board may be eligible for this fee. Employees of the Office of the State Board of Education and the Division of Career Technical Education shall be treated as institution employees for purposes of eligibility. Special course fees may also be charged.

## ii. Senior Citizen Fee

The fee for eligible participants shall be set by each institution. Eligibility shall be determined by each institution.

#### iii. In-Service Teacher Education Fee

This fee shall be applicable only to teacher education courses offered as teacher professional development. This fee is not intended for courses which count toward an institution's degree programs. Courses must be approved by the appropriate academic unit(s) at the institution. For purposes of this special fee only, "teacher" means any certificated staff (i.e. pupil services, instructional and administrative).

- a) The fee shall not exceed one-third of the part-time undergraduate credit hour fee or one-third of the graduate credit hour fee for Idaho teachers employed at an Idaho elementary or secondary school; and
- b) The credit-granting institution may set a course fee up to the regular undergraduate or graduate credit hour fee for non-Idaho teachers, for teachers who are not employed at an Idaho elementary or secondary school, or in cases where the credit-granting institution bears all or part of the costs of delivering the course.

**SECTION: V. FINANCIAL AFFAIRS** 

**SUBSECTION:** R. Establishment of Tuition and Fees

April 2021 February 2022

#### iv. Contracts and Grants

Special fee arrangements are authorized by the Board for instructional programs provided by an institution pursuant to a grant or contract approved by the Board.

## v. Continuing Education Fees

Continuing education fees may be charged to continuing education students on a course-by-course basis.

## d. Board Approved Administrative Fees

Administrative local fees are student fees that are approved by the State Board of Education and deposited into local institutional accounts.

These shall be approved by the Board at its annual meeting for setting tuition and fees and will be clearly communicated to students prior to their enrollment.

## i. Consolidated Mandatory Fee

This fee is inclusive of all facilities, activity and technology fees. The State Board of Education will approve the Consolidated Mandatory Fee which will then be allocated by institutions. A full-time and part-time rate shall be established. The Consolidated Mandatory Fee, with an amount for each of the four categories that comprise it, shall be submitted to the Board for approval annually with the tuition increase. The categories are:

## Student Enrollment, Engagement, and Success

The student enrollment, engagement and success fees provide funding to support the multitude of activities and services available to students, both on and off campus. Included in these fees are scholarships, student employment opportunities, funding to support student success initiatives, and enrollment (recruitment and retention) activities.

## Institutional Operations, Services, and Support

The institutional operations, services, and support fees support the departmental and infrastructure needs of the college and universities, including construction and maintenance of facilities; instructional and computing resources; student involvement services and participation with athletic, arts, and cultural events.

#### **Student Health and Wellness**

The student health and wellness fee supports students' physical and mental health and well-being. The student health and wellness fee also allows for

# Idaho State Board of Education GOVERNING POLICIES AND PROCEDURES

**SECTION: V. FINANCIAL AFFAIRS** 

**SUBSECTION: R. Establishment of Tuition and Fees** 

April 2021 February 2022

access to the health and counseling centers throughout the year as well as access to well-being and fitness programs and facilities for overall improvement of the student experience. This fee also funds facilities, maintenance, and programs available through the recreation and intramural programs.

## **Student Government**

The student government fee funds support for the student government officers elected by students, student government initiatives, and student overall experience. Students are provided the means to engage in discussions, events, and opportunities that interest them, are new to them, and challenge them. A subset of this fee includes Ffunding for student activities, clubs, and organizations; of which through this fee. Sstudents are shall be allowed to opt-out of payment of this subset of the fee.

Upon approval by the Board, each institution shall ensure that the Consolidated Mandatory Fee and each of the category fees shall be posted on an easily accessible location on its website.

## **Consolidated Mandatory Fee**

This fee is inclusive of all facilities, activity and technology fees. The State Board of Education will approve the Consolidated Mandatory Fee which may then be allocated by institutions. This fee includes capital improvement and building projects and debt service required by these projects, the fee charged for such activities as intercollegiate athletics, student health center, student union operations, the associated student body, financial aid, intramural and recreation, and other activities which directly benefit and involve students and campus technology enhancements and operations directly related to services for student use and benefit (e.g., internet, network, and web access, general computer facilities, electronic or online testing, and online media).

A full-time and part-time rate shall be established. Institutions shall provide an annual accounting to the Board of the way the Consolidated Mandatory fee is utilized by each institution.

## ii. Transcription Fee

A fee may be charged for processing and transcripting credits. The fee shall be established annually by the Board.

(a) This fee may be charged to students enrolled in a qualified Workforce Training course where the student elects to receive credit. The cost of delivering Workforce Training courses, which typically are for noncredit, is an additional fee since Workforce Training courses are selfsupporting. The fees for delivering the courses are retained by the technical colleges

## Idaho State Board of Education ATTACHMENT 1

GOVERNING POLICIES AND PROCEDURES SECTION: V. FINANCIAL AFFAIRS

SUBSECTION: R. Establishment of Tuition and Fees

April 2021February 2022

(b) This fee may also be charged for transcripting demonstrable technical competency credits as defined in Board policy III.Y.

#### iii. Dual Credit Fee

High school students who enroll in one or more dual credit courses delivered by high schools (including Idaho Digital Learning Academy), either face-to-face or online, are eligible to pay a reduced cost per credit which is approved at the Board's annual tuition and fee setting meeting. The term "dual credit" as used in this section is defined in Board Policy III.Y, which defines how costs are determined for high school students who are enrolled in classes on campus.

## e. Institution Approved Special Course and Administrative Fees

The following local fees and charges are charged to support specific courses or activities and are only charged to students that engage in those specific courses or activities. Local fees and charges are deposited into local institutional accounts or the unrestricted fund. All local fees or changes to such local fees are established and become effective in the amount and at the time specified by the institution. The institution is responsible for reporting these local fees to the Board upon request.

### i. Special Course Fees

A special course fee is an additive fee on top of the standard per credit hour fee which may be charged to students enrolled in a specific course for materials and/or activities required for that course. Special course fees, or changes to such fees, are established and become effective in the amount and at the time specified by the chief executive officer or provost, and must be prominently posted so as to be readily accessible and transparent to students, along with other required course cost information. Such fees shall be reported to the Board upon request.

- a) Special course fees shall be directly related to academic programming. Likewise, special course fees for career technical courses shall be directly related to the skill or trade being taught.
- b) Special course fees may only be charged to cover the direct costs of the additional and necessary expenses that are unique to the course. This includes the costs for lab materials and supplies, specialized software, cost for distance and/or online delivery, and personnel costs for a lab manager. A special course fee shall not subsidize other courses, programs or institution operations.

# Idaho State Board of Education GOVERNING POLICIES AND PROCEDURES

**SECTION: V. FINANCIAL AFFAIRS** 

**SUBSECTION: R. Establishment of Tuition and Fees** 

April 2021 February 2022

c) A special course fee shall not be used to pay a cost for which the institution would ordinarily budget including faculty, administrative support and supplies.

- d) Special course fees shall be separately accounted for and shall not be commingled with other funds; provided however, multiple course fees supporting a common special cost (e.g. language lab, science lab equipment, computer equipment/software, etc.) may be combined. The institution is responsible for managing these fees to ensure appropriate use (i.e. directly attributable to the associated courses) and that reserve balances are justified to ensure that fees charged are not excessive.
- e) The institution shall maintain a system of procedures and controls providing reasonable assurance that special course fees are properly established and used in accordance with this policy, providing an annual review of one-third of the fees each year over a 3-year cycle.

## iii.. Additional Mandatory Fees

- a) Processing fees may be charged for the provision of academic products or services to students (e.g. undergraduate application fee, graduate application fee, program application fee, graduation/diploma fee, new student orientation fees and transcripts). Fees for permits (e.g. parking permit) may also be charged. Each fee may be included in the Consolidated Mandatory fee or established as a separate fee.
- b) All processing fees are established and become effective in the amount and at the time specified by the institution.

#### iv. Discretionary Fees

Fees for permits, student health insurance premiums, room and board rates, or fines shall be established by the institution. Each fee may be included in the Consolidated Mandatory fee or established as a separate fee.

#### v. Fines and Infractions

Fines may be charged for the infraction of an institution policy (e.g., late fee, late drop, library fine, parking fine, lost card, returned check, or stop payment).

#### **IDAHO STATE UNIVERSITY**

#### **SUBJECT**

Idaho State University Bengal Pharmacy Contract Authority

#### **REFERENCE**

February 2013 Implementation of the Bengal Pharmacy, a limited liability

company, was presented to the Board as an information item;

referred to BAHR Committee for review

April 2013 Board approved ISU Foundation's request for implementation

of the Bengal Pharmacy, a limited liability company.

February 2020 Board approved a transfer of assets of Bengal Pharmacy from

the ISU Foundation to the ISU College of Pharmacy.

June 2020 Board approved a contract with Cardinal Health to purchase

pharmaceutical products.

## APPLICABLE STATUTE, RULE, OR POLICY

Idaho State Board of Education Governing Policies & Procedures, Section V.I.3.

#### **BACKGROUND/DISCUSSION**

Idaho State University (ISU) is seeking Board Approval to obtain delegated authority to negotiate and enter into standard pharmacy-related contracts on an ongoing basis. This delegated authority will allow ISU and Bengal Pharmacy to make real-time business decisions and enter into time-sensitive contracts without delays. This will ensure continuity of operations and prevent a situation where the ability to provide pharmaceutical services is interrupted. This issue has arisen now that the Bengal Pharmacy is wholly operated by the College of Pharmacy rather than by the Foundation and all of its contracts are now in the name of the University.

Under board policy V.I.3., many Bengal Pharmacy contracts require Board approval as they exceed one million dollars. Bengal Pharmacy is a full-service retail pharmacy operation. It operates not only on our campuses in Pocatello and Meridian, but serves the state by offering critical prescription medicine dispensing in rural areas with Bengal Pharmacy locations in Arco and Challis. The Bengal Pharmacy also serves as the clinical education site for many of our pharmacy students.

As a business entity in the healthcare industry, making business decisions and signing contracts with healthcare industry partners in a timely manner is crucial for the continuity of business operations. Flexibility to quickly turnaround contracts is critical to remain efficient and timely in response to contract requests from outside entities and vendors.

Delegated Board approval is requested for three types of contracts that are critical to the Bengal Pharmacy operations. The first being 340B contracts with different covered entities at each of its locations. The 340B program is a federally regulated program that provides financial assistance to hospitals and other covered entities who service vulnerable or underserved populations. Bengal Pharmacy acts as a contract pharmacy for three different covered entities, and Bengal Pharmacy administers programs for patients to receive medications at a reduced cost and bills third-party payers on behalf of the covered entity. This program provides timely service to patients. Changes to the fee structure of these contracts are often imposed with little notice, and delays to accepting these changes can prevent reimbursement for services. 340B contracts are reviewed annually and have a 30day notification period for any changes. If any changes need to be made after review, there are only four periods throughout the year in which changes can be made, as they must go through the Health Resources and Services Administration of the federal government before implementation. Inability to renegotiate and sign contracts quickly places us at risk in our relationships with covered entities.

The second type of contract is our drug distribution contracts. Bengal Pharmacy currently contracts with Cardinal Health as its wholesale drug distributor. Wholesalers are vitally important in order to obtain necessary medications. Bengal Pharmacy also contracts with a secondary supplier, Anda Pharmaceuticals, to obtain medications that may be unavailable at our primary wholesaler, or which can be purchased for a reduced price, enhancing our profitability and ensuring we can obtain any needed product.

The third type of contract is for third-party payers, essentially insurance reimbursements for prescription benefits. Bengal Pharmacy is a small organization and belongs to a cooperative of independent pharmacies called AlignRx, formerly Arete. Being a small organization, Bengal Pharmacy does not have the market power to negotiate beneficial contracts with third-party payers. AlignRx is a pharmacy services administration organization that provides contracting and negotiating services with many prescription benefit managers on our behalf. There are some large prescription benefit managers, such as Express Scripts, Medicaid, and CVS Caremark which require each organization to credential individually. When these contracts are updated (as they regularly are) by these third-party payers, ISU must be able to accept the new contracts quickly and ensure continued payment. Not having these contracts in place puts the pharmacy in a position where we could not conduct business.

All three types of contracts are updated regularly throughout the year, often up to four times per year. Bringing each one to the Board would not only be cumbersome but could cause delays in business operations and in serving patients.

ISU requests that the Board approve delegated authority for Bengal Pharmacy to enter into these essential contracts as needed. All contracts are reviewed for business needs by Bengal Pharmacy managers with extensive pharmacy

operations experience, approved by university budget officers, and by ISU legal counsel prior to execution. The three types of contracts and the dollar volume of business are presented in the table below. While these are high dollar, they are a routine part of a retail pharmacy operation and the revenue and expenses occur with daily transactions, often in small dollar amounts that cumulate over the volume of the prescriptions filled.

Inventory Contract Cardinal Health	<b>Dates</b> 10/15/2019-7/1/2021 <b>Total</b>	<b>Expense</b> \$ 6,331,932.98 <b>\$ 6,331,932.98</b>
340B Contracts	Dates	Expense
Health West	1/1/2019-7/1/2021	\$ 3,030,460.03
Challis Area Health Center	1/1/2019-7/1/2021	\$ 291,520.82
Lost Rivers Hospital	1/1/2019-7/1/2021	\$ 969,690.12
	Total	\$ 4,291,670.97
3rd Party Payor Contracts	Dates	Expense
CVS	10/15/2019-7/1/2021	\$ 2,411,717.96
Medicaid	10/15/2019-7/1/2021	\$ 3,238,966.69
Arete	10/15/2019-7/1/2021	\$ 2,117,463.54
	Total	\$ 7,768,148.19

#### **IMPACT**

Delegated authority for the Bengal Pharmacy to enter into these three types of contracts as needed will support the continuity of business operations. Delay in signing contracts will have a dramatic effect on ISU's capacity to continue to provide service to patients, pay bills on time, and receive revenue from payers. Often, turnaround windows are less than thirty days. If the contracts are not submitted on time, Bengal Pharmacy risks losing revenue and the ability to serve patients.

#### **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

The nature of the three contracts is unique in that they require updates throughout the year and require time-sensitive approval. By providing delegated authority, the Board will foster the flexibility Idaho State University needs in order to administer these contracts on a timely basis.

Staff recommends delegating authority to ISU enter into contract updates for 340B, pharmaceutical inventory, and third-party payer contracts for Bengal Pharmacy.

Staff will prepare an amendment to Board policy V.I.3. for the Board's consideration at its April 2022 meeting. The amendment will expressly address granting delegated authority in unique circumstance such as presented by ISU.

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I move to approve the request by Idaho State University to delegate authority to
the Idaho State University President to authorize 340B, pharmaceutical inventory
and third-party payer contracts for Bengal Pharmacy.

Moved by	Seconded by	Carried Yes	No

#### **IDAHO STATE UNIVERSITY**

#### SUBJECT

Multi-year contract for Charles Ragle, Head Football Coach

#### REFERENCE

No Prior Reference Idaho State University extended a three-year contract

to Coach Ragle, for a term commencing December 13<sup>th</sup> 2021 and ending December 13<sup>th</sup> 2024. ISU committed to seeking approval from the Board, at the first

opportunity.

## APPLICABLE STATUTE, RULE, OR POLICY

Idaho State Board of Education Governing Policies & Procedures, Section II.H.

## **BACKGROUND/DISCUSSION**

In the competitive environment of the Big Sky Conference, extending a five-year contract to a new head coach is necessary to secure high level candidates. Further, we need to allow time in the initial contract to make major strides in the football program in a sustainable and appropriate manner as we work to build a championship culture over time.

#### **IMPACT**

The new contract is requested to be for five (5) years, extending from 12/13/21 to 12/13/26. The salary of the previous coach of \$172,000 is increased to \$205,000 with incentives as follows:

• • • • • • • • • • • • • • • • • • • •	
Playoff Appearance	\$7.500
Conference Championship or Co-Championship	\$7,500

APR \$10,000 maximum

Multi-Year APR Score	Incentive Pay Up To:
960-969	\$ 1,000.00
970-979	\$ 2,000.00
980-989	\$ 4,000.00
990-999	\$ 6,000.00
1000	\$10,000.00

#### Average Home Game Attendance

\$10,000 maximum

Average Home Attendance	Incentive Pay Up To:
6,000 - 6,999	\$ 2,000
7,000 - 7,999	\$ 4,000
8,000 - 8,999	\$ 6,000
9,000 - 9,999	\$ 8,000
10,000 and above	\$10,000

BSC Coach of the Year Recognition
Number of Wins

\$7,500

\$10,000 maximum

<u>Wins</u>	Incentive Pay Up To:
7 wins	\$ 1,500.00
8 wins	\$ 2,000.00
9 wins	\$ 4,000.00
10 wins	\$ 6,000.00
11 wins	\$ 8,000.00
12 wins	\$10,000.00

## Post-Season Playoff Wins

\$38,000 maximum

Play-in	8 Teams	1st Win	\$ 5,000.00*
Round 2	16 Teams	2nd Win	\$ 5,000.00
Round 3	8 Teams	3rd Win	\$ 5,000.00
Round 4	4 Teams	4th Win	\$ 8,000.00
Round 5	2 Teams	5th Win	\$15,000.00

<sup>\*</sup>All bonuses are contingent upon the ISU Football team achieving a single-year APR Score of 945 or above and successfully working within the program budget for the fiscal year.

Total Maximum Annual Compensation Under Proposed Contract = \$295,000

#### **ATTACHMENTS**

Attachment 1 – Proposed Clean Contract

Attachment 2 – Redline from Model

Attachment 3 – APR Summary

Attachment 4 - Salary and Incentives Chart

Attachment 5 - Liquidated Damages Sheet

Attachment 6 – Max Compensation Calculation

## **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

The proposed employment agreement is in substantial compliance with the Board-approved model contract, with a base salary of \$205,000.

The contract does contemplate Athletic Achievement Incentives as noted in the background. The contract also provides incentives for academic achievement and behavior of team members. The dollar incentive is tied to the Academic Progress Rate (APR) Standards that are reported to the Board annually and included in Attachment 5. The APR standard is determined through metrics reflecting eligibility and retention data for each student-athlete on scholarship and a perfect score is 1000. The Ragle contract establishes various incentives for achieving a Multi-year APR score starting at 960. For purposes of context, the FY 2020/21 Idaho State Football four-year Multi-year Rate was 946.

Coach's Assistants are eligible to receive supplemental compensation in the amount of \$1,500 per Assistant Coach for achieving a single year APR of 960 or greater. For purposes of context, the FY 2020/21 Idaho State Football single year Rate was 944.

Should the University terminate the Coach for convenience, the University would be obligated to pay the Coach, as liquidated damages, the annual salary until the term of the agreement ends or until the Coach obtains reasonably comparable employment, whichever occurs first. If the Coach terminates the Agreement for convenience, he will be responsible for liquidated damages of \$75,000 if separation occurs prior to the final year of the contract and \$25,000 within the final year of the contract. The University's contractual obligation for damages is higher and the Coach's obligation is lower in comparison to contracts for most other Big Sky coaches (see Attachment 5).

#### **BOARD ACTION**

I move to approv	e the request by I	daho State	Universi	ty to er	nter into	a five (5)
year employmer	nt agreement wit	h Charles	Ragle,	Head	Football	Coach,
commencing on I submitted.	December 13, 202	1 and termi	nating on	Decer	mber 13,	2026, as
Moved by	Seconded b	у	Carri	ed Yes	s N	No

#### FOOTBALL HEAD COACH EMPLOYMENT AGREEMENT

This Employment Agreement (Agreement) is entered into by and between IDAHO STATE UNIVERSITY(University), and Charles B. Ragle (Coach).

#### ARTICLE 1

- 1.1. <u>Employment</u>. Subject to the terms and conditions of this Agreement, the University shall employ Coach as the head coach of its intercollegiate football team (Team). Coach represents and warrants that Coach is fully qualified to serve, and is available for employment, in this capacity.
- 1.2. Reporting Relationship. Coach shall report and be responsible directly to the University's Athletic Director (Director) or the Director's designee. Coach shall abide by the reasonable instructions of Director or the Director's designee and shall confer with the Director or the Director's designee on all administrative and technical matters. Coach shall also be under the general supervision of the University's Chief Executive Officer (Chief Executive Officer).
- 1.3. <u>Duties</u>. Coach shall manage and supervise the Team and shall perform such other duties in the University's athletic program as the Director may assign and as may be described elsewhere in this Agreement. The University shall have the right, at any time, to reassign Coach to duties at the University other than as head coach of the Team, provided that Coach's compensation and benefits shall not be affected by any such reassignment, except that the opportunity to earn supplemental compensation as provided in Sections 3.2.1 through 3.2.9 shall cease.

## ARTICLE 2

- 2.1. <u>Term.</u> This Agreement is for a fixed-term appointment of 5 years, commencing on December 13, 2021 and terminating, without further notice to Coach, on December 13, 2026 unless sooner terminated in accordance with other provisions of this Agreement.
- 2.2. Extension or Renewal. This Agreement is renewable solely upon an offer from the University and an acceptance by Coach, both of which must be in writing and signed by the parties. Any renewal may be subject to the prior approval of the Idaho State Board of Education (Board). This Agreement in no way grants to Coach a claim to tenure in employment, nor shall Coach's service pursuant to this Agreement count in any way toward tenure at the University.

#### ARTICLE 3

## 3.1 Regular Compensation.

- 3.1.1 In consideration of Coach's services and satisfactory performance of this Agreement, the University shall provide to Coach:
  - a) An annual salary of \$205,000.00 per year, payable in biweekly installments in accordance with normal University procedures, and such salary increases as may be determined appropriate by the Director and Chief Executive Officer and approved by the Board;
  - b) The opportunity to receive such employee benefits as the University provides generally to non-faculty exempt employees, provided that Coach qualifies for such benefits by meeting all applicable eligibility requirements (except that in accordance with Board Policy II.H.6.b.ii, University and Coach agree that Coach shall not accrue any annual leave hours, and may take leave (other than sick leave) only with prior written approval of the Director); and
  - c) The opportunity to receive such employee benefits as the University's Department of Athletics (Department) provides generally to its employees of a comparable level. Coach hereby agrees to abide by the terms and conditions, as now existing or hereafter amended, of such employee benefits.

Coach understands and agrees that financial conditions may require the Chief Executive Officer, in the Chief Executive Officer's discretion, to institute furloughs or to take such other actions consistent with Board policy as the Chief Executive Officer may determine to be necessary to meet such challenges. In the event of a furlough or other action, the actual salary paid to Coach may be less than the salary stated in Section 3.1.1(a) above.

3.2 <u>Supplemental Compensation</u> The potential supplemental compensation described herein shall be available to Coach and Assistant Coaches only in years when the following conditions are met: (1) Team Single Year APR reaches a minimum threshold of 945 and (2) the Team operates within the assigned and agreed upon Football Budget, to include mutually agreed upon budget adjustments in writing which take place during the fiscal year.

- 3.2.1. Each year the Team is the conference champion or co-champion, and if Coach continues to be employed as University's head <u>football</u> coach as of the ensuing July 1st, the University shall pay to Coach supplemental compensation in the amount of \$7,500 during the fiscal year in which the championship was achieved. The University shall determine the appropriate manner in which it shall pay Coach any such supplemental compensation.
- 3.2.2. Each year the Team competes in the NCAA Football Championship Subdivision post-season playoffs, and if Coach continues to be employed as University's head football coach as of the ensuing July 1st, the University shall pay Coach supplemental compensation in the amount of \$7,500.00 during the fiscal year in which the playoff appearance occurred. The University shall determine the appropriate manner in which it shall pay Coach any such supplemental compensation.
- 3.2.3. Each year Coach shall be eligible to receive supplemental compensation in an amount up to \$10,000.00 based on the academic achievement and behavior of Team members. The determination of whether Coach will receive such supplemental compensation and the timing of the payment(s) shall be at the discretion of the Chief Executive Officer in consultation with the Director. The determination shall be based on the following factors: the Academic Progress Rate set by the Board, grade point averages; difficulty of major course of study; honors such as scholarships, designation as Academic All-American, and conference academic recognition; progress toward graduation for all athletes, but particularly those who entered the University as academically at-risk students; the conduct of Team members on the University campus, at authorized University activities, in the community, and elsewhere. Any such supplemental compensation paid to Coach shall be accompanied with a detailed justification for the supplemental compensation based on the factors listed above and such justification shall be separately reported to the Board as a document available to the public under the Idaho Public Records Act.

Multi-Year APR Score	Incentive Pay Up To:
960-969	\$ 1,000.00
970-979	\$ 2,000.00
980-989	\$ 4,000.00
990-999	\$ 6,000.00
1000	\$10,000.00

3.2.4. Each year Coach shall be eligible to receive supplemental compensation in an amount up to \$10,000.00 for achieving an average attendance at home football games at the levels set forth below, and if coach continues to be employed as the University's head football coach as of the ensuing July 1st. Average attendance numbers shall be determined and announced by the University Ticket Office. The determination of whether Coach will receive such supplemental compensation and the timing of the payment(s) shall be at the discretion of the Chief Executive Officer in consultation with the Director.

Average Home Attendance	Incentive Pay Up To:
6,000 - 6,999	\$ 2,000
7,000 - 7,999	\$ 4,000
8,000 - 8,999	\$ 6,000
9,000 - 9,999	\$ 8,000
10,000 and above	\$10,000

3.2.5. Each year Coach earns recognition as the Big Sky Conference Football Coach of the Year, and if Coach continues to be employed as University's Head Football Coach as of the ensuing July 1st, the University shall pay to Coach supplemental compensation in the amount of \$7,500.00during the fiscal year in which the Big Sky Conference Football Coach of the Year recognition is achieved. The University shall determine the appropriate manner in which it shall pay Coach any such supplemental compensation.

3.2.6. Each year the Coach shall be eligible to receive supplemental compensation for achieving a predetermined number of regular season wins, and if Coach continues to be employed as University's head football coach as of the ensuing July 1st, the University shall pay to Coach supplemental compensation in an amount equal to the following:

Wins_	Incentive Pay Up To:		
7 wins	\$ 1,500.00		
8 wins	\$ 2,000.00		
9 wins	\$ 4,000.00		
10 wins	\$ 6,000.00		
11 wins	\$ 8,000.00		
12 wins	\$10,000.00		

The University shall determine the appropriate manner in which it shall pay Coach any such supplemental compensation.

- 3.2.7. Coach's Assistants are eligible to receive supplemental compensation in the amount of \$1,500 per Assistant Coach for achieving a single year APR of 960 or greater.
- 3.2.8. Each year the men's football team advances in the NCAA Football Championship Subdivision post-season playoffs, and if Coach continues to be employed as University's Head Football Coach as of the ensuing July 1st, the University shall pay Coach supplemental compensation in an amount equal to the terms below. The University shall determine the appropriate manner in which it shall pay Coach any supplemental compensation.

Play-in	8 Teams	1st Win	\$ 5,000.00*
Round 2	16 Teams	2nd Win	\$ 5,000.00

Round 3	8 Teams	3rd Win	\$ 5,000.00
Round 4	4 Teams	4th Win	\$ 8,000.00
Round 5	2 Teams	5th Win	\$15,000.00

<sup>\*</sup>If a play-in game is needed and if it results in a win it extends the total bonus potential by \$5,000. The total possible National Championship winner computation bonus total is \$28,000.00 without a play-in game and \$38,000.00 if the run includes a play-in game.

3.2.9. (SUMMER CAMP—OPERATED BY UNIVERSITY) Coach agrees that the University has the exclusive right to operate youth football camps on its campus using University facilities. The University shall allow Coach the opportunity to earn supplemental compensation by assisting with the University's camps in Coach's capacity as a University employee. Coach hereby agrees to assist in the marketing, supervision, and general administration of the University's (Sport) camps. Coach also agrees that Coach will perform all obligations mutually agreed upon by the parties. In exchange for Coach's participation in the University's summer (Sport) camps, the University shall pay Coach any net revenues per year as supplemental compensation during each year of employment as head football coach at the University. This amount shall be paid within thirty (30) days after all camp bills have been paid.

In the event of termination of this Agreement, suspension, or reassignment, University shall not be under any obligation to permit a summer youth camp to be held by Coach after the effective date of such termination, suspension, or reassignment, and the University shall be released from all obligations relating thereto.

3.2.10. Coach agrees that the University has the exclusive right to select footwear, apparel, and/or equipment for the use of its student-athletes and staff, including Coach, during official practices and games and during times when Coach or the Team is being filmed by motion picture or video camera or posing for photographs in their capacity as representatives of University. Coach recognizes that the University is negotiating or has entered into an agreement with Adidas or another entity (hereinafter referred to as "Apparel Entity"), to supply the University with athletic footwear, apparel and/or equipment. Coach agrees that, upon the University's reasonable request, Coach will consult with appropriate parties concerning an Apparel Entity product's design or performance, shall act as an instructor at a clinic sponsored in whole or in part by Apparel Entity, or give a lecture at an event sponsored in whole or in part by Apparel Entity, or make other educationally related appearances as may be reasonably requested by the University. Notwithstanding the foregoing sentence, Coach shall retain the right to decline such appearances as Coach reasonably determines to conflict with or hinder Coach's duties and obligations as head football coach. In order to avoid entering into an agreement with a competitor of Apparel Entity, Coach shall submit all outside consulting agreements to the University for review and approval prior to execution. Coach shall also report such

outside income to the University in accordance with NCAA rules. Coach further agrees that Coach will not endorse any athletic footwear, apparel and/or equipment products, including Apparel Entity, and will not participate in any messages or promotional appearances which contain a comparative or qualitative description of athletic footwear, apparel or equipment products.

3.3 <u>General Conditions of Compensation</u>. All compensation provided by the University to Coach is subject to deductions and withholdings as required by law or the terms and conditions of any fringe benefit in which Coach participates. However, if any fringe benefit is based in whole or in part upon the compensation provided by the University to Coach, such fringe benefit shall be based only on the compensation provided pursuant to Section 3.1.1, except to the extent required by the terms and conditions of a specific fringe benefit program.

#### ARTICLE 4

- 4.1. <u>Coach's Specific Duties and Responsibilities</u>. In consideration of the compensation specified in this Agreement, Coach, in addition to the obligations set forth elsewhere in this Agreement, shall:
- 4.1.1. Devote Coach's full time and best efforts to the performance of Coach's duties under this Agreement;
- 4.1.2. Develop and implement programs and procedures with respect to the evaluation, recruitment, training, and coaching of Team members which enable them to compete successfully and reasonably protect their health, safety, and well-being;
- 4.1.3. Observe and uphold all academic standards, requirements, and policies of the University and encourage Team members to perform to their highest academic potential and to graduate in a timely manner; and
- 4.1.4. Know, recognize, and comply with all applicable laws, policies, rules and regulations of the University, the Board, the conference, and the NCAA; supervise and take appropriate steps to ensure that Coach's assistant coaches, any other employees for whom Coach is administratively responsible, and the members of the Team know, recognize, and comply with all such laws, policies, rules and regulations; and immediately report to the Director and to the Department's Director of Compliance if Coach has reasonable cause to believe that any person or entity, including without limitation representatives of the University's athletic interests, has violated or is likely to violate any such laws, policies, rules or regulations. Coach shall cooperate fully with the University and Department at all times. The applicable laws, policies, rules, and regulations include, but are not limited to: (a) Board policies; (b) University's policies and procedures; (c) the policies of the Department; (d) NCAA rules and regulations; and (e) the rules and regulations of the football conference of which the University is a member.

- 4.1.5. Coach is responsible for the actions of all institutional staff members who report, directly or indirectly, to Coach. Coach shall promote an atmosphere of compliance within the program and shall monitor the activities of all institutional staff members involved with the program who report, directly or indirectly, to Coach.
- 4.1.6. Coach shall be responsible for ensuring that institutional staff members as described in 4.1.5 complete the following specific compliance related activities:
- Attendance of Coach and Assistant Coaches at all rules education programs;
- b) Prompt and accurate submission of compliance forms, certification forms, CARA forms, and all compliance related information prior to the arrival of a student athlete on the ISU Campus;
- c) Thorough, honest, and forthcoming completion of compliance forms:
- d) The prompt and complete disclosure of circumstances or facts that may impact the eligibility of a Prospective Student Athlete or which may lead to the need to request an NCAA Eligibility Waiver. The need for NCAA Eligibility Waivers based upon information which was known and not disclosed, or which should have been known, is conduct seriously prejudicial to the University and may constitute adequate cause for discipline up to and including dismissal or termination; and
- e) The routine requesting of rules interpretations.
- 4.2 <u>Outside Activities</u>. Coach shall not undertake any business, professional or personal activities, or pursuits that would prevent Coach from devoting Coach's full time and best efforts to the performance of Coach's duties under this Agreement, that would otherwise detract from those duties in any manner, or that, in the opinion of the University, would reflect adversely upon the University or its athletic program. Subject to the terms and conditions of this Agreement, Coach may, with the prior written approval of the Director, who may consult with the Chief Executive Officer, enter into separate arrangements for outside activities and endorsements which are consistent with Coach's obligations under this Agreement. Coach may not use the University's name, logos, or trademarks in connection with any such arrangements without the prior written approval of the Director and the Chief Executive Officer.
- 4.3 <u>NCAA Rules</u>. In accordance with NCAA rules, Coach shall obtain prior written approval from the University's Chief Executive Officer for all athletically related income and benefits from sources outside the University\_and shall report the source and

amount of all such income and benefits to the University's Chief Executive Officer whenever reasonably requested, but in no event less than annually before the close of business on June 30th of each year or the last regular University work day preceding June 30th. The report shall be in a format reasonably satisfactory to University. In no event shall Coach accept or receive directly or indirectly any monies, benefits, or gratuities whatsoever from any person, association, corporation, University booster club, University alumni association, University foundation, or other benefactor, if the acceptance or receipt of the monies, benefits, or gratuities would violate applicable law or the policies, rules, and regulations of the University, the Board, the conference, or the NCAA.

- 4.4 <u>Hiring Authority</u>. Coach shall have the responsibility and the sole authority to recommend to the Director the hiring and termination of assistant coaches for the Team, but the decision to hire or terminate an assistant coach shall be made by the Director and shall, when necessary or appropriate, be subject to the approval of Chief Executive Officer and the Board.
- 4.5 <u>Scheduling</u>. Coach shall consult with, and may make recommendations to, the Director or the Director's designee with respect to the scheduling of Team competitions, but the final decision shall be made by the Director or the Director's designee.
- 4.6 Other Coaching Opportunities. Coach shall not, under any circumstances, interview for, negotiate for, or accept employment as a coach at any other institution of higher education or with any professional sports team, requiring performance of duties prior to the expiration of this Agreement, without the prior approval of the Director. Such approval shall not unreasonably be withheld.
- 4.7 <u>Disclosure of Serious Misconduct</u>. Coach warrants that prior to signing this Agreement, Coach has disclosed and will continue to disclose if Coach has been accused, investigated, convicted of, or pled guilty or no contest to any felony or a misdemeanor involving serious misconduct, or has been subject to official institution or athletic department disciplinary action at any time at any prior institution where Coach was employed. "Serious misconduct" is defined as any act of sexual violence, domestic violence, dating violence, stalking, sexual exploitation, or any assault that employs the use of a deadly weapon or causes serious bodily injury.
- 4.8 <u>Media and Fundraising Obligations</u>. Coach must fully participate in media and fundraising programs and public appearances (Programs) through the date of the Team's last regular season or post-season competition. Agreements requiring Coach to participate in Programs related to Coach's duties as an employee of University are the property of the University. The University shall have the exclusive right to negotiate and contract with all producers of media productions and all parties desiring public appearances by Coach. Coach agrees to cooperate with the University in order for the Programs to be successful and agrees to provide Coach's services to and perform on the Programs and to cooperate in their production, broadcasting, and telecasting. It is

understood that neither Coach nor any assistant coaches shall appear without the prior written approval of the Director on any competing radio or television program (including but not limited to a coach's show, call-in show, or interview show) or a regularly scheduled news segment, except that this prohibition shall not apply to routine news media interviews for which no compensation is received. Without the prior written approval of the Director, Coach shall not appear in any commercial endorsements which are broadcast on any form of electronic, print, or social media, including radio or television, that conflict with those broadcast on the University's designated media outlets.

#### ARTICLE 5

- 5.1 <u>Termination of Coach for Cause</u>. The University may, in its discretion, suspend Coach from some or all of Coach's duties, temporarily or permanently, and with or without pay; reassign Coach to other duties; or terminate this Agreement at any time for good or adequate cause, as those terms are defined in applicable rules and regulations, including in University policy.
- 5.1.1 In addition to the definitions contained in applicable rules and regulations, University and Coach hereby specifically agree that the following shall constitute good or adequate cause for suspension, reassignment, or termination of this Agreement:
  - a) A deliberate or major violation of Coach's duties under this Agreement or the refusal or unwillingness of Coach to perform such duties in good faith and to the best of Coach's abilities;
  - b) The failure of Coach to remedy any violation of any of the terms of this Agreement within 30 days after written notice from the University;
  - c) A deliberate or major violation by Coach of any applicable law or the policies, rules or regulations of the University, the Board, the conference, or the NCAA, including but not limited to any such violation which may have occurred during the employment of Coach at another NCAA or NAIA member institution;
  - d) Ten (10) working days' absence of Coach from duty without the Director's consent;
  - e) Any conduct of Coach that the university determines brings Coach or the University into general public disrepute, contempt, scandal or ridicule or that would, in the University's reasonable judgment, reflect adversely on the University or its athletic programs, including a violation by Coach of any law, except minor traffic offenses;
  - f) The failure of Coach to represent the University and its athletic programs positively in public and private forums;

- g) The failure of Coach to fully and promptly cooperate with the NCAA or the University in any investigation of possible violations of any applicable law or the policies, rules or regulations of the University, the Board, the conference, or the NCAA;
- h) The failure of Coach to report a known violation of any applicable law or the policies, rules or regulations of the University, the Board, the conference, or the NCAA, by one of Coach's assistant coaches, any other employees for whom Coach is administratively responsible, or a member of the Team; or
- i) A violation of any applicable law or the policies, rules or regulations of the University, the Board, the conference, or the NCAA, by one of Coach's assistant coaches, any other employees for whom Coach is administratively responsible, or a member of the Team if Coach knew or reasonably should have known of the violation and could have prevented it by ordinary supervision;
- j) The failure of Coach to disclose Serious Misconduct as required in Section 4.7 of this Agreement; or
- k) A failure of Coach to maintain a high level of professionalism, including a failure to exercise the proper level of conduct and decorum expected of a highly-visible university employee, which is at all times expected to create a safe and professional environment for student-athletes, subordinates, co-workers, and others who provide support and service to the staff and student athletes at Idaho State University.
- 5.1.2 Suspension, reassignment, or termination for good or adequate cause shall be effectuated by the University as follows: before the effective date of the suspension, reassignment, or termination, the Director or the Director's designee shall provide Coach with notice, which notice shall be accomplished in the manner provided for in this Agreement and shall include the reason(s) for the contemplated action. Coach shall then have an opportunity to respond. After Coach responds or fails to respond, University shall notify Coach whether, and if so when, the action will be effective.
- 5.1.3 In the event of any termination for good or adequate cause, the University's obligation to provide compensation and benefits to Coach, whether direct, indirect, supplemental or collateral, shall cease as of the date of such termination, and the University shall not be liable for the loss of any collateral business opportunities or other benefits, perquisites, or income resulting from outside activities or from any other sources

5.1.4 If found in violation of NCAA regulations, Coach shall, in addition to the provisions of Section 5.1, be subject to disciplinary or corrective action as set forth in the provisions of the NCAA enforcement procedures. This Section applies to violations occurring at the University or at previous institutions at which Coach was employed.

## 5.2 Termination of Coach for Convenience of University.

5.2.1. In the event that University terminates this Agreement for its own convenience, University shall be obligated to pay Coach the salary set forth in Section 3.1.1(a), excluding all deductions required by law, on the regular paydays of University until the term of this Agreement ends or until Coach obtains reasonably comparable employment, whichever occurs first. In the event Coach obtains other employment after such termination, then the amount of compensation the University pays will be reduced by the amount of compensation paid Coach as a result of such other employment, such adjusted compensation to be calculated for each University pay-period by reducing the gross salary set forth in Section 3.1.1(a) (before deductions required by law) by the gross compensation paid to Coach under the other employment, then subtracting from this adjusted gross compensation deductions according to law. In addition, Coach will be entitled to continue with the University (College) health insurance plan and group life insurance as if Coach remained a University employee until the term of this Agreement ends or until Coach obtains reasonably comparable employment or any other employment providing Coach with a reasonably comparable health plan and group life insurance, whichever occurs first. Coach shall be entitled to no other compensation or fringe benefits, except as otherwise provided herein or required by law. Coach specifically agrees to inform University within ten business days of obtaining other employment, and to advise University of all relevant terms of such employment, including without limitation the nature and location of employment, salary, other compensation, health insurance benefits, life insurance benefits, and other fringe benefits. Failure to so inform and advise University shall constitute a material breach of this Agreement and University's obligation to pay compensation under this provision shall end, and Coach further agrees to repay to University all compensation received from the University after the date other employment is obtained.

5.2.2. The parties have both been represented by, or had the opportunity to consult with, legal counsel in the contract negotiations and have bargained for and agreed to the foregoing liquidated damages provision, giving consideration to the fact that Coach may lose certain benefits, supplemental compensation, or outside compensation relating to employment with University, which damages are extremely difficult to determine with certainty. The parties further agree that the payment of such liquidated damages by University and the acceptance thereof by Coach shall constitute adequate and reasonable compensation to Coach for the damages and injury suffered by Coach because of such termination by University. The liquidated damages are not, and shall not be construed to be, a penalty.

## 5.3 Termination by Coach for Convenience.

- 5.3.1. Coach recognizes that Coach's promise to work for University for the entire term of this Agreement is of the essence of this Agreement. Coach also recognizes that the University is making a highly valuable investment in Coach's employment by entering into this Agreement and that its investment would be lost were Coach to resign or otherwise terminate employment with the University before the end of the Agreement term.
- 5.3.2. Coach may terminate this Agreement for convenience during its term by giving prior written notice to the University. Termination shall be effective ten (10) days after notice is given to the University.
- 5.3.3. If Coach terminates this Agreement for convenience at any time, all obligations of the University shall cease as of the effective date of the termination. If Coach terminates this Agreement for convenience, Coach shall pay to the University, as liquidated damages and not a penalty, the following sum: \$75,000 if separation occurs prior to the final year of the contract and \$25,000 within the final year of the contract. The liquidated damages shall be due and payable within twenty (20) days of the effective date of the termination, and any unpaid amount shall bear simple interest at a rate of eight (8) percent per annum until paid.
- 5.3.4. The parties have both been represented by legal counsel in the contract negotiations and have bargained for and agreed to the foregoing liquidated damages provision, giving consideration to the fact that the University will incur administrative and recruiting costs in obtaining a replacement for Coach, in addition to potentially increased compensation costs if Coach terminates this Agreement for convenience, which damages are extremely difficult to determine with certainty. The parties further agree that the payment of such liquidated damages by Coach and the acceptance thereof by University shall constitute adequate and reasonable compensation to University for the damages and injury suffered by it because of such termination by Coach. The liquidated damages are not, and shall not be construed to be, a penalty. This Section 5.3.4 shall not apply if Coach terminates this Agreement because of a material breach by the University.
- 5.3.5. Except as provided elsewhere in this Agreement, if Coach terminates this Agreement for convenience, Coach shall forfeit to the extent permitted by law the right to receive all supplemental compensation and other payments.

#### 5.4 Termination due to Disability or Death of Coach.

5.4.1. Notwithstanding any other provision of this Agreement, this Agreement shall terminate automatically if Coach becomes totally or permanently disabled as defined by the University's disability insurance carrier, becomes unable to perform the essential functions of the position of head coach, or dies.

- 5.4.2. If this Agreement is terminated because of Coach's death, Coach's salary and all other benefits shall terminate as of the last day worked, except that Coach's personal representative or other designated beneficiary shall be paid all compensation due or unpaid and death benefits, if any, as may be contained in any fringe benefit plan now in force or hereafter adopted by the University and due to Coach's estate or beneficiaries thereunder.
- 5.4.3. If this Agreement is terminated because Coach becomes totally or permanently disabled as defined by the University's disability insurance carrier, or becomes unable to perform the essential functions of the position of head coach, all salary and other benefits shall terminate, except that Coach shall be entitled to receive any compensation due or unpaid and any disability-related benefits to which Coach is entitled by virtue of employment with the University.
- 5.5 <u>Interference by Coach</u>. In the event of termination, suspension, or reassignment, Coach agrees that Coach will not interfere with the University's student-athletes or otherwise obstruct the University's ability to transact business or operate its intercollegiate athletics program.
- 5.6 <u>No Liability</u>. The University shall not be liable to Coach for the loss of any collateral business opportunities or any other benefits, perquisites or income from any sources that may ensue as a result of any termination of this Agreement by either party or due to death or disability or the suspension or reassignment of Coach.
- 5.7 Waiver of Rights. Because Coach is receiving a multi-year contract and the opportunity to receive supplemental compensation and because such contracts and opportunities are not customarily afforded to University employees, if the University suspends or reassigns Coach, or terminates this Agreement for good or adequate cause or for convenience, Coach shall have all the rights provided for in this Agreement but hereby releases the University from compliance with the notice, appeal, and similar employment-related rights provided for in Board policy, IDAPA 08.01.01 et seq., and the University Faculty-Staff Handbook.

#### ARTICLE 6

- 6.1 <u>Board Approval.</u> If required under Board policy, this Agreement shall not be effective unless approved by the Board. In addition, the payment of any compensation pursuant to this Agreement shall be subject to the approval of the Board, the Chief Executive Officer, and the Director; the sufficiency of legislative appropriations; the receipt of sufficient funds in the account from which such compensation is paid; and the Board policies and University's rules regarding financial exigency.
- 6.2 <u>University Property</u>. All personal property, material, and articles of information, including, without limitation, keys, credit cards, personnel records, recruiting records, team information, films, statistics or any other personal property, material, or

data, furnished to Coach by the University or developed by Coach on behalf of the University or at the University's direction or for the University's use or otherwise in connection with Coach's employment hereunder are and shall remain the sole property of the University. Within twenty-four (24) hours of the expiration of the term of this Agreement or its earlier termination as provided herein, Coach shall immediately cause any such personal property, materials, and articles of information in Coach's possession or control to be delivered to the Director.

- 6.3 <u>Assignment</u>. Neither party may assign its rights or delegate its obligations under this Agreement without the prior written consent of the other party.
- 6.4 <u>Waiver</u>. No waiver of any default in the performance of this Agreement shall be effective unless in writing and signed by the waiving party. The waiver of a particular breach in the performance of this Agreement shall not constitute a waiver of any other or subsequent breach. The resort to a particular remedy upon a breach shall not constitute a waiver of any other available remedies.
- 6.5 <u>Severability</u>. If any provision of this Agreement is determined to be invalid or unenforceable, the remainder of the Agreement shall not be affected and shall remain in effect.
- 6.6 <u>Governing Law</u>. This Agreement shall be subject to and construed in accordance with the laws of the state of Idaho. Any action based in whole or in part on this Agreement shall be brought in the courts of the state of Idaho.
- 6.7 <u>Oral Promises</u>. Oral promises of an increase in annual salary or of any supplemental or other compensation shall not be binding upon the University.
- 6.8 Force Majeure. Any prevention, delay or stoppage due to causes beyond a party's reasonable control that make the contract impossible, impracticable, or frustrate the purpose of the contract, whether foreseeable or not, including but not limited to: government or court orders, guidelines, regulations, or actions related to communicable diseases, epidemics, pandemics, or other dangers to public health; strikes, lockouts, labor disputes; acts of God; inability to obtain labor or materials or reasonable substitutes therefor; governmental restrictions, governmental regulations, or governmental controls; enemy or hostile governmental action; civil commotion; fire or other casualty; and other causes beyond the reasonable control of the party obligated to perform (including financial inability), shall excuse the performance by such party for a period equal to any such prevention, delay or stoppage.
- 6.9 <u>Confidentiality</u>. This Agreement and all documents and reports Coach is required to produce under this Agreement may be released and made available to the public by the University.
- 6.10 <u>Notices</u>. Any notice under this Agreement shall be in physical or electronic writing and be delivered in person, by email to the official university email on file, or by public or private

courier service (including U.S. Postal Service Express Mail) or certified mail with return receipt requested. All notices shall be addressed to the parties at the following addresses or at such other addresses as the parties may from time to time direct in writing:

the University: Director of Athletics

Pauline Thiros

Idaho State University

MS 8173

Pocatello, ID 83209

with a copy to:

President

Kevin Satterlee

Idaho State University

MS 8310

Pocatello, ID 83209

Coach: Charles B. Ragle

charlesbragle@gmail.com

Any notice shall be deemed to have been given on the earlier of: (a) actual delivery or refusal to accept delivery, (b) the date of mailing by certified mail, or (c) the day electronic delivery is verified. Actual notice, however and from whomever received, shall always be effective.

- 6.11 <u>Headings</u>. The headings contained in this Agreement are for reference purposes only and shall not in any way affect the meaning or interpretation hereof.
- 6.12 <u>Binding Effect.</u> This Agreement is for the benefit only of the parties hereto and shall inure to the benefit of and bind the parties and their respective heirs, legal representatives, successors and assigns.
- 6.13 <u>Non-Use of Names and Trademarks</u>. Coach shall not, without the University's prior written consent in each case, use any name, trade name, trademark, service mark, or other designation of the University (including contraction, abbreviation or simulation), except in the course and scope of official University duties.
- 6.14 <u>No Third Party Beneficiaries</u>. There are no intended or unintended third party beneficiaries to this Agreement.
- 6.15 <u>Entire Agreement; Amendments</u>. This Agreement constitutes the entire agreement of the parties and supersedes all prior agreements and understandings with respect to the same subject matter. No amendment or modification of this Agreement shall be effective unless in writing, signed by both parties, and approved by the Board if required under Board Policy II.H.

6.16 Opportunity to Consult with Attorney. Coach acknowledges that Coach has had the opportunity to consult and review this Agreement with an attorney. Accordingly, in all cases, the language of this Agreement shall be construed simply, according to its fair meaning, and not strictly for or against any party.

University	Coach
Signature: Printed Name: Kevin Satterlee Chief Executive Officer	Signature: Printed Name: Charles B. Ragle
Date:	Date:

# (MODEL ATHLETICS MULTI-YEAR CONTRACT) (template adopted by Idaho State Board of Education. 2018)

## FOOTBALL HEAD COACH EMPLOYMENT AGREEMENT

This	Employment Agreeme	ent (Agre	ement)	is	entered	into	by	and	betwe	een
	(IDAHO	STATE	UNIVE	<u>RSI</u>	TY(Unive	rsity <u> </u>	-(0	College	),	and
	Charles	B. Ragle	(Coach).							

#### ARTICLE 1

- 1.1. <u>Employment</u>. Subject to the terms and conditions of this Agreement, the University (College)—shall employ Coach as the head coach of its intercollegiate (Sport) football team (Team) (or Director of Athletics). ). Coach (Director) represents and warrants that Coach is fully qualified to serve, and is available for employment, in this capacity.
- 1.2. Reporting Relationship. -Coach shall report and be responsible directly to the <u>University (College)'s University's</u> Athletic Director (Director) or the Director's designee. Coach shall abide by the reasonable instructions of Director or the Director's designee and shall confer with the Director or the Director's designee on all administrative and technical matters. Coach shall also be under the general supervision of the <u>University</u> (College)'s University's Chief Executive Officer (Chief Executive Officer).
- 1.3. <u>Duties</u>. -Coach shall manage and supervise the Team and shall perform such other duties in the <u>University (College)'s University's</u> athletic program as the Director may assign and as may be described elsewhere in this Agreement. The University (College) shall have the right, at any time, to reassign Coach to duties at the University (College) other than as head coach of the Team, provided that Coach's compensation and benefits shall not be affected by any such reassignment, except that the opportunity to earn supplemental compensation as provided in Sections 3.2.1 through (depending on supplemental pay provisions used)3.2.9 shall cease.

## ARTICLE 2

2.1. <u>Term.</u> -This Agreement is for a fixed-term appointment of (\_\_\_\_\_)53 years, commencing on \_\_\_\_\_\_December 13, 2021 and terminating, without further notice to Coach, on \_\_\_\_\_\_December 13, 2026 unless sooner terminated in accordance with other provisions of this Agreement.

2.2. Extension or Renewal. -This Agreement is renewable solely upon an offer from the University (College) and an acceptance by Coach, both of which must be in writing and signed by the parties. -Any renewal ismay be subject to the prior approval of the Idaho State Board of Education (Board). This Agreement in no way grants to Coach a claim to tenure in employment, nor shall Coach's service pursuant to this Agreement count in any way toward tenure at the University (College).

## ARTICLE 3

## 3.1 Regular Compensation.

- 3.1.1 In consideration of Coach's services and satisfactory performance of this Agreement, the University (College) shall provide to Coach:
  - a) An annual salary of \$\_\_\_\_\_\$205,000.00 per year, payable in biweekly installments in accordance with normal University\_(College) procedures, and such salary increases as may be determined appropriate by the Director and Chief Executive Officer and approved by the Board;
  - b) The opportunity to receive such employee benefits as the University (College) provides generally to non-faculty exempt employees, provided that Coach qualifies for such benefits by meeting all applicable eligibility requirements (except that in accordance with Board Policy II.H.6.b.ii, University (College) and Coach agree that Coach shall not accrue any annual leave hours, and may take leave (other than sick leave) only with prior written approval of the Director); and
  - c) The opportunity to receive such employee benefits as the <a href="University">University</a> Department of Athletics (Department) provides generally to its employees of a comparable level. Coach hereby agrees to abide by the terms and conditions, as now existing or hereafter amended, of such employee benefits.

Coach understands and agrees that financial conditions may require the Chief Executive Officer, in the Chief Executive Officer's discretion, to institute furloughs or to take such other actions consistent with Board policy as the Chief Executive Officer may determine to be necessary to meet such challenges. –In the event of a furlough or other action, the actual salary paid to Coach may be less than the salary stated in Section 3.1.1(a) above.

- 3.2 Supplemental Compensation
- 3.2 Supplemental Compensation The potential supplemental compensation described herein shall be available to Coach and Assistant Coaches only in years when the following conditions are met: (1) Team Single Year APR reaches a minimum threshold of 945 and (2) the Team operates within the assigned and agreed upon Football Budget, to include mutually agreed upon budget adjustments in writing which take place during the fiscal year.
- 3.2.1. Each year the Team is the conference champion or co-champion—and also becomes eligible for a (bowl game pursuant to NCAA Division I guidelines—or post—season tournament or post—season playoffs), and if Coach continues to be employed as University (College)'s University's head (Sport) football coach as of the ensuing July 1st, the University (College)—shall pay to Coach supplemental compensation in anthe amount equal to (amount or computation)—of—Coach's Annual Salaryof \$7,500 during the fiscal year in which the championship and (bowl or other post—season) eligibility are—was achieved. -The University (College)—shall determine the appropriate manner in which it shall pay Coach any such supplemental compensation.
- 3.2.2. Each year the Team is ranked competes in the top 25 in the (national rankings of sport's division), NCAA Football Championship Subdivision post-season playoffs, and if Coach continues to be employed as University (College)'s University's head (Sport) football coach as of the ensuing July 1st, the University (College) shall pay Coach supplemental compensation in anthe amount equal to (amount or computation) of Coach's Annual Salary in effect on \$7,500.00 during the date of fiscal year in which the final poll.playoff appearance occurred. The University (College) shall determine the appropriate manner in which it shall pay Coach any such supplemental compensation.
- 3.2.3. Each year Coach shall be eligible to receive supplemental compensation in an amount up to (amount or computation)\$10,000.00 based on the academic achievement and behavior of Team members. The determination of whether Coach will receive such supplemental compensation and the timing of the payment(s) shall be at the discretion of the Chief Executive Officer in consultation with the Director. The determination shall be based on the following factors: the Academic Progress Rate set by the Board, grade point averages; difficulty of major course of study; honors such as scholarships, designation as Academic All-American, and conference academic recognition; progress toward graduation for all athletes, but particularly those who entered the University (College) as academically at-risk students; the conduct of Team members on the University (College) campus, at authorized University (College) activities, in the community, and elsewhere. Any such supplemental compensation paid to Coach shall be accompanied with a detailed justification for the supplemental compensation based on the factors listed above and such justification shall be separately reported to the Board as a document available to the public under the Idaho Public Records Act.

Multi-Year APR Score	Incentive Pay Up To:
960-969	\$ 1,000.00

970-979	\$ 2,000.00
980-989	\$ 4,000.00
990-999	\$ 6,000.00
1000	\$10,000.00

3.2.4. Each year Coach shall be eligible to receive supplemental compensation in an amount up to <a href="mailto:(amount or computation">(amount or computation)</a>) based on \$10,000.00 for achieving an average attendance at home football games at the overall development levels set forth below, and if coach continues to be employed as the University's head football coach as of the intercollegiate (men's/women's) (Sport) program; ticket sales; fundraising; outreach ensuing July 1st. Average attendance numbers shall be determined and announced by Coach to various constituency groups, including the University (College) students, staff, faculty, alumni and boosters; and any other factors the Chief Executive Officer wishes to consider Ticket Office. The determination of whether Coach will receive such supplemental compensation and the timing of the payment(s) shall be at the discretion of the Chief Executive Officer in consultation with the Director.

Average Home Attendance	Incentive Pay Up To:
6,000 - 6,999	\$ 2,000
7,000 - 7,999	\$ 4,000
8,000 - 8,999	\$ 6,000
9,000 - 9,999	\$ 8,000
10,000 and above	\$10,000

3.2.5—. Each year Coach shall receive earns recognition as the sum Big Sky Conference

Football Coach of (amount or computation) from the Year, and if Coach continues to be employed as University's Head Football Coach as of the ensuing July 1st, the University (College) or the University (College)'s designated media outlet(s) or a combination thereof each year during the term of this Agreement in shall pay to Coach supplemental compensation in the amount of \$7,500.00during the fiscal year in which the Big Sky Conference Football Coach of the Year recognition is achieved. The University shall determine the appropriate manner in which it shall pay Coach any such supplemental compensation.

3.2.6. Each year the Coach shall be eligible to receive supplemental compensation for participation in media programs and public appearances (Programs). Coach's right to receive such a payment shall vest on the date of the Team's lastachieving a predetermined number of regular season erwins, and if Coach continues to be employed as University's head football coach as of the ensuing July 1st, the University shall pay to Coach supplemental compensation in an amount equal to the following:

Wins	Incentive Pay Up To:
7 wins	\$ 1,500.00

8 wins	\$ 2,000.00
9 wins	\$ 4,000.00
10 wins	\$ 6,000.00
11 wins	\$ 8,000.00
12 wins	\$10,000.00

The University shall determine the appropriate manner in which it shall pay Coach any such supplemental compensation.

3.2.7. Coach's Assistants are eligible to receive supplemental compensation in the amount of \$1,500 per Assistant Coach for achieving a single year APR of 960 or greater.

3.2.8. Each year the men's football team advances in the NCAA Football Championship Subdivision post-season competition, whichever occurs later. This sum shall be paid (terms or conditions of payment). playoffs, and if Coach continues to be employed as University's Head Football Coach as of the ensuing July 1st, the University shall pay Coach supplemental compensation in an amount equal to the terms below. The University shall determine the appropriate manner in which it shall pay Coach any supplemental compensation.

3.2.6	Play-in	8 Teams	1st Win	\$ 5,000.00*
	Round 2	16 Teams	2nd Win	\$ 5,000.00
	Round 3	8 Teams	3rd Win	\$ 5,000.00
	Round 4	4 Teams	4th Win	\$ 8,000.00
	Round 5	2 Teams	5th Win	\$15,000.00

\*If a play-in game is needed and if it results in a win it extends the total bonus potential by \$5,000. The total possible National Championship winner computation bonus total is \$28,000.00 without a play-in game and \$38,000.00 if the run includes a play-in game.

3.2.9. (SUMMER CAMP—OPERATED BY UNIVERSITY (COLLEGE)) Coach agrees that the University (College) has the exclusive right to operate youth (Sport) football camps on its campus using University (College) facilities. -The University (College) shall allow Coach the opportunity to earn supplemental compensation by assisting with the University (College) suniversity (College) agrees to assist in the marketing, supervision, and general administration of the University (College) University's (Sport) camps.- Coach also agrees that Coach will perform all obligations mutually agreed upon by the parties. In exchange for Coach's participation in the University (College) shall pay Coach (College) Suniversity's summer (Sport) camps, the University (College) shall pay Coach (College) as a University summer (Sport) camps, the University (College) shall pay Coach (College) shall pay Coach (College) as a University summer (Sport) camps, the University (College). This amount shall be paid (terms of payment) within thirty (30) days after all camp bills have been paid.

(SUMMER CAMP—OPERATED BY COACH) Coach may operate a summer youth (Sport) camp at the University (College) under the following conditions:

- a) The summer youth camp operation reflects positively on the University (College) and the Department;
- b)—The summer youth camp is operated by Coach directly or through a private enterprise owned and managed by Coach. Coach shall not use <u>University (College)</u> personnel, equipment, or facilities without the prior written approval of the Director;
  - Assistant coaches at the <u>University (College)</u> are given priority when Coach or the private enterprise selects coaches to participate;
  - d) Coach complies with all NCAA (NAIA), Conference, and University (College) rules and regulations related, directly or indirectly, to the operation of summer youth camps;
  - e) Coach or the private enterprise enters into a contract with University (College) and (campus concessionaire) for all campus goods and services required by the camp.
  - f) Coach or private enterprise pays for use of <u>University</u> (College) facilities including the .
  - g) Within thirty days of the last day of the summer youth camp(s), Coach shall submit to the Director a preliminary "Camp Summary Sheet" containing financial and other information related to the operation of the camp. Within ninety days of the last day of the summer youth camp(s), Coach shall submit to Director a final accounting and "Camp Summary Sheet." A copy of the "Camp Summary Sheet" is attached to this Agreement as Exhibit A.
  - h) Coach or the private enterprise shall provide proof of liability insurance as follows: (1) liability coverage: spectator and staff—\$1 million; (2) catastrophic coverage: camper and staff—\$1 million maximum coverage with \$100 deductible;
  - To the extent permitted by law, Coach or the private enterprise shall defend and indemnify the State of Idaho, the University (College) and the Board against any claims, damages, or liabilities arising out of the operation of the summer youth camp(s)

j) All employees of the summer youth camp(s) shall be employees of Coach or the private enterprise and not the University (College) while engaged in camp activities. Coach and all other University (College) employees involved in the operation of the camp(s) shall be on annual leave status or leave without pay during the days the camp is in operation. Coach or private enterprise shall provide workers' compensation insurance in accordance with Idaho law and comply in all respects with all federal and state wage and hour laws.

In the event of termination of this Agreement, suspension, or reassignment, University\_(College) shall not be under any obligation to permit a summer youth camp to be held by Coach after the effective date of such termination, suspension, or reassignment, and the University (College) shall be released from all obligations relating thereto.

3.2.7—10. Coach agrees that the University (College) has the exclusive right to select footwear, apparel, and/or equipment for the use of its student-athletes and staff, including Coach, during official practices and games and during times when Coach or the Team is being filmed by motion picture or video camera or posing for photographs in their capacity as representatives of University (College). Coach recognizes that the University (College) is negotiating or has entered into an agreement with (Company Name) Adidas or another entity (hereinafter referred to as "Apparel Entity"), to supply the University (College) with athletic footwear, apparel and/or equipment. -Coach agrees that, upon the University (College)'s University's reasonable request, Coach will consult with appropriate parties concerning an — (Company Name) Apparel Entity product's design or performance, shall act as an instructor at a clinic sponsored in whole or in part by (Company Name), Apparel Entity, or give a lecture at an event sponsored in whole or in part by (Company Name), Apparel Entity, or make other educationally related appearances as may be reasonably requested by the University—(College). Notwithstanding the foregoing sentence, Coach shall retain the right to decline such appearances as Coach reasonably determines to conflict with or hinder Coach's duties and obligations as head (Sport) football coach. In order to avoid entering into an agreement with a competitor of (Company Name), Apparel Entity, Coach shall submit all outside consulting agreements to the University (College) for review and approval prior to execution. -Coach shall also report such outside income to the University (College) in accordance with NCAA (or NAIA) rules. - Coach further agrees that Coach will not endorse any athletic footwear, apparel and/or equipment products, including (Company Name), Apparel Entity, and will not participate in any messages or promotional appearances which contain a comparative or qualitative description of athletic footwear, apparel or equipment products.

3.3 <u>General Conditions of Compensation</u>. All compensation provided by the University <del>(College)</del> to Coach is subject to deductions and withholdings as required by

law or the terms and conditions of any fringe benefit in which Coach participates. However, if any fringe benefit is based in whole or in part upon the compensation provided by the University (College) to Coach, such fringe benefit shall be based only on the compensation provided pursuant to Section 3.1.1, except to the extent required by the terms and conditions of a specific fringe benefit program.

## ARTICLE 4

- 4.1. <u>Coach's Specific Duties and Responsibilities</u>. —In consideration of the compensation specified in this Agreement, Coach, in addition to the obligations set forth elsewhere in this Agreement, shall:
- 4.1.1. Devote Coach's full time and best efforts to the performance of Coach's duties under this Agreement;
- 4.1.2. Develop and implement programs and procedures with respect to the evaluation, recruitment, training, and coaching of Team members which enable them to compete successfully and reasonably protect their health, safety, and well-being;
- 4.1.3. Observe and uphold all academic standards, requirements, and policies of the University (College) and encourage Team members to perform to their highest academic potential and to graduate in a timely manner; and
- 4.1.4. Know, recognize, and comply with all applicable laws, and with the policies, rules and regulations of the University (College), the Board, the conference, and the NCAA (or NAIA);; supervise and take appropriate steps to ensure that Coach's assistant coaches, any other employees for whom Coach is administratively responsible, and the members of the Team know, recognize, and comply with all such laws, policies, rules and regulations; and immediately report to the Director and to the Department's Director of Compliance if Coach has reasonable cause to believe that any person or entity, including without limitation representatives of the University (College)'s University's athletic interests, has violated or is likely to violate any such laws, policies, rules or regulations. -Coach shall cooperate fully with the University (College) and Department at all times. The names or titles of employees whom Coach supervises are attached as Exhibit B. The applicable laws, policies, rules, and regulations include, but are not limited to: (a) Board policies; (b) University (College)'s (Faculty-Staff) Handbook University's policies and procedures; (c) University (College)'s Administrative Procedures Manual; (d) the policies of the Department; (ed) NCAA (or NAIA) rules and regulations; and (fe) the rules and regulations of the (Sport) football conference of which the University (College) is a member
  - 4.1.5. Coach is responsible for the actions of all institutional staff members who report, directly or indirectly, to Coach. Coach shall promote an atmosphere of compliance within the program and shall monitor the activities of all institutional staff members involved with the program who report, directly or indirectly, to Coach.

- 4.1.6. Coach shall be responsible for ensuring that institutional staff members as described in 4.1.5 complete the following specific compliance related activities:
- a) Attendance of Coach and Assistant Coaches at all rules education programs;
- b) Prompt and accurate submission of compliance forms, certification forms, CARA forms, and all compliance related information prior to the arrival of a student athlete on the ISU Campus;
- <u>c)</u> Thorough, honest, and forthcoming completion of compliance forms;
- d) The prompt and complete disclosure of circumstances or facts that may impact the eligibility of a Prospective Student Athlete or which may lead to the need to request an NCAA Eligibility Waiver. The need for NCAA Eligibility Waivers based upon information which was known and not disclosed, or which should have been known, is conduct seriously prejudicial to the University and may constitute adequate cause for discipline up to and including dismissal or termination; and
- e) The routine requesting of rules interpretations.
- 4.2 <u>Outside Activities</u>. Coach shall not undertake any business, professional or personal activities, or pursuits that would prevent Coach from devoting Coach's full time and best efforts to the performance of Coach's duties under this Agreement, that would otherwise detract from those duties in any manner, or that, in the opinion of the University (College), would reflect adversely upon the University (College) or its athletic program. Subject to the terms and conditions of this Agreement, Coach may, with the prior written approval of the Director, who may consult with the Chief Executive Officer, enter into separate arrangements for outside activities and endorsements which are consistent with Coach's obligations under this Agreement. Coach may not use the <u>University</u> (College)'s <u>University's</u> name, logos, or trademarks in connection with any such arrangements without the prior written approval of the Director and the Chief Executive Officer.
- 4.3 NCAA (or NAIA) Rules. In accordance with NCAA (or NAIA) rules, Coach shall obtain prior written approval from the University (College)'s University's Chief Executive Officer for all athletically related income and benefits from sources outside the University (College) and shall report the source and amount of all such income and benefits to the University (College)'s University's Chief Executive Officer whenever reasonably requested, but in no event less than annually before the close of business on June 30th of each year or the last regular University (College) work day preceding June

30th. The report shall be in a format reasonably satisfactory to University (College). In no event shall Coach accept or receive directly or indirectly any monies, benefits, or gratuities whatsoever from any person, association, corporation, University (College) booster club, University (College) alumni association, University (College) foundation, or other benefactor, if the acceptance or receipt of the monies, benefits, or gratuities would violate applicable law or the policies, rules, and regulations of the University (College), the Board, the conference, or the NCAA (or NAIA).

- 4.4 <u>Hiring Authority</u>. Coach shall have the responsibility and the sole authority to recommend to the Director the hiring and termination of assistant coaches for the Team, but the decision to hire or terminate an assistant coach shall be made by the Director and shall, when necessary or appropriate, be subject to the approval of Chief Executive Officer and the Board.
- 4.5 <u>Scheduling</u>. Coach shall consult with, and may make recommendations to, the Director or the Director's designee with respect to the scheduling of Team competitions, but the final decision shall be made by the Director or the Director's designee.
- 4.6 <u>Other Coaching Opportunities</u>. Coach shall not, under any circumstances, interview for, negotiate for, or accept employment as a coach at any other institution of higher education or with any professional sports team, requiring performance of duties prior to the expiration of this Agreement, without the prior approval of the Director. -Such approval shall not unreasonably be withheld.
- 4.7 <u>Disclosure of Serious Misconduct</u>. Coach warrants that prior to signing this Agreement, Coach has disclosed and will continue to disclose if Coach has been accused, investigated, convicted of, or pled guilty or no contest to <u>aany</u> felony or <u>a</u> misdemeanor involving serious misconduct, or has been subject to official institution or athletic department disciplinary action at any time at any prior institution where Coach was employed. -"Serious misconduct" is defined as any act of sexual violence, domestic violence, dating violence, stalking, sexual exploitation, or any assault that employs the use of a deadly weapon or causes serious bodily injury.
- 4.8 Media and Fundraising Obligations. Coach must fully participate in media and fundraising programs and public appearances (Programs) through the date of the Team's last regular season or post-season competition. -Agreements requiring Coach to participate in Programs related to Coach's duties as an employee of University (College) are the property of the University (College). The University (College) shall have the exclusive right to negotiate and contract with all producers of media productions and all parties desiring public appearances by Coach. Coach agrees to cooperate with the University (College) in order for the Programs to be successful and agrees to provide Coach's services to and perform on the Programs and to cooperate in their production, broadcasting, and telecasting. It is understood that neither Coach nor any assistant coaches shall appear without the prior written approval of the Director on any competing radio or television program (including but not limited to a coach's show, call-in show, or

interview show) or a regularly scheduled news segment, except that this prohibition shall not apply to routine news media interviews for which no compensation is received. Without the prior written approval of the Director, Coach shall not appear in any commercial endorsements which are broadcast on <a href="mailto:any form of electronic">any form of electronic</a>, print, or social <a href="mailto:media">media</a>, including radio or television, that conflict with those broadcast on the <a href="University">University</a>'s <a href="University">University</a>'s <a href="University">University</a>'s designated media outlets.

## ARTICLE 5

- 5.1 <u>Termination of Coach for Cause</u>. –The University—(College) may, in its discretion, suspend Coach from some or all of Coach's duties, temporarily or permanently, and with or without pay; reassign Coach to other duties; or terminate this Agreement at any time for good or adequate cause, as those terms are defined in applicable rules and regulations, including in University policy.
- 5.1.1 In addition to the definitions contained in applicable rules and regulations, University—(College) and Coach hereby specifically agree that the following shall constitute good or adequate cause for suspension, reassignment, or termination of this Agreement:
  - a) A deliberate or major violation of Coach's duties under this Agreement or the refusal or unwillingness of Coach to perform such duties in good faith and to the best of Coach's abilities;
  - b) The failure of Coach to remedy any violation of any of the terms of this Agreement within 30 days after written notice from the University (College);
  - c) A deliberate or major violation by Coach of any applicable law or the policies, rules or regulations of the University\_(College), the Board, the conference, or the NCAA\_(NAIA), including but not limited to any such violation which may have occurred during the employment of Coach at another NCAA or NAIA member institution;
  - d) Ten (10) working days' absence of Coach from duty without the <u>University (College)'s Director's</u> consent;
  - e) Any conduct of Coach that constitutes moral turpitude the university determines brings Coach or the University into general public disrepute, contempt, scandal or ridicule or that would, in the University (College)'s University's reasonable judgment, reflect adversely on the University (College) or its athletic programs, including a violation by Coach of any law, except minor traffic offenses;

- f) The failure of Coach to represent the University—(College) and its athletic programs positively in public and private forums;
- g) The failure of Coach to fully and promptly cooperate with the NCAA (NAIA) or the University (College) in any investigation of possible violations of any applicable law or the policies, rules or regulations of the University (College), the Board, the conference, or the NCAA (NAIA);
- h) The failure of Coach to report a known violation of any applicable law or the policies, rules or regulations of the University—(College), the Board, the conference, or the NCAA—(NAIA), by one of- Coach's assistant coaches, any other employees for whom Coach is administratively responsible, or a member of the Team; or
- i) A violation of any applicable law or the policies, rules or regulations of the University—(College), the Board, the conference, or the NCAA (NAIA), by one of Coach's assistant coaches, any other employees for whom Coach is administratively responsible, or a member of the Team if Coach knew or reasonably should have known of the violation and could have prevented it by ordinary supervision.
- j) The failure of Coach to disclose Serious Misconduct as required in Section 4.7 of this Agreement.; or
- k) A failure of Coach to maintain a high level of professionalism, including a failure to exercise the proper level of conduct and decorum expected of a highly-visible university employee, which is at all times expected to create a safe and professional environment for student-athletes, subordinates, co-workers, and others who provide support and service to the staff and student athletes at Idaho State University.
- 5.1.2 Suspension, reassignment, or termination for good or adequate cause shall be effectuated by the University (College)—as follows:—before the effective date of the suspension, reassignment, or termination, the Director or the Director's designee shall provide Coach with notice, which notice shall be accomplished in the manner provided for in this Agreement and shall include the reason(s) for the contemplated action. Coach shall then have an opportunity to respond. After Coach responds or fails to respond, University (College)—shall notify Coach whether, and if so when, the action will be effective.
- 5.1.3 In the event of any termination for good or adequate cause, the <u>University (College)'s University's</u> obligation to provide compensation and benefits to Coach, whether direct, indirect, supplemental or collateral, shall cease as of the date of such termination, and the University (College) shall not be liable for the loss of any

collateral business opportunities or other benefits, perquisites, or income resulting from outside activities or from any other sources.

5.1.4 If found in violation of NCAA (NAIA) regulations, Coach shall, in addition to the provisions of Section 5.1, be subject to disciplinary or corrective action as set forth in the provisions of the NCAA (NAIA) enforcement procedures. This Section applies to violations occurring at the University (College) or at previous institutions at which Coach was employed.

## 5.2 Termination of Coach for Convenience of University (College).

5.2.1—At any time after commencement of this Agreement, <u>University</u> (<u>College</u>), for its own convenience, may terminate this Agreement by giving ten (10) days prior written notice to Coach.

5.2.2. In the event that University (College) terminates this Agreement for its own convenience, University (College) shall be obligated to pay Coach, as liquidated damages and not a penalty, the salary set forth in Section 3.1.1(a), excluding all deductions required by law, on the regular paydays of University (College)-until the term of this Agreement ends or until Coach obtains reasonably comparable employment, whichever occurs first. -In the event Coach obtains other employment after such termination, then the amount of compensation the University pays will be reduced by the amount of compensation paid Coach as a result of such other employment, such adjusted compensation to be calculated for each University pay-period by reducing the gross salary set forth in Section 3.1.1(a) (before deductions required by law) by the gross compensation paid to Coach under the other employment, then subtracting from this adjusted gross compensation deductions according to law. In addition, Coach will be entitled to continue with the University (College) health insurance plan and group life insurance as if Coach remained a University (College) employee until the term of this Agreement ends or until Coach obtains reasonably comparable employment or any other employment providing Coach with a reasonably comparable health plan and group life insurance, whichever occurs first. Coach shall be entitled to no other compensation or fringe benefits, except as otherwise provided herein or required by law. Coach specifically agrees to inform University within ten business days of obtaining other employment, and to advise University of all relevant terms of such employment, including without limitation the nature and location of employment, salary, other compensation, health insurance benefits, life insurance benefits, and other fringe benefits. -Failure to so inform and advise University shall constitute a material breach of this Agreement and University's obligation to pay compensation under this provision shall end-, and Coach further agrees to repay to University all compensation received from the University (College) after the date other employment is obtained.

5.2.32. The parties have both been represented by, or had the opportunity to consult with, legal counsel in the contract negotiations and have bargained for and agreed to the foregoing liquidated damages provision, giving consideration to the

fact that Coach may lose certain benefits, supplemental compensation, or outside compensation relating to employment with University—(College), which damages are extremely difficult to determine with certainty. -The parties further agree that the payment of such liquidated damages by University—(College) and the acceptance thereof by Coach shall constitute adequate and reasonable compensation to Coach for the damages and injury suffered by Coach because of such termination by University—(College). The liquidated damages are not, and shall not be construed to be, a penalty.

## 5.3 Termination by Coach for Convenience.

- 5.3.1. Coach recognizes that Coach's promise to work for University (College) for the entire term of this Agreement is of the essence of this Agreement. Coach also recognizes that the University (College) is making a highly valuable investment in Coach's employment by entering into this Agreement and that its investment would be lost were Coach to resign or otherwise terminate employment with the University (College) before the end of the Agreement term.
- 5.3.2. Coach may terminate this Agreement for convenience during its term by giving prior written notice to the University—(College)... Termination shall be effective ten (10) days after notice is given to the University—(College)...
- 5.3.4. The parties have both been represented by legal counsel in the contract negotiations and have bargained for and agreed to the foregoing liquidated damages provision, giving consideration to the fact that the University (College) will incur administrative and recruiting costs in obtaining a replacement for Coach, in addition to potentially increased compensation costs if Coach terminates this Agreement for convenience, which damages are extremely difficult to determine with certainty. -The parties further agree that the payment of such liquidated damages by Coach and the acceptance thereof by University (College) shall constitute adequate and reasonable compensation to University (College) for the damages and injury suffered by it because of such termination by Coach. The liquidated damages are not, and shall not be construed to be, a penalty. -This Section 5.3.4 shall not apply if Coach terminates this Agreement because of a material breach by the University (College).

5.3.5. Except as provided elsewhere in this Agreement, if Coach terminates this Agreement for convenience, Coach shall forfeit to the extent permitted by law the right to receive all supplemental compensation and other payments.

## 5.4 <u>Termination due to Disability or Death of Coach.</u>

- 5.4.1. Notwithstanding any other provision of this Agreement, this Agreement shall terminate automatically if Coach becomes totally or permanently disabled as defined by the <u>University (College)'s University's</u> disability insurance carrier, becomes unable to perform the essential functions of the position of head coach, or dies.
- 5.4.2. If this Agreement is terminated because of Coach's death, Coach's salary and all other benefits shall terminate as of the last day worked, except that Coach's personal representative or other designated beneficiary shall be paid all compensation due or unpaid and death benefits, if any, as may be contained in any fringe benefit plan now in force or hereafter adopted by the University (College) and due to Coach's estate or beneficiaries thereunder.
- 5.4.3. If this Agreement is terminated because Coach becomes totally or permanently disabled as defined by the <u>University (College)'s University's</u> disability insurance carrier, or becomes unable to perform the essential functions of the position of head coach, all salary and other benefits shall terminate, except that Coach shall be entitled to receive any compensation due or unpaid and any disability-related benefits to which Coach is entitled by virtue of employment with the University—(College).
- 5.5 <u>Interference by Coach.</u>— In the event of termination, suspension, or reassignment, Coach agrees that Coach will not interfere with the <u>University (College)'s University's</u> student-athletes or otherwise obstruct the <u>University (College)'s University's</u> ability to transact business or operate its intercollegiate athletics program.
- 5.6 <u>No Liability</u>. The University<u>(College)</u> shall not be liable to Coach for the loss of any collateral business opportunities or any other benefits, perquisites or income from any sources that may ensue as a result of any termination of this Agreement by either party or due to death or disability or the suspension or reassignment of Coach<del>, regardless of the circumstances</del>.
- 5.7 <u>Waiver of Rights</u>. Because Coach is receiving a multi-year contract and the opportunity to receive supplemental compensation and because such contracts and opportunities are not customarily afforded to University (College) employees, if the University (College) suspends or reassigns Coach, or terminates this Agreement for good or adequate cause or for convenience, Coach shall have all the rights provided for in this Agreement but hereby releases the University (College) from compliance with the notice, appeal, and similar employment-related rights provided for in Board policy, IDAPA 08.01.01 et seq., and the University (College) (Faculty-Staff) Handbook.

#### ARTICLE 6

- 6.1 <u>Board Approval This.</u> If required under Board policy, this Agreement shall not be effective unless approved by the Board and executed by both parties as set forth below. In addition, the payment of any compensation pursuant to this Agreement shall be subject to the approval of the Board, the Chief Executive Officer, and the Director; the sufficiency of legislative appropriations; the receipt of sufficient funds in the account from which such compensation is paid; and the Board policies and <u>University</u> (College)'s University's rules regarding financial exigency.
- 6.2 <u>University (College) Property.</u> -All personal property (excluding vehicle(s) provided through the program), material, and articles of information, including, without limitation, keys, credit cards, personnel records, recruiting records, team information, films, statistics or any other personal property, material, or data, furnished to Coach by the University (College) or developed by Coach on behalf of the University (College) or at the University (College)'s University's direction or for the University (College)'s University's use or otherwise in connection with Coach's employment hereunder are and shall remain the sole property of the University (College). Within twenty-four (24) hours of the expiration of the term of this Agreement or its earlier termination as provided herein, Coach shall immediately cause any such personal property, materials, and articles of information in Coach's possession or control to be delivered to the Director.
- 6.3 <u>Assignment</u>. Neither party may assign its rights or delegate its obligations under this Agreement without the prior written consent of the other party.
- 6.4 <u>Waiver</u>. No waiver of any default in the performance of this Agreement shall be effective unless in writing and signed by the waiving party. -The waiver of a particular breach in the performance of this Agreement shall not constitute a waiver of any other or subsequent breach. -The resort to a particular remedy upon a breach shall not constitute a waiver of any other available remedies.
- 6.5 <u>Severability</u>. If any provision of this Agreement is determined to be invalid or unenforceable, the remainder of the Agreement shall not be affected and shall remain in effect.
- 6.6 <u>Governing Law.</u> This Agreement shall be subject to and construed in accordance with the laws of the state of Idaho. -Any action based in whole or in part on this Agreement shall be brought in the courts of the state of Idaho.
- 6.7 <u>Oral Promises</u>. Oral promises of an increase in annual salary or of any supplemental or other compensation shall not be binding upon the University—(College).
- 6.8 <u>Force Majeure</u>. Any prevention, delay or stoppage due to <u>causes beyond</u> a party's reasonable control that make the contract impossible, impracticable, or frustrate

the purpose of the contract, whether foreseeable or not, including but not limited to: government or court orders, guidelines, regulations, or actions related to communicable diseases, epidemics, pandemics, or other dangers to public health; strikes, lockouts, labor disputes; acts of God; inability to obtain labor or materials or reasonable substitutes therefor; governmental restrictions, governmental regulations, or governmental controls; enemy or hostile governmental action; civil commotion; fire or other casualty; and other causes beyond the reasonable control of the party obligated to perform (including financial inability), shall excuse the performance by such party for a period equal to any such prevention, delay or stoppage.

- 6.9 <u>Confidentiality</u>. This Agreement and all documents and reports Coach is required to produce under this Agreement may be released and made available to the public by the University (College).
- 6.10 <u>Notices</u>. Any notice under this Agreement shall be in <u>physical or electronic</u> writing and be delivered in person, <u>by email to the official university email on file</u>, or by public or private courier service (including U.S. Postal Service Express Mail) or certified mail with return receipt requested. All notices shall be addressed to the parties at the following addresses or at such other addresses as the parties may from time to time direct in writing:

the University—(College)::	Pauline Thiros
	Idaho State University MS 8173 Pocatello, ID 83209
with a copy to:	Chief Executive OfficerPresident  Kevin Satterlee
	Idaho State University MS 8310 Pocatello, ID 83209
Coach:	Charles B. Ragle Last known address on file with University (College)'s Human Resource Services
	charlesbragle@gmail.com

Any notice shall be deemed to have been given on the earlier of: (a) actual delivery or refusal to accept delivery, (b) the date of mailing by certified mail, or (c) the day

facsimileelectronic delivery is verified.— Actual notice, however and from whomever received, shall always be effective.

- 6.11 <u>Headings</u>. The headings contained in this Agreement are for reference purposes only and shall not in any way affect the meaning or interpretation hereof.
- 6.12 <u>Binding Effect.</u> This Agreement is for the benefit only of the parties hereto and shall inure to the benefit of and bind the parties and their respective heirs, legal representatives, successors and assigns.
- 6.13 Non-Use of Names and Trademarks. Coach shall not, without the University (College)'s University's prior written consent in each case, use any name, trade name, trademark, service mark, or other designation of the University (College) (including contraction, abbreviation or simulation), except in the course and scope of official University (College) duties.
- 6.14 <u>No Third Party Beneficiaries</u>.— There are no intended or unintended third party beneficiaries to this Agreement.
- 6.15 Entire Agreement; Amendments. This Agreement constitutes the entire agreement of the parties and supersedes all prior agreements and understandings with respect to the same subject matter. No amendment or modification of this Agreement shall be effective unless in writing, signed by both parties, and approved by the Board if required under Board Policy II.H.
- 6.16 Opportunity to Consult with Attorney. -Coach acknowledges that Coach has had the opportunity to consult and review this Agreement with an attorney. Accordingly, in all cases, the language of this Agreement shall be construed simply, according to its fair meaning, and not strictly for or against any party.

University <del>(College)</del>	Coach			
Signature: Printed Name::  Kevin Satterlee Chief Executive Officer	Signature: Printed Name:: Charles B. Ragle			
Date:	Date:			
Approved by the Idaho State Board of Edu 20 -	ucation on the day of,			

[\*Note: Multiyear employment agreements requiring Board approval are defined Board Policy II.H.]

## **IDAHO STATE UNIVERSITY**

FOOTBALL APR History and National Percentile Rank

# SINGLE YEAR NCAA ACADEMIC PROGRESS RATE (APR) SCORES

	2016-17	2017-18	2018-19	2019-20	2020-21
Single Year APR	971	974	944	925	944
National % Rank by Sport	40-50	50-60	30-40	*	*

MULTI-YEAR APR (4-Year Rolling Average)						
Football	963	967	959	953	946	

<sup>\*</sup> Percentile not available or reported by NCAA following the COVD year due to disruption

## Big Sky Conference Football Head Coach Salary and Incentives Chart

Supporting Information for ISU Head Football Coach (Charles Ragle) Contract

INSTITUTION	BASE SALARY		INCENTIVES		TOTAL I	POSSIBLE COMPENSATION
1 Cal Poly	\$	350,004.00	\$	460,000.00	\$	810,004.00
2 Sacramento State	\$	242,000.00	\$	389,600.00	\$	631,600.00
3 Montana State	\$	210,437.00	\$	367,500.00	\$	577,937.00
4 Montana	\$	205,000.00	\$	330,000.00	\$	535,000.00
5 Weber State	\$	191,475.00	\$	187,500.00	\$	378,975.00
6 University of Idaho	\$	175,000.00	\$	203,500.00	\$	378,500.00
7 Northern Arizona	\$	230,000.00	\$	91,000.00	\$	321,000.00
8 UC Davis	\$	272,500.00	\$	30,400.00	\$	302,900.00
9 <mark>Idaho State</mark>	\$	205,000.00	\$	90,500.00	\$	295,500.00
10 Eastern Washington	\$	232,357.00	\$	58,000.00	\$	290,357.00
11 Northern Colorado	\$	190,000.00	\$	87,500.00	\$	277,500.00
12 Portland State	\$	195,000.00	\$	15,000.00	\$	210,000.00
13 Southern Utah	\$	185,000.00	No Information	n Available	\$	185,000.00

INSTITUTION	BASE SALARY	
1 Cal Poly	\$	350,004.00
2 UC Davis	\$	272,500.00
3 Sacramento State	\$	242,000.00
4 Eastern Washington	\$	232,357.00
5 Northern Arizona	\$	230,000.00
6 Montana State	\$	210,437.00
7 Montana	\$	205,000.00
8 <mark>Idaho State</mark>	\$	205,000.00
9 Portland State	\$	195,000.00
10 Weber State	\$	191,475.00
11 Northern Colorado	\$	190,000.00
12 Southern Utah	\$	185,000.00
13 University of Idaho	\$	175,000.00

# Big Sky Conference Football Head Coach Salary and Incentives Chart

Supporting Information for ISU Head Football Coach (Charles Ragle) Contract

	LIQUIDATED	
INSTITUTION	DAMAGES CLAUSE?	STRUCTURE OF LIQUIDATED DAMAGES
Sacramento State	NO	NA
Mala a Challa		Termination by university is set amount depending upon remaining term, ranges
Weber State	YES	from \$800,000 total to \$175,000 minimum. Termination by Coach is \$100,000.
		Termination for convenience by University \$250,000 or remaining contract term,
Montana State		whichever is less. Termination by Coach \$250,000 or remaining contract term if
	YES	separation occurs in the final 12 months.
Portland State	YES	\$30,000
		Termination for convenience is 50% of base salary for the remainder of the contract
Northern Arizona		term. Termination by Coach 50% of remaining contract, or \$50,000 one time based
	YES	on reason for departure.
Idaho		
Northern Colorado		Termination by Coach requires payment by Coach of up to \$300,000 on a sliding scale
Northern Colorado	YES	which decreases until contract expiration.
		Termination for convenience by University requires 12 months of current salary.
Eastern Washington		Termination by Coach requires an amount ranging from \$50-\$100K based on years
	YES	remaining.
Montana	YES	Amount equal to base salary for the time remaining on the contract.
Southern Utah		Termination by Coach requires payment on a sliding scale beginning at \$100,000 and
Southern Otan	YES	decreasing until contract expiration.
Cal Poly	NO	NA
		Termination by university is base salary for current year, then 50% of base for
UC Davis		following year and 25% of base salary for remaining term. Termination by Coach
	YES	\$150,000.
		Termination by University is remaining contract terms minus other compensation
Idaho State		secured by Coach upon receipt of alternative employment. Termination by Coach is
	YES	\$75,000 until the final year, then \$25,000.

## Coach Seton Sobolewski Maximum Compensation Calculation: FY 2022-2027

Contract Reference:		 Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
3.1.1	Annual Salary	\$ 205,000.00	\$ 205,000.00	\$ 205,000.00	\$ 205,000.00	\$ 205,000.00
3.2.1	Bonus: Regular Season Championship	\$ 7,500.00	\$ 7,500.00	\$ 7,500.00	\$ 7,500.00	\$ 7,500.00
3.2.2	Bonus: FCS Playoff Appearance	\$ 7,500.00	\$ 7,500.00	\$ 7,500.00	\$ 7,500.00	\$ 7,500.00
3.2.3	Bonus: Academic Achievement	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00
3.2.4	Bonus: Attendance	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00
3.2.5	Bonus: Coach of the Year	\$ 7,500.00	\$ 7,500.00	\$ 7,500.00	\$ 7,500.00	\$ 7,500.00
3.2.6	Bonus: Total Season Wins	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00
3.2.8	Bonus: FCS Playoff Wins (Natl. Championship)	\$ 38,000.00	\$ 38,000.00	\$ 38,000.00	\$ 38,000.00	\$ 38,000.00
	Total Maximum Annual Compensation Under					
	Proposed Contract:	\$ 295,500.00	\$ 295,500.00	\$ 295,500.00	\$ 295,500.00	\$ 295,500.00

## BUSINESS AFFAIRS AND HUMAN RESOURCES FEBRUARY 17, 2022

## **UNIVERSITY OF IDAHO**

#### **SUBJECT**

Performance Evaluation of Staff Employees, FSH 3340

## REFERENCE

June 27, 2002	Board approved revisions to University of Idaho procedures for periodic performance review of tenured faculty members.
August 12, 2010	Board approved amendments to the University of Idaho Faculty Student Handbook, FSH 1565 and 3560, Faculty Rank
August 11, 2011	Board approved amendments to the University of Idaho Faculty Student Handbook, FSH 1565, Faculty Rank.
June 21, 2012	Board approved amendments to the University of Idaho Faculty Student Handbook, FSH 1565, Faculty Rank.
June 19, 2014	Board approved amendments to the University of Idaho Faculty Student Handbook, FSH 1565 and 3560, Faculty Rank and Promotion policies.
February 16, 2017	Board approved amendments to the University of Idaho Faculty Student Handbook, FSH 3390, Classified Staff, Disciplinary Procedures.

## APPLICABLE STATUTE, RULE, OR POLICY

Idaho State Board of Education Governing Policies & Procedures, Section II.D., E, and F.

Idaho Code Title 67, Chapter 53

## **BACKGROUND/DISCUSSION**

The University of Idaho has been reviewing policies and making appropriate updates to align with updated procedures, Idaho State Board of Education governing procedures, and Department of Labor guidance. These changes provide important process edits and will assist supervisors in outlining the performance standards and goals for the employee.

## **IMPACT**

Revisions provide clarity on the University's performance evaluations for staff along with the change of ratings to two areas (meets/exceeds or needs improvement). These changes align with our Faculty evaluation ratings.

## **ATTACHMENTS**

Attachment 1 – Jan 2022 FSH 3340 Redline (Faculty Staff Handbook 3340 Performance Evaluations of Staff Employees)

## BUSINESS AFFAIRS AND HUMAN RESOURCES FEBRUARY 17, 2022

#### **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

Board Policy II.D.1.b. provides: "Classified employees at the University of Idaho are subject to the policies and procedures of the University of Idaho for its classified employees. Such policies and procedures require approval by the Board, and should be, in so much as practical, parallel to the provisions provided for state of Idaho classified employees in."

Changes proposed by the University of Idaho are parallel to the provisions in the Chapter 53, Title 67, Idaho Code, as to classified employees.

Board Policy II.F.4. provides: "Each institution or agency must establish policies and procedures for the performance evaluation of non-classified employees, and are responsible for implementing those policies in evaluating the work performance of employees. The purposes of employee evaluations are to identify areas of strength and weakness, to improve employee work performance, and to provide a basis on which the chief executive officers and the Board may make decisions concerning retention, promotion, and merit salary increases. All non-classified employees must be evaluated annually. Any written recommendations that result from a performance evaluation must be signed by the appropriate supervisor, a copy provided to the employee and a copy placed in the official personnel file of the employee. Evaluation ratings that result in findings of inadequate performance of duties or failure to perform duties constitute adequate cause as set forth in Section II.L. of Board Policy."

Staff recommends approval.

## **BOARD ACTION**

I move to approve the request by the University of Idaho to approve the revisions to Faculty Staff Handbook 3340 Performance Evaluation of State Employees as provided in Attachment 1.

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Moved by	Seconded by	Carried Yes	INO
Wid vod by		Odinod 100	1 10

July 2019

#### 3340

#### PERFORMANCE EVALUATION OF STAFF EMPLOYEES

PREAMBLE: This section contains those policies and their attendant procedures for those periodic performance reviews of classified personnel and exempt personnel. An original part of the 1979 Handbook, this section was revised in December of 1992, inter alia to reflect changes in step increases. In July 2019 changes to this policy and APM 50.21 were made to correct inaccurate information. Unless otherwise noted, the text is that of July 1996. For further information, contact Human Resources—Development (208-885-9164). [ed. 7-97, 12-04, 6-09, rev. 7-98, 7-19]

#### A. GENERAL PRINCIPLES.

- **A-1.** Performance evaluation is a responsibility of every supervisor and should be performed in a timely manner for every employee. The purposes of performance evaluation include but are not limited to: facilitating employee productivity and professional growth; encouraging communication between employees and supervisors; documenting performance strengths and weaknesses; supporting annual salary adjustments or meritorious salary increases or identifying the basis for demotion, disciplinary action or dismissal; and motivating improvement in performance. *[ed. 12-04, rev. 7-19]*
- **A-2.** A formal evaluation of performance shall be performed at least once a year, generally during January. Classified employees who are new to a classification will be evaluated after three (3) months of service in the probationary period and again at the end of the probationary period but no later than six-(6) months in the new position. [rev. 7-02, 12-04, 7-19]
  - **a.** Performance evaluations may also be conducted at other times at the discretion of the supervisor or unit administrator to assist employees in improving performance or to formally advise them of performance or disciplinary problems. [ed. 7-02, 7-19]
  - **b.** Supervisors and unit administrators are responsible for evaluating performance in a responsible and timely manner. [rev. 7-98, 7-19 ed. 7-02]
- **A-3.** The performance evaluation form is a guide for evaluating the performance of all exempt—staff. —and classified staff. FThe form is available onforms for each employee may be downloaded from the Human Resources website (www.uidaho.edu/humanresources.aspx). —Human Resources notifies department administrators when annual or probationary evaluations are due. [rev. 7-02, ed. 12-04, 6-09]
- A-4. The employee's job description provides an objective standard by which performance is evaluated. Job descriptions for elassified positions and some exempt staff positions are on file withinavailable in the Human Resources recruitment system and available to electronically access. Factors that also are Other factors that may be considered include, but are not limited to, quality and quantity of work, job knowledge, initiative, dependability, customer service, teamwork, ability to work with other employees, record of attendance, communications, task management, budget management, safety, decision making, supervision, accountability, civility, judgment, leadership, problem solving, training and /development, or other dimensions appropriate for review as determined by the supervisor and tardiness. [ed. 12-04, 6-09]
- **A-5.** Evaluation of performance shall be conducted by an employee's immediate supervisor or unit administrator,—(depending on the procedures of the department). The evaluation should include a discussion between the supervisor and the employee regarding: (a) what is expected of the employee, including a review of standards of performance in the job description as well as goals and objectives established at the prior evaluation; (b) the supervisor's evaluation of performance for the current period; and (c) developmental activities or performance goals included in the review which will improve performance during the upcoming period. The employee is expected to participate in the discussion. *[ed. 7-02, rev. 7-19]*

#### A-6. Performance levels are described as follows: [ed. 7-TB(1)19]

- **a.** Meets/Exceeds Requirements is the performance expected of a fully competent employee and is defined as falling within a broad band of accomplishments ranging between satisfactory and exceptional (performance well beyond that required for the position). [rev. 7-02]
- b. Needs Improvement denotes performance that is less than that expected of a fully competent employee and defined as falling within a broad band of performance ranging between unsatisfactory and does not meet expectations. It means improvement is necessary. The performance is inferior to the standards for the position and expectations of the supervisor. It should be used when an employee fails to perform one or more duties critical to the job. A rating of this type should be thoroughly discussed with the employee.
- **A-76.** Following the supervisor's completion of the written evaluation, the employee shalls have the opportunity to indicate in writing whether they concur with the evaluation and to enter their written comments regarding the evaluation in the "Employee Comments" section of the performance evaluation form or byto provide including a written response to be attached to the completed evaluation. —[rev. 7-19]
- **A-87.** The written evaluation serves as the official record of performance; hence, it should be as complete as possible, signed and dated, and <u>must be</u> sent to Human Resources no later than <u>the due date identified and communicated prescribed by HR annually the last working day in February</u>. <u>Please review the evaluation form instructions for information regarding signature requirements</u>. One copy of the evaluation is given to the employee, and one copy retained <u>with the supervisor in the unit</u>, <u>whichand</u> should be referred to when subsequent evaluations are conducted. The official series of evaluations retained <u>byns in</u> HR becomes a record that supports decisions such as promotion or dismissal. *[rev. 7-02, 12-04, ed. 7-19]*
- A-98. A probationary classified employee who receives an overall "needs improvement" unsatisfactory performance evaluation at the end of the six6—month probationary period shall not be certified as having completed probationary status. In most instances, a "needs improvement" n unsatisfactory performance evaluation should be accompanied by a recommendation for demotion or termination of employment prior to the end of the sixth6 month. The demotion or termination process needs tomust be requested and completed through Human Resources prior to the completion of the initial probationary period. In rare cases, the probationary period may be extended upon the recommendation of the supervisor and the unit administrator with prior approval from the sSenior Human Resources eExecutive for up to an additional 90 days, with a Development Plan; with written performance reviews required at 30 and 60 days; and the final written evaluation completed no later than 90 days. (See APM 50.21). [rev. 7-02, 7-19, ed. 12-04]
- **A-109.** A certified <u>classified</u> employee who receives an overall rating of "needs improvement" or "unsatisfactory" must be placed on a <u>performance-Ddevelopment pPlan (PDP)</u> to document the necessary improvement or the lack thereof. If the necessary improvements are is not achieved through use of the <u>PDevelopment Plan</u>, other steps must be taken; these may include, but are not limited to demotion, suspension, or termination of employment. (See APM 50.21) [ed. 12-04, rev. 7-19]
- A-10. Performance levels are described as follows: [ed. 7-19]
  - a. Outstanding is extraordinary performance well beyond that required for the position. [rev. 7-02]
  - **b.** Exceeds Requirements represents performance which is better than that expected of a fully competent employee. [rev. 7 02]

- c. Meets/Exceeds\_Requirements is the performance expected of a fully competent employee and is defined as falling within a broad band of accomplishments ranging between "satisfactoryneeds improvemen"t" and "exceptional (performance well beyond that required from the position). highly competent." [rev. 7 02]
- d. Needs Improvement denotes performance that is less than that expected of a fully competent employee and defined as falling within a broad band of performance ranging between unsatisfactory and does not meet expectations. It means improvement is necessary. The performance is inferior to the standards for the position and expectations of the supervisor. It should be used when an employee fails to perform one or more duties critical to the job. A rating of this type should be thoroughly discussed with the employee.
- e. Unsatisfactory performance is inferior to the standards for the position. It should be used when an employee clearly fails to perform one or more duties critical to the job and the overall impact of the employee's performance is such that termination of employment is considered and may be implemented.

(Staff Performance Evaluation Forms are on Human Resources website.)

## BUSINESS AFFAIRS AND HUMAN RESOURCES FEBRUARY 17, 2022

## **UNIVERSITY OF IDAHO**

#### **SUBJECT**

Probation, Promotion, Demotion and Transfer of Classified Employees, FSH 3360

#### REFERENCE

June 27, 2002	Board approved revisions to University of Idaho procedures for periodic performance review of tenured faculty members.
August 12, 2010	Board approved amendments to the University of Idaho Faculty Student Handbook, FSH 1565 and 3560, Faculty Rank
August 11, 2011	Board approved amendments to the University of Idaho Faculty Student Handbook, FSH 1565, Faculty Rank.
June 21, 2012	Board approved amendments to the University of Idaho Faculty Student Handbook, FSH 1565, Faculty Rank.
June 19, 2014	Board approved amendments to the University of Idaho Faculty Student Handbook, FSH 1565 and 3560, Faculty Rank and Promotion policies.
February 16, 2017	Board approved amendments to the University of Idaho Faculty Student Handbook, FSH 3390, Classified Staff, Disciplinary Procedures.

## APPLICABLE STATUTE, RULE, OR POLICY

Idaho State Board of Education Governing Policies & Procedures, Section II.D.1.b Idaho Code Title 67, Chapter 53

## **BACKGROUND/DISCUSSION**

The University of Idaho has been reviewing policies and making appropriate updates to align with updated procedures, Idaho State Board of Education governing procedures and Department of Labor guidance. These changes provide important clarity and will assist our affirmative action and equal employment office reporting requirements and compliance measures.

## **IMPACT**

Revisions provide clarity on the University's probation, promotion, demotion and transfer procedures for classified staff and will assist our affirmative action and equal employment office with reporting requirements.

## **ATTACHMENTS**

Attachment 1 – 2021 July FSH3360 Redline (Faculty Staff Handbook 3360 Probation, Promotion, Demotion & Transfer of Classified Employees)

## BUSINESS AFFAIRS AND HUMAN RESOURCES FEBRUARY 17, 2022

## **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

Board Policy II.D.1.b. provides: "Classified employees at the University of Idaho are subject to the policies and procedures of the University of Idaho for its classified employees. Such policies and procedures require approval by the Board, and should be, in so much as practical, parallel to the provisions provided for state of Idaho classified employees in."

Changes proposed by the University of Idaho are parallel to the provisions in the Chapter 53, Title 67, Idaho Code and in accordance with Board policy.

Staff recommends approval.

## **BOARD ACTION**

I move to approve the request by the University of Idaho to approve the revisions to Faculty Staff Handbook 3360 Probation, Promotion, Demotion & Transfer of Classified Employees as provided in Attachment 1.

Moved by	Seconded by	Carried Yes	No
			_

#### 3360

# PROBATION, PROMOTION, DEMOTION, AND TRANSFER OF CLASSIFIED EMPLOYEES

PREAMBLE: An original part of the 1979 Handbook, this section underwent a full revision in 2003 to bring it in line with Regents policy. In 2009 a definitions section was added, APM 50.15 was incorporated into this policy and various minor edits were made. In 2021, revisions were made to align with Department of Labor guidance and SBOE requirements and to assist with AA/EEO compliance. For further information, contact Human Resources (208-885-3638). [ed 7-97, 7-03, rev. 7-09]

## **CONTENTS:**

- A. Definitions
- B. Probation
- C. Promotion
- D. Demotion
- E. Transfer
- F. Reporting

## A. DEFINITIONS.

- A-1. <u>Certification to Permanent Status/Certified Certified Status</u>. In this section and related policy statements, reference to "certified status" means that the <u>An</u> employee <u>who</u> has successfully completed the probationary period as required herein is certified to permanent (subject to removal only as provided for by Board of Regents and University of Idaho policy) status, also referred to as "certified."-
- A-2. Demotion. Any personnel action Reassignment of an employee from his or her present position to a new positionthat: one that is in a lower pay grade and in which uses a different position control number; which is a rReductions of an employee from a position which the employee occupies in one classification to a position in another classification with a lower market rate.

calls for decreased responsibility or decreased skill level; results inhas a decreased market rate range; orand and results in either a decreased salary or ineligibility for a salary increase.

t<u>The employee must have</u> has previously held certified status or for which he or she <u>meet</u> has the minimum qualifications for the new position.

**A-3. Permanent Status.** Subject to removal only as provided for by Board of Regents and University of Idaho policy.-

**A-43. Probation.** A working test period to provide unit administrators with an opportunity to evaluate a person's work performance and suitability for the position. The probationary period for classified employees beginning a new position is six months.

**A-54. Promotion.** Any personnel action . Reassignment of an employee from his or her present position to a new position that creates a Advancement through the competitive process of an employee with permanent status from a position which he/she occupies in one (1) classification to a position in another classification having a higher market rate.

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a. uses a different position control number;
 ba. calls for increased responsibility or increased skill level;

cb. results in anhas an increased market rate range; and dc. results in either increased salary or eligibility for a salary increase.

The employee must meet the minimum qualifications of the new position.

A career opportunity that involves greater responsibilities, and may also involve an increase in salary and a change in title. Promotions are not intended to be used where duties are changed on a temporary basis. A promotion is distinct from a reclassification in that it moves the employee into a different position, retaining little, if any, of the responsibilities of his or her previous position, as long as the employee meets the minimum qualifications of the position.

**A-5. Reclassification.** An employee retains the majority of his/her original responsibilities while accepting duties requiring a higher level of knowledge, skills or abilities.

**A\_-66.** Transfer. An opportunity for an employee to move A personnel action that moves an employee into a different unit at the university with the same classification, level of responsibilities, and market rate range, and title.

## B. PROBATION.

**B-1.** Required Probationary Period. Each employee, following initial-appointment or promotion to a classified position, must successfully complete a probationary period of at least six full months. The probationary period in a given classification must be completed within a single unit and not be interrupted by resignation, or termination or dismissal. An employee who satisfactorily completes the probationary period becomes certified to permanent status. and thus received certified status. An employee who has been separated during the probationary period (not certified), other than by "layoff" ([see FSH 39303930) B], is not certified and must begin a new probationary period upon being rehired reappointment or promotioned to that classification and must meet the minimum qualifications for the position. —An eEmployees who

previously held certified status in a given classification classified position is are not required to complete a subsequent probationary period.

[ed. 7-03, 7-09]

**B-2.** Evaluation. The unit administrator supervisor is encouraged to complete an employee performance <u>Iindividual D</u>development <u>P</u>plan available on the <u>Human Resources</u> <u>Development</u> website at http://www.uidaho.edu/human-resources, and a three3-month and 6-month evaluation Staff Personnel Evaluations using the "Staff Personnel Evaluation" form (-[see FSH 3340)], the forms for which are available provided on the Human ResourcesR website at http://www.uidaho.edu/human resources. Before the probationary period ends, the supervisor must complete a six-month evaluation and discuss it with the employee, and the second-level supervisor must review the evaluation. The supervisor is required to complete a 6-month evaluation must be completed, discussed with the probationary employee, and reviewed by the second-level supervisor before the probationary period ends. A probationary (employment/employed at-will) employee may be dismissed, demoted, or, in the case of promotion, returned to his or her former classification, without cause being assigned, upon the recommendation of the unit administrator at any time before the completion of the probationary period with prior approval of the executive director for human resources senior HR officerHuman Resources executive or designee. Normally, a probationary employee whose appointment is to be terminated will be given two weeks' notice. Dismissal under these circumstances is not a basis for recourse to the grievance procedures described in -FSH 38603860. [rev. 7-02, 7-03, 7-09, ed. 7-10]

### C. PROMOTION.

## **C-1.** Eligibility for Promotion.

a. An employee may be considered for promotion on the basis of his or her past record, length of service, performance in the present position, and qualification to perform the duties of the higher positions. The employee must meet the minimum qualifications of the new position. A supervisor may promote an employee into a vacanttion position in the unit if they employee has demonstrated exceptional competency and skill for that position.

<u>[See also 3380 D]</u> [ren. 7-09]

C-2.<u>b.</u> A supervisor may promote an employee into a vacant position in the unit if the employee has demonstrated exceptional competency and skill for that position. [rev. & ren. 7-09]

C-3.b. A promotion may occur in a unit that is undergoing reorganization. In this case, the supervisor mustan provide to Human Resources written explanation of the office or unit changes and the reasons why the employee is qualified for the promotion is necessary. [rev. & ren. 7-09]

C-24. <u>Probationary Period</u>. If the employee is promoted into a <u>classification-ied position</u> eation in which they are for which he or she is not certified, a <u>new six</u>6-month probationary period is required (see FSH <u>3360</u>, B-1). [rev. 7-03, ed. 7-09]

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C-5. When there is more than one internal candidate who meets the minimum qualifications for the position within the unit, the hiring administrator must, at a minimum, conduct a UI-only search to document the candidate's qualifications and identify the most qualified individual. The hiring administrator must send an email to the Director of Human Rights, Access and InclusionEmployee Development and Workforce Diversity at eoarreview@uidaho.eduhrai@uidaho.edu requesting a UI-only internal search stating that there is one promotional opportunity and more than one qualified internal candidate. [add. 7-03, rev. 7-09, ed. 7-10]

C-36. Procedure.ss. The Director of Employee Development and Workforce Diversity Affirmative Action/Equal Opportunity officer Human Rights, Access and Inclusion is the approving authority for all promotions of classified employees. [add. 7-03, ed. 7-09, 7-10]

a. When there is more than one internal candidate who meets the minimum qualifications for the position within the unit, the hiring administrator must, at a minimum, conduct a UI internal search to document the candidate's qualifications and identify the most qualified individual. The hiring administrator must send an email to the Affirmative Action/Equal Opportunity officer at eo-aareview@uidaho.edu requesting a UI internal search, stating that there is one promotional opportunity and more than one qualified internal candidate. [add. 7-03, rev. 7-09, ed. 7-10]

**ab.** If more than one qualified internal candidate exists, To promote an employee, the unit must follows all affirmative action and equal employment opportunity policies by posting the position for the required recruitment period in the Applicant Tracking online applicant tracking system System (ATS) and evaluating all the applicants. To be considered for the promotional position, tThe employee must applyies for the position using the ATS online applicant tracking system. -See APM 50.02. [add. 7-09]

bc. Exceptions to the requirement for posting internal promotional opportunities require the review and approval of the Director of Human Rights, Access and Inclusiont The Affirmative Action/Equal Opportunity officer Director of Employee Development and Workforce Diversity or designee. -The unit administrator must work with the Human Resources Workforce Diversity office at e-mail the Director of Human Rights, Access and Inclusion at hrai@uidaho.edueo-aareview@uidaho.edu to request an internal promotion without a search, stating the justification for waiver of a search. Information on the search waiver process and forms can be found at https://www.uidaho.edu/human-resources/equal-employment-opportunity-affirmative-action/recruitment-and-hiring/waivers. The unit must provide: [add. 7-09, ed. 7-10]

- 1) A current Results Oriented Job Description (ROJD), reviewed and approved by the classification and compensation analyst in Human Resources;
- 2) A resume from the promotion candidate;
- 3) The plans for the "to be vacant" position;

4) A salary recommendation (optional).

C-7d. The unit must complete and/or-upload the required forms and supplemental documentation within the online applicant tracking systema standard Position Authorization Form, and the forms which must then be processed through regular approval channels. This includes any processes unique to the unit. [add. 7-09]

C-8e. The Affirmative Action/Equal Opportunity officer Director of Human Rights, Access and InclusionEmployee Development and Workforce Diversity or designee will review and provide a written response to the request for promotion. The unit CANNOT shall not offer the position until it receives approval from the theHuman Resources Affirmative Action/Equal Opportunity officer Workforce Diversity. Director of Human Rights, Access and Inclusion. For additional information email eo-aareview hrai@uidaho.edueall (208) 885-4285. [add. 7-09, ed. 7-10]

#### D. DEMOTION.

**D-1.** Reasons for Demotion. An employee may be demoted, subject to the approval of the unit administrator in consultation with and the executive director for human resources senior HR officeHuman Resources executives or designee. The unit administrator may recommend the demotion of an employee for any of the following reasons: [ed. 7-02, ren. & ed. 7-09]

a. The reallocation or reclassification of a class or position to a lower pay grade.a. The restructuring of a position or unit.

<u>abb</u>. The elimination of the employee's position because of lack of work or lack of funds.

c. Expiration of a temporary promotional assignment. [add. 7 03]

<u>dbc</u>. The failure of the employee to complete successfully the probationary requirements of a higher position.

<u>eed</u>. Disciplinary action for causes stated in <u>FSH 3930 C-1</u> but not <u>of a degree of severity</u> that wouldsufficiently severe to warrant suspension or dismissal.

fde. At the request of the employee. [rev. 7-02]

**D-23. Procedure.** The A unit administrator supervisor shall submit their's recommendation that an employee be demoted is submitted through the dean or equivalent administrator to Human Resources. Following consultation with HR, Concurrently, the unit administrator shall give written notice for demotion is given to the employee and to the executive director for human resources senior HR officerHuman Resources executive or designee. An employee with certified status must be given notice of demotion at least 15 calendar days before its effective date and must be given the reasons for the demotion. For circumstances where When the demotion is not for disciplinary reasons, the provisions of FSH 3930 do not apply. [ed. 7-03, ren. & ed. 7-09]

**D-34.** Effect of Demotion on Salary. When an employee is demoted, his or her the new salary is based on the market rate range and target salary of the new position reduced to a step in the lower pay grade as recommended by the unit administrator in consultation with and the executive director for human resources senior HR officer Human Resources executive or designee. If demotion is due to failure to successfully complete the probationary requirements of the higher position, to which he or shethe employee had been provisionally promoted, the salary after demotion will normally coincide withbe the salary the employee was receiving before promotion. [ed. 7-02, ren. & ed. 7-09]

#### E. TRANSFER.

E-1. Voluntary Transfer. An employee may voluntarily transfer from one unit to another in the exact same position title, classification, job duties and market rate range. and pay grade.

## **E-2. Voluntary Transfer Procedure.**

E-6.a. A transfer request can only be made only by an employee who is beyond their initial or any performance probationary period, and cannot be requested if an employee has documented performance concerns within six months of the transfer request.

- b. An employee who wishes to be transferred should must notify their current supervisor and make a written request to his or her unit administrator and Employment Services the Director of Human Resources senior HR officer Human Resources executive or designee which includes verification of notification to the employee's supervisor. (An employee requesting transfer between units must also requires the employee to notify their current supervisor.) The employee must also provide a current resume and other requested materials through Human Resources before a transfer request will be considered. [rev. 7-03. ren. and ed. 7-091
- c. A transfer is made without reduction in hourly wage unless such reduction is agreed to by the employee. [ed. 7-02, ren. 7-03, ren. and ed. 7-09]
- E-2. Involuntary Transfer. UI may transfer an employee involuntarily as long as there is no loss of compensation. The employee will be notified in writing by unit administrator of an involuntary transfer. [rev. 7-02, 7-03, rev. and ren. 7-09]
- E-2. An employee requesting transfer between units must complete application provide a current resume and other requested materials through Employment Services in HRHuman Resources before a transfer request will be considered. [rev. 7-03, ren. and ed. 7-09]
- E-3. An employee-requested transfer between units also requires the written approval of the unit administrators concerned, the employee involved, and the director of employment services. [add. 7-03, ren, and ed, 7-091

**E-4.** A transfer is made without reduction in hourly wage unless such reduction is agreed to by the employee and the unit administrator. [ed. 7-02, ren. 7-03, ren. and ed. 7-09]

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**E-35.** Effect of Transfer. The transfer of an employee does not affect his or her prior earned credited state service. However, the transfer may affect the employee's leave accrual rate, which is based on years of service, hours worked, and percentage of appointment. [rev. 7-02, 7-03, ren. 7-03, 7-09]

E-6. A transfer request can only be made by an employee who is beyond their initial or any performance probationary period, and cannot be requested if an employee has documented performance concerns within six months of the transfer request.

## F. REPORTING.

<u>F-1. Human Resources maintains records for new hires, promotions/demotions, transfers and terminations. This information-Affirmative Action data is reported annually in the University of Idaho's Affirmative Action Plan, available by request at eo-aareview@uidaho.edu.</u>

## BUSINESS AFFAIRS AND HUMAN RESOURCES FEBRUARY 17, 2022

#### **UNIVERSITY OF IDAHO**

#### **SUBJECT**

Request for Construction authorization; Proposed Idaho Center for Plant and Soil Health, University of Idaho (UI), Parma, Idaho.

### **REFERENCE**

August 2019 Idaho State Board of Education (Board) approved the UI Six-

Year Capital Improvement Plan

August 2020 Idaho State Board of Education (Board) approved Planning

and Design Authorization

### APPLICABLE STATUTE, RULE, OR POLICY

Idaho State Board of Education Governing Policies & Procedure, Section V.K.1, and Sections V.K.3.

#### **BACKGROUND/DISCUSSION**

This is a request to authorize construction of a new Idaho Center for Plant and Soil Health to be located at the Parma Research and Extension Center (PREC) in Parma, Idaho. The new facility will replace existing aging and inadequate facilities at the Parma Research and Extension Center and will support the on-going needs of faculty in the College of Agricultural and Life Sciences (CALS) and the agricultural industry within the State of Idaho. These existing facilities are currently more than 50 years old and face substantial needs for modernization of infrastructure and equipment which inhibit the potential of research faculty and staff. The Center will focus on research leading to healthy plants and healthy soil and will foster significant relationships and partnerships with Idaho agricultural industry leaders.

The project is consistent with the strategic goals and objectives of the University of Idaho and is consistent with the UI's Strategic Plan related to Research and Outreach, specifically:

#### Goal One, Innovate:

This project supports the growth of scholarly research activity in the Agricultural Sciences. It provides support for creative research into solutions to the issues and concerns regarding plant and soil health within the State of Idaho.

## Goal Two, Engage:

This project enhances and supports collaboration with the agricultural industries within the State of Idaho. The project is supported by Idaho agricultural leaders and stakeholders such as the Albertsons Foundation.

## BUSINESS AFFAIRS AND HUMAN RESOURCES FEBRUARY 17, 2022

In addition, the project is fully consistent with the principles, goals, and objectives of UI's Long Range Campus Development Plan (LRCDP).

#### **IMPACT**

The anticipated full project cost is \$9,500,000. This is based upon the design effort to date and includes infrastructure costs not fully anticipated at the time of planning and design authorization, and a cost estimate prepared by the architectural design team.

The capital strategy includes \$3,000,000 from the Permanent Building Fund (PBF) which was allocated as part of the FY2022 PBF process, \$3,000,000 in gifts, \$1,000,000 from the College of Agricultural and Life Sciences, and up to \$2,500,000 in federal grants via the Infrastructure Investment and Jobs Act (IIJA). The university is in process of applying for the IIJA funds. Should the requested IIJA funds not be fully realized, the university will provide the difference.

The planning and design effort is nearing completion and the design architect is currently preparing final construction documents. It is anticipated that the documents will be ready to advertise and able to support a bid process beginning in April 2022. Assuming good bids are received, the notice to proceed is anticipated in early July 2022.

This request is for authorization to proceed with bid, award, and construction phase for the proposed Idaho Center for Plant and Soil Health Facility.

The immediate fiscal impact of this effort is the complete, total project costs of \$9,500,000.

### **Overall Project**

<u>Funding</u>		Estimate Budget	
State	\$ 3,000,000	A/E & Consultant Fees	\$ 700,000
Federal (Grant):		Construction	7,017,900
Other (UI)		Construction Cont.	701,800
University (CALS)	\$ 1,000,000	Owner Cost & FFE	444,000
Gifted Funds	\$ 3,000,000	Project Cont.	 636,300
Federal Funds	\$ 2,500,000	-	
Total	\$ 9,500,000	Total	\$ 9,500,000

#### **ATTACHMENTS**

Attachment 1 – Capital Project Tracking Sheet

#### **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

This project was included in the University's six-year capital improvement plan provided to the Board in August 2021. At that time, it had an estimated cost of \$7M funded from state, University, and gift funds. Since August, the University has uncovered budget challenges related to water and sanitary sewer for a robust

## BUSINESS AFFAIRS AND HUMAN RESOURCES FEBRUARY 17, 2022

science lab facility located on what is essentially a rural site remote from city services. This has increased the cost to \$9.5M. The University has made application for a federal grant of \$2.5M to cover these added costs. If the University is not successful in securing the grant, the University will cover the difference through an internal loan to the College of Agricultural and Life Sciences (CALS). There is precedent for loaning CALS internal funds to complete capital projects. The University's general cash balance underwrites these kinds of internal loans, and the University has is sufficient cash on hand to float an internal loan if necessary.

Staff recommends approval.

#### **BOARD ACTION**

I move to approve the request by the University of Idaho to implement the Bid, Award, and Construction phases of the proposed Idaho Center for Plant and Soil Health Facility, with a projected total cost of \$9,500,000, as described in the materials submitted to the Board. Construction authorization includes the authority to execute all necessary and requisite consulting and vendor contracts to fully implement the planning and design phases of the project.

Moved by	Seconded by	v Carried	Yes	No
		, Gairieu		

## Office of the Idaho State Board of Education Capital Project Tracking Sheet

As of February, 2022

## **History Narrative**

1 Institution/Agency: University of Idaho Project: Capital Project Authorization Request, Bid, Award and Construction Phases,

Proposed Idaho Center for Plant and Soil Health Facility, Parma Research and

Extension Center University of Idaho, Parma, Idaho.

<sup>2</sup> **Project Description:** A Capital Project to provide for the planning, programming, design, bid, award, and construction the proposed Idaho Center for Plant

and Soil Health Facility at the Parma Research and Extension Center (PERC) of the University of Idaho.

<sup>3</sup> **Project Use:** The new Idaho Center for Plant and Soil Health is to be located at the Parma Research and Extension Center (PREC) in Parma,

Idaho. The new facility will support the on-going needs of faculty in the College of Agricultural and Life Sciences (CALS) and of the agricultural industry within the State of Idaho. It will replace aging and inadequate facilities currently existing at the PERC. The existing facilities are currently in excess of 50 years old and face substantial needs for modernization of infrastructure and equipment which inhibit the potential of research faculty and staff. The new facility will focus on research leading to healthy plants and healthy

soil and will foster significant relationships and partnerships with Idaho agricultural industry leaders.

4 **Project Size:** Approx. 10,000 gsf

6		Soul	rces	of F	unds						Use of I	un	ds*		
Project Cost History:							Total			Us	se of Funds				Total
8	PBF	ISBA			Other		Sources		Planning		Const		Other**		Uses
9 Initial Cost of Project. Planning, Programming and Design Phase Authorization Request. June 2020	\$ 3,000,000	\$	-	\$	4,000,000	\$	7,000,000	\$	634,200	\$	5,285,500	\$	1,080,300	\$	7,000,000
10 11 History of Revisions:						_								_	
12 Revised Cost of Project. Bid, Award and Construction Phase Authorization Request. February 2022				\$	2,500,000	\$	2,500,000	<b>\$</b>	65,800	\$	2,434,200			\$	2,500,000
13															
14 Total Project Costs	\$ 3,000,000	\$	-	\$	6,500,000	\$	9,500,000	\$	700,000	\$	7,719,700	\$	1,080,300	\$	9,500,000

<sup>15 \*</sup> Figures quoted are for the Total Project Cost.

<sup>16 \*\*</sup> Owner's Costs, FFE, & Project Contingency, Any carry forward amounts are to be used in future phases which may be approved by the Board of Regents.

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18 19	History of Funding:	PBF	ISBA		stitutional   Funds   Funds	Student Revenue	 of Funds Other***	 Total Other	Total Funding
20	Initial Cost of Project. Planning, Programming and Design Phase Authorization Request. June 2020	\$ 3,000,000	\$	-	\$ 3,000,000	\$ -	\$ 1,000,000	\$ 4,000,000	\$ 7,000,000
21 22 23	History of Revisions:  Revised Cost of Project. Bid, Award and Construction Phase Authorization Request. February 2022						2,500,000	2,500,000	2,500,000
24	Total	\$ 3,000,000	\$	-	\$ 3,000,000	\$ _	\$ 3,500,000	\$ 6,500,000	\$ 9,500,000

25 \*\*\* UI College of Agricultural and Life Sciences; Federal IIJA Grant

TAB	DESCRIPTION	ACTION
1	BOARD POLICY III.B. ACADEMIC FREEDOM AND RESPONSIBILITY AND POLICY III.P. STUDENTS – SECOND READING	Action Item
2	BOARD POLICY III.G. POSTSECONDARY PROGRAM REVIEW AND APPROVAL – SECOND READING	Action Item
3	SEMI-ANNUAL REPORT OF APPROVED PROGRAM REQUESTS	Information Item
4	HIGHER EDUCATION RESEARCH COUNCIL ANNUAL REPORT FOR FISCAL YEAR 2021	Information Item
5	POSTSECONDARY STUDENT EXPERIENCE SURVEY REPORT	Information Item

IRSA TOC Page i

#### **SUBJECT**

Board Policy III.B. Academic Freedom and Responsibility and Board Policy III.P. Students – Second Reading

### **REFERENCE**

October 2020 The Board approved a first reading of amendments to

Board Policy III.P. that brought the policy into

compliance with new Title IX Regulations.

December 2020 The Board approved a second reading of amendments

to Board Policy III.P.

December 2021 The Board approved a first reading of amendments to

Board Policies III.B and III.P.

## APPLICABLE STATUTE, RULE, OR POLICY

Idaho State Board of Education Governing Policies & Procedures, Section III.B., III.P., and III.U.

### **BACKGROUND/DISCUSSION**

Board Policy III.B. Academic Freedom and Responsibility was created as part of the process in the late 1900s when postsecondary personnel policies were moved from Administrative Code to the Board's Governing Policies and Procedures. At that time, it was common for the Board to consider the Board Policy Manual as a whole rather than individual policy changes. Due to the way the minutes to the Board meetings were structured at that time it is not possible to determine the exact date Board Policy III.B was first codified, other than it was prior to 2000. Only technical changes that did not require Board approval have been made to the policy since that time, with the most recent change occurring in 2002.

In the summer of 2021, a workgroup of interested faculty and administrators from all eight public postsecondary institutions in Idaho developed a proposed major revision of Board Policy III.B., which included moving and expanding on some language in Board Policy III.P. Students.

#### **IMPACT**

The proposed amendments will bring Board policy III.B. into alignment with current nationally accepted standards of academic freedom and academic responsibility, The amendments clearly define key terms, delineate the academic freedoms and academic responsibilities of students, faculty, and institutions alike, and outline the general limitations of these freedoms and responsibilities.

An additional, incidental revision to Board Policy III.P is also proposed, removing language about vaccine categories that are no longer utilized by the Centers for Disease Control and Prevention. This change will prevent confusion about vaccine related information in Board policy.

#### **ATTACHMENTS**

Attachment 1– Board Policy III.B. Academic Freedom and Responsibility – Second Reading

Attachment 2 – Board Policy III.P. Students – Second Reading

### **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

Between the first and second readings, one proposed revision has been made to Policy III.B. at the suggestion of Board Member Hill. This revision re-orders the sentences of paragraph 3.b.iii. for the sake of clarity and coherence. No public comment has been received regarding this policy between the readings and no other additional revisions are proposed.

### **BOARD ACTION**

I move to approve the second reading of proposed amendments to Board Policy
III.B. Academic Freedom and Responsibility, as submitted in Attachment 1.

Moved by	Seconded by	Carried Yes	No	_
AND				
	ve the second reading of prosecutions are the second reading of prosecutions are the second reading of prosecutions.	•	to Board Poli	СУ
Moved by	Seconded by	Carried Yes	No	

**ATTACHMENT 1** 

## **Idaho State Board of Education**

## **GOVERNING POLICIES AND PROCEDURES**

**SECTION: III. POSTSECONDARY AFFAIRS** 

Subsection: B. Academic Freedom and Academic Responsibility April 2002 February 2022

In adopting the following policy statement concerning academic freedom and responsibility, the State Board of Education and Board of Regents of the University of Idaho affirms its belief that academic freedom should not be abridged or abused.

Institutions of higher education are operated for the common good and not to further the interests of individual faculty members or the institution as a whole. Academic freedom is essential to protect the rights of the faculty member in teaching and the student in learning. Freedom in research and teaching is fundamental to the advancement of truth. Academic freedom carries with it responsibilities as well as rights.

## 1. Teaching

The faculty member is entitled to freedom in the classroom in discussing the subject material but should not introduce matters not germane to the subject.

### 2. Research

The faculty member is entitled to freedom in research and the publication of the results. However, research for pecuniary return, when that research is a part of the faculty member's assigned duties or when the research involves use of institutional facilities or resources not usually available to the general public may be undertaken only with prior written approval by the chief executive officer or his or her designee.

#### 3. Responsibilities

## 1. Definitions

- a. Academic Freedom is a long-standing philosophical, legal, and constitutional principle of freedom of speech that advances the right of postsecondary students, faculty, and institutions to pursue educational opportunities that seek, examine, apply, discuss, and build knowledge, theories, values, concepts, or ideas without fear of censorship, retaliation, or threat to institutional status.
- b. Academic Responsibility is the commitment by students, faculty, and institutions to strive to protect the academic freedom of others by appreciating their special position in the community, performing academic obligations with intellectual honesty, promoting the free exchange of ideas, and showing respect toward those with whom they both agree and disagree.

#### ATTACHMENT 1

- c. Faculty are employed to forward the academic mission of a college or university through teaching, research, service, and other scholarly contributions. Students may assume similar employment with institutions as graduate teaching or research assistants. Further, postdoctoral researchers may assume similar employment with institutions. In addition to the foregoing definition, faculty are employees of the institution pursuant to Board Policy II.G.
- d. Student means any person duly admitted and enrolled at an institution under governance of the Board as defined in Board Policy III.P.

#### 2. Students

This policy recognizes the academic freedom and academic responsibility to individuals with the status of student.

#### a. Academic Freedom of Students

In addition to constitutionally protected freedoms of speech, assembly, and religion, students have the right to engage in free inquiry, intellectual debate, and freedom of scholarship both on and off campus. Students shall not be subject to retaliation, or censorship in response to their beliefs, opinions, research, publications, creative activity, and participation in institutional governance. Students are subject to the responsibilities outlined in paragraph 2.b. of this policy. This academic freedom includes but is not limited to:

#### i. Instructional Environments

- 1) Students have the right to express personal opinions about concepts and theories presented in their courses and to disagree with opinions expressed by faculty and fellow students, even as they continue to be responsible for the assigned course content.
- 2) Students are entitled to fair and even treatment in all aspects of student-faculty relationships.
- 3) Students may not be directed or otherwise compelled to personally affirm, adopt or adhere to any particular political, religious or philosophical tenet or ideology.
- 4) Students shall not be evaluated on the basis of their adherence to any particular political, religious, or philosophical tenet or ideology.

#### ii. Research, Publication, and Creative Activity

- 1) Students may pursue research topics of their choosing, pursuant to institutional research standards.
- 2) Students have the right to publish and present their research as well as engage in the production and exhibition of creative works.

### **ATTACHMENT 1**

3) Students are entitled to attribution for discoveries and original research conducted.

### iii. Participation in Institutional Governance

- 1) Students have the right to participate in institutional governance through appropriate institutional processes.
- 2) Students have the right to express opinions and provide feedback concerning institutional governance and administration without fear of censorship or retaliation.
- 3) In matters of disciplinary action, students have the right to due process and to be held accountable using academic standards and institutional procedures.

## iv. Community and Campus Involvement

- 1) Students have the right of free expression on and off campus.
- 2) Students have the right to organize student associations and to request official recognition or status from their institution for such associations.
- 3) Students have the right to be free from requirements to make personal or political choices against their beliefs or values.

### b. Academic Responsibility of Students

Academic freedom carries certain responsibilities which broadly include contributions to the academic community, acknowledgement of the validity of a diverse range of perspectives, commitment to learning relevant information, and good stewardship of the academic community. Students assume, at minimum, the following responsibilities in relation to academic freedom:

- i. By enrolling in a public postsecondary institution, students agree to adhere to the institutions' student codes of conduct and to respect the rights of others, including the right to express differing opinions. Students also agree to acknowledge that faculty may expose students to a broad range of diverse perspectives, and to foster and defend intellectual honesty, freedom of inquiry and instruction, and free expression on and off campus. Expression of dissent and attempts to produce change shall not be carried out in ways which injure individuals, damage institutional facilities, disrupt classes, or interfere with institutional activities. Students who seek to call attention to grievances must do so in accordance with institutional policies and procedures, and in ways that do not significantly impede the academic functions of the institution.
- ii. Students have a responsibility to engage in scholarship, learn material that is relevant to course outcomes, and adhere to course syllabi, institutional

#### **ATTACHMENT 1**

student codes of conduct, and other institutional policies related to research and publication.

- iii. Students are responsible for the academic integrity of their coursework, including, but not limited to, producing original works for assignments, completing assessments, and activities using their own knowledge and experience.
- iv. Students are responsible for conducting and reporting research in an ethical manner. The design, conduct, and presentation of research may exist beyond the contexts of a specific course. However, students are subject to an institution's expectations for scholarly inquiry and academic integrity.
- v. Students shall not threaten the rights or the safety of others while exercising academic freedom. Students will frequently participate in pluralistic learning environments, but shall not be required to make personal or political choices against their beliefs or values.

#### 3. Faculty

This policy recognizes the academic freedom and academic responsibility to individuals with the status of faculty.

### a. Academic Freedom of Faculty

In addition to constitutionally protected freedoms of speech, assembly, and religion, faculty have the right to engage in free inquiry, intellectual debate, and freedom of scholarship both on and off campus. Faculty shall not be subject to retaliation or censorship in response to their research, publications, creative activity, pedagogy, participation in institutional governance, and all other official aspects of their job description. When speaking or writing as a citizen, the each faculty member should be free from institutional censorship or discipline. Faculty are subject to the responsibilities outlined in paragraph 3.b. of this policy. This academic freedom includes but is not limited to:

#### Pedagogy and Curriculum Development

- 1) Faculty have the right to determine course content, including the use of relevant materials, subject to institutional curriculum development processes and policies.
- 2) Faculty have the right to determine the instructional methodologies used to engage learners in the course content and evaluate student performance.

**ATTACHMENT 1** 

### ii. Research, Publication, and Creative Activity

- 1) Faculty may pursue research topics of their choosing, pursuant to institutional research standards.
- 2) Faculty have the right to publish and present their research as well as engage in the production and exhibition of creative works, within the requirements of Board Policy V.M. related to intellectual property.
- 3) Faculty are entitled to attribution for discoveries and original research.

## iii. Participation in Institutional Governance

- 1) Faculty have the right to participate in institutional governance.
- 2) Faculty have the right to express opinions and provide feedback concerning institutional governance and administration without fear of censorship or retaliation.
- 3) In matters of promotion, tenure, and disciplinary action, faculty have the right to due process and to be judged by their peers using established academic standards and institutional procedures.
- 4) Faculty have the right to participate in institutional processes that determine who may teach, what may be taught, how it shall be taught, and what methods will be used for student admission.

### b. Academic Responsibility of Faculty

Academic freedom carries with it certain responsibilities which broadly include maintaining competence in scholarship, exposing students to a diverse range of perspectives, ensuring that students are taught relevant information, and being good stewards of the academic community. Faculty assume, at minimum, the following responsibilities in relation to academic freedom:

Each faculty member of the institution is a citizen, a member of a learned profession, and a representative of the institution. Membership in the academic community imposes on administrators, faculty members, other institutional employees, and students an obligation to respect the dignityrights of others, to acknowledge the including the right of others to express differing opinions, and to foster and defend intellectual honesty, freedom of inquiry and instruction, and free expression on and off the campus of an institution. Expression of dissent and attempts to produce change shall not be carried out in ways which injure individuals, damage institutional facilities, disrupt classes, or interfere with institutional activities. Faculty who seek to call attention to grievances must do so in accordance with institutional policies and procedures, and in ways that do not significantly impede the academic functions of the institution. However, aAs a member of the academic community and a representative of the institution, theeach faculty member should at all times be accurate intellectually honest, exercise appropriate restraint, show respect for the opinions of others, and make every effort to indicate that he or she is not an official spokesperson

#### **ATTACHMENT 1**

for the institution. Furthermore, each faculty member must refrain from using institutional resources to further his or her interests or activities which are not a part of the assigned responsibilities to the institution.

- ii. Faculty members are expected to maintain professional competence in their field(s) of specialization, congruent with their teaching, service, and scholarly expectations.
- Faculty may expose students to an intellectual diversity of scholarly and creative views related to the faculty member's discipline and/or specific field of study. It is the responsibility of the fFaculty members are responsible to-for presenting the subject matter content in their courses in a way that is consistent with the collective goals of the institution, college, and department or program. When presenting content, faculty may expose students to an intellectual diversity of scholarly and creative views related to the faculty member's discipline and/or specific field of study.
- iv. Faculty shall meet their workload requirements established in their employment agreements. This may include the expectation that the faculty member conducts class, meets with and mentors students, provides clear learning outcomes, and/or participates in group deliberations to develop instructional programs.
- v. Faculty are responsible for participating in institutional processes to establish goals for student learning, to design and implement general programs of education and specialized study that intentionally cultivate intended learning, and to assess students' achievement.
- vi. Faculty shall not threaten the rights or the safety of students, other faculty, and administrators, while exercising academic freedom. Faculty may not refuse to enroll or teach a student because of the student's beliefs, interpretations, or applications of knowledge. Faculty have the responsibility to facilitate pluralistic learning and work environments, but shall not require others to make personal or political choices against their beliefs or values.

#### 4. Institutions

This policy confers academic freedom and academic responsibility to institutions.

#### a. Academic Freedom of Institutions

Institutional rights to academic freedom are in concert with the academic freedom of students and faculty. A college or university has the autonomy to create and maintain an atmosphere which is most conducive to a diverse range of scholarship. Institutions have the right to develop processes that determine who may teach,

#### **ATTACHMENT 1**

what may be taught, how it shall be taught, and what methods will be used for student admission, pursuant to Board Policy III.Q.

Institutions perform functions, such as the selection of faculty and admission of students, that are intertwined with the exercise of academic freedom. The academic freedom of an institution is necessary to protect and support the academic freedom of those who comprise an institutional community.

#### b. Academic Responsibility of Institutions

Academic freedom carries with it certain responsibilities which broadly include the educational functions of an institution, the ethical administration of academic affairs, and the protection of student and faculty academic freedom. Institutions assume, at minimum, the following responsibilities in relation to academic freedom:

- i. Institutions have a responsibility to set, maintain, and enforce policies that protect the academic freedom and promote the academic responsibility of faculty and students.
- ii. Institutions shall adopt appropriate procedures for transparently evaluating the members and activities of the academic community that are consistent with and respectful of the ideals of academic freedom.
- <u>iii. Institutions shall also dedicate adequate resources, space, and programming toward the advancement of academic freedom among its greater community.</u>
- iv. Institutions have a responsibility to create and deliver academic programs and shall develop appropriate policies and processes to aid content and curriculum delivery that are consistent with the ideals of academic freedom.
- v. Institutions must create admissions and selection policies, procedures, and practices for students that are in harmony with the academic mission of the institution and that are consistent with the ideals of academic freedom.
- vi. Institutions have the responsibility to facilitate pluralistic learning environments, but shall not require others to make personal or political choices against their beliefs or values.

### 5. Limitations

The following limitations exist to the academic freedom and academic responsibility of students, faculty, and institutions:

a. Academic freedom does not permit members of an institutional community to harass, threaten, or intimidate others.

#### **ATTACHMENT 1**

- b. Student academic freedom does not grant students the right to refuse to complete assigned coursework without consequence.
- c. Academic freedom does not protect faculty members from colleague or student challenges to, or disagreement with, their instructional methods.
- d. Academic freedom does not protect faculty or students from institutional or non-institutional penalties for violating the law.
- e. Academic freedom does not confer the right to faculty or students to violate institutional policies; though academic freedom does confer the right of faculty and students to criticize such policies.
- f. Academic freedom does not protect faculty or students from disciplinary action consistent with established institutional policies.
- g. Academic freedom does not protect faculty or students from sanctions or dismissal for professional misconduct or poor performance consistent with established institutional policies.
- Academic freedom does not protect faculty or students from investigations into allegations of or discipline for scientific misconduct or other violations of institutional policy.

**ATTACHMENT 2** 

# Idaho State Board of Education GOVERNING POLICIES AND PROCEDURES

**SECTION: III. POSTSECONDARY AFFAIRS** 

SUBSECTION: P. STUDENTS

December 2020February 2022

The following policies and procedures are applicable to or for any person designated as a student at an institution under governance of the Board. A "student" means any person duly admitted and regularly enrolled at an institution under governance of the Board as an undergraduate, graduate, or professional student, on a full-time or part-time basis, or who is admitted as a non-matriculated student on or off an institutional campus.

#### 1. Nondiscrimination

It is the policy of the Board that institutions under its governance must provide equal educational opportunities, services, and benefits to students without regard to race, color, religion, sex, national origin, age, handicap, or veterans status, including disabled veterans and veterans of the Vietnam era in accordance with:

- a. Title VI of the Civil Rights Act of 1964, as amended, 42 U.S.C. 2000d *et seq.*, which prohibits discrimination on the basis of race, color, or national origin in programs and activities receiving federal financial assistance.
- b. Section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. 794, which prohibits discrimination on the basis of handicap in programs and activities receiving federal financial assistance.
- c. Title IX of the Education Amendments of 1972, as amended, 20 U.S.C. 1681 *et seq.*, which prohibits discrimination on the basis of sex in education programs and activities receiving federal financial assistance.
- d. The Age Discrimination Act of 1975, as amended, 42 U.S.C. 6101 *et seq.*, which prohibits discrimination on the basis of age in programs or activities receiving federal financial assistance.
- e. Chapter 59, Title 67, Idaho Code, and other applicable state and federal laws.

#### 2. Sexual Harassment

- a. Each institution must establish and maintain a positive learning environment for students that is fair, humane, and responsible. Sexual discrimination, including sexual harassment, is inimical to any institution.
- b. Sexual harassment violates state and federal laws and the Governing Policies and Procedures of the Board. "Sexual harassment" is defined by the regulations implementing Title IX at 34 C.F.R. § 106.30 (a).

#### **ATTACHMENT 2**

c. Each institution must develop and make public procedures providing for the prompt response, in a manner that is not deliberately indifferent, to allegations of sexual harassment in the institution's education programs or activities of which the institution has actual knowledge. Each institution's policies and procedures must comply with the regulations in 34 C.F.R. Part 106.

### 3. Academic Freedom and Responsibility

Institutions of postsecondary education are conducted for the common good and not to further the interests of either the individual student or the institution as a whole. Academic freedom is fundamental for the protection of the rights of students in learning and carries with it responsibilities as well as rights.

Membership in an academic community imposes on students an obligation to respect the dignity of others, to acknowledge the right of others to express differing opinions, and to foster and defend intellectual honesty, freedom of inquiry and instruction, and free expression on and off the campus of an institution. Expression of dissent and attempts to produce change may not be carried out in ways which injure individuals, damage institutional facilities, disrupt classes, or interfere with institutional activities. Speakers on the campuses must not only be protected from violence but must also be given an opportunity to be heard. Those who seek to call attention to grievances must do so in ways that do not significantly impede the functioning of the institution.

Students are entitled to an atmosphere conducive to learning and to fair and even treatment in all aspects of student-teacher relationships. Teaching faculty may not refuse to enroll or teach a student because of the student's beliefs or the possible uses to which the student may put the knowledge gained from the course. Students must not be forced by the authority inherent in the instructional role to make personal or political choices.

## 43. Catalog and Representational Statements

Each institution will publish its official catalogue and admissions, academic, and other policies and procedures which affect students. (See also "Roles and Missions," Section III, Subsection I-2.)

Each institutional catalogue must include the following statement:

Catalogues, bulletins, and course or fee schedules shall not be considered as binding contracts between [institution] and students. The [institution] reserves the right at any time, without advance notice, to: (a) withdraw or cancel classes, courses, and programs; (b) change fee schedules; (c) change the academic calendar; (d) change admission and registration requirements; (e) change the regulations and requirements governing instruction in and graduation from the institution and its various divisions; and (f) change any other regulations affecting students. Changes shall go into force whenever the proper authorities so determine and shall apply not only to prospective students but also to those who are matriculated at the time in [institution]. When economic and other conditions permit, the [institution] tries to provide advance

**ATTACHMENT 2** 

notice of such changes. In particular, when an instructional program is to be withdrawn, the [institution] will make every reasonable effort to ensure that students who are within two (2) years of completing graduation requirements, and who are making normal progress toward completion of those requirements, will have the opportunity to complete the program which is to be withdrawn.

No employee, agent, or representative of an institution may make representations to, or enter into any agreement with, or act toward any student or person in a manner which is not in conformity with Board Governing Policies and Procedures or the approved policies and procedures of the institution.

## 54. Student Records

The collection, retention, use, and dissemination of student records is subject to the requirements of the Family Educational Rights and Privacy Act of 1974, as amended, and implementing regulations. Each institution will establish policies and procedures for maintenance of student records consistent with the act and implementing regulations and will establish and make public an appeals procedure which allows a student to contest or protest the content of any item contained in his or her institutional records.

### 65. Full-Time Students

## a. Undergraduate Student

For fee and tuition purposes, a "full-time" undergraduate student means any undergraduate student carrying twelve (12) or more credits (or equivalent in audit and zero-credit registrations).

## i. Student Body Officers and Appointees

For fee and tuition purposes, the president, vice president, and senators of the associated student body government are considered full-time students when carrying at least the following credit loads: (a) president, three (3) credits and (b) vice president and senators, six (6) credits.

#### ii. Editors

Editors of student published newspapers are recognized as full-time students when carrying a three credit load, and associate editors are recognized as full-time students when carrying a six credit load.

#### b. Graduate Student

For fee and tuition purposes, a "full-time" graduate student means any graduate student carrying nine (9) or more credits, or any graduate student on a full appointment as an instructional or graduate assistant, regardless of the number of credits for which such instructional or graduate assistant is registered.

**ATTACHMENT 2** 

## 76. Student Governance

The students at each institution may establish a student government constitution for their own duly constituted organization, which must be consistent with Board Governing Policies and Procedures. Each student constitution must be reviewed and approved by the Chief Executive Officer. Any amendments to the student constitution must also be reviewed and approved by the Chief Executive Officer.

### 87. Student Financial Aid

Each institution will establish policies and procedures necessary for the administration of student financial aid.

a. Transfer of Delinquent National Direct Student Loans. (See Section V, Subsection P)

#### Student Financial Aid Fraud

Each institution under governance of the Board should, as a matter of policy, initiate charges against individuals who fraudulently obtain or misrepresent themselves with respect to student financial aid.

## 98. Fees and Tuition

#### a. Establishment

Policies and procedures for establishment of fees, tuition, and other charges are found in Section V, Subsection R, of the Governing Policies and Procedures.

#### b. Refund of Fees

Each institution will develop and publish a schedule for refund of fees in the event a student withdraws in accordance with regulations governing withdrawal.

## 109. Student Employees

#### a. Restrictions

No student employee may be assigned to duties which are for the benefit of personal and private gain, require partisan or nonpartisan political activities, or involve the construction, operation, or maintenance of any part of any facility which is used for sectarian instruction or religious worship. No supervisor may solicit or permit to be solicited from any student any fees, dues, compensation, commission, or gift or gratuity of any kind as a condition of or prerequisite for the student's employment.

#### b. Policies and Procedures

Each institution will develop its own policies and procedures regarding student employment, including use of student employment as a part of financial assistance available to the student. Such policies and procedures must ensure that equal

**ATTACHMENT 2** 

employment opportunity is offered without discrimination and that wage administration is conducted in a uniform manner. Such policies also must include a statement of benefits available to student employees, if appropriate.

#### c. Graduate Assistants

Each institution is delegated the authority to appoint within the limitations of available resources graduate assistants in a number consistent with the mission of the institution. Graduate assistantships are established to supplement a graduate student's course of study, with employment appropriate to the student's academic pursuits.

Each institution will establish its own procedures for appointment of graduate assistants which will include (a) qualifications, (b) clear and detailed responsibilities in writing, and (c) maximum number of hours expected and wages for meeting those requirements.

Matriculation, activity, and facility fees for graduate assistants will be paid either by the student or by the department or academic unit on behalf of the student. Graduate students will be covered by appropriate insurance in accordance with institutional procedures for work-related illness or injury.

## d. Hourly or Contractual Employment

Each institution may employ students on an hourly or contractual basis in accordance with the needs of the various departments or units, available funds, and rules of the Division of Human Resources (or the University of Idaho classified employee system) or federal guidelines when work-study funds are used.

**ATTACHMENT 2** 

## 4410. Student Conduct, Rights, and Responsibilities

Each institution will establish and publish a statement of student rights and a code of student conduct. The code of conduct must include procedures by which a student charged with violating the code receives reasonable notice of the charge and is given an opportunity to be heard and present testimony in his or her defense, and an opportunity to appeal any disciplinary action. Such statements of rights and codes of conduct, and any subsequent amendments, are subject to review and approval of the chief executive officer.

Sections 33-3715 and 33-3716, Idaho Code, establish criminal penalties for conduct declared to be unlawful.

## 4211. Student Services

Each institution will develop and publish a listing of services available to students, eligibility for such services, and costs or conditions, if any, of obtaining such services.

### 4312. Student Organizations

Each student government association is responsible, subject to the approval of the institution's chief executive officer, for establishing or terminating student organizations supported through allocation of revenues available to the association. Expenditures by or on behalf of such student organizations are subject to rules, policies, and procedures of the institution and the Board.

#### 4413. Student Publications and Broadcasts

Student publications and broadcasts are independent of the State Board of Education and the institutional administration. The institutional administration and the State Board of Education assume no responsibility for the content of any student publication or broadcast. The publishers or managers of the student publications or broadcasts are solely liable for the content.

### 4514. Student Health Insurance

Students are responsible for making arrangements for coverage of their medical needs while enrolled in a post-secondary institution on a part- or full-time basis. Accidents, injuries, illnesses, and other medical needs of students (with limited exceptions in the case of student employees of an institution who experience workplace injuries within the course and scope of their employment) typically are not covered by the institution's insurance policies. The types and levels of medical/clinical support services available to students varies among the institutions and among the local communities within which institutions conduct operations.

a. Health Insurance Coverage Offered through the Institution

#### **ATTACHMENT 2**

Each institution, at the discretion of its chief executive officer, may provide the opportunity for students to purchase health insurance through an institution-offered plan. Institutions are authorized to provide student health insurance plans through consortium arrangements, when this option serves the interests of students and administration. Institutions which elect to enter contractual arrangements to offer student health insurance plans (either singly or through consortium arrangements) should comply with applicable Board and State Division of Purchasing policies. Institutions which elect to offer health insurance plans to their students are authorized, at the chief executive officer's discretion, to make student participation in such plans either optional or mandatory.

## b. Mandatory Student Health Insurance

Each institution, at the discretion of its chief executive officer, may require all or specified groups (for example, international students, intercollegiate athletes, health professions students engaged in clinical activities, student teachers, etc.) to carry health insurance that meets coverage types and levels specified by the institution. Administration and enforcement of any such health insurance requirements, and procedures for dealing with any exceptions thereto, lie within the authority of the institution presidents or their designees.

## c. Other Medical Support Services and Fees

Institutions are authorized to support or supplement students' medical needs through services provided by college/university clinics, health centers, cooperative arrangements with community/regional health care providers, etc. In cases where such services are provided, institutions are authorized to establish optional or mandatory fees to cover the delivery cost of such services.

#### d. Financial aid considerations

Any medical insurance or health services-related fees which are mandated by an institution as a condition of participation in any institutional program are considered a bona fide component of the institution's cost of college and are a legitimate expenditure category for student financial aid.

### 4615. Student Vaccine Informational Materials

Each institution shall provide current information on vaccine-preventable disease to each student at the time of admission or enrollment for classes. The information shall include, at a minimum:

 a. symptoms, risks, especially as the risks relate to circumstances of group living arrangements for vaccine-preventable diseases that are known to occur in adolescents and adults;

#### **ATTACHMENT 2**

- b. current recommendations by the United States Centers for Disease Control and Prevention on Category A and B vaccines:
- c. information regarding where the vaccinations can be received; and
- d. the benefits and risks of vaccinations, and specific information for those persons at higher risk for the disease.

## 4716. Students Called to Active Military Duty

The Board strongly supports the men and women serving in the National Guard and in reserve components of the U.S. Armed Forces. The Board encourages its institutions to work with students who are called away to active military duty during the course of an academic term and provide solutions to best meet the student's current and future academic needs. The activated student, with the instructor's consent, may elect to have an instructor continue to work with them on an individual basis. Additionally, institutions are required to provide at least the following:

- a. The activated student may elect to completely withdraw. The standard withdrawal deadlines and limitations will not be applied. At the discretion of the institution, the student will receive a "W" on his or her transcript, or no indication of enrollment in the course(s).
- b. One hundred percent (100%) of the paid tuition and/or fees for the current term will be refunded, as well as a pro-rated refund for paid student housing fees, mealplans, or any other additional fees. Provided, however, that if a student received financial aid, the institution will process that portion of the refund in accordance with each financial aid program.

### 4817. Student Complaints/Grievances.

- a. The State Board of Education and Board of Regents of the University of Idaho, as the governing body of the state's postsecondary educational institutions, has established the following procedure for review of institution decisions regarding student complaints/grievances:
  - i. The Board designates its Executive Director as the Board's representative for reviewing student complaints/grievances, and authorizes the Executive Director, after such review, to issue the decision of the Board based on such review. The Executive Director may, in his/her discretion, refer any matter to the Board for final action/decision.
  - ii. A current or former student at a postsecondary educational institution under the governance of the Board may request that the Executive Director review any final institutional decision relating to a student's attendance at the institution, except as set for under paragraph iii. The student must have exhausted the complaint/grievance resolution procedures that have been

#### **ATTACHMENT 2**

established at the institution level. The Executive Director will not review complaints/grievances that have not been reported to the institution, or processed in accordance with the institution's complaint/grievance resolution procedures.

- iii. Matters involving a violation of an institution's code of student conduct will only be reviewed if the basis for the request is that the institution substantially failed to follow its procedures resulting in a failure to give the student reasonable notice of the violation and opportunity to be heard, or to present testimony. Sanctions imposed by the institution will remain in effect during the pendency of the review.
- iv. A request for review must be submitted in writing to the Board office to the attention of the Chief Academic Officer, and must contain a clear and concise statement of the reason(s) for Board review. Such request must be received in the Board office no later than thirty (30) calendar days after the student receives the institution's final decision on such matter. The student has the burden of establishing that the final decision made by the institution on the grievance/complaint was made in error. A request for review must include a copy of the original grievance and all proposed resolutions and recommended decisions issued by the institution, as well as all other documentation necessary to demonstrate that the student has strictly followed the complaint/grievance resolution procedures of the institution. The institution may be asked to provide information to the Board office related to the student complaint/grievance.
- v. The Chief Academic Officer will review the materials submitted by all parties and make a determination of recommended action, which will be forwarded to the Executive Director for a full determination. A review of a student complaint/grievance will occur as expeditiously as possible.
- vi. The Board office may request that the student and/or institution provide additional information in connection with such review. In such event, the student and/or institution must provide such additional information promptly.
- vii. The Board's Executive Director will issue a written decision as to whether the institution's decision with regard to the student's complaint/grievance was proper or was made in error. The Executive Director may uphold the institution's decision, overturn the institution's decision, or the Executive Director may remand the matter back to the institution with instructions for additional review. Unless referred by the Executive Director to the Board for final action/decision, the decision of the Executive Director is final.
- b. The Board staff members do not act as negotiators, mediators, or advocates concerning student complaints or grievances.

## **SUBJECT**

Board Policy III.G. Postsecondary Program Review and Approval – Second Reading

### **REFERENCE**

February 14, 2019	The Board approved the first reading of proposed amendments to include review and approval procedures for applied baccalaureate degrees and microcertifications.
April 18, 2019	The Board approved the second reading of proposed amendments to Board Policy III.G.
August 29, 2019	The Board was presented with a first reading of proposed amendments to Board Policy III.G. Policy, which was referred back to Instruction, Research, and Student Affairs (IRSA) for additional discussion.
October 17, 2019	The Board approved the first reading of proposed amendments, which adds baccalaureate degree programs to the list of programs reviewed by the Board and changes requirements for new academic program proposals that consist of new state appropriations.
December 2019	The Board approved the second reading of proposed amendments to Board Policy III.G.
June 10, 2020	The Board approved a one-year, partial waiver of the requirement for full proposals in Board Policy III.G.3.d and 4.d for modifications to academic programs, career technical programs and instructional and administrative units.
June 16, 2021	The Board approved an extension of the partial waiver of the requirement for full proposals in Board Policy III.G.3.d. and 4.d for modifications to academic programs, career technical programs and instructional and administrative units.
June 16, 2021	The Board approved the first reading of proposed amendments to Board Policy III.G, which reorganizes and streamlines proposal requirements and provides flexibility to the Executive Director to delegate authority to designees for the approval of academic and career technical program changes.
August 26, 2021	The Board approved the second reading of proposed amendments to Board Policy III.G.
December 15, 2021	The Board approved the first reading of proposed amendments to Board Policy III.G.

## **APPLICABLE STATUTE, RULE OR POLICY**

Idaho State Board of Education Governing Policies & Procedures, Section III.G. Section 33-2107A, 33-2202, and 33-2205, Idaho Code.

#### **BACKGROUND/DISCUSSION**

In August 2021, the Board approved a major revision to Board Policy III.G. Postsecondary Program Approval and Discontinuance. This revision restructured the policy to include three levels of review, based on the nature of requested programmatic changes: full proposal, short proposal, and letter of notification. After the second reading was approved, Board staff identified an unintended conflict in the policy that cannot be handled as a minor technical correction.

#### **IMPACT**

Amendments will correct the erroneous conflict and duplicative language in the policy. Amendments will also provide institutions with the necessary procedures for discontinuing certificates and will align roles for program approval for the State Administrator and Executive Director in compliance with Idaho code.

#### **ATTACHMENTS**

Attachment 1 – Board Policy III.G. Postsecondary Program Review and Approval – Second Reading

#### **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

There were no changes between the first and second readings of this policy. Board staff recommends approval.

#### **BOARD ACTION**

I move to approve the second reading of proposed amendments to Board PollII.G, Postsecondary Program Review and Approval, as submitted in Attachmat.						
Moved by	Seconded by	Carried Yes	No			

**ATTACHMENT 1** 

# Idaho State Board of Education GOVERNING POLICIES AND PROCEDURES

**SECTION: III. POSTSECONDARY AFFAIRS** 

SUBSECTION: G. Postsecondary Program Review and Approval August 2021 February 2022

This subsection shall apply to the University of Idaho, Idaho State University, Boise State University, Lewis-Clark State College, North Idaho College, College of Eastern Idaho, College of Southern Idaho, and College of Western Idaho.

#### 1. Classifications and Definitions

- a. Academic Program shall mean a postsecondary educational program offered by an institution of higher education that leads to an academic or professional degree, certificate, or other recognized educational credential as defined in Board Policy Section III.E.
- b. Academic Program Components shall include options, minors, emphases, tracks, concentrations, specializations, and cognates as defined by each institution. For the purposes of this policy, a certificate is not an academic program component.
- c. Administrative Unit shall mean offices, centers, bureaus, or institutes that are responsible for carrying out administrative functions, research, or public service as their primary purpose, and are not responsible for academic or career technical programs.
- d. Career Technical Program shall mean a sequence or aggregation of competencies that are derived from industry-endorsed outcome standards and directly related to preparation for employment in occupations requiring a career technical certificate or degree as defined in Board Policy Section III.E. These programs must include competency-based applied learning that contributes to an individual's technical skills, academic knowledge, higher-order reasoning, and problem-solving skills.
- e. Career Technical Program Component shall mean instructional paths to fields of specialized employment, consisting of more than one specialized course.
- f. Financial Impact shall mean the total financial resources, regardless of funding source, needed to support personnel costs, operating expenditures, capital outlay, capital facilities construction or major renovation, and indirect costs that are incurred as a direct result of establishing, modifying, or discontinuing a new instructional program, instructional unit, or administrative unit. This includes the impact of moving resources from existing programs to proposed programs.
- g. Full Proposal shall mean a document submitted to the Board Office that contains details about substantive changes to academic or career technical education programming or administration that require review and approval by the full Board or the Executive Director of the Board or designee, as specified in this policy. The Full Proposal template is developed and maintained by the Executive Director or designee.

ATTACHMENT 1

- h. Instructional Unit shall mean departments, institutes, centers, divisions, schools, colleges, campuses, branch campuses, and research units (e.g. extension centers) that are responsible for academic programs or career technical programs.
- Letter of Notification shall mean a letter from the institution to the Executive Director or designee, notifying the Board Office of changes to academic or career technical education programming or administration that do not require advanced approval by the Board or the Executive Director or designee, as specified in this policy.
- j. Major shall mean a principal field of academic specialization that usually accounts for 25 to 50 percent of the total degree requirements. The concentration of coursework in a subject matter major serves to distinguish one program from others leading to the same or a similar degree.
- k. Short Proposal shall mean a document submitted to the Board Office that contains details about non-substantive changes to academic or career technical education programming or administration that require review and approval by the Executive Director or designee, as specified in this policy. The Short Proposal template is developed and maintained by the Executive Director or designee.

## 2. Roles and Responsibilities

Program planning, review, and approval shall be a collaborative process which includes the Board, Board staff, the institutions, faculty, external advisory groups, regional and specialized accreditation bodies, and other stakeholders pursuant to Board Policy III.Z.

- a. Each institution shall establish and maintain policies and procedures for evaluating existing programs and developing new program proposals. This evaluation process should be an integral component of the institution's academic and career technical education planning and budgeting processes.
- b. New program proposals and discontinuation requests shall be reviewed by the Council on Academic Affairs and Programs (CAAP). CAAP shall make recommendations to the Instruction, Research, and Student Affairs (IRSA) committee on instructional programmatic matters and related policy issues.
- c. The Idaho Division of Career Technical Education shall review and make recommendations as appropriate to the IRSA Committee and/or the Board on instructional programmatic matters and policy issues related to their roles and responsibilities. The State Administrator of the Idaho Division of Career Technical Education is authorized to approve academic microcertifications developed by the institutions in addition to career technical microcertifications.

#### ATTACHMENT 1

- d. The Professional Standards Commission shall review and make recommendations as appropriate to the Board on educator preparation programs for educator certification purposes. Educator preparation program approval for state certification purposes is governed by Administrative Code through a separate process. The processes for earning approval for certification should be conducted concurrently with the program approval process when practicable.
- 3. Academic Programming and Administration Proposal Submission and Approval
  - a. Actions Requiring a Full Proposal

Subsequent to institutional review and consistent with institutional policies, but prior to implementation, actions related to academic programs or units identified in this subsection require approval by the Board or the Executive Director or designee as indicated, and shall be submitted by the institution as a Full Proposal.

- i. The following actions require approval by the Board:
  - 1) Establishment of a new branch campus or change in location geographically apart from the main campus, regardless of financial impact. A location of an institution that is geographically apart and independent of the main campus is permanent in nature; offers at least 50% of the courses of an educational program leading to a degree, certificate, or other educational credential; has its own faculty and administrative organization; and has its own budgetary and hiring authority as defined by 34 CFR 600.2. Subsection 3.a.i.1 does not apply toexcluding the community colleges.
  - 2) Establishment of any new academic undergraduate or graduate program with a financial impact of \$250,000 or more per fiscal year.
    - a) All doctoral program proposals shall require an external peer review, regardless of financial impact. The external peer-review panel shall consist of at least two (2) members and will be selected by the Executive Director or designee and the requesting institution's Chief Academic Officer. Board staff shall notify the institution in writing whether it may proceed with the external peer-review process. External reviewers shall not be affiliated with a public Idaho institution. The review shall consist of a paper and on-site peer review, followed by the issuance of a report and recommendations by the panel. Each institution shall provide the panel with a template developed by the Executive Director or designee. The peer reviewer report and recommendations shall be a significant factor in the Board's evaluation of the program.
    - b) New educator preparation programs require concurrent submission of a Full Proposal to the Executive Director or designee and the

#### ATTACHMENT 1

Professional Standards Commission (PSC), regardless of financial impact. The PSC ensures programs meet the Idaho standards for educator certification. The Executive Director or designee ensures the program proposal is consistent with the program approval process and meets the standards approved by the Board and established by rule in Administrative Code. The PSC makes recommendations to the Board for approval of programs as vehicles for meeting the state certification requirements.

- 3) Establishment by a community college of any new applied baccalaureate program, pursuant to Section 33-2107A Idaho Code.
- 4) Establishment of any new program with academic program fees as defined in Board Policy Section V.R.
- 5) Adding program fees to existing programs requires full Board approval consistent with Board Policy Section V.R; however, such changes do not require submission of a Full Proposal.
- ii. The following actions require approval by the Executive Director or designee:
  - 1) Establishment of any new academic undergraduate or graduate program with a financial impact of less than \$250,000 per fiscal year.
  - 2) Discontinuation of an academic undergraduate or graduate program or instructional or administrative unit.
  - 3) Establishment of any new instructional or administrative unit.
  - 4) Establishment of any new <u>or discontinuation of any existing</u> academic undergraduate and graduate certificates consisting of more than 30 credits and with a financial impact of \$250,000 or more per fiscal year.
  - 5) Expansion of an existing program outside an institution's Designated Service Region as defined in Board Policy III.Z.
  - 6) Conversion of a program option into a stand-alone program with a financial impact of \$250,000 or more per fiscal year.
  - 7) Consolidation of two or more undergraduate programs into one undergraduate program with a financial impact of \$250,000 or more per fiscal year.
  - 8) Consolidation of two or more graduate programs into one program.
  - 9) Splitting of a graduate program into two or more programs.
  - 10) Addition of existing certificates or degrees to existing programs with a financial impact of \$250,000 or more per fiscal year.

Each Full Proposal shall be reviewed by the Council on Academic and Affairs and Programs within 30 days of receipt. At the sole discretion of the Executive Director or designee, any Full Proposal may be referred to the full Board for review and approval. Requests requiring new state appropriations shall be submitted to the Board for review prior to or concurrently with submission of an institution's annual budget request.

b. Actions Requiring a Short Proposal

#### **ATTACHMENT 1**

Subsequent to institutional review and consistent with institutional policies, but prior to implementation, the following actions related to academic programs or units require approval by the Executive Director or designee and shall be submitted by the institution as a Short Proposal:

- i. Establishment of a new <u>or discontinuation of any existing</u> academic undergraduate or graduate certificate consisting of more than 30 credits with a financial impact of less than \$250,000 per fiscal year.
- ii. Addition of a certificate or degree to an existing program with a financial impact of less than \$250,000 per fiscal year.
- Splitting of an undergraduate program into two or more undergraduate programs.
- iv. Consolidation of two or more undergraduate programs into one undergraduate program with a financial impact of less than \$250,000 per fiscal year.
- v. Conversion of one program option into a stand-alone program with a financial impact of less than \$250,000 per fiscal year.
- vi. Conversion or transition of a degree type (e.g., Bachelor of Arts to Bachelor of Science).
- vii. Conversion or transition of a certificate type (e.g., Technical Certificate of Completion to Basic Technical Certificate).
- viii. Deviation from program credit definitions.
- ix. Changes to program names or degree titles related to Statewide Program Responsibilities as defined in Policy III.Z (requires full board approval).
- x. Establishment of new programs consisting of multiple certificates with similar coursework.
- xi. Establishment of a dual degree from existing programs with a financial impact of less than \$250,000 per fiscal year.
- xii. Modification to existing academic instructional or administrative units

At the sole discretion of the Executive Director or designee, institutions may be required to submit a Full Proposal for any action identified in this subsection.

## c. Actions Requiring a Letter of Notification

Subsequent to institutional review and consistent with institutional policies, and within 30 days after implementation, institutions shall notify the Executive Director or designee of the following actions related to academic programs or units via a Letter of Notification:

- i. Establishment of a new, modification to, or discontinuation of an academic program component.
- ii. Establishment of a new <u>or discontinuation of any existing</u> academic undergraduate or graduate certificate consisting of fewer than thirty (30) credits.

#### **ATTACHMENT 1**

- iii. Program expansion within an institution's Service Region as defined in Board Policy III.Z.
- iv. Establishment of a dual degree from existing undergraduate or graduate programs with a financial impact of less than \$250,000 per fiscal year.
- v.iv. A change from clock hours to credit hours for an academic program.
- vi.v. Addition of an online option to an existing academic program.
- vii.vi. Transition of an academic program with less than fifty percent (50%) of courses offered online exclusively to fifty percent (50%) or more of courses offered online exclusively.
- viii.vii. Transition of an academic program to an exclusively online format.
- ix.viii. Addition or removal of courses that represent a significant departure from existing academic program offerings or method of delivery.
- x.ix. A change in name or title of any academic program or instructional or administrative unit.
- xi.x. A change of Classification of Instructional Program (CIP) code for any academic program.
- xii.xi. A credit change to an existing academic program.

At the sole discretion of the Executive Director or designee, institutions may be required to submit a Short Proposal or Full Proposal for any action identified in this subsection.

- d. Minor changes to curriculum, descriptions of individual courses, or catalog listings do not require notification to or approval by the Board or the Executive Director or designee.
- 4. Career Technical Program Proposal Submission and Approval
  - a. Actions Requiring a Full Proposal

Subsequent to institutional review and consistent with institutional policies, but prior to implementation, requests for changes to career technical programs or units identified in this subsection require approval by the State Administrator and or the Executive Director or designee and shall be submitted by the institution as a Full Proposal.

- Establishment of a new career technical education program or certificate. New career technical programs or certificates with a financial impact of \$250,000 or more per fiscal year require approval by the full Board.
- ii. Discontinuation of career technical programs and components.
- iii. Establishment of new career technical administrative or instructional units.
- iv. Expansion of a career technical program outside an institution's Designated Service Region as defined in Board Policy III.Z.
- v. Consolidation of two or more career technical programs into one career technical program with a financial impact of \$250,000 or more per fiscal year.

#### **ATTACHMENT 1**

- vi. Conversion of one career technical program option into a stand-alone career technical program with a financial impact of \$250,000 or more per fiscal year.
- vii. Addition of career technical certificates or degrees to existing career technical programs with a financial impact of \$250,000 or more per fiscal year.

For new or modified career technical programs or certificates, a Program Profile Attachment B is required. Each Full Proposal shall be reviewed by the Council on Academic and Affairs and Programs within 30 days of receipt. At the sole discretion of the <a href="State Administrator or "State Administrator or "Executive Director or designee">State Administrator or Executive Director or designee</a>, any Full Proposal may be referred to the Board for review and approval.

#### b. Actions Requiring a Short Proposal

Subsequent to institutional review and consistent with institutional policies, but prior to implementation, requests for changes in career technical programs or units identified in this subsection require approval by the State Administrator and or Executive Director or designee and shall be submitted by the institution as a Short Proposal.

- i. Splitting of a career technical program into two or more career technical programs.
- ii. Consolidation of two or more career technical programs into one career technical program with a financial impact of less than \$250,000 per fiscal year.
- iii. Conversion of one career technical program option into a stand-alone career technical program with a financial impact of less than \$250,000 per fiscal year.
- iv. Addition of career technical certificates or degrees to existing career technical programs with a financial impact of less than \$250,000 per fiscal year.
- v. Inactivation of a career technical program. Inactivation allows program reevaluation and assessment in response to rapid changes in industry for up to three years. If industry demand for the program does not resume within three years following approved inactivation, the program shall be discontinued pursuant to paragraph 7 of this policy.
- vi. Addition or removal of courses that represent a significant departure from existing career technical program offerings or method of delivery.
- vii. Modification to existing career technical instructional or administrative units.
- viii. Conversion or transition of one career technical program degree or certificate level to another degree or certificate level.
- ix. Transition of a career technical program to an exclusively online format.
- x. Addition of an online option to an existing career technical program.
- xi. Transition of a career technical program with less than fifty percent (50%) of courses offered online exclusively to fifty percent (50%) or more of courses offered online exclusively.

xii.

For the addition or modification of career technical programs or certificates, a Program Profile Attachment B is required. Upon the recommendation of the State

#### **ATTACHMENT 1**

Administrator and or at the discretion of the Executive Director or designee, institutions may be required to submit a Full Proposal for any action identified in this subsection.

#### c. Actions Requiring a Letter of Notification

Subsequent to institutional review and consistent with institutional policies, and within 30 days after implementation, institutions shall notify the State Administrator and or the Executive Director or designee of the following changes to career technical programs or units via a Letter of Notification:

- i. Establishment of a new, modification to, or discontinuation of a career technical program component.
- ii. Career technical program expansion within an institution's Designated Service Region as defined in Board policy III.Z.
- iii. A change from clock hours to credit hours for a career technical program.

**V**.

- v.iv. A change in the name or title of any career technical program or instructional or administrative unit.
- vi.v. A change of Classification of Instructional Program (CIP) code for any career technical program.
- vii.vi. A credit change to an existing career technical program.
- <u>viii.vii.</u> Minor changes to career technical courses. Requires a program profile Attachment B and letter.

Upon the recommendation of the State Administrator <u>and or</u> at the discretion of the Executive Director or designee, institutions may be required to submit a Short Proposal or Full Proposal for any action identified in this subsection.

- d. Requests to establish, modify, or discontinue a microcertification, as defined in Board Policy III.E, require approval by the State Administrator and or shall be submitted by the institution in accordance with a template developed by the Division of Career Technical Education.
- e. Requests requiring new state appropriations shall be included in the annual budget request of the Idaho Division of Career Technical Education for Board approval.

#### 5. Sunset Clause for Academic and Career Technical Program Approval

Academic and career technical programs approved by the Board or Executive Director must be implemented within five years. A program not implemented within five years from the approval date requires submission for approval of an updated proposal. Institutions shall notify the Executive Director or designee in writing when an approved program has not been officially implemented within the sunset timeframe. Institutions may request a change in the sunset timeframe indicated in the program proposal if a program's implementation is delayed.

**ATTACHMENT 1** 

- 6. Academic and Career Technical Program Proposal Denial Procedures
  - a. The Executive Director or designee shall act on any Full Proposal or Short Proposal within thirty (30) days.
  - b. If the Executive Director or designee denies a proposal, he/she shall provide specific reasons in writing to the institution. The institution shall have thirty (30) days in which to address the issue(s) for denial of the proposal. The Executive Director or designee shall have ten (10) working days after the receipt of the institution's response to re-consider the denial. If the Executive Director or designee denies the request after re-consideration, the institution may send its request and the supporting documents related to the denial to the Board for final reconsideration.

#### 7. Program Discontinuance

The primary considerations for program discontinuance are whether the program is an effective use of the institution's resources, no longer serves student or industry needs, or when programs no longer have sufficient students to warrant allocation of resources. This policy does not apply to programs that are discontinued as a result of financial exigency as defined in Board Policy Section II.N.

- a. Institutions shall develop policies, in accordance with the Northwest Commission on Colleges and Universities Accreditation Handbook, which requires institutions to make appropriate arrangements for enrolled students to complete affected programs in a timely manner with minimum interruptions.
- b. Any faculty or staff members whose employment the institution seeks to terminate due to the discontinuance of a program based upon Board Policy Section III.G. shall be entitled to the following procedures:
  - Non-classified contract employees, including non-tenured faculty, may be dismissed or have their contracts terminated or non-renewed in accordance with Board and institutional policies.
  - ii. State of Idaho classified employees shall be subject to layoff as provided in the rules of the Division of Human Resources. Classified employees of the University of Idaho shall be subject to layoff as provided in the policies of the University of Idaho.
  - iii. Tenured faculty will be notified in writing that the institution intends to dismiss them as a result of program discontinuance. This notice shall be given at least twelve (12) months prior to the effective date of termination.
  - iv. An employee who receives a notice of termination as a result of program discontinuance is entitled to use the internal grievance procedures of the

ATTACHMENT 1

institution. The sole basis to contest a dismissal following a program closure is in compliance with these policies.

#### 8. Career Technical Program Reduction or Termination

For the reduction or termination of career technical programs, institutions shall adhere to criteria set forth by Idaho Division of Career Technical Education.

#### a. Conditions for Reduction or Termination

A program is subject to reduction or termination when one or more of the following conditions exist. Standards for the metrics listed below will be predetermined at the local level according to the institution's program health metrics for each category.

- i. Inadequate Job Opportunities
- ii. Inadequate Student Enrollment
- iii. Inadequate Positive Placement
- iv. Inadequate Completion Rate
- v. Inadequate Finances

#### b. Notice to Employees

The institution must give notice in writing to employees who are affected by a program reduction or termination in accordance with Board and institutional policies.

#### 9. Reporting

- a. The Executive Director or designee shall report semi-annually to the Board regarding all program proposals approved by the Executive Director or designee.
- b. All baccalaureate and graduate level programs approved by the Board require a report on the program's progress in accordance with a timeframe and template developed by the Executive Director or designee.

#### **SUBJECT**

Semi-Annual Report of Approved Program Requests

#### REFERENCE

August 2020 Board received the semi-annual report February 2021 Board received the semi-annual report August 2021 Board received the semi-annual report

#### APPLICABLE STATUTE, RULE, OR POLICY

Idaho State Board of Education Governing Policies and Procedures, Section III.G.8.a.

#### **BACKGROUND/DISCUSSION**

In August 2021, the Board approved major revisions to Board Policy III.G. Postsecondary Program Approval and Discontinuance. Revisions restructured the policy to include three levels of review, based on the nature of requested programmatic changes: full proposal, short proposal, and letter of notification. Additionally, revisions provide flexibility to the Board's executive director to delegate authority to designees for the approval of academic and career technical program changes. In accordance with newly revised Board Policy III.G.3.a.ii and 4.b., prior to implementation, the executive director or designee may approve actions related to academic and career technical programs or units as identified in those subsections.

Consistent with Board Policy III.G.9.a., the Board office is providing a semi-annual report of academic and career technical program requests from Idaho's public postsecondary institutions that were approved by the executive director or his designee between July 1, 2021, and December 31, 2021. A report of program change requests approved by the full Board for the same time period is also included for informational and contextual purposes.

#### **ATTACHMENTS**

Attachment 1 – Semi-Annual Report of Approved Program Requests

#### **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

The report provides an overview of new academic or career technical programs and certificates approved by the executive director or his designee consistent with recently revised Board Policy III.G. This includes other instructional activity such as modifications to existing programs. Other non-substantial changes that require notification to the Board office are also included in the report.

Staff note several trends in program requests over the past five fiscal years:

An increase in the number of undergraduate programs in FY21-22. A total
of 9, approved by either the Board or Executive Director compared to 1 in
FY20-21. This was in part due to the development of new cybersecurity
programs and new online program offerings.

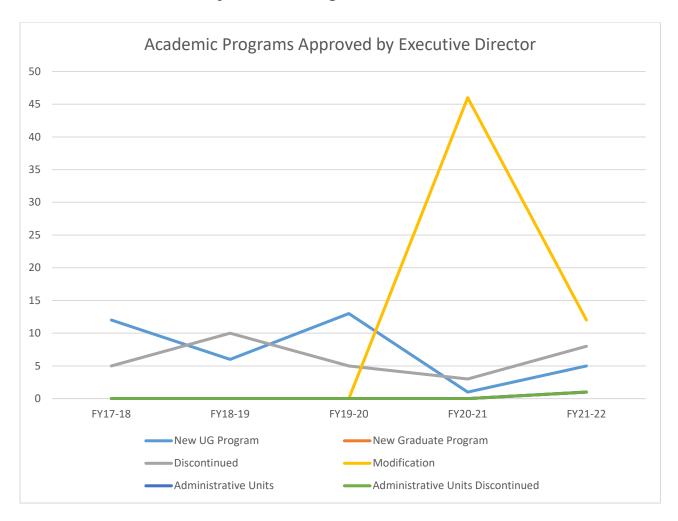
- An increase in number of degrees discontinued 12 in FY21-22. These
  were primarily associate programs that were merged to create efficiencies
  or discontinued due to low enrollment.
- A decrease in the number of program modifications from 46 in FY20-21 –to 12 during the current academic year.
- An increase in the number of specialized certificates from 1 in FY20-21 to 4 in the current academic year with more in progress. These are new certificate types that were added to Board Policy III.E in August 2020. This certificate is awarded for completion of specific, industry-validated courses that are sequenced for the purpose of developing and upgrading skills in an occupation.

During the next reporting cycle, staff will be able to provide a comprehensive comparison of the impact policy amendments had on programs approved by the Executive Director or designee versus the Board.

#### **BOARD ACTION**

This item is for informational purposes.

# Semi-Annual Report of Approved Program Requests July 2021 through December 2021



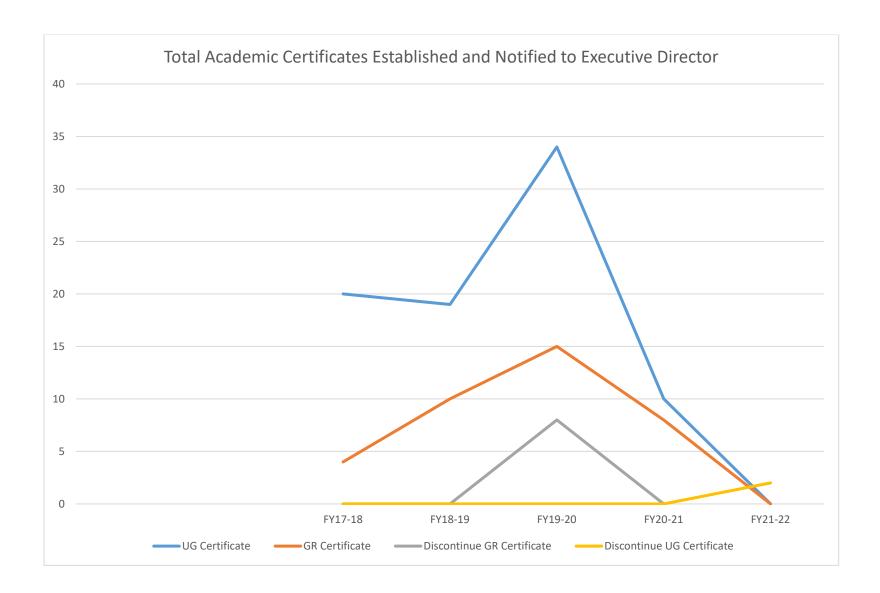
#### **ATTACHMENT 1**

List of Academic Program and Unit Requests Approved by Executive Director

INST.	Status	Request Type	Program Title	Degree	Date
CSI	Approved	Discontinuance	Equine Studies	AA	7/19/2021
CSI	Approved	Discontinuance	Horticulture	AS	7/19/2021
CSI	Approved	Discontinuance	Equine Business Management	AS	7/19/2021
CSI	Approved	Discontinuance	Dance	AA	10/25/2021
CSI	Approved	New	Visual and Performing Arts	AA	10/25/2021
CWI	Approved	New	Honors Program	N/A	10/20/2021
CWI	Approved	Discontinuance	Transportation Management	AS	1/10/2022
ISU	Approved	Expansion	Ed Admin with Athletic Admin Emphasis (online)	M.Ed.	7/2/2021
ISU	Approved	Expansion	Education Administration with P-12 Education Administration emphasis (online)	M Ed	7/2/2021
ISU	Approved	Expansion	Education Administration (online)	Ed S	7/2/2021
ISU	Approved	Expansion	Educational Leadership (P-12 Education Administration) (online)  Educational Leadership (Higher Education Administration	Ed D Emp.	7/2/2021
ISU	Approved	Expansion	emphasis) (online)	AA   Ed D Emp.	7/2/2021
ISU	Approved	Expansion	Elementary Education (online)	M Ed	7/2/2021
ISU	Approved	Expansion	Human Resource Development (online)	MS	7/2/2021
ISU	Approved	Expansion	Instructional Design and Technology (online)	M Ed	7/2/2021
ISU	Approved	Expansion	Instructional Design and Technology (online)	Ed D Emp.	7/2/2021
ISU	Approved	Expansion	School Psychology (online)	Ed S	7/2/2021
ISU	Approved	Expansion	School Psychological Examiner (online)	M Ed	7/2/2021
ISU	Approved	Expansion	Secondary Education (online)	M Ed	7/2/2021
ISU	Approved	New	Computer Engineering	BS	7/8/2021
ISU	Approved	New	Digital Media	BFA	7/8/2021
ISU	Approved	New	Respiratory Therapy - degree completion	BS	10/25/2021
ISU	Executive Director Approved	New	Electrical & Computer Engineering: Electrical Engineering concentration	MS	11/29/2021

#### **ATTACHMENT 1**

INST.	Status	Request Type	Program Title	Degree	Date
	Executive				
	Director		Electrical & Computer Engineering: Computer Engineering		
ISU	Approved	New	concentration	MS	11/29/2021
LCSC	Approved	Discontinuance	Engineering	AS	7/28/2021
		Discontinuance			
LCSC	Approved	Instructional Unit	Division of Movement and Sports Science	N/A	7/28/2021
LCSC	Approved	Discontinuance	English: Creative Writing	ВА	7/27/2021
NIC	Approved	Discontinuance	Public Relations	AA	7/2/2021

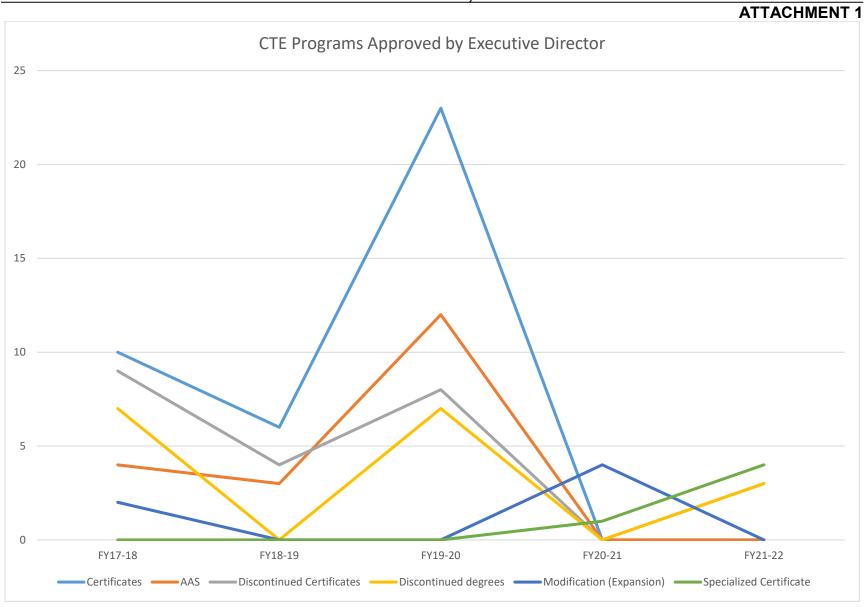


ATTACHMENT 1

#### **List of Other Academic Program/Unit Changes Notified to Executive Director**

The following program changes or additions do not require approval; however, they require notification to OSBE per policy III.G. prior to implementation.

INST.	Request Type	Program Title	Certificate	Date
BSU	Discontinuance	Early Childhood Intervention Services	Undergraduate Certificate	12/13/2021
BSU	Discontinuance	Special Education Services	Undergraduate Certificate	12/13/2021
UI	Clarification of Options offered	Master of Music Collaborative Piano	Options	10/4/2021



ATTACHMENT 1

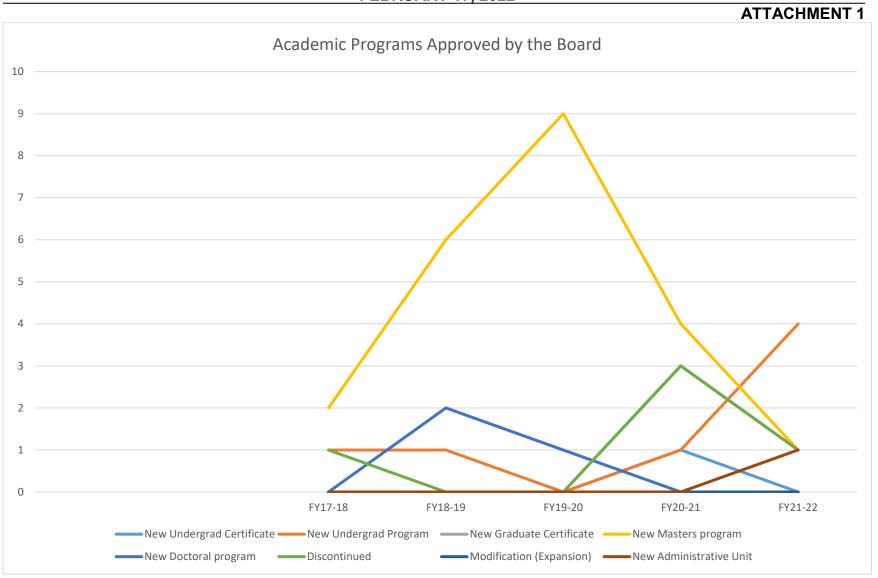
#### New Career Technical Program and Unit Requests Approved by Executive Director (by Type)

INST.	Status	Request Type	Program Title	Degree	Date
CSI	Approved	Discontinuance	Equine Studies	AAS	7/19/2021
CSI	Approved	Discontinuance	Equine Studies	ITC	7/19/2021
CSI	Approved	Discontinuance	Horticulture	AAS	7/19/2021
CSI	Approved	Discontinuance	Horticulture	ITC	7/19/2021
CWI	Approved	Discontinuance	Western States CAT Technician	AAS	7/29/2021
CWI	Approved	Discontinuance	Western States CAT Technician	ATC	7/29/2021
CWI	Approved	Expansion	Network and System Administration/Cloud Computing	Specialized Certificate	7/2/2021
ISU	Approved	New	Nuclear Welding	Specialized Certificate	7/28/2021
ISU	Approved	New	Barbering	Specialized Certificate	7/28/2021
ISU	Approved	New	Cloud Computing	втс	10/25/2021

#### **List of Other CTE Program Changes Notified to Executive Director**

The following program changes or additions do not require approval; however, they require notification to OSBE per policy III.G. prior to implementation.

Instit.	Request Type	Program Title	Degree/Certificate	Date
CWI	Name change	Autobody Technology to Collision Repair Technology		12/20/2021
CWI	Name change	Horticulture to Horticulture Technology		12/20/2021



#### ATTACHMENT 1

#### List of Academic Program and Unit Requests Approved by the Board

INST.	Status	Request Type	Program Title	Degree	Date
BSU	Board Approved	New	Institute for Advancing American Values	N/A	8/27/2021
BSU	Board Approved	New	Cyber Operations and Resilience	B.A.S.	10/25/2021
BSU	Board Approved	Discontinuance	Early Childhood Intervention	M.I.T.	7/19/2021
BSU	Board Approved	New	Digital Innovation and Design	B.A.	8/27/2021
ISU	Board Approved	Discontinuance	Theatre	MA	8/27/2021
ISU	Board Approved	New	Homeland Security and Emergency Management	MS	8/27/2021
ISU	Board Approved	New	Respiratory Therapy - degree completion	BS	10/25/2021
ISU	Board Approved	New	Listening and Spoken Language (online)	Graduate Certificate	10/25/2021
LCSC	Board Approved	New	Cyber Management	BA/BS	10/25/2021

#### **SUBJECT**

Higher Education Research Council Annual Report for Fiscal Year 2021

#### REFERENCE

February 2017 The Board was provided the annual update of the

Higher Education Research Council for FY16 and approved the second reading of amendments to

Board Policy III.W.

February 2018 The Board was provided the annual update of the

Higher Education Research Council for FY17

June 2019 The Board was provided the annual update of the

Higher Education Research Council for FY18

June 2020 The Board was provided the annual report of the

Higher Education Research Council for FY19

June 2021 The Board was provided the annual report of the

Higher Education Research Council for FY20

#### APPLICABLE STATUTE, RULE, OR POLICY

Idaho State Board of Education Governing Policies and Procedures, Section III.W. Higher Education Research

#### **BACKGROUND/DISCUSSION**

Board Policy III.W. Higher Education Research recognizes the significant role research plays in innovation, economic development, and enhanced quality of educational programs. By developing and leveraging the state's unique research expertise and strengths, Idaho's universities and colleges serve as catalysts to spur the creation of new knowledge, technologies, products, and industries. This in turn leads to new advances and opportunities for economic growth.

The Board's Higher Education Research Council (HERC) provides recommendations to the Board regarding statewide collaborative efforts and initiatives to accomplish these goals and objectives. In addition, HERC provides direction for, and oversees the use of, the limited resources allocated by the Board for higher education research by promoting research activities that will have the greatest beneficial effect on the quality of education and the economy of the state.

HERC also administers the Incubation Fund and HERC Idaho Global Entrepreneurial Mission (IGEM) Fund programs, disbursement of Infrastructure Funds, and the oversight of matching funds for our Idaho Established Program to Stimulate Competitive Research (EPSCoR) Track 1 project (Managing Idaho's Landscapes for Ecosystem Services) on the Board's behalf and in compliance with Board Policy III.W. Additional responsibilities include receiving annual reporting on the institutions' activities in relation to the Center for Advanced Energy Studies (CAES).

Incubation Fund projects are single-year projects that are at the proof-of-concept stage. Through a competitive process, HERC awards funds to those projects where the principal investigator can rapidly move their project into the development stage. IGEM Fund projects are awarded for competitive state university research in support of the goals of the Idaho Global Entrepreneurial Mission (IGEM) initiative. These funds are to be used as seed funding for strengthening Idaho's future by strategically investing in the development of expertise, products, and services which result in state economic growth. While these awards may be for up to three years, the funding is contingent upon successful progress as determined by HERC at an annual review of the project.

CAES is a research and education consortium among the three Idaho public research institutions (Boise State University, Idaho State University, University of Idaho), and the Idaho National Laboratory. The most recent annual CAES report was provided with the FY20 HERC Annual Report provided to the Board in June 2021. Thus, no CAES report is included in this item.

#### **IMPACT**

Taking a strategic approach to invest in the state's unique research expertise and strengths will lead to new advances and opportunities for economic growth and enhance Idaho's reputation as a national and international leader in excellence and innovation. This update will provide the Board with the opportunity to provide ongoing input to the Higher Education Research Council on areas of focus and strategic direction, especially as it engages in the process of developing the next five-year higher education research strategic plan.

#### **ATTACHMENTS**

Attachment 1 – FY21 HERC Report Presentation

Attachment 2 – FY21 HERC Budget Allocation

Attachment 3 – FY21 Research Performance Measure Report

Attachment 4 – FY21 Research Activity Reports

Attachment 5 – FY21 Infrastructure Reports

Attachment 6 – FY21 Undergraduate Research Report

Attachment 7 – FY21 Idaho Conference on Undergraduate Research Report

Attachment 8 – FY21 IGEM Grant Final and Annual Reports

#### **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

This report will be provided by the Chair of HERC, Dr. Christopher Nomura, Vice President for Research and Economic Development at the University of Idaho.

#### **BOARD ACTION**

This item is for informational purposes only.

# Higher Education Research Council

Report on activities from July 1, 2020 - June 30, 2021 (Fiscal Year 2021)

Dr. Christopher Nomura, Chair









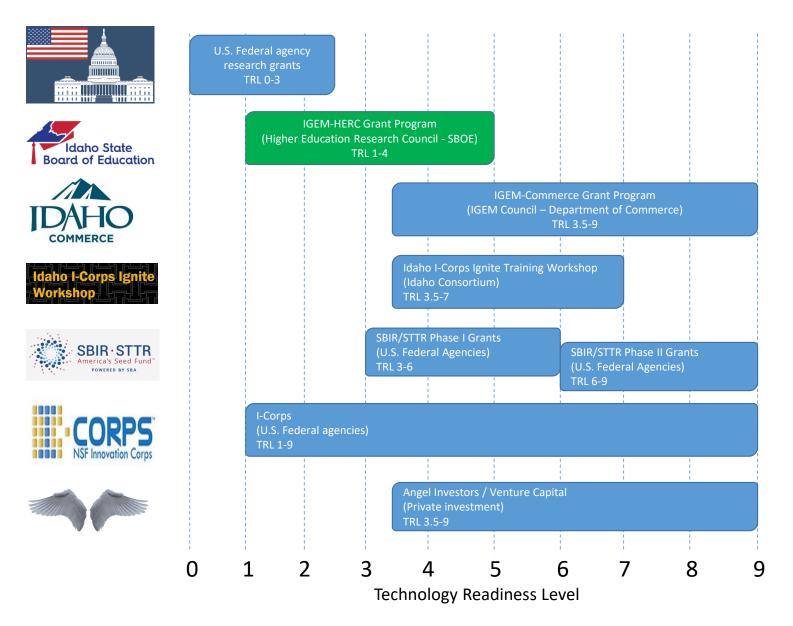


# **Attachments**

- FY21 HERC Budget Allocation
- FY21 HERC Research Performance Measure Report
- FY21 Research Activity Reports
- FY21 Infrastructure Summary Reports
- FY21 Undergraduate Research Reports
- FY21 Idaho Conference on Undergraduate Research Report
- FY21 IGEM Grant Reports

## **HERC Mission**

Strengthen the research capabilities at Idaho's public, four-year institutions and contribute to the economic development of the state of Idaho.

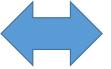






Development of competitive

research base for Idaho





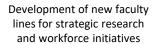
Workforce Development













# **HERC Impact**

HERC has invested just under \$12.5M in 8 major projects since 2016. These projects have resulted in...

\$52.5M

External funding received

450+

Students involved in research projects

345

Jobs created in Idaho

205+

Peer-reviewed scientific articles published

12

Patents awarded or pending

4

Companies launched in Idaho

# **HERC Membership**

# Dr. Christopher Nomura (Chair), *University of Idaho*

Dr. Donna Lybecker, *Idaho State University* 

Dr. Nancy Glenn, *Boise State University* 

Fred Chilson, *Lewis-Clark State College* 

#### **Industry Representatives**

Marianne Walck (Vice Chair), Idaho National Laboratory

Eileen Barber, Keynetics

Heather Messenger, Life Sciences and Biotech Industry

Douglas Sayer, *Premier Technology Inc.* 

# **FY21 HERC Budget Allocation**

Total	\$3,874,800
Administrative Costs	\$2,700
Incubation Fund	\$0
IGEM Grants	\$2,001,000
Undergraduate Research	\$199,000
Matching Grants (EPSCoR)	\$800,000
Research Infrastructure Funds	\$872,100

**IRSA** 

## **Research Infrastructure**

Funding to support science, engineering, and other research infrastructure

FY21 Infrastructure Budget - \$872,100

#### Major line items:

**BSU** – High end research equipment and new hires

**ISU** – A Leica microscope for zebrafish research, and a UV-Vis/Fluorometer for the chemistry department

**UI** - Idaho Water Resources Research Institute Post Doc Fellow, and Northwest Knowledge Network equipment upgrades

**LC State** – Salary for a new Research Librarian, and library support/lab equipment

# **Undergraduate Research**

Funding to support STEM undergraduates in research projects and travel to conferences

FY21 UR Budget - \$199,000

Student research projects supported in FY21:

BSU - 17

**ISU** – 7 (22 students involved)

**UI** – 10

**LC State** – 10

# Idaho Conference on Undergraduate Research (ICUR)

Funding for two day undergraduate conference held each July

FY21 ICUR Budget - \$30,000

#### **FY21 ICUR Outcomes:**

291 attendees from 26 different institutions/organizations

189 students

150 poster presentations

102 faculty, industry and governmental representatives

**IRSA** 

# Idaho Global Entrepreneurial Mission Fund (IGEM)

Competitive grant program used as seed funding for strengthening Idaho's future by strategically investing in the development of expertise, products, and services which result in state economic growth.

1- to 3-year grants up to \$700,000 per year

FY21 IGEM Grant Budget – \$2,001,000

Active Grants in FY21: 4

## **FY21 Active IGEM Grants**

IGEM 19-001: Sustaining the Competitiveness of the Food Industry in Southern Idaho: Integrated Water, Energy and Waste Management

University of Idaho – \$696,000 – Year 3

**IGEM 19-002: Nucleic Acid Memory** 

Boise State University – \$662,500 – Year 3

**IGEM 20-001:** A Disaster Response Complex for Emergency Responders in Idaho

Idaho State University - \$271,400 - Year 2

**GEM 20-002: Cellulosic 3D Printing of Modular Building Assemblies** 

University of Idaho – \$371,100 – Year 2

# **HERC Funded Projects in the News**

- IGEM 19-002 Hughes (BSU): Nucleic Acid Memory
  - <a href="https://theconversation.com/dna-lite-brite-is-a-promising-way-to-archive-data-for-decades-or-longer-157856">https://theconversation.com/dna-lite-brite-is-a-promising-way-to-archive-data-for-decades-or-longer-157856</a>
- IGEM 20-001 Mashal (ISU): A Disaster Response Complex for Emergency Responders in Idaho
  - <a href="https://www.eastidahonews.com/2021/09/isu-inl-host-disaster-response-training-for-oregon-idaho-national-quard/">https://www.eastidahonews.com/2021/09/isu-inl-host-disaster-response-training-for-oregon-idaho-national-quard/</a>
- IGEM 20-002 Baker/McDonald (UI): Cellulosic 3D Printing of Modular Building Assemblies
  - https://www.uidaho.edu/news/news-articles/news-releases/2021-fall/093021-woodwaste

# IGEM 19-001: Sustaining the Competitiveness of the Food Industry in Southern Idaho: Integrated Water, Energy and Waste Management (U of I)

- Build capacity and partnerships among UI, BSU, ISU and CAES to assist Idaho food producers and processors in reducing water, energy, and waste footprints
- Demonstrate/transfer technologies for reducing water/nutrient use
- Pilot at field-scale and transfer technology for recovering valuable nutrients/byproducts from waste streams
- Provide decision support tools for community and business stakeholders to better understand the interconnections and trade-offs between energy, water, nutrients, and land use
- Include workforce development in the use of new technologies

#### Key Outcomes:

- Co-I Donna Delparte (ISU) formed a spinoff company (I2IGeo) to develop commercialization pathway to use satellite and drone technology to assist growers in application of nutrients, herbicides, pesticides, and water.
- The Stakeholder Advisory Board (SAB), with a number of industry and government groups, met to discuss commercialization and tech transfer opportunities for wastewater/energy planning.

# IGEM 19-002: Nucleic Acid Memory (BSU)

- 16 trillion GB of data were produced in 2016; 163 trillion GB of data will be produced in 2025. Archival storage of this huge amount of data using electronic memory is reaching physical and economic limit
- Project aimed to develop an optical technology using DNA to write, store, and read digital information
- DNA as a digital storage/memory medium:
  - Retention time of thousands to millions of years
  - 1 kg of DNA can store the entire projected digital universe in 2040
  - DNA storage energy is 100 million times less than current electronic memory

#### Key Outcomes:

- Creation of Nucleic Acid Memory (NAM) Institute to meet critical innovation, economic, and workforce development needs
- Several products, patents, journal articles, software packages, and one new company
- NAM was invited to join the DNA Storage Alliance

# IGEM 20-001: A Disaster Response Complex for Emergency Responders in Idaho (ISU)

- FEMA has recognized the need to establish emergency management as both an academic field and as an applied practice
- Coupling academia to traditional emergency response structures will make the complex emergency management more effective
- Goal of this project is to develop and construct an outdoor campus called "Disaster Response Complex" at ISU
- DRC will become a premier regional/national response center for research, curriculum development, and training/exercises for military and law enforcement personnel in Idaho and beyond
- The DRC ideas is strongly supported by INL and CAES who wish to use the complex to develop workforce talent
- **Current Status:** The DRC facility is fully developed, with the goal of becoming financially self-sustaining by August 2022. The DRC has already hosted numerous training events for local and regional groups and agencies and will continue to grow and expand.

# IGEM 20-002: Cellulosic 3D Printing of Modular Building Assemblies (UI)

- Identify a methodology, process, and materials necessary to 3-D cold print building assemblies using wood fibers
- Primary objective is the development of a cost-effective and reliable process for printing wall, roof, and floor assemblies on a horizontal plane.
- Target market is light commercial, residential and multi-family buildings.
- Current Status: Significant progress on each of the four tasks identified as Year 2 deliverables. No private industry support yet, but are working toward provisional patent. Accepted into I-Corps Ignite program to provide support on business model development. First prototype printer has been designed and built, with successful single-layer prints. Have produced a hardboard product that looks to be competitive with other hardboards on the market.

### **Thank You**



FY 2021 Allocation of HERC Funds				
Revised Tota	al (5% holdback)	F۱ Original Total	<b>′2021</b> F	Y2020
NOTICE TO SECOND	\$3,874,800	\$4,074,800		
HERC IGEM	40,011,000	Ψ 1,07 1,000 	\$2,001,000	\$2,066,500
Infrastructure Funds			\$872,100	\$850,000
Matching Grants (EPSCoR Match)			\$800,000	\$800,000
Incubation Fund			\$0	\$224,670
Undergraduate Research			\$199,000	\$217,000
Administrative Costs			\$2,700.00	\$2,700
TOTAL	\$3,874,800	\$4,074,800	\$3,874,800	\$4,160,870
BALANCE				2,330
IGEM Funds	10	EM 40.00	<b>\$000.500</b>	<b>\$000.500</b>
BSU ISU		EM 19-02 EM 20-01	\$662,500 \$271,400	\$666,500 \$525,100
UI		EM 19-01	\$696,000	\$700,000
UI		EM 20-02	\$371,100	\$174,900
LCSC				
Total IGEM			\$2,001,000	\$2,066,500
Research Infrastructure Funds				
BSU			\$257,206	\$250,000
ISU			\$257,206	\$250,000
UI LCSC			\$257,206 \$100,482	\$250,000 \$100,000
Total Infrastructure			\$872,100	\$100,000 <b>\$850,000</b>
				+555,555
Matching Award Grants			<b>#</b> 000 000	<b>***</b>
NSF-EPSCoR			\$800,000	\$800,000
Total Matching Grants			\$800,000	\$800,000
Targeted Research				
Idaho Incubation Fund (7th round)			\$0	<b>*</b> 4 4 0 0 <b>7</b> 0
BSU				\$149,970
ISU UI				\$74,700
Total Targeted Research			\$0	\$224,670
Undergraduate Research BSU			\$51,000	\$55,000
ISU			\$51,000 \$51,000	\$55,000
UI			\$51,000	\$55,000
LCSC			\$16,000	\$20,000
Idaho Conference for Undergraduate Research (ICUR)			\$30,000	\$32,000
One-time money				
Total Undergraduate Research			\$199,000	\$217,000
Administrative Costs FY21 Administrative Costs			\$2,700	\$2,700
Total Administrative Costs			\$2,700	\$2,700
Total Administrative Costs			Ψ2,100	Ψ2,100
Total Budget / Allocation			\$3,874,800	\$4,160,870

TAB 4 Page 1

Goal 1: Increased research at, and collaboration among, Idaho universities and colleges to	ARCH COUNCIL advance research stre			ssues in Ida <u>ho, while al</u>	so providing a vision fo	or national <u>and global i</u>	mpact.
bjective 1.A: Ensure growth and sustainability of public university research efforts.  Performance Measure	FY 2016	FY 2017	FY2018	FY2019	FY2020	FY2021	Benchmark
tatewide amount of total annual research and development expenditures as reported in							
ne National Science Foundation (NSF) Higher Education Research and Development Survey	4	4	4	4			
bjective 1.B: Ensure the growth and sustainability of the existing collaborative research	\$154,989,123	\$163,093,485	\$171,052,983 (ES)	\$166,564,099	\$170,635,458	NA	10% annual increase
atewide amount of U.S. Department of Energy (DOE) research and development	it the center for Advant	ced Ellergy Studies (CA	LS).				
expenditures as reported in the National Science Foundation (NSF) Higher Education							
esearch and Development Survey.							
	\$8,561,218	\$9,489,612	\$11,022,015	\$11,724,216	\$13,187,742	NA	10% annual increase
bjective 1.C: Expand joint research ventures among the state universities.  umber of new fully sponsored project proposals submitted by an Idaho University that				1			
volve a subaward with another Idaho institution of higher education (in either direction).							
and a suburtary with another radio institution of higher education (in citate) an eccion,	92	119	100	82	94	82	50% annual increase
umber of new fully sponsored project awards to an Idaho University that involve a						, ,	
abaward with another Idaho institution of higher education (in either direction).							
<u> </u>	58	70	76	69	50	34	30% annual increase
				UI*/BSU/ISU -			
				Dr. Karen			
tablish /6d at least are UEDC diseased assessed assistation and the sell-based assistation at the sell-based assistation and the sell-based assistation assistation and the sell-based assistation and the sell-based assistation as the sell-based assistation and the sell-based assistation as the sell-based assistation and the sell-based assistation as the sell-based assistation as the sell-based assistation as the sell-based assistation as the sell-based assistation assistation as the sell-based assistation as the sell-based assistation as the sell-based assistation as the sell-based as the sell-based assistation as the sell-based assistance as the sell-based assistation as the sell-based as the sell-b				Humes -			
tablish/fund at least one HERC-directed research project per year which collaborates with the other Idaho university that directly addresses issues of particular importance to the State				Integrated Water, Energy			
Idaho.				and Waste			
	NA	NA	NA	Management			1 per year
Performance Measure	FY 2016	FY 2017	FY2018	FY2019	FY2020	FY2021	Benchmark
Performance Measure	FY 2016	FY 2017	FY2018	FY2019 202	FY2020 206	<b>FY2021</b>	Benchmark 50% annual increase
Performance Measure umber of new sponsored projects involving the private sector.							
Performance Measure umber of new sponsored projects involving the private sector.  pal 3: Contribute to the economic development of the State of Idaho.	165						
Performance Measure umber of new sponsored projects involving the private sector.  pal 3: Contribute to the economic development of the State of Idaho.	165						
Performance Measure umber of new sponsored projects involving the private sector.  oal 3: Contribute to the economic development of the State of Idaho.  bjective 3.A: Increase the amount of university-generated intellectual property introduced  Performance Measure	165	163	172	202	206	193	50% annual increase
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Performance Measure  umber of new sponsored projects involving the private sector.  pal 3: Contribute to the economic development of the State of Idaho.  pjective 3.A: Increase the amount of university-generated intellectual property introduced  Performance Measure  umber of technology transfer agreements (as defined by AUTM [Association of iniversity Technology Managers]).	165 I into the marketplace. FY 2016	163 FY 2017	FY2018 29	202 FY2019	206 FY2020	193 FY2021	50% annual increase  Benchmark  15% annual increase  1 for every \$2M of
Performance Measure  umber of new sponsored projects involving the private sector.  pal 3: Contribute to the economic development of the State of Idaho.  pjective 3.A: Increase the amount of university-generated intellectual property introduced Performance Measure  umber of technology transfer agreements (as defined by AUTM [Association of niversity Technology Managers]).  umber of invention disclosures (including biomic varieties)	165 I into the marketplace. FY 2016 44 40	163 FY 2017 33 38	FY2018 29 45	202 FY2019 29 46	206 FY2020 28 58	193 FY2021 37 49	Benchmark  15% annual increase 1 for every \$2M of research expenditures
Performance Measure  umber of new sponsored projects involving the private sector.  oal 3: Contribute to the economic development of the State of Idaho.  bjective 3.A: Increase the amount of university-generated intellectual property introduced Performance Measure  umber of technology transfer agreements (as defined by AUTM [Association of niversity Technology Managers]).  umber of invention disclosures (including biomic varieties)  mount of licensing revenues.	165 I into the marketplace. FY 2016  44 40 \$724,316	163 FY 2017	FY2018  29  45 \$ 1,869,718	202 FY2019 29 46 \$ 2,607,055	206  FY2020  28  58 \$ 3,450,773	FY2021  37 49 \$ 2,626,859	Benchmark  15% annual increase 1 for every \$2M of research expenditures 10% annual increase
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Performance Measure  umber of new sponsored projects involving the private sector.  oal 3: Contribute to the economic development of the State of Idaho.  bjective 3.A: Increase the amount of university-generated intellectual property introduced Performance Measure  umber of technology transfer agreements (as defined by AUTM [Association of niversity Technology Managers]).  umber of invention disclosures (including biomic varieties)  mount of licensing revenues.  umber of startup companies.  oal 4: Enhance learning and professional development through research and scholarly as	165 d into the marketplace. FY 2016  44  40  \$724,316  8 stivity.	163  FY 2017  33  38  \$1,271,819  1	FY2018  29  45 \$ 1,869,718	202 FY2019 29 46 \$ 2,607,055	206  FY2020  28  58 \$ 3,450,773	FY2021  37 49 \$ 2,626,859	Benchmark  15% annual increase 1 for every \$2M of research expenditures 10% annual increase
Performance Measure  umber of new sponsored projects involving the private sector.  poal 3: Contribute to the economic development of the State of Idaho.  bjective 3.A: Increase the amount of university-generated intellectual property introduced Performance Measure  umber of technology transfer agreements (as defined by AUTM [Association of niversity Technology Managers]).  umber of invention disclosures (including biomic varieties)  mount of licensing revenues.  umber of startup companies.  pal 4: Enhance learning and professional development through research and scholarly a bjective 4.A: Increase the number of university and college students and staff involved in Performance Measure	165 I into the marketplace. FY 2016  44  40  \$724,316  8 ctivity.	163  FY 2017  33  38  \$1,271,819  1  vities.	FY2018  29  45 \$ 1,869,718	202  FY2019  29  46 \$ 2,607,055	206  FY2020  28  58  \$ 3,450,773  0	FY2021  37  49 \$ 2,626,859	Benchmark  15% annual increase 1 for every \$2M of research expenditures 10% annual increase
Performance Measure  umber of new sponsored projects involving the private sector.  oal 3: Contribute to the economic development of the State of Idaho.  bjective 3.A: Increase the amount of university-generated intellectual property introduced Performance Measure  umber of technology transfer agreements (as defined by AUTM [Association of niversity Technology Managers]).  umber of invention disclosures (including biomic varieties)  mount of licensing revenues.  umber of startup companies.  oal 4: Enhance learning and professional development through research and scholarly a bjective 4.A: Increase the number of university and college students and staff involved in Performance Measure	165 I into the marketplace. FY 2016  44  40  \$724,316  8 ctivity.	163  FY 2017  33  38  \$1,271,819  1  vities.	FY2018  29  45 \$ 1,869,718	202  FY2019  29  46 \$ 2,607,055	206  FY2020  28  58  \$ 3,450,773  0	FY2021  37  49 \$ 2,626,859	Benchmark  15% annual increase 1 for every \$2M of research expenditures 10% annual increase
Performance Measure  umber of new sponsored projects involving the private sector.  pal 3: Contribute to the economic development of the State of Idaho.  bjective 3.A: Increase the amount of university-generated intellectual property introduced Performance Measure  umber of technology transfer agreements (as defined by AUTM [Association of niversity Technology Managers]).  umber of invention disclosures (including biomic varieties)  mount of licensing revenues.  umber of startup companies.  pal 4: Enhance learning and professional development through research and scholarly as bjective 4.A: Increase the number of university and college students and staff involved in Performance Measure  umber of undergraduate students paid from sponsored projects.	165  I into the marketplace. FY 2016  44  40  \$724,316  8  Etivity. Is ponsored project act FY 2016  1,683 636	163  FY 2017  33  38  \$1,271,819  1  ivities.  FY 2017  1,811 716	FY2018  29  45 \$ 1,869,718  1  FY2018  2,100 656	202  FY2019  29  46 \$ 2,607,055  1  FY2019  1,926 592	206  FY2020  28  58  \$ 3,450,773  0  FY2020  1,993 536	FY2021  37  49 \$ 2,626,859  0  FY2021  2,050 530	Benchmark  15% annual increase 1 for every \$2M of research expenditures 10% annual increase 10% annual increase
Performance Measure  umber of new sponsored projects involving the private sector.  oal 3: Contribute to the economic development of the State of Idaho.  bjective 3.A: Increase the amount of university-generated intellectual property introduced Performance Measure  umber of technology transfer agreements (as defined by AUTM [Association of niversity Technology Managers]).  umber of invention disclosures (including biomic varieties)  mount of licensing revenues.  umber of startup companies.  oal 4: Enhance learning and professional development through research and scholarly at bjective 4.A: Increase the number of university and college students and staff involved in Performance Measure  umber of undergraduate students paid from sponsored projects.	165 d into the marketplace. FY 2016  44  40  \$724,316  8 stivity. a sponsored project act FY 2016  1,683 636 UI: 60.4%,	163  FY 2017  33  38  \$1,271,819  1  vities.  FY 2017  1,811  716  UI: 66.0%,	FY2018  29  45 \$ 1,869,718  1  FY2018  2,100 656 UI: 62.7%,	FY2019  29  46 \$ 2,607,055  1  FY2019  1,926 592 UI: 64.4%	206  FY2020  28  58  \$ 3,450,773  0  FY2020  1,993  1,993  UI: 58.1%	FY2021  37  49 \$ 2,626,859  0  FY2021  2,050  530 UI: 57.6%	Benchmark  15% annual increase 1 for every \$2M of research expenditures 10% annual increase 10% annual increase
Performance Measure  umber of new sponsored projects involving the private sector.  pal 3: Contribute to the economic development of the State of Idaho.  bjective 3.A: Increase the amount of university-generated intellectual property introduced Performance Measure  umber of technology transfer agreements (as defined by AUTM [Association of niversity Technology Managers]).  umber of invention disclosures (including biomic varieties)  mount of licensing revenues.  umber of startup companies.  pal 4: Enhance learning and professional development through research and scholarly at the proformance Measure  umber of undergraduate students paid from sponsored projects.  umber of graduate students paid from sponsored projects.  ercentage of baccalaureate students who graduated in STEM disciplines and had a research	165  I into the marketplace. FY 2016  44  40  \$724,316  8 etivity.  1 sponsored project act FY 2016  1,683 636 UI: 60.4%, BSU: N/A,	163  FY 2017  33  38  \$1,271,819  1  ivities. FY 2017  1,811 716 UI: 66.0%, BSU: N/A,	FY2018  29  45 \$ 1,869,718  1  FY2018  2,100 656 UI: 62.7%, BSU: N/A,	FY2019  29  46 \$ 2,607,055  1  FY2019  1,926 592 UI: 64.4% BSU: N/A	206  FY2020  28  58  \$ 3,450,773  0  FY2020  1,993  536  UI: 58.1%  BSU: N/A	FY2021  37  49  \$ 2,626,859  0  FY2021  2,050  530  UI: 57.6% ESU: N/A	Benchmark  15% annual increase  1 for every \$2M of research expenditures  10% annual increase  10% annual increase  Benchmark  20% annual increase
Performance Measure  umber of new sponsored projects involving the private sector.  pal 3: Contribute to the economic development of the State of Idaho.  pojective 3.A: Increase the amount of university-generated intellectual property introduced Performance Measure  umber of technology transfer agreements (as defined by AUTM [Association of niversity Technology Managers]).  umber of invention disclosures (including biomic varieties)  mount of licensing revenues.  umber of startup companies.  pal 4: Enhance learning and professional development through research and scholarly and pojective 4.A: Increase the number of university and college students and staff involved in Performance Measure  umber of undergraduate students paid from sponsored projects.  ercentage of baccalaureate students who graduated in STEM disciplines and had a research perfence.	165 d into the marketplace. FY 2016  44  40  \$724,316  8 stivity. a sponsored project act FY 2016  1,683 636 UI: 60.4%,	163  FY 2017  33  38  \$1,271,819  1  vities.  FY 2017  1,811  716  UI: 66.0%,	FY2018  29  45 \$ 1,869,718  1  FY2018  2,100 656 UI: 62.7%,	FY2019  29  46 \$ 2,607,055  1  FY2019  1,926 592 UI: 64.4%	206  FY2020  28  58  \$ 3,450,773  0  FY2020  1,993  1,993  UI: 58.1%	FY2021  37  49 \$ 2,626,859  0  FY2021  2,050  530 UI: 57.6%	Benchmark  15% annual increase 1 for every \$2M of research expenditures 10% annual increase 10% annual increase
Performance Measure  umber of new sponsored projects involving the private sector.  pal 3: Contribute to the economic development of the State of Idaho.  bjective 3.A: Increase the amount of university-generated intellectual property introduced Performance Measure  umber of technology transfer agreements (as defined by AUTM [Association of niversity Technology Managers]).  umber of invention disclosures (including biomic varieties)  mount of licensing revenues.  umber of startup companies.  pal 4: Enhance learning and professional development through research and scholarly and bjective 4.A: Increase the number of university and college students and staff involved in Performance Measure  umber of undergraduate students paid from sponsored projects.  umber of graduate students paid from sponsored projects.  ercentage of baccalaureate students who graduated in STEM disciplines and had a research perience.	165  I into the marketplace. FY 2016  44  40  \$724,316  8 stivity.  I sponsored project act FY 2016  1,683  036  UI: 60.4%, BSU: N/A, ISU: 13%	163  FY 2017  33  38  \$1,271,819  1  ivities. FY 2017  1,811 716 UI: 66.0%, BSU: N/A, ISU: 12.1%	FY2018  29  45 \$ 1,869,718  1  FY2018  2,100  656  UI: 62.7%, 650  UI: 62.7%, 1SU: 19.6%	FY2019  29  46 \$ 2,607,055  1  FY2019  1,926  592  UI: 64.4% SU: 12.7%	206  FY2020  28  58  \$ 3,450,773  0  FY2020  1,993  536  UI: 58.1%  BSU: N/A ISU: 19.1%	FY2021  37  49 \$ 2,626,859  0  FY2021  2,050  530  UI: 57.6%  530  US: 57.6%  ISU: 19.0%	Benchmark  15% annual increase  1 for every 52M of research expenditures  10% annual increase  10% annual increase  Benchmark  20% annual increase  20% annual increase
Performance Measure  umber of new sponsored projects involving the private sector.  oal 3: Contribute to the economic development of the State of Idaho.  bjective 3.A: Increase the amount of university-generated intellectual property introduced Performance Measure  umber of technology transfer agreements (as defined by AUTM [Association of niversity Technology Managers]).  umber of invention disclosures (including biomic varieties)  mount of licensing revenues.  umber of startup companies.  oal 4: Enhance learning and professional development through research and scholarly a bjective 4.A: Increase the number of university and college students and staff involved in Performance Measure  umber of undergraduate students paid from sponsored projects.  umber of graduate students paid from sponsored projects.  ercentage of baccalaureate students who graduated in STEM disciplines and had a research sperience.  umber of faculty and staff paid from sponsored projects.	165  I into the marketplace. FY 2016  44  40  \$724,316  8  stivity.  Isponsored project act FY 2016  1,683  636  UI: 60.4%, BSU: N/A, ISU: 13%  2,272	163  FY 2017  33  38  \$1,271,819  1  ivities. FY 2017  1,811 716  UI: 66.0%, BSU: N/A, ISU: 12.1%  2,383	FY2018  29  45 \$ 1,869,718  1  FY2018  2,100 656 UI: 62.7%, BSU: N/A, ISU: 19.6% 2,418  FY2018	FY2019  29  46 \$ 2,607,055  1  FY2019  1,926  592  UI: 64,4%  BSU: N/A  ISU: 12.7%  2,446  FY2019	FY2020  28  58  \$ 3,450,773  0  FY2020  1,993  536  UI: 58.1%  BSU: N/A ISU: 19.1%  2,484  FY2020	FY2021  37  49 \$ 2,626,859  0  FY2021  2,050  530  UI: 57.6% BSU: N/A ISU: 19.0%  2,563  FY2021	Benchmark  15% annual increase 1 for every \$2M of research expenditures 10% annual increase 10% annual increase 20% annual increase 20% annual increase 20% annual increase
Performance Measure  umber of new sponsored projects involving the private sector.  pal 3: Contribute to the economic development of the State of Idaho.  bjective 3.A: Increase the amount of university-generated intellectual property introduced Performance Measure  umber of technology transfer agreements (as defined by AUTM [Association of niversity Technology Managers]).  umber of invention disclosures (including biomic varieties)  mount of licensing revenues.  umber of startup companies.  pal 4: Enhance learning and professional development through research and scholarly a professional development through research and scholarly are professional development through research and staff involved in Performance Measure  umber of graduate students paid from sponsored projects.  umber of graduate students paid from sponsored projects.  Ercentage of baccalaureate students who graduated in STEM disciplines and had a research perfence.  umber of faculty and staff paid from sponsored projects.  K-20 Statewide Stratgic Plan Performance Measures	165  I into the marketplace. FY 2016  44  40  \$724,316  8  stivity.  Isponsored project act FY 2016  1,683  636  UI: 60.4%, BSU: N/A, ISU: 13%  2,272	163  FY 2017  33  38  \$1,271,819  1  ivities. FY 2017  1,811 716  UI: 66.0%, BSU: N/A, ISU: 12.1%  2,383	FY2018  29  45 \$ 1,869,718  1  FY2018  2,100 656 UI: 62.7%, BSU: N/A, ISU: 19.6% 2,418	FY2019  29  46 \$ 2,607,055  1  FY2019  1,926  592  UI: 64.4% BSU: N/A ISU: 12.7%  2,446	FY2020  28  58  \$ 3,450,773  0  FY2020  1,993  536  UI: 58.1% BSU: N/A ISU: 19.1%  2,484	FY2021  37  49 \$ 2,626,859  0  FY2021  2,050  530  UI: 57.6% BSU: N/A ISU: 19.0%	Benchmark  15% annual increase 1 for every \$2M of research expenditures 10% annual increase 10% annual increase 20% annual increase 20% annual increase 20% annual increase
Performance Measure  umber of new sponsored projects involving the private sector.  oal 3: Contribute to the economic development of the State of Idaho.  bjective 3.A: Increase the amount of university-generated intellectual property introduced Performance Measure  umber of technology transfer agreements (as defined by AUTM [Association of niversity Technology Managers]).  umber of invention disclosures (including biomic varieties)  mount of licensing revenues.  umber of startup companies.  oal 4: Enhance learning and professional development through research and scholarly a bjective 4.A: Increase the number of university and college students and staff involved in Performance Measure  umber of undergraduate students paid from sponsored projects.  umber of graduate students paid from sponsored projects.  ercentage of baccalaureate students who graduated in STEM disciplines and had a research sperience.  umber of faculty and staff paid from sponsored projects.	165  I into the marketplace. FY 2016  44  40  \$724,316  8  stivity.  Isponsored project act FY 2016  1,683  636  UI: 60.4%, BSU: N/A, ISU: 13%  2,272	163  FY 2017  33  38  \$1,271,819  1  ivities. FY 2017  1,811 716  UI: 66.0%, BSU: N/A, ISU: 12.1%  2,383	FY2018  29  45 \$ 1,869,718  1  FY2018  2,100 656 UI: 62.7%, BSU: N/A, ISU: 19.6%  FY2018  UI: 61%,	FY2019  29  46 \$ 2,607,055  1  FY2019  1,926 592 UI: 64.4% BSU: N/A ISU: 12.7% 2,446 FY2019 UI: 58.4%	206  FY2020  28  58  \$ 3,450,773  0  FY2020  1,993  536  UI: 58.1%  BSU: N/A ISU: 19.1%  2,484  FY2020  UI: 59.6%	FY2021  37  49 \$ 2,626,859  0  FY2021  2,050  530  UI: 57.6% BSU: N/A ISU: 19.0%  7,563 FY2021  UI: 55.5%	Benchmark  15% annual increase 1 for every \$2M of research expenditures 10% annual increase 10% annual increase 20% annual increase 20% annual increase 20% annual increase

### **Boise State University Sponsored Project Activity Report FY2021**

Awards for the Period July 1, 2020 through June 30, 2021

	Federal	State	Industry	Other	Total	% of Grand
Activity Type						Total
Instruction:						
Sponsored Programs	\$ 2,052,281	\$ 430,680	\$ -	\$ 54,717	\$ 2,537,678	
State Instruction Appropriations	\$ -	\$ -	\$ -	\$ -	\$ -	
Subtotal Instruction	\$ 2,052,281	\$ 430,680	\$ -	\$ 54,717	\$ 2,537,678	3.88%
Research:						
Sponsored Programs	\$ 37,731,137	\$ 2,589,832	\$ 268,008	\$ 942,495	\$ 41,531,472	
State Research Appropriations	\$ -	\$ 2,146,500	\$ -	\$ -	\$ 2,146,500	
Subtotal Research	\$ 37,731,137	\$ 4,736,332	\$ 268,008	\$ 942,495	\$ 43,677,972	66.85%
Other Sponsored Activities:						
Sponsored Programs	\$ 14,182,940	\$ 2,460,292	\$ 20,000	\$ 2,305,055	\$ 18,968,287	
State Other Sponsored Activities Appropriations	\$ -	\$ 151,186	\$ -	\$ -	\$ 151,186	
Subtotal Other Sponsored Activities	\$ 14,182,940	\$ 2,611,478	\$ 20,000	\$ 2,305,055	\$ 19,119,473	29.26%
Grand Totals	\$ 53,966,359	\$ 7,778,490	\$ 288,008	\$ 3,302,267	\$ 65,335,124	
Percent of Grand Total	82.60%	11.91%	0.44%	5.05%	100%	100%

### Expenditures for the Period July 1, 2020 through June 30, 2021

	Federal	State	Industry	Other	Totals	% of Grand
Activity Type						Total
Instruction:						
Sponsored Programs	\$ 2,155,923	\$ 1,279,610	\$ -	\$ 100,097	\$ 3,535,631	
State Instruction Appropriations	\$ -	\$ -	\$ -	\$ -	\$ -	
Subtotal Instruction	\$ 2,155,923	\$ 1,279,610	\$ -	\$ 100,097	\$ 3,535,631	6.23%
Research:						
Sponsored Programs	\$ 31,730,192	\$ 1,413,133	\$ 575,859	\$ 999,771	\$ 34,718,954	
State Research Appropriations	\$ -	\$ 909,527	\$ -	\$	\$ 909,527	
Subtotal Research	\$ 31,730,192	\$ 2,322,660	\$ 575,859	\$ 999,771	\$ 35,628,481	62.81%
Other Sponsored Activities:						
Sponsored Programs	\$ 11,589,364	\$ 4,605,868	\$ 90,308	\$ 1,193,585	\$ 17,479,125	
State Other Sponsored Activities Appropriations	\$ -	\$ 78,277	\$ -	\$ -	\$ 78,277	
Subtotal Other Sponsored Activities	\$ 11,589,364	\$ 4,684,144	\$ 90,308	\$ 1,193,585	\$ 17,557,401	30.95%
Grand Totals	\$ 45,475,479	\$ 8,286,414	\$ 666,167	\$ 2,293,452	\$ 56,721,513	
Percent of Grand Total	80.17%	14.61%	1.17%	4.04%	100%	100%

## Idaho State University Office for Research

Award Breakdown by Funding Agency Type and Project Type July 1, 2020 through June 30, 2021

	Federal	State	Industry	Other/Foundation	Totals	Percent of Total
Research	5,331,972	1,226,296	2,614,801	3,401,359	12,574,428	26%
Training and Instruction	3,900,773	481,457	992,935	153,016	5,528,181	11%
Other/Public Service	23,045,775	5,901,471	854,623	1,031,105	30,832,974	63%
Totals	32,278,520	7,609,224	4,462,359	4,585,480	48,935,583	100%
Percent of Total	66%	16%	9%	9%	100%	

State = Awards from state of Idaho agencies, including other state universities and colleges

Other/Foundation = Awards from other funding agecnies, such as foundations, universities from outside of Idaho, local municipalities, non-profits, etc.

File Name: ISU OR Annual Awards FY21

# Idaho State University Office for Research

Expenditure Breakdown by Funding Agency Type and Project Type July 1, 2020 through June 30, 2021

	Federal	State	Industry	Other/Foundation	Totals	Percent of Total
Research	3,018,237	2,989,176	2,265,994	462,219	8,735,625	37%
Training and Instruction	3,443,803	1,445,316	1,155,985	138,667	6,183,771	26%
Other/Public Service	3,799,739	4,452,442	525,523	17,694	8,795,397	37%
Totals	10,261,778	8,886,933	3,947,502	618,580	23,714,793	100%
Percent of Total	43%	37%	17%	3%	100%	

File Name: ISU OR Annual Expenditures FY21

NOTE: The FY21 Research Activity Report for the University of Idaho will be available after February 28, 2022

Their institution does not close out federal data for FY21, which is the data used for this report, until January 31 of each year when they submit their NSF HERD Survey results

The FY20 Research Activity Report included (next page) is the most recent report at this time

# INSTRUCTION, RESEARCH AND STUDENT AFFAIRS FEBRUARY 17, 2022

### University of Idaho - FY2020 Research Activity Report

Awards for the Period July 1, 2019 through June 30, 2020

	Federal	State of Idaho	Industry	Other	Total	% of Grand	% of Sponsor
			,			Total	Total
Instruction:							
Sponsored Programs	\$ 2,552,894.63	\$ 48,335.08	\$ 59,905.00	\$ 26,000.00	\$ 2,687,134.71		3%
	\$ 2,552,894.63	\$ 48,335.08	\$ 59,905.00	\$ 26,000.00	\$ 2,687,134.71	2%	
Research:							
Sponsored Programs	\$ 52,242,047.61	\$ 3,098,038.00	\$ 1,240,140.79	\$ 5,314,530.40	\$ 61,894,756.80		67%
Federal Land Grant Appropriations (FFY20)	2,873,822.00				2,873,822.00		
State Research Appropriations (CALS,FUR,IGS,EPS	CoR)	23,464,891.00			23,464,891.00		
Subtotal Research:	\$ 55,115,869.61	\$ 26,562,929.00	\$ 1,240,140.79	\$ 5,314,530.40	\$ 88,233,469.80	65%	
Public Service:							
Sponsored Programs	\$ 24,053,994.76	\$ 1,989,118.04	\$ 178,574.95	\$ 1,879,768.92	\$ 28,101,456.67		30%
Federal Land Grant Appropriations (FFY20)	3,050,887.50				3,050,887.50		
State Extension Appropriations		12,737,309.00			12,737,309.00		
Subtotal Public Service:	\$ 27,104,882.26	\$ 14,726,427.04	\$ 178,574.95	\$ 1,879,768.92	\$ 43,889,653.17	33%	
Construction:							
Sponsored Programs	100,000.00	-	-	-	100,000.00	0%	0%
Total Sponsored Programs Funding	\$ 78,948,937.00	\$ 5,135,491.12	\$ 1,478,620.74	\$ 7,220,299.32	\$ 92,783,348.18		
Percent of Total Sponsored Programs	84%	6%	2%	8%	100%		100%
Grand Total of All Funding Per Category	\$ 84,873,646.50	\$ 41,337,691.12	\$ 1,478,620.74	\$ 7,220,299.32	\$ 134,910,257.68		
Percent of All Funding	63%	31%	1%	5%	100%	100%	

### Expenditures for the Period July 1, 2019 through June 30, 2020 (includes accruals)

	Federal	State of Idaho	Industry	Other	Institutional	Total	% of Grand	% of Sponsor
			,				Total	Total
Instruction:								
Sponsored Programs	\$ 2,437,876.30	\$ 64,329.59	\$ 35,169.97	\$ 229,136.32	\$ 418,393.66	\$ 3,184,905.84		3.2%
	\$ 2,437,876.30	\$ 64,329.59	\$ 35,169.97	\$ 229,136.32	\$ 418,393.66	\$ 3,184,905.84	2.0%	
Research:								
Sponsored Programs	\$ 48,940,862.98	\$ 2,709,475.44	\$ 2,581,405.39	\$ 3,733,600.79	\$ 11,100,583.38	\$ 69,065,927.98		70.0%
Federal Land Grant Appropriations	2,508,933.37					2,508,933.37		
State Research Appropriations (CALS,FUR,IGS,EPSC	oR)	22,155,226.66				22,155,226.66		
State Other Appropriations		8,148,909.60				8,148,909.60		
Other Sources	•	-	•	2,496,438.41	8,435,022.14	10,931,460.55		
Subtotal Research:	\$ 51,449,796.35	\$ 33,013,611.70	\$ 2,581,405.39	\$ 6,230,039.20	\$ 19,535,605.52	\$ 112,810,458.16	71.3%	
Public Service:								
Sponsored Programs	\$ 19,085,710.98	\$ 1,453,471.02	\$ 154,580.01	\$ 1,673,231.38	\$ 3,792,932.67	\$ 26,159,926.06		26.5%
Federal Land Grant Appropriations	3,072,590.47					3,072,590.47		
State Extension Appropriations		12,840,873.71				12,840,873.71		
Subtotal Public Service:	\$ 22,158,301.45	\$ 14,294,344.73	\$ 154,580.01	\$ 1,673,231.38	\$ 3,792,932.67	\$ 42,073,390.24	26.6%	
Construction:								
Sponsored Programs	\$ 100,000.00	\$ -	\$ -	\$ -	\$ 100,000.00	\$ 200,000.00	0.1%	0.2%
Total Sponsored Programs Funding	\$ 70,564,450.26	\$ 4,227,276.05	\$ 2,771,155.37	\$ 5,635,968.49	\$ 15,411,909.71	\$ 98,610,759.88		
Percent of Total Sponsored Programs	72%	4%	3%	6%	16%	100%		100%
Grand Total of All Funding Per Category	\$ 76,145,974.10	\$ 47,372,286.02	\$ 2,771,155.37	\$ 8,132,406.90	\$ 23,846,931.85	\$ 158,268,754.24		
Percent of All Funding	48%	30%	2%	5%	15%	100%	100%	

**IRSA** 

### **FY2021 INFRASTRUCTURE REPORT SUMMARY - Boise State University**

Detailed Allocations	
Library Support	
Graduate Research Assistantships/Research Associates	
Post Doctoral Fellows	
Technician Support	
Maintenance Contracts	
Research Equipment	157,200
Competitively Awarded Summer Research Support	
Start-Up Funds for New Hires	100,000
Incentives to Reward Faculty for Research Achievements	
Other	
Total Allocation	257,200

### **FY 2021 INFRASTRUCTURE REPORT SUMMARY – Boise State University**

Detailed Allocations	
Publications in refereed journals	
Presentations at professional meetings and conferences	
Grants Received as a result	
Grants Pending	
Student Participation	
Faculty Participation	
Other Participation	
Patents Awarded	
Patents Pending	
Manuscripts Submitted	

### FY 2021 INFRASTRUCTURE REPORT SUMMARY – Boise State University

Notes:

Research Equipment:

HPC (High Performance Computing) Equipment and Software - \$117,000 Vivarium Infrastructure / equipment - \$7,735 Mainali Physics Lab - \$32,465 TOTAL: 157,200

Startup

Cruz/Bittleston – Biology \$100,000

### **FY2021 INFRASTRUCTURE REPORT SUMMARY - University of Idaho**

	Total \$	Detailed Allocations
Library Support	\$0	
Graduate Research Assistantships / Research Associates	\$0	
Post-Doctoral Fellows	\$72,320	Idaho Water Resources Research Institute PostDoc Fellow
Technician Support	\$27,911	Genomics Service Center
Maintenance Contracts	\$0	
Equipment	1845 578	\$36,528, Northwest Knowledge Network equipment upgrades; \$9,000, ductless economy hood and security cameras for the Hagerman Fish Culture Experiment Station.
Start-Up Funds for New Hires	\$0	
Incentives to Reward Faculty for Research Achievements	\$6,535	Excellence in Research Award
Other	\$104,906	\$2,343 for UI PostDoc/Faculty Mentor Award; \$10,000, publishing support; \$4,128, cost share for developing thermostat prototype for holistic climate control system. \$88,435, supplies for Genomics Service Center
Total Allocation	\$257,200	

### **FY2021 INFRASTRUCTURE REPORT SUMMARY - University of Idaho**

	Detailed Allocations
Publications in Refereed Journals	11
Presenations at Professional Meetings and Conferences	11
Grants Received as a Result	
Grants Pending	
Student Participation	8
Faculty Participation	24
Other Participation	6
Patents Awarded	
Patents Pending	

NOTE: Other participation includes postdocs, research scientists, research specialists, and stakeholders.

# **FY2021 INFRASTRUCTURE REPORT SUMMARY - Idaho State University**

ISU FY 2021	Total \$	Detailed Allocations
Library Support	\$0	
Graduate Research Assistantships / Research Associates	\$0	
Post-Doctoral Fellows	\$0	
Technician Support	\$0	
Maintenance Contracts	\$0	
Research Equipment	\$219,112	The Leica microscope is being used in the only zebrafish research facility at Meridian ISU Health Sciences Center. The unique fluorescence feature of this versatile stereomicroscope makes it an ideal instrument for zebrafish research and an necessity for zebrafish facility day-to-day operations. Purchased a UV-Vis/Fluorometer and related accesories from Vernier Software and Technology for the Chemistry Department. Cage Washing sytem for Animal Facilities.
Competitvely Awarded Summer Research Support	\$0	
Start-Up Funds for New Hires	\$0	
Incentives to Reward Faculty for Research Achievements	\$0	
Other	\$65,559	Computers, isolation frame, load cells, threaded rods, accessories, and other smaller items.
Total Allocation	\$284,671	

# FY 2021 INFRASTRUCTURE REPORT SUMMARY - Idaho State University

ISU FY 2021	
Publications in Refereed Journals	N/A• Z. Free, M. Hernandez, M. Mashal, and K. Mondal (2021). A Review on Advanced Manufacturing for Hydrogen Storage Applications. mdpi Journal Energies. (Under Review)  • K. Hogarth, J. Cantrell, M. Mashal, and B. Savage (2021). A Disaster Response Complex for Training of First Responders in the Northwest United States, Countering WMD Journal, United States Army Nuclear and Countering WMD Agency. (Under Review)  • M. Mashal, K. Gurung, M. Acharya (2021). Full-Scale Flexural Testing of Slabs Made of Modular Structural Concrete Insulated Panels, PCI Journal. (Accepted for Publication)  • M. Mashal and B. Savage (2021). Bringing Precast Concrete to Classrooms, Issue 3/2021, Concrete Plant International North America and Worldwide Editions.  • B. Durtschi, M. Mahat, M. Mashal, and A. Chrysler (2021). Preliminary Analysis of RFID Localization System for Moving Precast Concrete Units using Multiple-Tags and Weighted Euclid Distance k-NN algorithm, IEEE RFID, April 27-29, 2021, Atlanta, Georgia, United States.
Presenations at Professional Meetings and Conferences	2 presentations have been submitted to ARO national meeting
Grants Received as a Result	
Grants Pending	Two grant applications have been submitted to American Hearing Research Foudation and Idaho INBRE.
Student Participation	The zebrafish facility and research involve 3 PhD students, 3 rotating PhD students, and numerous PharmD students doing research rotations and taking research electives for the Biology Department. Summer research project - collaboration between Chemistry and Bilological Scienc es with UG Student (Carlyn Osterhout) Use of the intrument in Inorganic Chemistry Laboratory Course (F21). Ten Students in civil and environmental engineering and other engineering departments at ISU
Faculty Participation	2 (electrical and computer engineering; nuclear engineering)
Other Participation	Researchers from Idaho National Laboratory and the Center for Advanced Energy Studies
Patents Awarded	N/A
Patents Pending	Several provisional patent applications are underway. • M. Mashal (2020). "Ductile Connections for Pre-Formed Construction Element", United States Non-Provisional Patent Application, 16/817,042.  • M. Mashal (2019). "Ductile Connections for Pre-Formed Construction Element", United States Provisional Patent, 62/883,173.

# FY2021 INFRASTRUCTURE REPORT SUMMARY - Lewis-Clark State College

	Total \$	Detailed Allocations		
Library Support	\$30,000.00	\$18,000 to 10-07-126104 (Ebsco Nature and Ebsco Cell); \$12,000 applied toward Infobase Learning (Total cost \$17,500; balance covered by LIB funds; Master Academic College and Health, Nursing Tech & Trade Education Collection; \$2,000 to 126104 and \$10,000 to 126105). See next tab for detail and PO numbers.		
IR&E Qualtrics License	\$7,150.00	PO #586021 (funds transfer to IT which paid the expense)-Campus license for survey software-12 month Research License for Qualtrics, for use by faculty and the campus community		
SPSS campus-wide licenses	\$6,484.60	PO #0405557-IT pd invoice on 6/7/21 for use by faculty; AA reimbursed IT		
Research Symposium	\$10,000.00	Annual LC State Student Research Symposium		
Salary for Research Librarian	\$49,916.00	50% of salary and fringe for Samatha Thompson-Franklin, Research Librarian, in support of undergraduate and faculty research efforts.		
Total Expenditures	\$103,550.60	Expenditures above \$100,500 FY21 allocation charged to provost's office appropriated account.		
	Detailed Allocations			
Publications in Refereed Journals				
Presentations at Professional Meetings and Conferences				
Grants Received as a Result				
Grants Pending				
Student Participation	Students utilize the Research Librarian and the purchased Library resources in coursework, undergraduate research activities, and in preparing for the annual Research Symposium.			
Faculty Participation	Faculty utilize the Research Librarian, the SPSS and Qualtrics software products, the purchased Library resources and assist students in preparing for the annual Research Symposium.			
Other Participation	Community members, faculty and staff emeritus, and alumni are invited to attend the research symposium each year.			
Patents Awarded				
Patents Pending				

# Higher Education Research Council Undergraduate Research Supplemental Funding Boise State University Final Report

### Academic Year 2020-2021

Donna Llewellyn, Executive Director, Institute for Inclusive & Transformative Scholarship Catherine Bates, Assistant Director, Institute for Inclusive & Transformative Scholarship



#### Introduction

The Institute for Inclusive & Transformative Scholarship oversaw the HERC Undergraduate Research Fellowship at Boise State University Fall 2020, and Spring 2021. HERC funds were used to support Boise State undergraduate students who had minimal research experience with a 10-week mentored research opportunity during the fall and spring semesters. Funds provided by the Higher Education Research Council supported a total of 17 students across 9 different STEM disciplines.

On behalf of the Institute for Inclusive & Transformative Scholarship, we thank the Higher Education Research Council for their generous support in helping build meaningful experiential learning experiences for Idaho students and supporting faculty research.

### **HERC Funding:**

The Higher Education Research Council provided \$51,000 in supplemental funding to support STEM undergraduate research at Boise State University this year. Please see the table below of how stipends and travel awards were dispersed.

Stipends	Amount	Details
Fall Semester Research Stipends	\$24,000	8 students at \$ 3,000 each
Spring Semester Research Stipends	\$27,000	9 students at \$3,000 each
Total	\$51,000	

### Boise State Research Fellows Undergraduate Research Fellows and Discipline

Student Name	Gender	Ethnicity	Race	STEM Major
Alan Chavez	M	Hispanic/Latino/a	Hispanic	Engineering Plus
Chithkala Dhulipati	F	NonHispanic/Latino/a	Asian	Applied Mathematics
Andrea Feci	M	NonHispanic/Latino/a	White	Chemistry
Pangea Finn	F	NonHispanic/Latino/a	Caucasian	Physics
Terra Green	F	NonHispanic/Latino/a	Caucasian	Anthropology
Sarah Goldrod	F	Hispanic/Latino/a	Caucasian	Mechanical Engineering
Julie Julison	F	NonHispanic/Latino/a	American Indian	Anthropology
Tyler Lantz	M	NonHispanic/Latino/a	Caucasian	Health Science
Rosana Lenhnart	F	Hispanic/Latino/a	Hispanic	Physics

ShaKayla Moran	F	NonHispanic/Latino/a	Caucasian	Biology
Nathan McGregor	M	NonHispanic/Latino/a	Caucasian	Physics
Ashley Maples	F	NonHispanic/Latino/a	Caucasian	Anthropology
Carmen Pemsler	F	Hispanic/Latino/a	Caucasian	Civil Engineering
Betsy Rosales	F	Hispanic/Latino/a	Caucasian	Electrical Engineering
Sierra Sandison	F	NonHispanic/Latino/a	Caucasian	Mechanical Engineering
Serena Sheldon	F	NonHispanic/Latino/a	Caucasian	Biology
Addie Totman	F	NonHispanic/Latino/a	Caucasian	Mechanical Engineering

### Fall 2020 HERC Fellow Boise State Student Abstracts:

Chithkala Dhulipati

Faculty Mentor: Dr. Michal Kopera, Department of Computing, Boise State University

Research Title: Simulations of Multi-Layer Shallow Water Model

In this work, we ran test simulations of different scenarios of the multi-layer shallow-water model and visualized the results in ParaView. Further, the results were compared to the reference solution, the HYCOM model, to see if Galerkin methods are competitive enough with other established numerical methods used for ocean modeling. Initially, we simulated a two-dimensional wave in shallow water equations and then expanded it into a two-dimensional wave in a two-layer system. We designed the two-layer model such that each layer had adifferent density. Further, we set up a perturbation on the interface between the layers. We could see that the disturbance propagated in the interface between layers, with faster waves traveling on the surface. We visualized the simulation results in ParaView by using various filters like append attributes, calculator, and warp by a scalar. Exporting this state of the simulation into a Python script helped create a contour plot. We compared this plot to the reference solution.

#### Ashley Maples

Faculty Mentor: Dr. Shelly Volsche, Department of Anthropology, Boise State University

Research Title: Do Leopard Geckos Bring People Together Through Social Media?

For this project, I will be digging into the psychological reasoning behind why certain mindsets are drawn into owning a reptile. Not only will this study better the knowledge of pet owners but why an

owner leans towards a reptile pet.

Nathan McGregor

Faculty Mentor: Dr. Daryl Macomb, Department of Physics, Boise State University

Research Title: VRI Light Curves of BL Lacertae Objects

BL Lacertae objects' (BL Lacs) relativistic jets are oriented close to our line of sight, producing a variation in flux density over time. The physical mechanisms behind these fluctuations are still poorly known. Variability surveys such as ours that combine high photometric accuracy, sufficiently long-time baselines, and a high number of observation epochs hold the promise of significant progress. We present a pipeline as well as light curves that form the basis of a long-term photometric variability study of BL Lacs. We have expanded on our first set of photometric observations of Markarian 501, producing light curves for new sources. All BL Lacs were imaged in three optical (VRI) bands from 2010 to 2015 using the 0.4m telescope at the Challis Astronomical Observatory (CAO) in Idaho. Astrometric calibration was performed on each image using Astrometry.net. Images that were recognized and calibrated formed the data for our analysis. Artifacts were removed by resampling and co-adding images using SWarp. For each co-added image, we generated an SExtractor catalog and computed an on-sky separation by matching field stars with star catalogs. We used this solution to match each source to reference catalogs for modeling light curves. Future research will focus on multiwavelength observations, cross correlating these VRI light curves with observations in other wavelengths to better understand the source structure and physical processes of BL Lacs.

### ShaKayla Moran

Faculty Mentor: Dr. Leslie Atkins Elliott, Department of Curriculum, Instruction, and Foundational Studies, Boise State University.

Research Title: Building Theories by Building Things

In the science classroom, curriculum often engages students in science experiments with predetermined materials and scaffolded instructions in order to obtain a designated outcome. However, science experiments like this focus on the product of experiment but not the process of designing an experiment. Implicit in these labs is that the goal of the science classroom is to learn specific scientific content instead of learning how to build theories and develop experiments in support of those. If, instead, we want science classes that support students in developing, vetting and refining theories, our research suggests that increased student agency around materials and design is critical. As students make design choices in their experiments, they enter into a conversation with materials and design and these inform and shape their developing models in richly scientific ways. Through the use of student examples we will show how students can use materials in novel and authentic ways that improve their design practice and solidify their scientific theories.

### Carmen Pemsler

Faculty Mentor, Dr. Kendra Kaiser, Department of Geosciences, Boise State University

Research Title: Energy Demand of the Yankee Building

Working with the Lab for Ecohydrological Applications and Forecasting (LEAF) in the Department of Geosciences at Boise State University, we were able to determine the energy efficiency of the Yanke Research Park Building. Two different models were reviewed to automate the process of creating change point models for monitoring the energy use over time using the computational tool, Python. The first model, a 2P model, reflected a single linear regression model when fitted against a "cooling shapeâ€, where building energy use is positively correlated to outside air temperature. The second, a 3PC model (3P Cooling model), contains two slopes connected by a temperature change point. A changepoint was determined through iterations of the temperature data. Before the computed change point there is a zero slope and after the change point, a positive slope. This would take in consideration the building having no heating demand in cooler temperatures. We analyzed post-retrofit data provided by Idaho Power that included the hourly electricity use and the outside air temperature (OAT) from December 1, 2015 to December 1, 2016. The results from the OAT and electricity use data indicated that the Yankee building has some performance gaps in the way it utilizes energy.

### **Betsy Rosales**

Faculty Mentor: Dr. Benjamin Johnson, Department of Electrical and Computer Engineering, Boise State University

Research Title: Wearable Bluetooth Interface for Flexible Piezoelectric Sensors

Polyvinylidene fluoride (PVDF) sensors are made of high-quality polymer that allows them to be extremely flexible when manufactured as thin sheets. Moreover, this low-density polymer exhibits piezoelectric properties, meaning it generates an electric charge in response to mechanical stress. Taken together, the flexibility and piezoelectric properties of PVDF sensors make them a promising solution for thin, lightweight wearable sensors that can be placed directly on the skin to monitor physiological activity. In this study, we established the viability of using a commercial PVDF sensor to detect physiological signals, such as arterial pulse. We integrated the PVDF sensor with a wireless Bluetooth low energy module to stream its voltage signal to a phone, resulting in a wearable sensor system for continuous data acquisition. We electronically connected our components with a printed circuit board (PCB) - designed using Eagle (AutoCAD). The sensor along with all our components were soldered onto the PCB to electronically connect and mechanically fasten them. This allowed the device to be solidified into a single piece making it easier and discrete to attach on to clothing.

### Sierra Sandison

Faculty Mentor: Dr. Krishna Pakala, Department of Mechanical & Biomedical Engineering, Boise State University

Research Title: Alleviating the Negative Effects of Imposter Syndrome in Engineering Students

Imposter syndrome and feelings of self-doubt are common, even in spite of one's level of success. These feelings and thoughts can have detrimental implications for the sufferers. The purpose of this study is to gather data on how common and/or severe feelings of imposter syndrome and self-doubt are among engineering students, and examine whether or not knowing that their peers and mentors suffer from similar feelings will help alleviate their own. Our hypothesis include, (1) Engineering students underestimate the rate at which their peers and mentors suffer from feelings of self-doubt and imposter syndrome and (2) These feelings may be alleviated by discussing them more and understanding how common they are in others. The research will include students watching a minidocumentary of their peers and faculty being interviewed on their own experiences with imposter syndrome, and taking a pre- and post-survey on their own experience with self doubt/imposter

syndrome and whether or not hearing about others' experiences affected the way they think about these feelings. The goal is to use this data to encourage students and faculty to be more open about their feelings of self-doubt in hopes that it will help everyone understand that these feelings are common. In addition to the results being presented at undergraduate research conferences and possibly published, the documentary shown to survey participants will also later be shown on campus and on social media, along with a discussion of the results of the study. Students will be emailed a survey that will assess their feelings of self-doubt and imposter syndrome as it relates to their engineering identity. The survey will use the Clance IP Scale. The participants will be asked to watch an ~11 minute mini-documentary of their engineering peers and faculty being interviewed about their experience with imposter syndrome. After the documentary concludes, participants will be asked to complete a post-survey assessing how watching the documentary affected their own feelings and opinions about their own experience with imposter syndrome and self-doubt.

#### Serena Sheldon

Faculty Mentor: Dr. Eric Brown, Department of Chemistry and Biochemistry, Boise State University

Research Title: Design and Synthesis of a New Ligand Scaffold Containing a Hydrogen-Bond Donor for Making Zinc-Hydrosulfide Complexes

Carbonic Anhydrase (CA) is a metalloenzyme that is present within numerous organisms. Although CA is responsible for the reversible hydration of carbon dioxide to bicarbonate, its lesser known function is the activation of carbonyl sulfide (COS) to produce hydrogen sulfide (H<sub>2</sub>S). H<sub>2</sub>S is an important molecule in biomedicine since it is a signaling molecule/gastrotransmitter. H<sub>2</sub>S is produced in the body and has been shown to inhibit the formation of free radicals that are associated with aging and age-related diseases. The activation of COS produces a zinc(II) hydrosulfide in the active site of CA. However, the mechanism and the effect of hydrogen bonding interactions on the desulfurization of the zinc-hydrosulfide, to produce H<sub>2</sub>S, are not fully understood. Our poster will discuss the preparation of a ligand scaffold containing a hydrogen bond donor and its successful use to prepare a zinc-hydrosulfide complex from COS gas.

### Spring 2020 HERC Fellow Boise State Student Abstracts:

#### Alan Chavez

Faculty Mentor: Dr. Mahmood Mamivand, Department of Mechanical and Biomedical Engineering, Boise State University.

Research Title: Phase-field Modeling of Fe-Cr-CO Spinodal Decomposition

Research on non-rare earth magnetic materials was done at Boise State University's Computational Materials Design Lab, directed by Dr. Mahmood Mamivand. The objective was to develop simulation models using MOOSE (Multiphysics Object Oriented Simulation Environment) to model spinodal decomposition in materials at the mesoscale. The MOOSE framework is an open-source, parallel finite element framework developed by the Idaho National Laboratory. MOOSE makes modeling and simulations more accessible to scientists that have little background in computer science. Simulation models using MOOSE were done on the FeCrCo alloy using the phase-field method and the results were compared to experimental results from multiple sources.

Next, simulations models were done using parameters from a different source compared to the original to make the simulations more quantitative for different compositions of FeCrCo. Simulation models were also done by implementing parameters that would take into consideration external magnetic field and demagnetizing energy of the alloy. When implementing new parameters found to create new simulation models for smaller compositions of CrCo in FeCrCo, it was initially thought that directly swapping parameters in the code would result in the expected spinodal decomposition. It was found that swapping parameters did not yield the results that we wanted. After debugging the code and using a mix of parameters from one source and another, results were still coming back inconclusive. After much thought, it was decided to instead focus on how the external magnetic and demagnetizing fields affect the spinodal decomposition of the alloy. Using the phase-field method and focusing on the total magnetic energy within the system, equations were found that would calculate the external magnetic field energy as well as the demagnetizing field energy. The external magnetic field energy was implemented first in the MOOSE code and it was found that it had little to no effect on the spinodal decomposition. This supports the argument that the spinodal decomposition will more likely be affected by the demagnetizing field energy of the system. Towards the end of the research, it was found that implementing the demagnetizing field energy proved to be more challenging than initially anticipated. Methods to overcome the challenges included simplifying the equations for the demagnetizing field energy and asking researchers from INL for insight on how to implement demagnetizing field energy in the MOOSE code. Future work will consist of successfully implementing the demagnetizing field energy along with the external magnetic field energy to create a more quantitative model that will allow us to compare the results with documented experimental results.

#### Andrea Feci

Faculty Mentor: Dr. Don Warner, Department of Chemistry and Biochemistry, Boise State University

Research Title: Rational Design of Small Molecule Lignads to Disrupt Protein-Receptor Interaction for the Treatment of Inflammatory Diseases

Overexpression of certain signaling proteins is the root cause of many inflammatory diseases, including skin, lung, and cardiac conditions, atherosclerosis, rheumatoid arthritis, as well as many types of cancer. Uncontrolled inflammation could be avoided by preventing those proteins —also known as cytokines—from binding to their membrane receptor so that the signaling is halted. To achieve that purpose, a drug could be designed to target the protein and change its structure; small molecule inhibitors (SMIs) can accomplish this job. These are ideally stable compounds with remarkable properties: membrane permeability, water-solubility, short half-life in the body, and ease of administration. This project focuses on developing a perfect drug that presents all the above properties, including optimal binding to the protein, which is quantified by a number called dissociation constant (KD). A KD is the ratio at equilibrium of the concentrations of drug and protein over the concentration of the drug-protein complex. Therefore, a lower K<sub>D</sub> is indicative of tight binding and strong affinity. When this ratio is 1/100000, it is said to be in the low micromolar range, which is indicative of medium affinity. When this ratio gets a thousand times smaller, in the nanomolar range, the affinity of the ligand for the protein is very high. So far, over 50 compounds have been synthesized, with the lead compound having a  $4.0~\mu M~K_D$  score. For further improvement of the binding, 3D quantitative structure-activity relationship maps have been

generated to intuitively summarize successful binding trends. Following those trends, a new generation of analogs is under development to lower the K<sub>D</sub> to the nanomolar range and to improve the drug-likeness of the SMI.

#### Pangea Finn

#### Faculty Mentor: Dr. Daniel Fologea, Department of Physics, Boise State University

Research Title: Mechanical Stress Modulates the Ionic Conductance of Bilayer Lipid Membranes

The modulation of the transmembrane voltage of receptor cells using mechanical stimuli is an essential component of touch and hearing senses. Such stimuli influence the conducting state of mechano-sensitive channels, which in turn adjusts the ionic permeation and consequently the transmembrane voltage. The necessity of ion channels in these transduction processes seems obvious due to the non-conductive nature of a lipid membrane. However, our electrophysiology experiments show that a bare, artificial lipid membrane exposed to mechanical stress allows the passage of inorganic ions. We concluded that lipid membranes may constitute an important component of the transduction mechanism under mechanical stimuli.

#### Sarah Goldrod

Faculty Mentor: Dr. Erin Mannen, Department of Mechanical and Biomedical Engineering, Boise State University

Research Title: Biomechanical Differences of Moms and Non-Moms

During and after pregnancy, mothers biomechanically adapt their walking to account for the additional load of their baby. For example, their posture may change, and mothers can experience pelvic and back pain when carrying loads during walking gait. The effects of holding a baby in arms during walking gait is not fully understood. Two biomechanics studies have been conducted to understand how the mechanical constraint of holding an infant can impact the ground reaction forces of the caregiver. Understanding the body loading patterns is important for determining loads at specific pain-generating joints. The biomechanical differences of non-Moms and Moms during gait conditions needs to be further investigated. The 2020 study, Infant Carrying Method Impacts Caregiver Posture and Loading During Gait and Item Retrieval had 10 non-Moms walk across a flat surface at a self-selected pace in two conditions: (1) unloaded (holding nothing) and (2) in-arms (holding mannequin in a self-selected position). The ongoing 2021 study has 11 Moms walk across a flat surface at a self-selected pace in the same two conditions with the exception of the mom holding their infant instead of a mannequin. Motion capture systems, VICON (2020 study) and Qualisys (2021 study) were used to collect data. Multiple embedded force platforms were used to collect the forces exerted on the participants during the walking gait conditions. The peak braking forces and the peak vertical impact forces were analyzed through MATLAB and statistical tests. Peak vertical impact force was significantly greater during the in-arms condition compared to the unloaded. There was no significant difference between the moms and non-moms. Understanding the different walking patterns of moms and non-moms can help guide future experimental designs. This will allow researchers to understand if studies on non-moms can apply to moms and may lead to the

development of interventions when moms experience pain during walking gait. Further investigations will compare other aspects of the studies like spatiotemporal parameters (step length, step time, stance time, etc.). To improve this study more statistical tests will be conducted on other gait conditions to confirm there is no significant difference between moms and non-moms walking gait.

#### Terra Green

Faculty Mentor: Dr. Shelly Volsche, Department of Anthropology, Boise State University

Research Title: Not Just a Walk in the Park: Dog Park Ethograms of Human-Dog Dyads

**Introduction:** Previous research demonstrates differences in owner sex and gender influence interactions with one's dog. Dog size also plays a key role. Using human parenting and human-dog interactions literature, we suggest that human-dog interactions may take the form of parent-child interactions, and that this can be observed and demonstrated using dyadic ethograms.

**Methodology:** We recorded interactions between guardians and their dogs at public, off leash dog parks in Fall 2020. We then selected 30 second focal follows and coded with continuous sampling. Independent variables included the sex of the guardian, general age cohort of the guardian (e.g., young adult, elderly), and the size of the dog. Coded behaviors included different types of play (e.g., chase, fetch, rough and tumble), parallel walking, and training activities. We also coded for times in which either the human or the dog engaged with others outside the focal dyad.

Main Findings: Our findings did not demonstrate specific differences between men's and women's interactions with their dogs. We suspect this may be a by-product of the particular park where recordings were made. However, there is evidence that human-dog interactions at the park mirror parent-child interactions. Dogs spent much of their time focused on, or playing with, other dogs, while humans either watched over their dogs or interacted with other dog "parents."

**Principal Conclusions and Implications for the Field:** The use of ethogram methods in observing human-animal dyads is still relatively new. However, this study demonstrates the value of this methodological approach. We provide further evidence to suggest that humans shape their relationships with dogs in ways that parallel parent-child relationships.

#### Julie Julison

Faculty Mentor: Dr. Mikael Fauvelle, Department of Anthropology, Boise State University

Research Title: Portable Art in the Great Basin

When we think about archaeology in the Great Basin, we usually don't think about art. If we do it is in the form of rock art, of which there is plenty, but there is another type that commonly gets overlooked, portable art. There are basically three forms of these small creative objects in the Great Basin: ceramic figurines, incised stones, and small rocks that have had their shape altered into what is believed to mimic some type of anthropomorphic animal. I would propose that some of these items may have been misidentified in the past and would like to put forth an alternative hypothesis, with related evidence for consideration. There are three figurines in particular which I will argue, two

of these effigies are possibly grasshoppers, while a third may be a predaceous diving beetle. In addition to these re-examinations, this study will be adding to the increased dialog concerning insects in the subsistence strategies of Native Americans in the Great Basin. The importance of these food resources are then transferred and reflected in these portable art objects from archaeological sites, which provide additional evidence of their significance.

### Tyler Lantz

Faculty Mentor: Dr. Julie Oxford, Department of Biology, Boise State University

Research Title: Effects of Doxorubicin on Cardian Fibroblasts and the Extracellular Matrix

Cardiotoxicity has been associated with various types of chemotherapeutic drugs contributing to a plethora of cardiac insults and is a significant side effect when treating cancer. Many highly effective anticancer drugs are severely dose dependent, and at higher doses can lead to: cardiac arrhythmias, hypertension, and lethal cardiomyopathy. A well known example of this cardiotoxic side effect is Doxorubicin, a common chemotherapeutic used to treat cancers of the breast, ovary, bladder, and thyroid. Extensive research has shown that high doses of doxorubicin detrimentally alters the normal function of cardiac fibroblasts and cardiomyocytes. In contrast to the extensive research on the toxic effects of chemotherapeutics like doxorubicin in cardiomyocytes, little is known on the effects in cardiac fibroblasts and mechanisms of these drugs on the cardiac extracellular matrix (cECM). We show that doxorubicin has a direct impact on cardiac fibroblasts and in turn the function of the cECM, indicating that the cECM plays an important role in cardiac toxicity induced by doxorubicin.

#### Rosana Lenhart

Faculty Mentor: Dr. Heidi Wu, Department of Physics, Boise State University

Research Title: 3D Shapes of Galaxy Cluster in TNG Simulations

Galaxy clusters are the largest structure in the universe, and their observed gravitational lensing signal can be used to study the formation of structure in the Universe. The 3D shape of galaxy clusters impacts the gravitational lensing signal generated by the cluster. However, the 3D shape has primarily been studied in dark matter-only simulations--without taking into account the impact of the gas. Illustris TNG is a public project containing 18 hydrodynamic simulations of large sections of the universe. We have written code to determine the 3D shape of the clusters contained in the simulations. This work compares how the shape is affected both by the resolution of the simulations and the gas in hydrodynamic simulations. We find that gas tends to make clusters more spherical, while higher resolution tends to make clusters more elliptical. This project will help us understand how gas impacts the 3D shape of galaxy clusters. Moving forward this data will be compared with other simulations in literature.

### Addie Totman

Faculty Mentor: Dr. Krishna Pakala, Department of Mechanical and Biomedical Engineering, Boise State University

Research Title: Using Sequential Art to Communicate Engineering Course Content

Course catalogs are notoriously hard to navigate, condensed, and confusing. In engineering especially, students rarely know what exactly a class entails until after they have enrolled and receive a syllabus. This can lead to students being discouraged by the courses they must take or drive away those that would like to pursue engineering but don't understand it. To combat this, we propose several full-page comics to illustrate the importance and content of selected engineering courses, written and drawn by a mechanical engineering student with knowledge of the classes that make up the base of the degree. The goal of these proposed comics is to demonstrate the basics of several courses while still being accessible to those who have not had previous experience. Comics have been used in classrooms to communicate complex ideas and are proven to increase understanding and connect to students better than text alone. They also can be a tool to promote diversity and show minority students that engineers can look like them.

TO: Idaho SBOE HERC

FROM: Deb Easterly, Ed.D, Asst. VP for Research

DATE: August 20, 2021

RE: ISU FY 21 Undergraduate Research SBOE HERC Funds Report

Even though COVID made research more difficult in 2020-21, the experiences the ISU undergraduate students had were beneficial. Students who might not have had a research experience were able to work with ISU faculty on projects in their disciplines.

This year ISU instituted a new process to spend the SBOE HERC undergraduate research funds. In *The Undergraduate Experience* (2016), the authors state, "undergraduate research is a process that, at its best, moves students to new levels as learners and inquirers. The relationship between mentor and protégée can be transformative because it is rooted in an ongoing, substantive interaction around an essential part of the academic enterprise, scholarly research" (p.48). This was the guiding theme of the program for this year. Awards were made to faculty who proposed not only a research project, but also one that included mentoring opportunities. Awards were made to four projects that included 2-3 undergrad students. Attached reports from students and faculty describe successful mentoring experiences.

Three awards were made later in the year that included 1-2 students. In doing this process, we were trying to set the stage for more of a mentored experience. Faculty had to commit to mentor plans. Students were ensured that they would be working with at least one other student and not on their own.

Twenty-two students were involved in the above-described process.

\$10000 was awarded to the ISU McNair project to assist with attendance at conferences to make presentations and research projects of seven STEM students.

A camera and tablet were purchased for two students who were conducting research with a math professor via zoom because of COVID. This enabled the three of them to work on-line and share work with each other.

Three students were awarded registration fees to attend and present at the National Conference on Undergraduate Research.

The ISU Undergraduate research symposium was held virtually this year, because of COVID. A live session with speakers was held on Zoom and posters were available for viewing on ForagerOne. ISU students presented 23 posters.

Twenty-four ISU undergrads presented at the 2021 ICUR.

See the attached for reports on individual projects, including posters that were presented by students.

Prepared by Deb Easterly, EdD, Assistant VP for Research, Idaho State University



College of Science and Engineering

Department of Civil and Environmental Engineering

2020-2021 Undergraduate Research Funds

June 24, 2021

### **Table of Contents**

1.0	Basic Information	. 2
2.0	Executive Summary	. 3
	Description of Activities	
	Student Reports	
	Report of Expenditures	



### 1.0 Basic Information

### **Funding Agency**

Idaho State University - Idaho State Board of Education

### **Awarded Institution**

Idaho State University, College of Science and Engineering, Department of Civil and Environmental Engineering

### **Grant Period**

2020-2021

### **Project Title**

Structural Dynamics Lab / Shake Table Testing of Bridge Piers

### **Principal Investigator**

Mustafa Mashal, Ph.D., P.E., Associate Professor

### Report Type

Final



2

### 2.0 Executive Summary

Undergraduate student funds were awarded for projects in the large-scale structural laboratories under the supervision of Dr. Mashal. Three engineering undergraduate students, Berenice Sosa Aispuro, Laura-Louise Alicke, and Rachel Brownell participated in the research activities. All funds were spent by the project deadline.

### 3.0 Description of Activities

The activities taken by the students are as follows:

- 1. Developing skills in operation of shake tables in the Structural Dynamics Laboratory
- 2. Preparing data acquisition and instrumentation for structural testing
- 3. Sizing, analysis and design of a cast-in-place concrete column for shake table testing
- 4. Building testing specimens
- 5. Calibrating instruments before testing
- 6. Design and construction of concrete, steel, and timber specimens/structures
- 7. Investigating structural performance of concrete and steel specimens under various loading conditions
- 8. Conducting small and large-scale testing
- 9. Interpreting testing data
- 10. Participating and presenting in the Undergraduate Research Conference

The laboratory work benefited the students in enhancing their technical and hands-on skills. This will greatly help the students in their graduate/professional career. All three students have shown interest in pursuing graduate school at Idaho State University (ISU).

One of the students, Laura-Louise will be starting her graduate program at ISU in the fall of 2021. Berenice is earlier in the program; however, she is planning to attend the graduate school. Rachel has been admitted to the graduate school at ISU, however she has decided to work in the industry for the time being. Rachel won one of the competitive 2021 American Society of Civil Engineers Southern Idaho Section Student Scholarships for her undergraduate research at ISU.

The research goals of the lab were significantly furthered. The students mostly accomplished the tasks they were given for design of specimens and testing of structural parts. Most of the activities described in the proposal were accomplished. Additional funds were provided by the Research Office at ISU that made it possible to involved Laura-Louise Alicke in the projects.

The supervisor, Dr. Mashal, enjoyed working with the three talented students. Regular Zoom meetings were held to answer students' questions and guide through the research. Furthermore, additional personnel from Dr. Mashal's research team were available to help the students with their large-scale testing needs in the structural laboratories at ISU. Next time, it would be better to involve more students earlier on if additional funding was available.

Idaho State University

3



Undergraduate students testing specimens in the Structural Laboratory

### 4.0 Student Reports

Refer to Appendix A, a copy of the poster that the students presented at the Undergraduate Research Conference is also attached.

### 5.0 Report of Expenditures

Refer to Appendix B.



4

### **APPENDIX A**

Undergraduate Research Experience Berenice Sosa Aispuro

During the 2020-2021 school year, I was given the opportunity to work as an Undergraduate Research Assistant at Idaho State University's Structural Dynamics Lab. Here, I worked alongside Rachel Brownell. The plan for this project was to do shake table testing of two concrete bridge piers and then compare their performances. The first pier would be a cast-in-place pier, while the second pier would be made of low damage technologies, which consisted of precast concrete and dissipators. I created the AutoCAD drawings for this project. Throughout the duration of this project, I was able to learn about the different applications of precast concrete and dissipators. I was also able to assist in doing concrete pours. Working as research assistant has taught be how to work with others and how to maintain good communication with them. It also showed me what my weaknesses were as an engineering student and how to improve them. My experience did have an impact on my future plans. Before working on this project, I was not sure if I wanted to continue my education after getting my bachelor's degree. However, working in the lab and being able to work alongside graduate students, I have realized that I would like to go onto get a PhD. Working on this project has also helped me broaden my areas of interest.

### **Undergraduate Research Experience**

### Laura-Louise Alicke

This past year has most definitely been the most exciting and interesting years I have had at Idaho State University. I had the opportunity to work on several research projects as well as get some hands-on experience with the remodel of the new Disaster Response Complex (DRC).

In the fall of 2020, I had the chance to do some literature reviews as well as help with the write up of a proposal for renewable energy using Hydropower. I learned a lot about dams, siphons, and renewable energy in general. The main focus of this proposal was using recycled tires as an aquifer. Building on that, in the following semester I used plastic sheets and formed them into tubes, representing stacked tires. I made two sets, one which I filled the gaps with sand and another set which I left the gaps empty. Then we tested to see how much load they could withstand and it was proven that the set in which the gaps were filled with sand could withstand a much bigger load than the other set. This served as a miniature model of the aquifer made out of recycled tires.

In the fall of 2020, I also helped with the hollow core culvert project that Maria, a graduate student at ISU, was working on. For this project, we constructed a hollow core culvert and a box to go around it which was filled with sand. Then we tested how much load this culvert could withstand. I really enjoyed working on the research project and I learned a lot from it. We did multiple tests with it and tried to find ways to make it better. One of the main issues with the culvert were the connections filled with grout. Shear occurred directly on these connections, ultimately causing the culvert to fail. We were very interested in finding a way to fix these grouted connections. Therefore, we reconstructed the culvert, but this time I used an angle grinder to form a groove in the middle of each slab of hollow core. We left the box of sand off this time and only tested the hollow core culvert itself. Even though it did not perform as well as we were hoping it would, these connections did help. This project was very fun to work on and there are still a lot of things left to learn about hollow core culverts.

This spring semester of 2021, I have been working on the remodel of the Disaster Response Complex. At the beginning of the year, I sanded the walls and painted a lot of rooms. Then I also got the chance to build a ticket booth as well as put a lot of siding on the exterior walls. I also got to take photos when there were training events at the new complex. Since working at the DRC, I have gained a lot of handy-skills. I now know how to use a lot of tools and how to fix things. These are skills that I will be able to use for the rest of my life.

I have worked on a variety of things throughout this past year and I have gained a lot of knowledge and skills. As a civil engineering student, it is very important to not only get the concepts on paper, but also being able to see how everything is put together in the real world. Working on such diverse projects at the DRC has showed me the construction side of things and it has given me a better understanding of engineering as a whole. I believe that my time spent working here will benefit me greatly as I become an Engineer.



Figure 1. Hollow Core Culvert

This is the hollow core culvert that I worked on and added in the grooves into each slab to make the connections hold better. In this photo we were measuring the size of the crack in the slab, which occurred directly on the edge of the slab.



Figure 2. Ticket Booth

This is the ticket booth that I constructed with the help of a few other students.

### INSTRUCTION, RESEARCH AND STUDENT AFFAIRS FEBRUARY 17, 2022 ATTACHMENT 6

### **Undergraduate Research Experience Rachel Brownell**

Throughout my research project I have learned many valuable lessons that will help me throughout not only my life, but my career as well. I have learned the importance of teamwork, leadership, time management, self-discipline, and independence. Working with my lab assistant, Berenice, has helped me learn how to work as a team as well as helping me gain experience in a working leadership role. My research project has allowed me to gain independence by not always having the answer provided for me, forcing me to resolve problems on my own.

I believe that all of these lessons have benefited me greatly. I will be able to carry these newly acquired skills over to my career, which will help me be a better employee. I will also be able to carry all of my knowledge I gained throughout my research project regarding dissipaters over to my job, which will be very beneficial considering that I plan on finding a job in the Seattle area, a very seismically active region.

Before I began my research, I planned on either finding a job in structural engineering or to do graduate school. My experience with my research project did not change any future plans that I had, I ultimately decided that waiting on graduate school was the best course of action for me.

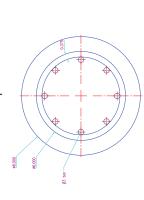
# Shake Table Testing of Concrete Piers with Cast-In-Place and Low Damage **Precast Technologies**

Rachel Brownell, Undergraduate Research Student; Berenice Sosa Aispuro, Undergraduate Research Student; Mustafa Mashal, Ph.D., P.E.

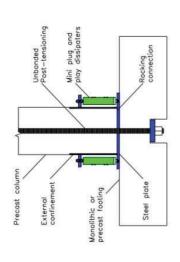
Department of Civil and Environmental Engineering Contact: browrac3@isu.edu, berenicesosaaispu@isu.edu, mashmust@isu.edu

### Summary of the Project

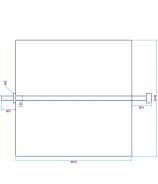
- Duration: 2020-2021
- Budget: \$9,000.
- Dissipators are low damage technologies that assist in dissipating the energy from an earthquake to reduce damage
- The precast pier aims to achieve a better seismic performance compared to cast-in-place
- This research project will test two concrete piers on a shake table for earthquake resilience



## Column Cross-Section



# **Proposed Column Design**



# Modular Concrete Weight





### Advantages of Concrete Piers with Low Damage Precast Technologies

- Less environmental impact
- Less traffic disruption
  - Better quality
- Dissipators are low damage technology that can easily be replaced after an earthquake

### **Experimental Testing**

- Testing of two columns
- 1. Cast-in-place (benchmark)
- 2. Proposed Precast column with low-damage technologies
- Dynamics Laboratory on a shake table Testing will be done in ISU's Structural
- The shake table will be able to simulate a real-life earthquake to test its earthquake resilience

### In Progress

- Research project is still in beginning stages of design
- Construction of the specimens is planned for the following weeks
- Testing has not yet been completed
- The goal is to show that concrete piers with low damage precast technologies results in less damage than those without



2021 STEM Undergraduate Research This project is supported by a 2020-Grant from the ID State Board

### INSTRUCTION, RESEARCH AND STUDENT AFFAIRS FEBRUARY 17, 2022 ATTACHMENT 6

MATERIALS AND SUPPLIES					Year-to-Date
					Amount
		Vendor/Description	Document	Document Transaction Date	Value
AEGR16_APPR CoSE Organized Research					
	710_Communications	Fedex - BLADLAUR	BA000476	5/4/2021	(7.82)
	720_Services				0.00
		PCB PIEZOTRONICS, INC. BLADLAUR	BA000476	5/4/2021	(519.60)
		Subtotal			0.00
	730_Supplies	AMZN Mktp US 2T8GG9550 BLADLAUR	BA000451	11/11/2020	(33.12)
		NORCO INC CHUBBUCK CANTJARE	BA000451	11/11/2020	(44.68)
		THE HOME DEPOT #1807 CANTJARE	BA000451	11/11/2020	(174.81)
		Subtotal			(780.03)
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PAYROLI				Year-to-Date
(	ı			Transaction_Amount
AEGR16 ALS	Account Labor	Name	Document_Date	
	620 Irregular Help	Alicke, Laura-Louise	4/16/2021	(187.50)
			4/30/2021	(570.00)
			5/28/2021	(975.00)
		-	0000100100	
		Brownell, Rachel	11/13/2020	(00:09)
			11/27/2020	(52.50)
			12/24/2020	(97.50)
			2/5/2021	(52.50)
			2/19/2021	(315.00)
			3/19/2021	(450.00)
			4/2/2021	(450.00)
			4/10/2021	(20.00)
		Sosa Aispuro, Berenice	11/13/2020	(66.00)
			12/11/2020	(22.00)
			12/24/2020	(154.00)
			1/22/2021	(220.00)
			2/5/2021	(77.00)
			3/5/2021	(297.00)
			3/19/2021	(297.00)
			4/2/2021	(231.00)
			4/30/2021	(319.00)
			5/14/2021 5/28/2021	(165.00)
	630 Fringe Benefits	Alicke, Laura-Louise	4/16/2021	(1.88)
			4/30/2021	(5.70)
			5/28/2021	(9.75)
		Brownell, Rachel	10/30/2020	(0.68)
			11/27/2020	(0.53)
			12/24/2020	(0.98)
			2/5/2021	(0.53)
			2/19/2021	(3.15)
			3/19/2021	(4.50)
			4/16/2021	(7.50)
		Sosa Aispuro, Berenice	11/13/2020	(0.66)
			12/11/2020	(0.22)
			12/24/2020	(1.54)
			1/22/2021	(2.20)
			2/19/2021	(2.86)
			3/5/2021	(2.97)
			4/2/2021	(2.31)
			4/16/2021	(2.42)
			5/14/2021	(1.65)
Total by COLUMNS	LUMNS			(8,176.49)

### Office for Research – Undergraduate Research Funding Final Report

Date: June 22, 2021

PI: Josh Grinath

Project: Plant responses to fire and legacies of nitrogen enrichment and shrub removal at ISU's

Barton Road Ecological Research Area

### Part 1

Description of Activities Undertaken: The research team 1) completed three seedbank germination experiments, 2) measured and compiled plant trait data, 3) set up seed addition treatments at the field site, and 4) monitored carbon fluxes at the field site.

The first germination experiment evaluated how fire altered the soil seedbank of the sagebrush steppe community at ISU's Barton Road Ecological Research Area (BR), and how this depended on the depth of seeds in the soil. The second germination experiment investigated how legacies of past nitrogen enrichment influenced the seedbank at BR, as well differences between shrub and inter-shrub areas within the experimental plots. The third germination experiment evaluated how legacies of past shrub removal affected the seedbank at BR, and whether differences between shrub and inter-shrub areas were persistent in the seedbank. In addition, the research team measured the mass of 610 seeds from 61 species that we were considering for seed addition treatments at BR. These data were combined with data that the students compiled from the USDA PLANTS database and other sources to parameterize a species selection model to choose native species expected to enhance resistance against exotic plant invasions. The team then seeded these native plants in different combinations into the experimental plots at BR to establish three new restoration treatments within the previous nitrogen enrichment and shrub-removal treatments. The team also set up new control plots within and outside the burned area and an auxiliary experiment to evaluate how the timing and rate of seeding would affect seedling establishment. Lastly, the team measured carbon fluxes in the field plots monthly through the spring, and measurements have continued through the summer.

How the Project Benefitted from the Funds: This grant supported 1) three undergraduate intern, and 2) five ISU Biology faculty, including two early career faculty, in forming a collaborative project, as well as 3) successfully obtaining a NSF RAPID grant (Award #2118125).

The funds supported salaries for three undergraduate women (Bryna Haile, Ashton Cowley, Miriam Weeks) to participate in research, who would not have been able to gain such research experience without financial support. All three of these interns graduated in May, 2021 and then transitioned into positions supported by the NSF grant mentioned above. The Undergraduate Research Funding was critical for developing the research and communication skills of the undergraduates, who each presented a poster on one of the seedbank germination experiments at ISU's Undergraduate Research Symposium and at ISU Biology's Research Roundup. All three students also received responsible conduct of research training through discussion in weekly lab meeting, individual meetings, and the RCR CITI training modules. Other trainings included lab safety, mentor-mentee relationships, and data management. These experiences helped to prepare the students for graduate school and biological careers. One student is starting a MS program

this upcoming Fall, and another has just started work with a plant breeding company. In addition, one student is leading a manuscript with a graduate student involved with the project, and we expect that the project will result in additional authorship opportunities for the students as the team works to get results together.

This research project has brought together five Biology faculty (Josh Grinath, Kathryn Turner, Keith Reinhardt, Kathleen Lohse, Bruce Finney) in a new collaboration that is proving to be productive for all of our labs. This funding enabled our team to collect preliminary data (i.e. seedbank and plant trait data) that supported our proposal for a NSF RAPID grant entitled "Ecological memories and theory-guided recovery of post-fire steppe." Then after our proposal was recommended for funding, the Undergraduate Research Funding aided our team in establishing the time-sensitive field experiment. Altogether, these grants are especially important for supporting two pre-tenure faculty (Grinath, Turner) as they establish their research labs and recruit new students. These faculty members are also benefitting from the mentorship of more senior faculty in the collaborative team.

How the Research Goals of the Project were Furthered: The funding has enabled our team to test multiple hypotheses about plant responses to fire and legacies of nitrogen enrichment and shrub removal. These hypotheses were primarily in relation to seedbanks and carbon flux. We did not test hypotheses about the plant assemblage in the field, which was due to time constraints and low abundances of plants during the early Spring. However, we will be able to test these hypotheses using data that the team is collecting this summer. In our next proposal for Undergraduate Research Funding, we intend to focus on testing fewer predictions that are better matched to the phenology of the study system.

### Part 2

### SBOE Undergraduate Intern - Report for ISU's Office for Research

**Project**: Plant responses to fire and legacies of nitrogen enrichment and shrub removal at ISU's

Barton Road Ecological Research Area

Faculty Lead: Josh Grinath

Student Name: Miriam Weeks

**Date**: 31 May 2021

Faculty Mentor: Dr. Kathryn Turner/ Dr. Josh Grinath

### What did you learn from your internship experience?

I learned many aspects of teamwork and group interactions that I did not get in my previous research. Working together and communicating as a group can be difficult, but in the end was very rewarding. So many original ideas were proposed, and problems were solved in this group setting. Having a common goal of gaining knowledge was amazing, and it helped us work together to answer our research questions and grow as scientists. Working with my dedicated peers, as well as inspiring professors/ mentors helped my love for science grow.

### How did this research experience benefit you?

This research helped to expand my understanding of experimental design and the need for consistent variables. This was a great way for me to see and perform the steps of the scientific process that can seem very vague or theoretical in a classroom/ structured setting. This also made me admire those scientists who study the same thing year after year to get results. I love this area and the native plants here so much more now. I want to tell everyone about them and protect them from other plants that would push them out.

### How has this research experience changed your future plans, if at all?

While I do not wish to continue in the field ecology aspect of this research, I do want to continue researching and working with native plants. I love native plants and how well adapted they are for growing here and for working with other native organisms, especially pollinators. I want to encourage the use of native plants. In the future, I want to better understand the genes that help them survive and work to allow the endangered ones to survive better. This experience made me want to work in situations where I can be with a small team of like-minded individuals that will help me and science grow.

### Poster:



### Effects of fire on seed bank persistence in sagebrush steppe

Miriam Weeks

### Background

Background
A seed bank is both a glimpse of history, the past vegetation in an area, and a nest egg for the future, an indication of the regenerative potential of an area. There is still much we don't know regarding soil seed banks and their persistence after major ecological disturbance. We also lack an understanding of the effects of lesser disturbance on these seed banks. It is of these seed banks to help our coosystems better adapt and regenerate after disturbances.

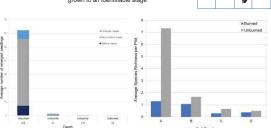


Nesearch 516
Our study was done at the Idaho State
University Barton Road Ecological
Research Area in Pocatello, Idaho
(pictured above). The area is a
sagebrush steppe ecosystem with
Artemista tridentata (sagebrush) being
the dominant shrub. Other native and
exotic plants, both annual and perennial,
were present before the August 2020
fire.

### **Hypotheses**

- Fire will have a larger effect on seeds in more shallow soil strata
- The shallow strata will have greate abundances of invasive plant seeds than native plant seeds





### Experimental design

- Soil collection—Barton Road Research site
  Four samples taken from each of the
  long-term experimental plots (control, low
  nitrogen, high nitrogen, and shrub
  removal)
  Unburned samples taken from an area
  adjacent to the burn with the same
- vegetative community, comparable to the control plots before the fire
- Undershrub and interspace samples Soil samples collected in 2.5 cm denth
- Soil samples collected in 2.5 cm depth increments from 0 cm to 10 cm in depth, making four soil strata which were homogenized, air dried, and sieved reenhouse emergence experiment. Sieved soil was placed into divided trays on top of a layer of potting soil in a layer of 15 cm to 1.7 cm deep.
- of 1/2 cm to 1 cm deep
- Seedlings removed approximately weekly Unknown specimens were repotted and
- grown to an identifiable stage



### Results

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Results
The dominance of non-native seeds does not appear to persist into the deeper strata (as shown in the bottom left graph). The average species richness was much greater for the unburned area over all depths (bottom right graph). The difference was very stark in the shallowest layer. The unburned strata A had a high level of species richness compared to the burned strata A This suggests that the fire did affect the seeds in the shallow soil strata. The deepest strata does not appear to have the same level of seed viability as little to no growth was seen. Future work

### Future work

Puttine Work
Due to the work done with this project, a
basic seedling guide for species that
could potentially be found at the Barton
Road site was created. This guide can
be used in future vegetative surveys.
Additional work is being done with the
replicate samples that were gathered replicate samples that were gathered. The samples underwent a cold treatment to break dormancy and induce germination.

**Idaho State University** This project is supported by a 2020-2021 STEM Undergraduate Research Grant from the ID State Board of Education Higher Education Research Council through Idaho State University

TAB 4 Page 29 **IRSA** 

### SBOE Undergraduate Intern - Report for ISU's Office for Research

Project: Plant responses to fire and legacies of nitrogen enrichment and shrub removal at ISU's

Barton Road Ecological Research Area Faculty Lead: Josh Grinath

Student Name: Bryna Haile

**Date**: 5/30/2021

Faculty Mentor: Dr. Joshua Grinath

### What did you learn from your internship experience?

This internship was a valuable experience for me. I learned through this internship how to conduct greenhouse and laboratory experiments. I was also given the opportunity to learn how to identify Idaho's native plants as just mere seedlings. This internship opened my eyes to the world of plant science research. Lastly, this internship taught me how to properly organize, present, and discuss my research.

### How did this research experience benefit you?

This research benefited me by teaching me how to conduct research. I will be able to use the skills I have learned through this research for the rest of my academic career and beyond. This research also benefited me by improving my plant knowledge which I will be able to use in the future.

### How has this research experience changed your future plans, if at all?

This research experience did not change my future plans. It did, however, confirm my plans for my future. This experience proved to me that I do want to go to graduate school for plant and soil sciences and I want to do laboratory/greenhouse-based research in the future. Luckily this experience did not change my mind and I am able to continue my passion for plant research this fall while completing my masters.

### **Poster:**



### Legacy effects of nitrogen pollution on post-fire seedbanks

Bryna Haile, Ashton Cowley, Miriam Weeks, Calvin Dirickson, and Joshua Grinath Department of Biological Sciences, Idaho State University, Pocatello, ID



### Introduction

Human activities, including fossil fuel combustion and agricultural operations, have greatly increased nitrogen (N) availability for plant growth, causing unprecedented changes in plant assemblages across ecosystems. These effects can last for years, even after N pollution has stopped, and are occurring in combination with disturbances such as wildfire. However, it is unclear how legacies of N pollution affect plant recovery from wildfire. In this study, we evaluated how N pollution affected the seedbank of a sagebrush community following recent wildfire. We sampled seedbanks from ISU's Barton Road Ecological Research Area, where from 1997 to 2010, a N manipulation study was conducted to simulate medium to high levels of atmospheric N deposition. Legacies of these N manipulations have persisted through 2020, when a summer wildfire ravaged through the field site, burning all experimental plots. We predicted that we would find higher abundances of exotic plants in seedbanks from N-enriched plots.

### Methods

- Soil cores (6cm diameter and 10cm deep) were collected on October 7th.
  We sampled ten replicates from each of ten plots: 4 control, 3 high N, and 3 low N.
  Half the samples were collected from under burned shrubs, and half between shrubs.

- Samples were left at lab room temperature until November 28th when they were moved and kept in a fridge at 3°C.
- and kept in a frage at 5 °C.

  Germination in the greenhouse started February 19th.

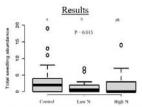
  Soil samples were homogenized then divided into 80 mL subsamples, which were sprinkled on top of potting soil in 8.9x8.9 cm<sup>2</sup> pots.
- which were sprinkled on top or potting sour in 6.786.7 cm; poss.

  Pots were placed in trays then on benches in ISU's Plant Sciences greenhouse and received daily with 1 cm of water daily.

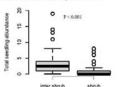
  Weekly, trays were rearranged on the bench in random order.

  On March 12th and 26th, seedling abundances were recorded as
- assigned species or morphospecies and removed from the pots.
   Analysis was performed using R version 4.0.2 using generalized linear mixed effects models.





- Total seedling abundance varied across the N treatments only significantly different between seedbanks from the control and low N plots (Fig. 1). Total seedling abundance was greater in seedbanks from inter-
- shrub areas compared to areas under shrubs (Fig. 2).
  The interaction between the N manipulations and shrub presence was not significant for total seedling abundance.



- The above results were greatly influenced by an unidentified forb morphospecies that constituted 84.7% of total seedlings. The trends for this species mirrored those for total seedlings. Only 8.7% of total seedlings were confirmed as exotic species,
- including Bromus tectorum, Lactuca serriola, Alyssum desertorum, Descurainia sp., and Tragopogon dubius. There were too few exotic plants to evaluate their abundance, but an analysis of exotic plant presence/absence indicated that the presence of exotic species was not significantly different across N treatments or shrub/inter-shrub areas (all P-values > 0.05).



Conclusion

We performed this study better understand the how N pollution affects seed abundances in the seedbank of a sagebrush ecosystem. We were unable to reject the null hypothesis that there are no differences in exotic plant abundance across N treatment. Therefore, we did not support our prediction that more exotics would be present in the N-enriched plots. These results require present in the exeminated pines. These results require additional research to understand, but one explanation may be that some exotic plant seeds could primarily occur in shallow soils that were negatively affected by fire. We are also conducting further work to identify the dominant forb in the seedbank, which is likely to be an important species in the post-fire community.





Acknowledgments

This project is supported by a 2020-2021 STEM Undergraduate Research Grant from the ID State Board of Education Higher Education Research Council through Idaho State University

TAB 4 Page 31 **IRSA** 

### INSTRUCTION, RESEARCH AND STUDENT AFFAIRS FEBRUARY 17, 2022 ATTACHMENT 6

### SBOE Undergraduate Intern - Report for ISU's Office for Research

Project: Plant responses to fire and legacies of nitrogen enrichment and shrub removal at ISU's

Barton Road Ecological Research Area

Faculty Lead: Josh Grinath

Student Name: Ashton Cowley

**Date**: 26 May 2021

Faculty Mentor: Josh Grinath

### What did you learn from your internship experience?

I learned how to properly organize and plan a field experiment in real time. I saw what can go wrong, as well as what goes beautifully right. I learned a lot about native plant identification, which was my favorite part of the research. I also learned the importance of taking very specific notes and to collect data more often.

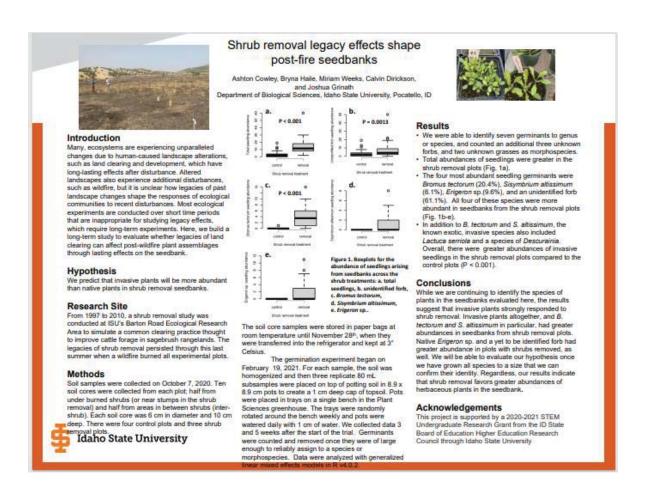
### How did this research experience benefit you?

I learned how to work with an assortment of different people in a very challenging environment, not only physically but, it has also been interesting getting reassimilated into a non-Covid society. I met many incredible people along the journey with bright minds who helped me to improve my ways of thinking.

How has this research experience changed your future plans, if at all?

Not really.

### Poster:



### Part 3

We spent a total of \$8,618.15 out of the \$9,000 award. This total is divided among:

\$150 for greenhouse supplies \$100 for greenhouse bench rental \$8,368.15 for student intern salaries (including fringes) \$8,618.15 total

These funds have supported research by three undergraduate interns (Bryna Haile, Ashton Cowley, Miriam Weeks). The funds spent on greenhouse supplies and bench space supported the three seedbank germination studies that were primarily conducted by the interns.

We were unable to use the remaining funds for several reasons. First, appropriate plants were not available for foliar chemistry analyses, as initially planned. Second, we then decided to spend the funds to partially support the purchase of a freezer to house plant tissue samples that we are collecting this summer for chemical analysis; however, the delivery of this freezer was unexpectedly delayed and the purchase could not be reconciled prior to the June 1<sup>st</sup> deadline of this grant. By the time we learned of this delay, it was too late for us to purchase additional research supplies in support of the project.



### John Dudgeon <johndudgeon@isu.edu>

Tue, Jun 1, 3:51 PM

to Debra

John Dudgeon had two students who were recipients of SBOE undergraduate funding in 2020-21. Spring 2021 B.A. graduate Pamela Pascali worked in the CAMAS laboratory and learned obsidian sourcing using portable x-ray fluorescence analysis (pXRF), becoming an experienced user of this equipment. She used this skill set to create preliminary data for her M.S. thesis research, beginning fall 2021. She also used this experience to submit and be awarded an NSF Graduate Research Fellowship in the prehistoric archaeology of the Snake River Plain. She also constructed a user guide for pXRF operations, to be adopted by ISU Environmental Health and Safety. Spring 2021 B.A. graduate Kateea Peterson used SBOE funding to learn inductively coupled plasma mass spectrometry (ICP-MS) in the CAMAS laboratory, and used this skill set to analyze a variety of material types, including human and animal bone, which she is planning to carry forward to her M.S. thesis research studying the mechanisms of deterioration and alteration of buried bone in fall 2021. She became very experienced in ICP-MS setup, calibration and operation, so much so that she was able to help bring another ICP-MS into operation, and has become the 'go to' instrumentalist for this new mass spectrometer in the CAMAS laboratory.

### INSTRUCTION, RESEARCH AND STUDENT AFFAIRS FEBRUARY 17, 2022 ATTACHMENT 6

### **Description of Activities**

- 1. STEM related research employment over the course of the academic year for two students
  - a. Makenzie Kohler
    - i. Scientific journalism (sample attached)
    - ii. STEM research (poster attached)
  - b. Dalene Hunter
    - i. STEM Research (poster attached)
- 2. Virtual conference attendance for three STEM students
  - a. Makenzie Kohler
  - b. Dalene Hunter
  - c. Pamela Pascali
- 3. Supplemental research stipends for six graduating STEM students at \$700 each.
- 4. Supplies for students engaged in the TRIO McNair Summer Research Institute program

### **Report of Expenditures**

July
Aug
Sept
Oct
Nov
Dec
Jan
Feb
Mar
April
May
June

Travel	Salary	Benefits	Stipends	Materials	MO. TOTAL	TOTAL	Remain
					\$0.00	\$0.00	\$10,000.00
					\$0.00	\$0.00	\$10,000.00
					\$0.00	\$0.00	\$10,000.00
	(\$88.00)	(\$7.83)			(\$95.83)	(\$95.83)	\$9,904.17
	(\$253.00)	(\$22.52)			(\$275.52)	(\$275.52)	\$9,628.65
	(\$456.50)	(\$40.63)			(\$497.13)	(\$497.13)	\$9,131.52
	(\$1,200.00)	(\$12.10)				(\$1,212.10)	\$7,919.42
	(\$607.20)	(\$6.08)				(\$613.28)	\$7,306.14
	(\$862.40)	(\$8.63)		(\$597.00)		(\$1,468.03)	\$5,838.11
	(\$1,273.80)	(\$12.74)	(\$4,200.00)			(\$5,486.54)	\$351.57
	(\$220.00)	(\$2.20)		(\$129.37)		(\$351.57)	\$0.00
						\$0.00	

### **Student Report**

The following students benefitted from activities in this account and their research posters are attached:

- 1. Hannah Aken (Microbiology)
- 2. Rosemary Anibogwu (Chemistry)
- 3. Jacob Diehl (Biochemistry)
- 4. Peggy Hodges (Mechanical Engineering)
- 5. Dalene Hunter (Anthropology)
- 6. Makenzie Kohler (Biology)
- 7. Pamela Pascali (Anthropology)

### Stories behind the science: Breaking barriers

From an ear infection to meningitis, one germ is responsible and an Idaho State University student is helping solve the problem.

Hannah Aken, a college senior majoring in microbiology, has been attending ISU since 2017 and has taken full advantage of the opportunities available to her, even before starting college. Hannah grew up in a small Idaho town and said, "Outside of education, growing up in Idaho Falls I felt was really nice."

Being the first person in her family to go to college, Hannah faced the challenge of figuring out where to begin. Coincidentally, her best friend's boyfriend at the time was in a program called TRIO on the ISU Pocatello campus. With the excitement of an "opportunity of no parents for seven weeks" during the summer before senior year of high school, the program was too much to pass up and Hannah joined.

"TRIO is a program that helps you get to and through college," Hannah explains. "They have programs at the high school level that help first generation and low income or underrepresented students get to college or get to secondary education," she continued. That seven weeks she had away from her parents was actually a research program for high school students called the SEED Internship. It was during this time that Hannah discovered her passion for science. And now she had the support she needed in order to pursue that passion.

While taking a microbiology course at ISU, Hannah became enamored with living creatures we cannot see with the naked eye- microbes. "There's these little things, but you can't see them. You can't feel them, but they make you totally sick. They can kill you. They can ruin the ecosystem, they can mess with anything in our daily lives." she said. Hannah's thirst for knowledge, specifically in studying pathogens (disease-causing microbes), pushed her to pursue scientific research. In the summer of 2019, Hannah was accepted as a fellow into the Idaho Idea Network of Biomedical Research Excellence (INBRE) program, which is funded by the National Institutes of Health (NIH).

During the program, Hannah studied the pathogen *Streptococcus pneumoniae* under Dr. Julia Martin at ISU. *S. pneumoniae* is a bacterium that in minor situations, causes an ear infection, but can be as severe as pneumonia and meningitis. Hannah specifically looked at the effects of magnesium, a transition metal, on the capsule of the bacterium. Magnesium has been found to be a structural component of the capsule. "The capsule is an outer coating that the bacterium forms in order to protect itself from being killed from the host's immune system," she explains, "and so [the capsule is] harmful for us, because then it lets the bacteria live longer in our body." By looking at how different quantities of magnesium impact capsule growth, Hannah was able to

determine that the more magnesium the bacteria had access to, the thicker the capsule. After ten weeks of pipetting samples, growing cells, and performing assays, Hannah's skills and confidence grew and her passion for microbiology was solidified.

Hannah has since completed a second research internship and has presented at 5 different conferences across the U.S. "One of the most enlightening feelings is going to a conference and being like, this is what I did. And being able to explain all of it, I mean, like, look at what I made, look at this thing. Like I did all this. And it's just so gratifying." she says with a gleam in her eye. Hannah's college experiences have led her on an exciting career path and her next adventure is charging head-on into a Ph.D. program.

Hannah has applied to multiple graduate school programs in microbiology and immunology and currently has two offers for interviews. She applies in hopes to one day be able to become a primary investigator in her own lab studying pathogens and the human immune response to them. She is also excited to seek out opportunities to further nurture student's interest in science and promote diversity at an institution with limited resources. Hannah, as she put it, went "blindly into college" and has since succeeded in every opportunity presented to her with the TRIO program by her side. In a few years, she just may be the person who helps reveal the inner workings of the microbe causing those pesky ear infections.

### Fun fact corner:

**Astrology sign:** Aquarius, bordering Capricorn

**Biggest influence:** Her father who pushed her to work hard and be proud of what she has achieved

What she does when nobody is watching: Dances around the house

One thing she has never done living in Idaho: Milked a cow

# A Multilayered Approach to Predict Metal-Binding Sites in the Pneumococcal Phosphoglucomutase Protein

### Idaho State

**Hannah J. Aken**<sup>1</sup>, Michael L. Johnson<sup>2</sup>, and Julia E. Martin<sup>1</sup>

<sup>1</sup>Department of Biological Sciences, Idaho State University, Pocatello, ID 83209 <sup>2</sup>Department of Immunobiology, University of Arizona, Tucson, AZ 85724



### Abstract

**Methods and Materials** 

and the other is located near the C-terminus of the protein. functions to bridge sugar metabolism polysaccharide formation in Streptococcus motifs. One motif is found downstream of the Pgm active site other potential metal-binding motifs. We share information conserved metal-binding motif DXDXDR, as well as several multiple bioinformatics programs validated the known highly pneumococcal Pgm and other bacterial Pgm proteins using metal-binding site in the pneumococcal Pgm. I-TASSER was competition assay reveals that pneumococcal Pgm binds 2 Preliminary data using a mag-fura-2 biochemical and here on two of these secondary predicted metal-binding used to generate a structural model of the pneumococcal members. In this study, we focus on identifying the second metal-binding site for other characterized Pgm family metal ions per protomer, despite literature showing a single Phosphoglucomutase (Pgm) is an important enzyme tha A multi-protein sequence alignment phenotypical analysis of mutant pneumoniae metal-binding comparing

### Introduction

- bacteremia 10. Streptococcus pneumoniae is a major human respiratory bacterial pathogen that causes sinusitis, otitis media, and the major diseases pneumonia, meningitis,
- Preliminary studies show that apo-Pgm (metal-free) binds response 10 virulence factor used to evade the host immune capsule biosynthesis. The capsule is an important pathogenic bacteria, Pgm is necessary for polysaccharide sugar metabolism and is found in all domains of life9. In Phosphoglucomutase is a ubiquitous enzyme involved in one high affinity binding site in the
- micromolar nanomolar range and one low affinity binding site in the 2 metals ions: range (McFarland and Martin, data not
- Pgm has one known, conserved metal binding site motif DXDXDR that is shared by all PGM/PMM family members.

### Hypothesis

phosphoglucomutase contains a second metal-binding Based on our preliminary data, we hypothesize that

 Can we identify metal-binding site Streptococci ? based on the location of a secondary similarities among

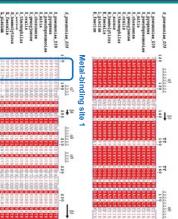
Predicted location 2 near the C-terminus

Predicted location 1 near the active site

Can we identify the location of a secondary metal-binding site based on similarities among other bacterial species?

Figure 1: Cartoon of predicted structure model of S. pneumoniae Pgm generated by I-TASSER software. The locations of conserved and predicted metal-binding motifs are circled.

### and secondary equence simila stal structure/ PyMol **ESPript** Predicting second letal-binding s in Spn Pgm Protein crystal structure Find pgm sequence -TASSER NCBI BLAST Clustal Omega binding motifs Sequence MEME





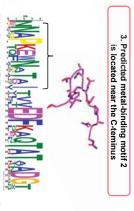


Figure 3. Molif given by MEME-suite for the predicted metal binding site number two, 29 residue wide motif from 481 to 509, Includes close-up view of loop structure where binding may occur. Residue numbers 481-483.

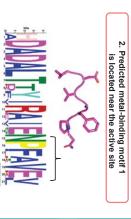
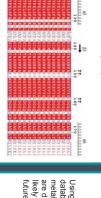


Figure 2: Motif given by MEME-suite for the predicted metal-binding site number one. 21 residue wide matif from 166 to 186. Includes dose-up view of loop structure where binding may occur. Residue numbers 180-186.



1. Pneumococcal Pgm metal-binding sites

Known conserved metal-binding site

Results

Multi-sequence alignment of pneumococcal Pgm and other Streptococci and non-streptococcal bacterial species. Blue border represents predicted metal bluding site one. Conserved amino adds among the organisms are highlighted in red.

2. Allechul, S. F., et al. (1980) J. Mol. Biól., 2154:03-410.
3. Sewers F. et al. (2011) Mol. Spot. Biol. 7:539.
4. Robert X., et al. (2014) Nucleic Audis Research 42:201-024.
5. The PHOU. Mechalul Cognities Spotem, Vession. 2.0 Schrodinger, LLC.
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8. Zhang, Y. (2005) Biol. Calminmants: 9.
9. Hotty, G. G. et al. (2017) Inhection and Immunity, 68(4), 2009-2317.
10. Martin, J. E., et al. (2017) Mediomoloci 1:04, 393-348. References

# neumoniae\_D39 yogenes seudopneumonia

Multi-sequence alignment of Pgm in Streptococci and non-streptococci species. Predicted metal-binding site two shown circled in blue. Conserved amino acids among the organisms are highlighted in red. Conclusion

future biochemical and physiological studies of Pgm. likely to bind a metal cation. This data sets the foundation for metal-binding sites in the pneumococcal Pgm. Two of which databases, we were able to identify multiple bioinformatics software applications several potential

### **Future Work**

- Use site-directed mutagenesis to predicted metal-binding sites in Pgm. metal-binding residues (Glu, Asp, Arg, Asn) to alanine in the mutate specific
- Measure metal-binding affinity of Pgm variants using the mag-fura 2 metal-binding competition assay and determine affect on Pgm activity in vitro
- Assess affect on capsule biosynthesis and growth using pneumococcal mutants expressing variant

### **Acknowledgements**

State University, which is sponsored by the Department Education (P217A170169). McNair Post Baccalaureate Achievement Program at Idaho State University, which is sponsored by the Department of This research is supported by funding from the Ronald E.

Bailey, L. T., et al. (1994) Proceedings of the Second International conference on Intelligent Systems for Molecular Biology, 28-36.

Metal-binding site 2 moniae\_DJ9

490

E



### Identification and quantification of sesquiterpene lactones (SLs) in Artemisia tridentata (big sagebrush) and its chemical modification

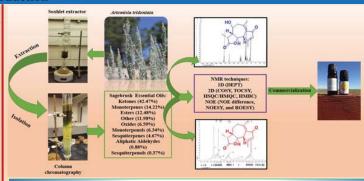


Rosemary Anibogwu, Dr. Karl De Jesus, Dr. Rene Rodriguez, Dr. Kavita Sharma

Department of Chemistry, Idaho State University, Pocatello, ID, 83209, sharkum2@isu.edu

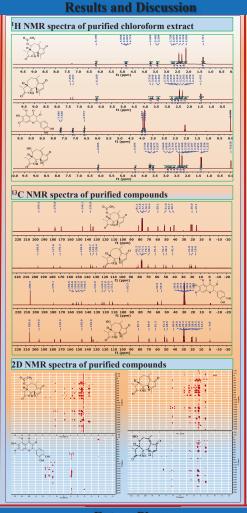
### Introduction

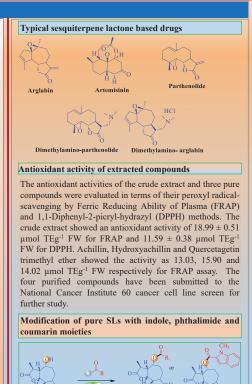
Artemisia (sagebrush) is an aromatic shrub native to a variety of habitats and climates, which range from cold desert conditions to the Intermountain region of the United States. Artemisia is a medicinal shrub due to its capacity to alleviate human afflictions such as internal bleeding, headaches, external infections, and respiratory malfunctions. Terpenoids such as sesquiterpene lactones (SLs), phenolic acids, flavonoids, sterols, fatty acids, lignans, and acetylenes constitute major classes of phytochemicals in Artemisia tridentata. SLs are fifteen carbon terpenes formed from the incorporation of three isoprene units, followed by cyclization and oxidative transformation to make a cis or trans-fused lactone. The  $\gamma$ -lactone ring, usually with a  $\alpha$ -methylene group, is a significant characteristic of SLs. Their molecular structure may present hydroxyls, esterified hydroxyls, or epoxide groups. Some SLs occur in glycosylated form, and a few contain halogen or sulfur atoms. Several SLs in cancer clinical trials have properties that enable them to target tumor and cancer stem cells while sparing normal ones.



Workflow: Extraction  $\rightarrow$  Isolation  $\rightarrow$  Purification  $\rightarrow$  Characterization  $\rightarrow$  Modification

### Thin Layer Chromatography (TLC) analysis of the crude chloroform extracted unveiled 4 spots Achillin Quercetagetin trimethyl ether Hvdroxvachillin HPLC of crude chloroform extract LC-MS QTOF of purified compounds GC-MS of pure achillin





### Future Plans

Looking forward, there still remains much work to be done, but this investigation intends to create a platform for sagebrush to be used in pharmaceuticals and nutraceuticals. The chemically modified SLs compound will be used in antitumor studies and also for alleviating human diseases such as cancer, based on structure-activity relationship (SAR).

### Acknowledgements

This study was carried out with the support of Office for Research and Department of Chemistry of Idaho State University, Center for Advanced Energy Studies (CAES), and Idaho National Laboratory (INL). This research is also partially supported by funding from the Ronald E. McNair Post Baccalaureate Achievement Program at Idaho State University, which is sponsored by the Department of Education (P217A170169).







Pocatello | Idaho Falls | Meridian | Twin Falls



Purified SL from sagebrus





# FRET Analysis of an Engineered Halophilic Peptide

Jacob Diehl, Chris Brininger, & Caryn Evilia

Results

Conclusions



Introduction

Department of Chemistry, Idaho State University, Pocatello Idaho, 83209

a small hydrophobic core. However, it is not known if one could engineer a de novo extremely ionic conditions but also how they could withstand other extremes as well conditions, the peptide adopts a rather loose structure but becomes more structured as salt peptide design exhibits behavior comparable to halophilic proteins. Under low salt native conditions. These peptide were designed to form alpha helices with an unstructured developed to mimic many of the traits that are shown to stabilize the halophilic proteins in and folding behaviors of these proteins under these extreme circumstances, a peptide was halo-tolerant protein if these rules were satisfied. In an effort to elucidate the functionality ionic environment. We have some "rules", like an increased amount of acidic residues and It is still unknown exactly how halophilic protein tolerates and function in an extreme understanding of halophilic proteins, we hope to learn how proteins not only tolerate seatures/adaptations and protein-folding behaviors. By designing peptides based on our concentration increases. This project provides useful insight into halophilic salt-dependent folding behaviors can be directly observed. Our results show that the Energy Transfer (FRET). By attaching fluorophores to the N and C termini, the proximity to each other, thereby providing an opportunity to utilize Förster Resonance and alanine residues. This would cause the N and C termini to come within close alpha-helices interact with each other due to the hydrophobic bands containing tryptophan region in between when exposed to hypersaline conditions. Once formed, these



EDANS emission as KCl concentrations increases, with the 25°C dataset displaying lower in triplicate with standard deviation representing error. Both datasets indicate a decrease in values at every concentration relative to the 4°C dataset versus concentration of KCl at 4°C (blue) and at 25°C (orange). Measurements were taken Figure 3: The relative emission of EDANS's fluorescent signal at 520 nm is plotted

### lower in magnitude KCl the peptide may achieve maximally structured state. Lastly, it is apparent that the however, it seems that this decrease plateaus past 2.0 M KCl indicating that given enough signal intensity of every point in the 25°C dataset relative to the 4°C dataset is consistently

### Acknowledgments

Department of Chemistry, Career Path Internship Program at Idaho State University, the Idaho State University Office of Research, and the United States Army Research Office Education (P217A170169). Other sources of funding include the Idaho State University Achievement Program at Idaho State University, which is sponsored by the Department of This research is supported in part by funding from the Ronald E. McNair Post Baccalaureate

### References

Guo, Jiubiao, et al.(2015). Spectral properties of EDANS-Dabcy1 pair [45] and the flowchart of the experimental design. PLOS ONE. <a href="https://doi.org/10.1371/journal.pone.0114124.g001">https://doi.org/10.1371/journal.pone.0114124.g001</a> Brininger, Chris, BS/MS technical paper, Idaho State University, May 2019. p.6.

### n-AEADEWAEDAESGPPDDPPGADWEEAAEDDWDAK-c Peptide 3 n-AEWDEADEEWSPPGPSEAEEWDDDAK-c n-AEDAWEDAWEDAEEGPPDDPPGAEWAEDWAEDAEE-Peptide 1 n-ESVYIPVYPDDYENVGDPQAADVDASLDRARQMREANDDLEDADFDP-c Original Sequence Peptide 2 sley MININE

Figure 1: Diagram of the peptide's proposed folding behavior under low and high saline conditions. The fluorophores EDANS and Dabcyl where attached to either end of the peptide. This fluorophore/peptide system was excited at 336 nm. EDANS (peak excitation wavelength at 336 nm) acts as a FRET donor, and when excited, it emits photons at 520 nm

(520 nm)

(520 nm) 🦯

signal. EDANS's quenching (336 nm)

(336 nm)

DABCYL is

**High Saline Conditions** 

**Low Saline Conditions** 

Methods

nm. As. When exposed to environments increasing in salinity, the peptide adopts a more defined secondary structure. As These photons are then absorbed by Dabcyl which acts as a FRET acceptor. Dabcyl's peak excitation wavelength is 472 a result the fluorophores come closer in proximity resulting the quenching of EDANS's fluorescent signal. Experiments

design of pep 2 resembles that of pep lock" when in the presence of a the peptide to form a "hydrophobic sequence in Arginyl-Synthetase from adapted from a alpha helices spanned by a single each peptide are composed of two the designed peptides. The designs of Figure 2: Models and sequences of from pep 2 and the original connecter Salinarum. consists of the truncated alpha helices l; however, the alpha helices and the highly saline environment. introduced into the design to coerce iteration of the peptide (pep 1) was nstructured connector. Tryptophans were non-conserved The first

**IRSA** 

### **ATTACHMENT 6**

# Analytical Study of Steady-State Flow Within the Compression Stage of a Westinghouse Single Loop Jet Engine Idaho State University

Peggy Hodges, Dr. Marco Schoen

Department of Mechanical Engineering, Idaho State University, Pocatello, Idaho, 83209, USA



### Abstract

program that predicts air velocity inside any jet engine at any stage along the axial compressor section as a function of analysis, the absolute, relative, axial and horizontal air on the inside. Measurements from the tip, the midpoint, and the program will be a useful tool to for aerospace engineers algorithm for optimization, adding calculations for measuring adding a user-friendly interface for ease of access, adding an produce tables and graphs representing the respective air was then programed into Matlab™ and code was written to exact measurements. Using the velocity triangle method of the base of each blade of the 11 stage Westinghouse J34 small, it is difficult to take measurements of the conditions rotor speed. Because the tolerances inside a compressor are compressor to collect data. Should the program be accurate, oressure, and testing the accuracy of the program using the elocity dropped significantly. Future studies will include, elocities. It was discovered that after the fourth stage the elocities were calculated as a function of blade speed. This were taken using a SolidWorks™ program containing the This research investigates the development of a Matlab $^{ iny}$ 

### Background

algorithm programmed by Dr. Marco Schoen as a basic and allow for the use of algorithms to optimize dependent in Fortran that was developed at NASA. This software works online [1]. Using a similar concept, and an optimization paper depicting the intended uses of the software is available variables. While access to this software was not found, the to Matlab™, the languages both focus on the use of matrices dependent variables. The purpose of the software is to aid in with independent variables and has the option to optimize he overall testing of regression [1]. As Fortran is a precursor There exists an obscure program called NEWRAP writter

The Matlab™ webpages serve as a directory for solve calculating the air velocity as a function of rotor speed. [2,3] method of analysis is being used as a structure for the code In order to complete this task, the velocity triangle

- Measurements of the blade angles with respect to the axial directions have been taken
- Matlab™ code written and tested against the hand
- Data computed by Matlab™ program was compared to data collected by SoldWorks™ for the same compressor
- Hand calculations were completed using the velocity triangle method of analysis.

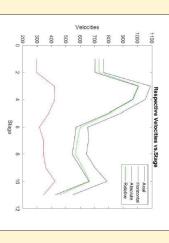
### Methods

### Figure 1: Image of a physical Westinghouse J34 jet engine



program and is used to test the Matlab™ program. Center. This is the compressor that is modeled in the SolidWorks™ University's Measurement and Control Engineering Research This is the Westinghouse J34 jet engine housed at Idaho State

### Figure 3: Graph of air velocities at the base of the blades as a function of rotor speed



program. Axial being axial air velocity, Horizontal being horizontal air velocity, Absolute being absolute air velocity, and Relative is relative air velocity with respect to the moving rotors. triangle method of analysis that is the base for the Matlab™ This is a graph of the plotted data calculated using the velocity

### Figure 2: Image of Solidworks software used to gather measurements

around stage 4 of the Westinghouse J34 housed at Idaho State University. This data matches to data collected from the SolidWorks<sup>n</sup>

A quick inspection of the graphs and tables presented in Figure 3 and Table 1 show that the respective air velocities decrease drastically

Results

camberline and blade chord angles will allow a user to use the software

**Future Research** 

rotor and stator. The capability to upload files containing the it can predict the velocity at the base, the midpoint, and the tip of each program. Furthermore, because of the design of the Matlab™ program

the data collected from the Matlab™ program currently. measurements. This same model is the basis for comparison for Westinghouse J34 with the top housing removed for ease of This is an image of the completed SolidWorks™ model of the

# Table1: Image of the Table produced by the Matlab

Axial	Horizontal	Absolute	Relative
702.49	295.96	762.28	731.52
702.3	295.69	762.01	731.41
1005.3	419.51	1089.3	1008.5
964.5	421.7	1052.7	967.67
794.06	380.21	880.4	803.05
571.19	315.74	652.64	600.17
558.58	344.53	656.28	579.81
543.25	344.14	643.09	565.17
603.3	359.95	702.52	619.34
661.04	424.72	785.72	665.31
124 71	344.48	546.85	452.29

plotted in the graph. Axial being axial air velocity, Horizontal being horizontal air velocity, Absolute being absolute air velocity, and This is the table produced and presented in the Matlab  $^{\rm m}$  program for the data imputed by the user. This is the data that is being Relative is relative air velocity with respect to the moving rotors

### Acknowledgements

I would like to thank the following people for their support during my research: Dr. Marco Schoen, Idaho State University Department of Mechanical Engineering; Dr. Shannon Kobs-Nawotniak, Idaho State University Honors Program; Dr. Denise Tambasco, Reinalyn Echon, and Laticia Herkshan, TRIO McNair Scholars Program.

This research is supported by funding from the Ronald E. McNair Post Baccalaureate Achievement Program at Idaho State University, which is sponsored by the Department of Education (P217A170169).



air velocity inside the compressor as a function of rotor speed. can be concluded that the software accurately predicts the match the calculations produced by the Matlab™ software, it measurements inside the compressor. Should that data precision sensors to collect pressure and air velocity Westinghouse J34 is currently being outfitted with high program, and therefore accuracy of the program, the To test the accuracy of the data produced by the Matlab

of optimization as well. find mass flow rate. Once the calculations are completed, they will be added to the Matlab™ program with the option compressor must be taken, specifically of the area in order to compressor is in steady state. More measurements of the across the system assuming the system is adiabatic and the equations are being calculated for the change in pressure pressure as that decrease in velocity occurs? Currently question of pressure was raised. What happens to the As it was discovered that the velocity drops, the

are added to the structure of the code. added in the upcoming months after the pressure equations optimization and the user-friendly interface, but that will be Currently the software is lacking the algorithm for

### **Works Cited**

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**IRSA** 

### a =



# Students' Cultural Relationship with their Masks Dalene Hunter Mentor: Dr. Katherine Reedy



### Abstract

The novel virus, COVID-19, shook the world for the majority of 2020. This was especially true in the case of university students. As universities themselves tried to find ways to bring students back to school in the Fall 2021 semester, they were faced with several challenges. One of which was the need to mandate the use of face coverings, or masks, for all students on campus. This study examines the feelings and perspectives that students have on a cultural level towards their mask wearing through qualitative interviewing.

### Introduction

Because the coronavirus only emerged in late 2019, very little research has been done on the cultural aspect of the pandemic. Many people have been, rightfully, focused on the virus and its affects on the physical, rather than the cultural changes it elicits. However, there are likely many changes that are happening in the base levels of social groups that will impact them greatly going forward.

Masks, in America, were discouraged to start with. There are many theories and approaches as to why this was, but most of them are not relevant to the fact that it happened. The initial discouragement has led to some conflict and controversy over wearing the masks themselves. This is further exasperated by the president of the US refusing to wear one himself.

Several states, cities and municipalities have introduced mandatory mask policies. Furthermore, individual institutions, corporations, and stores have also created their own mandates. Among these were many universities that pulled students back for in-person instruction for the Fall 2020 semester. Idaho State University is among those universities with in-person instruction and mask mandates. Students have developed opinions and cultural constructs around their masks. Study of these ideas is necessary, and that will be what my project accomplishes.

### Literature Review

enforced clothing items. None of these capture issues of study. My review starts with an examination of the order to develop these ideas, but many of the related that are necessarily pandemic related. pandemic in general and the progression of masks and the mask situation making them their own unique item things are lacking the extra context that also influences that process. Because of this, there is little to no research, and the pandemic has not helped to speed up difficult because of the timeliness of the project. jumps into revision on hijab, school uniforms, and other the official statements on them in America. After that, it literature is its own challenge. A proxy was taken in previous research on masks. Thus, finding related Academia is well known for being slow to produce Finding background on this project is especially



### Methods

the issue to base any questions off of to start. about these issues, which I do not feel qualified to want to talk about and the feelings they will have predictions about the sorts of things student will clicit quality results and thought of students. It such a heavily politicized issue in American do. Especially since there is so little research on would also require that I, as a researcher, make be inherently biased in some manner and may not media, any survey written for distribution would from me as a researcher. Since masks have been believe that this is the best way to get rich data from students that has the least amount of bias that students have in relation to their masks. I interviewing to get at the cultural perspectives My project will make use of qualitative

For these same reasons, an open-ended approach will also be taken. While general themes of cultural responsibility and individuality will be addressed, students will be able to take their responses in the direction they wish, and I will encourage this through prompting questions based on their responses.

Interviews will be recorded, and transcriptions produced first by software, then edited and fixed by myself. The recordings will be kept, with changed names for participants for six months for accuracy, then they will be deleted and only the completely anonymized transcripts will be kept. Analysis will link the students' responses together and make larger comparisons and claims about the cultural feeling students experience in regard to their masks.

### Acknowledgements

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### INSTRUCTION, RESEARCH AND STUDENT AFFAIRS 2022 FEBRUARY 17,

**Original Scoring Code** Partial Weight Bearing

Non-Weight Bearing

• P204 • P20F

**Partial Weight Bearing Locomotion** 

activity in male and female rats, from P15-P20

Here we investigate the ongoing development of hindlimb weight-bearing

more locomotion on P28 [4].

### **ATTACHMENT 6**

# Spontaneous Weight-Bearing Locomotion in Preweanling Male and Female Rats

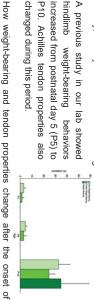
Makenzie Kohler, Aimee L. Bozeman, Alleyna C. Martes, and Michele R. Brumley

Department of Psychology, Idaho State University



### Background

A previous study in our lab showed activity, as they shift in locomotor strategies. [1.2] mechanisms, and recovery of motor behavior following an injury. [1.2.3] During the first two postnatal weeks, rats increase their weight-bearing Rats are often used in biomedical science to investigate development weight-bearing behaviors



changed during this period.

are no sex differences in locomotion from P1 to P15 [2], females show quadrupedal walking starts (P10), has not been reported. Although there

Age: P15 Female n=10 Independent Variables P15 n=10 Age: P20 Female n=10 Male n=10 P20

minute observation Behaviors was recorded for a session,

capacity bioreactor (left) at University of Idaho Mechanical properties of Achilles After testing, rats were euthanized and hindlimbs were dissected. tendon were evaluated with a small

# Methods & Experimental Design

spontaneous locomotion in an open-field. Plexiglas Individual rats were placed in a clea Xod ō

scored using Datavyu.

examine and Non Weight-Bearing Partial Weight-Bearing Full Weight-Bearing **Activation level** Hindlimb

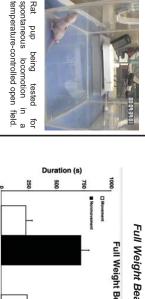


# **Behavioral Results and Conclusions**

**New Scoring Code** 

Body Weight P15 P20

### Duration (s) Non-Weight Bearing Duration (s) 300



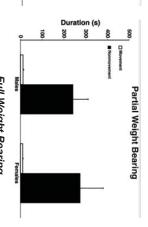
being

Duration (s)

Full Weight Bearing

**Full Weight Bearing Locomotion** 

O PISM O PISF • P20M • P20F

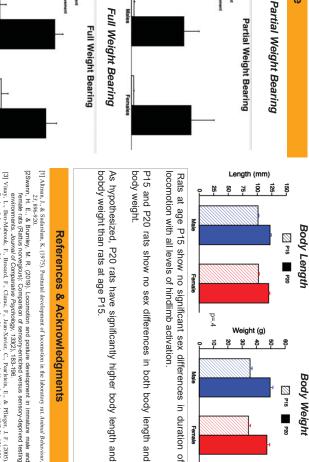


Male

in duration

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[3] Vinsy, L., Ben-Mahrouk, F., Bovard, F., Clame, F., Jean-Xavier, C., Pearlstein, E., & Pilieger, J. F. (2005)
Permanal development of the motor systems involved in postural control. Neural placitity, 12(2-3), 131-199. enriched versus sensory-deprived testing

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Supported by an Institutional Development Award (IDAA) from the National Institute of General Medical Science of the Supported by the Institutional Development Award (IDAA) from the National Institutes of Health under General PEDICAID-3408 and (in part) by funding from the Romalel E. Marchellon, Marchael Control of Control Pedical Action of Control Pedical Action State University, which is sponsored by the Department of the Development of the Pedical Pedical Control of Control Pedical Control Pedical Control of Control Pedical Control of Control Pedical Cont

Idaho State University



### bsidian Database Expanding the

Idaho State University, Department of Anthropology Pamela Pascali & John Dudgeon, Ph.D.

### Center for Archaeology, Materials, and Applied Spectroscopy We See Things Differently

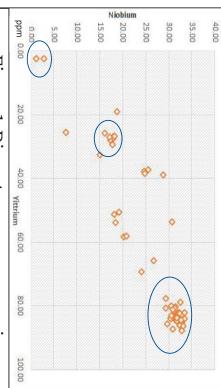
### Introduction

to previously identified sources from have been found at sites in the Snake the same area. Once we understand River Plain that cannot be matched sources, we can begin to trace the There are obsidian artifacts that the scope of possible obsidian movement of obsidian.

### Methods

We performed sourcing analysis to determine which sources are from individual obsidian samples were Patterns of family groups appear the same event and therefore the LA-ICP-MS. Those averages were then compared with elemental when the major elements are data against each other and a graphed against one another same family group source. analyzed using pXRF and known source standard. From each site, 3 (Figure 1).

# **Positive Source Grouping**



bivariate comparison of pXRF data Figure 1. Discrete groups appear in

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Follow the QR code to my research website

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### **Further Research**

sources of obsidian surrounding This research is ongoing and we hope to identify more unique the Snake River Plain.

source geochemical data, scratch test data, movement of material, A larger project of incorporating inventories is being planned and museum collection

## **Acknowledgements**

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References available upon request

### INSTRUCTION, RESEARCH AND STUDENT AFFAIRS FEBRUARY 17, 2022 ATTACHMENT 6

### Ronald E. McNair Baccalaureate Program Reflection Paper

From "what the heck is graduate school" to the "monthly budget worksheet" for moving to graduate school, the McNair program has helped guide me through the process of getting to and through graduate school and has helped build my confidence in continuing my education. Initially, graduate school seemed like a very daunting objective and goal to reach towards. However, the first year of McNair helped me feel more organized when it came to applying and searching for graduate programs. I liked that the first year felt appropriately paced and gave a great introduction to the materials required for graduate school without diving into too much detail about each thing. Also, I felt like the material about research was all beneficial and well-paced. Surprisingly, when it came time to start the summer portion of the program, I felt more confident and excited than I originally anticipated.

The summer program was tough. There were many times where I felt unable to accomplish certain tasks on time and times where I was down on myself for not doing enough. However, the personal insight I gained during the summer is incomparable to anything else I have experienced. I think the summer research portion of the program is essential for students to get a real taste of what graduate school is like. I was scared that I wasn't cut out for graduate school but once I was able to see my work in the form of a poster and a paper, along with presenting at conferences, I knew I had the drive and desire to earn a Ph.D. One of the most beneficial things practiced through the summer program was the documents for graduate school applications. Having multiple chances for revisions from different people was very beneficial in the growth of not only my documents, but my writing skills as well. One thing I would like to see changed in the summer program is the number of classes dedicated to GRE preparation. Many of the courses were very helpful in learning about how to properly take the GRE and the questions that come with it. I think that the information in the writing workshops specifically, could be combined into shorter lessons to cover the same material in a shorter amount of time.

Having the opportunity to share my research at the UMBC TRIO McNair Scholars research symposium and the Kansas McNair Heartland conference helped me gain confidence in my scientific speaking skills and helped me gain insight into different ways to present research. I felt like the digital format of the conferences took away from the more fun aspects of conferences but perhaps the most important part, research presenting, was sufficiently maintained. I was still able

to hear about different research going on in different areas across the US and watch individuals with different levels of expertise share their work. I was able to take some insight for myself and work on improving my own methods of sharing my research. Although I wasn't able to travel for the conferences or meet (in-person) other McNair scholars, the conferences were still helpful. I hope future McNair cohorts can attend these conferences in-person and experience the magic of science up close.

For the final year of McNair, I felt like the program was still there to help, but that it was time for the students to put their work out there and take the next big step, applying for grad school. While I did not get accepted into the programs I applied for, McNair never left my side and was there every step of the way. When I messed up an application and did not realize until post-submission, my McNair cohort and staff were there to keep me from going mental. When I got my first call for an interview, the cohort was there celebrating with me. When I felt put down and unaccomplished after receiving all program decisions, McNair was there to remind me of all I have accomplished to get to where I am as a first-generation college student. I have one recommendation for activities for future cohorts: interview practice. I think students in the future will benefit from practicing the interview process for graduate school programs.

For the fall semester, I plan on obtaining a job in the microbiology field to gain more experience in a clinical setting. I intend to do that for a minimum of 1 year. At that point, I will reapply for Ph.D. programs that seem fitting at the time.

Rosemary Anibogwu

05.05.2021

I attended the Idaho Conference on Undergraduate Research (ICUR) in the summer of 2020. This was a virtual conference and it enabled me to exercise my presentation skills and interact with peers and professors during the question session. This conference enabled me to learn about the phenomenal work my peers are involved in and left me more knowledgeable in the end.

The TRIO staff were very much invested in helping each student successfully complete the application process for graduate school. I was especially appreciative of the various sources of feedback I received when writing the first draft of my personal statement for the first school I applied to. The feedback was painstakingly detailed which assisted me in being more mindful of the tonality of my diction and limiting the extraneous details.

The TRIO McNair program improved my understanding of what research entails by their meticulous treatment and coverage of specific details like what research integrity entails, how to craft meaningful research questions, and the non-linear path of research. Discussions about the research process in class helped recalibrate expectations and emphasize nuances that would have otherwise been glossed over when researching in the lab.

One of the most impactful and valuable aspects of this program (there are many, but I will limit myself) that I cherish ceaselessly is the level of transparency that is available to each student. I never once sensed duplicity in Dr. Denise Tambasco or any of the TRIO staff I had the pleasure of interacting with. I have always sensed that the information being conveyed was genuine and if there was a disruption in arrangements previously agreed upon, Denise would

always strive to explain what was going on, what caused the disruption, and what was being done to rectify the situation moving forward. I am convinced that everything that was done in this program was truly in the best interest of the students. Finally, I must admit that the stipend provided to me during this program has played a notable role in my research by enabling me to purchase items necessary for my research.

### Jacob Diehl

Information about any conferences you attended and the benefit of attending

I attended the 28th Annual UMBC McNair Research Conference in the fall of 2020. This conference was the best virtual conference I have attended so far. I got to present my poster live in front of a group of about ten people. I got helpful feedback as well as encouragement from those who watched my presentation. I found the encouragement to be particularly meaningful because it came from other McNair Scholars. The conference was held over a website that had large number of rooms associated with a zoom link. Before the conference, a document outlining room assignments, times, and topics of the presentation was distributed. Two other conferences I attended during my time in the program were the annual spring 2020 and 2021 meetings of the American Chemical Society. Both meetings were held in a virtual format. For the 2020 meeting, I essentially uploaded my poster to the ACS website where people could browse all the uploaded posters. This was the same for the 2021 meeting, but in addition, I was able to attend a virtual live poster session where I was able to present my research poster. Unfortunately, it was not well attended, and I did not present my poster to anyone.

Support or guidance received that assisted in your grad school application process

The guidance that immediately comes to mind is the help I received navigating the process of receiving application fee waivers. I ended up saving around \$400. Other guidance that I found very useful was the timeline for the entire graduate school application process. It allowed me to be much more organized as well as reduced lots of anxiety that I probably would have experienced. Lastly, the emotional support that I received from the staff was pivotal in the process of finishing the applications. I started having cold feet, and I was worried that I was not prepared to enter grad school as the deadlines came closer. However, I was able to pull through in large part of the support that I received from the staff.

How the program improved or informed your understanding of research

Coming into the program, I had some research experience already under my belt, but there were many things that I still did not know. My largest deficit was with writing, but through the courses required by the program, I developed an understanding of how important this skill is. As a result, I have become mush more dedicated to working on my writing skills. One thing I did know about research that was reaffirmed in my experience in the program I that things do not allows work out, and that failure is not something to be ashamed of, but an opportunity to learn and improve. Pursuing a career in research will be filled my many instances of failure as well as disappointment; however, pushing the boundaries of the known world requires one to try and keep trying despite the possible failures that might result.

Aspects that were particularly helpful

One aspect that I found particularly helpful was the humble brags. Someone like myself hates being the center of attention and talking about my accomplishments but being able to sell yourself is a critically important skill in the professional world. In addition to the benefit, the humble brags gave me an opportunity to express congratulations and pride for my fellow scholars in the cohort which I feel contributed to the development of the peer-to-peer relationships within the cohort.

What your plans are for the Fall.

I will be attending Notre Dame University pursuing a Ph. D. in Biochemistry.

• Any other information you think would be important for someone to understand regarding the TRIO McNair Scholars program

Beyond being a community of underrepresented populations bettering themselves through research in order to ultimately better society as a whole, I think its critical that people understand that diversity of background and perspective is essential to solving any kind of problem and the TRIO McNair Scholars program epitomizes this idea.

### INSTRUCTION, RESEARCH AND STUDENT AFFAIRS FEBRUARY 17, 2022 ATTACHMENT 6

Having lived in an "Old Fashioned" low income, uneducated home, I was raised to believe that women are not as capable as men. While my life experience has taught me otherwise, there are some stigmas that I could not shake, such as the idea that I wasn't smart enough or good enough to get a PhD. The Trio McNair program, and particularly Dr. Denise Tambasco, has shattered that misconception.

Initially, I believed that graduate school would cost me a lot of money. I had to pay to go to college for my undergraduate degree, there would be *no way* I could afford to pay more money for my PhD, let alone get accepted to a school. In the beginning, I prepared myself to return the McNair stipend but through the training and guidance the McNair program offered I found myself not only prepared for graduate school, but actually excited to be attending a program I love.

There are so many ways that the McNair program has helped me that it's difficult to count them all. When I first started the program, I had such public speaking anxiety, that I cried when talking to authority figures. Dr. Tambasco can attest to this claim. Through a high frequency of poster presentations, research presentations, and elevator pitches, not only have I gotten over my public speaking anxiety, but now I'm a strong public speaker. This has helped me beyond measure as I have had several interviews with potential graduate advisors and have had a large number of senior presentations, including poster presentations.

The poster creation and review process offered by the McNair staff has made me conference ready. While the ICUR and MKN Heartland conferences I attended were entirely virtual, it was apparent that McNair has provided excellent training when observing poster presentations of my peers. These experiences have helped me in my senior classes as conferences are common among working mechanical engineers.

As someone with anxiety and imposter syndrome, I believed that I would not be able to get into a program that shifted focus from my current degree. I am a mechanical engineering major and I desperately want to work on astronautics, particularly mechanical engineering applications in space. As I have not had any education for conditions outside of the Earth's atmosphere and I don't have above a 3.5 GPA, I believed I was undesirable in mechanical engineering, let alone a specific sub set of aerospace. These fears drove me to apply to 18 different graduate school programs. Not only did Dr. Tambasco rationally talk me through these fears, but she was also a letter writer for me. Between her and ABD. Reinalyn Echon, I was able to polish my personal statements and applications and was actually approached by a professor with a financial offer at a college that was within my top 3 choices.

My McNair summer research, experience in conferences and writing research papers, has given experience in my desired career path and attracted a research advisor and program that is a perfect fit for me. Before the McNair program, I knew that I wanted to pursue a career in research, but didn't know at all what that would look like. After the McNair program, not only was I excelling in my many required senior technical writing assignments, but I also knew that research in my desired field is exactly what I was hoping for in a career. I'm confident in my career path as a researcher for aerospace and that attending Virginia Tech in the Fall for my PhD program is the correct choice for me.

Speaking to others attempting to attend graduate school, I can see a definite difference in my knowledge and training compared to those not in the McNair program. I can see a clear difference in my technical writing and poster making skills compared to my classmates in those same senior courses. The McNair program has made me a better engineer, and a better researcher and I am very thankful for all the hard work that the staff has put into the program to help me excel. If I could offer any areas that could be improved, I wish that there was a workshop on how to approach

professors when interested in their research. I also wish that there was some way that students can be reassured that even if they have a GPA that is below 3.5 and that they want to shift to a specific focus, they are not undesirable. But of course, until I experienced it, I don't think I would have believed it.

The Trio McNair Scholars program has helped me start down a path I believed was unachievable. Not only am I in a PhD program, but I will receive covered tuition and a stipend that will allow me to focus my time on my research. The program has given me the impossible, and for that, I'm forever thankful.

Dalene Hunter

### McNair Program Reflection

The McNair program has been critical to my development over the last two or so years I've participated in the program. In a time when the entire world came to a halt, I felt like McNair was one of the only things helping to drive me forward in my battles to maintain my academic standing. While enjoyable to ponder and use, artsy language that gives vague mentions of the ways that the McNair program has helped me is sort of useless in terms of actually getting funding for the program or improving it. My goal here is to outline what McNair is to me personally, and why it was useful.

From a practical standpoint McNair was the first place that I actually learned about research. I had not done any research before being accepted into the program and had little understanding of what it entailed. Without the classes I took with McNair, I'm unsure if I would have ever actually completed any research. While I had nebulous ideas of what research was, the details of literature reviews, and problems statements, and such were out of my reach. Much of this would have been difficult to self-teach because of the principle that one does not know what they do not know. This helped me greatly in my ability to plan, propose, and conduct research all on my own after my summer aspirations fell apart, but also helped me greatly in landing a lucrative internship with the Smithsonian over that aforementioned summer. I believe that McNair's lessons in how to propose and at least start on research are part of the reason why I was successful in proposing my own project, and getting an extremely busy faculty member to agree to mentor me. At the very least, McNair set me up to be a very low-maintenance mentee.

The McNair program also helped to expose me to other people's research. While I only got to attend one conference in my time with McNair as a result of the pandemic, I appreciated

the support. As it turns out, even virtual conferences are extremely expensive events. I went to the virtual McNair Scholars Conference hosted by the University of Maryland, and although the virtual experience was exhausting, and likely lacked in a lot of the fun that otherwise may have been possible, it was useful. I had no idea what any type of conference was like going in, and through learning how to present and seeing the structure I learned a lot. I look forward to trying the experience again, face to face next time.

Finally, in terms of applying to graduate school, McNair was priceless to me. I came into the program with no idea what the GRE was, how to ask for letters of recommendation, how to write a personal statement, or any of the other parts of the process. I was lost and would have floundered terribly had I not worked with the McNair program. As it was, the pandemic severely changed the game for me in terms of where I could apply, and I don't know if I would have gotten anything done had I not had the help of the McNair program.

Unfortunately, as I write this I'm not where I had hoped to be two years ago when I started McNair. I applied to six graduate schools and saw rejections from all of them. Although it is counterintuitive, this is probably the single thing McNair has helped me the most with. I have had an extremely hard time separating myself and my personal value from these rejections. I struggle to realize that this isn't necessarily my fault and just another example of how a massive pandemic and other factors have affected my situation. McNair has helped me to see that there is a chance for me to try again with graduate school and that I'm not alone in this struggle. As of right now, I have postponed my graduation, added a minor to my degree, and I'm continuing in the McNair program for another year, hoping that I can improve in the next year or so and become a better applicant in a slightly better situation to be applying.

### McNair Research Funding Reflection

During my McNair research internship in the summer of 2020, I decided that I wanted to pursue a career in science journalism. Under the guidance of Dr. Denise Tambasco, I learned that it was best to reach out to graduate schools before the application period started. When I did this, I was told by a program director that I needed to try and get experience in the journalism field to be a solid candidate. After learning this, I came up with an idea to highlight student scientists for the Idaho State University News, with a lot of inspiration coming from my McNair cohort. Soon after, I reached out to the biology department on campus and became an intern under Dr. Rhesa Ledbetter writing the news column "Stories Behind the Science". McNair offered to fund this internship for me to help increase my success as a graduate school applicant. I was not expecting to be funded, and with McNair's help I was able to have extra money to cover graduate school application costs as well as personal living expenses. The experience I got writing my articles was critical in my graduate school applications and the effort was successful as I am now going to graduate school for science journalism

Eventually, I started being funded through the biology department for my writing, but funding for my undergraduate research assistant position had run out. I was extremely stressed out, as my research position had been my main source of income for over two years. After learning the funding was gone, I reached out to Dr. Tambasco to ask if there was any way that I could be funded through McNair and luckily, I was. Being funded for my research helped me to finish my project that had been ongoing for the past year and a half before graduating in April of 2021. By being paid to boost my experience, I was able to live more comfortably as well as becoming more skilled in the areas I am pursuing in graduate school.

Pam Pascali

Reflection

### My Experience with McNair

This fall I will be starting my graduate school career at Idaho State University in the Anthropology M.S. program. I will be focusing on the archaeological sciences and fortunately, my area of interest has a lot of opportunity for research through ISU's facilities. I was awarded a National Science Foundation Graduate Research Fellowship which will start in the fall as well and it fully funds my grad school for 3 years, which will allow me to gain more laboratory experience and help set me up to get into a Ph.D. program.

The TRIO McNair Scholars Program allowed me to learn the process of research design and how to execute it as well. I had the drive to do research but lacked the opportunities and knowledgeable mentorship to get started on the path that would set me up for grad school. With the help of my director, honors mentor, and TRIO mentors I learned the skills needed to start researching, find funding, and get into grad school.

While this year was not great for conferences the TRIO staff and other McNair programs did everything they could to make our conferences meaningful. In 2020, I presented at the TRIO McNair Conference online and it was a good experience learning early in the pandemic to navigate those online spaces. However, in the spring of 2021, when the conference came around again, I was getting ready to graduate and I was also exhausted from being online 24/7 that the conference was not as helpful for me. I felt similarly to our own McNair Symposium at ISU, in that 2020 was in person and much more helpful to an incoming student than the 2021 symposium was (fully online) to an outgoing student. Much of my complaints are aimed at the fact that zoom fatigue is real, and it hinders how much we can take away from conferences online. I did have the opportunity to attend my professional conference in 2019 before I was in McNair and so I can see the benefit of attending conferences and practicing presenting your research and I was very excited to return with my research and start networking for grad school information before Covid happened. I think some of the biggest benefits are gaining experience presenting your research, feeling confident in it, being able to answer questions on the spot, networking with other researchers, networking for grad school opportunities, and practicing just being in a professional environment.

The support I received through the program was great. I appreciated the opportunities we had to learn from other McNair scholars and Graduate Assistants as well as Dr. Tambasco and Dr. Kobs-Nawotniak. Having mentors from all aspects of the college experience was helpful because we have a whole support group behind us and always knew someone with experience in the area we had questions. Being able to reach out to Sandra and ask about social media questions, reaching out to Reinalyn about presenting research, and Shannon about the honors program really covered a lot of questions that came up for me.

Shanna Barber

Mentor: Devaleena Pradhan

Working in the lab this previous Spring 2021 and Fall 2020 with the help of this grant has helped to shape my future career, teach me about the things I love to do in a lab setting, and given me a lifetime of knowledge. In being able to be in the lab I have learned many things, but just the tip of the iceberg has been the increase in my ability to communicate confidently in front of a scientific audience and to my peers and lab mates. The time spent gave me skills I needed to learn how to read and write scientifically and helped to expand my comfort zone. I learned how to network, how to research grad schools and reach out to colleagues and peers, and I think most importantly it helped to solidify my love for science and for lab work.

Not only did it do all these things but it also helped me to narrow down the areas of study that I am most interested in. I have always wanted to go to grad school for Marine Biology and have always wanted to study marine species. Being able to look into grad schools and research helped me to see how amazing the research that others are doing and helped me to see the never-ending possibilities that come with science. I have been becoming more confident in networking and the idea of pitching my own research ideas to others has become less nerve wracking to me over time and as I have had more exposure. I never thought I would enjoy behavioral endocrinology the way that I have and it has sparked my creativity and allowed me to think outside the box, asking questions and even reading outside papers just for fun. Being able to be a part of the Society of Behavioral Neuroendocrinology (SBN) conference was so exciting! Getting to meet new people, answer questions, and hear about other research was the pinnacle of my summer thus far and left me craving more.

In the future, I am not as set on the semantics of the name of my degree but more the experience I will receive and the types of research opportunities I will be able to have in the career field. The choices I am considering are Marine Biology, Neuroethology, and Evolutionary Behavioral Toxicology. I want to learn about the evolutionary and behavioral pressures that cause predatory and defensive evolutionary traits like venoms - I would like to learn about how they work and how they affect the body. I have even considered going back later for a Masters in Biomedical Sciences.

This has been an amazing opportunity that I could not be more grateful for. It poised me to do better and be better in my field and gave me the confidence to know that not only CAN I do this, but I also love doing the things that being in science entails.

Barber, S., White, K.J., Pradhan, D.S. (2021, April). *Genital Papilla Plasticity in Lythrypnus dalli*. Undergraduate Research Symposium, Idaho State University

Barber, S., White, K., Pradhan, D.S., &. (2021, June 28). *Genital Papilla Morphogenesis in Gravid Female Bluebanded Gobies, Lythrypnus dalli*. Society of Behavioral Neuroendocrinology.

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Anna Jirik

Mentor: Devaleena Pradhan

The number of things I have learned this past semester of Spring 2021 through being a part of Dr Pradhan's lab are innumerable, but I will try to highlight and summarize some of them in the best way possible. An important skill that I have begun to develop is how to communicate with peers and mentors in a lab setting. This has been my first time ever working in a lab, so I definitely had to adjust to the work environment, however now I feel pretty comfortable being in the lab. Communication is important in any career, and I am grateful that I now know how to appropriately and effectively communicate with fellow researchers. In addition to learning important skills, I have also learned more about myself. Thanks to my lab work, I have discovered that I really enjoy the hands-on work that lab work requires, and that I actually learn really well when a concept is presented to me in the context of a study that I am actively participating in. Finally, I have learned a lot about endocrinology, from how hormones work in organisms to that fact that it is a very important and interesting facet of biology. I plan to learn more about endocrinology in the future.

Aside from being a means of part-time income, my job as a research assistant provided me with lots of benefits; many of which are intangible. Being in the lab environment around fellow biologists every week never failed to bring motivation to my attitude. I am very much a future-oriented person, so being reminded of what I want to do- graduate school- and working in a job that will bring me closer to that goal improved my overall mood. Another invaluable benefit from this job was the lab experience I gained. Now that I feel competent about working in a research lab, I will be more likely to be accepted into other labs, and come into them with prior knowledge and experience. Lastly, I gained professional but close relationships with my mentor, grad students, and fellow undergraduates. I enjoyed working with each and every person, and loved spending our free time discussing science with them. I am lucky to have been able to work with such compassionate, ambitious, and supportive people.

This experience did not really change my future plans at all, but rather helped to further cement them as personal goals. I have always been fascinated by the idea of working in a research lab, and this job not only taught me what it is like, but that this is what I want to do as a career. As long as I can remember. I have wanted to go to graduate school, but I usually assumed it would be for a master's degree. By talking with graduate students, I have been able to learn what graduate school is like. I know that a PhD program is definitely for me, and I will strive to turn this goal into a reality. With this lab experience, I am much closer to achieving this goal than I was even half a year ago.

Society for Behavioral Neuroendocrinology conference (Monday, June 28 to Friday, July 2) poster:

Jirik, A. M., Wooding, A. P., and Pradhan, D.S. Effect of Seasonal Changes and Thermal Stress on Cortisol and Glucose Levels in Wild Redband Trout

Name: Melissa Rivas

Mentor: Devaleena Pradhan

I have many positive learning experiences since November 2020 in Dr. Pradhan's lab. I gained a new skill essential in the histology field. This semester we focused on using a new instrument, the Cryostat. This instrument has a chamber that maintains a low temperature for preserving frozen tissue samples. The Cryostat has a sharp blade for clean and thinner slices, making it possible to see under the microscope.

However, before tissue can be cut and analyzed, it must be prepared to be embedded ready to slice in the Cryostat. Our lab had two previous protocols. Another lab mate, Ian Curnutt, and I took good points from both protocols and merged them into one final protocol I and went through some troubleshooting to figure out this technique. We based on fail and success criteria. Through all this process, I learned that lab work demands discipline, patience, and perseverance. The type of tissue our lab worked with were brains and gonads from the bluebanded goby (Lynthrypnus *dalli*). The tissue samples were previously fixed in ethanol. To revert the ethanol from the selected tissue, we performed three different washes solutions made of ethanol and sucrose. After the washes, we let the tissue rest for 24 hours in a 100% sucrose solution. We again performed other washes but used sucrose 10% concentration and Optimal Cutting Temperature compound (OCT) in three different ratios. The next part, now sucrose, needs to be reverted and replaced for OCT to preserve the tissue's integrity at the moment to be sliced by the Cryostat. The tissue is placed in 100 % OCT in their respective mold and stored in the -80 F for 24 hours. It took a lot of time perfectionating the first part of the protocol. I learned how to handle the tissue very gently and recognized testes and ovaries.

For the second part of the protocol, which was to section tissues, we worked very closely with Dr. Heather Ray. In the second part of the protocol, after 24 h, the tissue solidifies enough and is ready for slicing in the Cryostat. Before working with the tissue must be placed inside the Cryostat chamber for 2 h. The tissue has to adjust to the cryostat temperature; if not, the tissue will become brittle. I proceeded to cut the tissue and place it in a microscope I slide. This experience was precious because it taught me that collaboration and communication are essential in the research field, and learning how to communicate with professionals will make our work more effective.

I had the opportunity to interact with the graduate students from Dr. Pradhan's lab. One of them is Katrina White. She currently focuses on investigating the role of steroid hormones like cortisol, ketotestosterone, and estradiol in the Bluebanded goby. The behavior and phenotype of this fish are highly regulated by social structure. Katrina taught me to use competitive analysis tools like the ELISA kit. Together we worked on enzyme immunoassay data for posters. The samples were Water Borne Hormone and three different brain regions from the Blue-banded Goby. We presented the data from the water-borne hormone in a poster named "The Plasticity of Social Status: Stress Hormones in a Hermaphroditic Fish" at the Society for Integrative and Comparative Biology (SICB). In the same conference, I was co-author in another poster presented by Kaysen Christensen, "Stuck in a Bucket: The Effect of Confinement Stress on Cortisol Levels in Brook Trout (Salvelinus fontinalis)."

Our lab continued exploring changes in the physiological response to stress in the brain, and we presented that data at the Society for Behavioral Neuroendocrinology (SBN) virtual conference. I'm a co-author of two posters for the SBN conference. One poster was presented by Katrina White "Brain Region-Specific Concentrations of Sex steroids During Aggressive Encounters in a Hermaphroditic Fish." Daniel Youngerman presented the second poster, "Social Status and its

Effect on Cortisol in the Brain of the Blue-banded Goby." I worked with Daniel on an extensive data set of the different regions of the brain and the status of the Blue-banded Goby. Through this process, I have learned about data analysis and data interpretation. It was something I did not know about before joined to Dr. Pradhan's Lab.

Two significant achievements I recently had. I submitted my application for the INBRE program back in November, and I got an award for this summer. Thanks to that, I'm able to continue learning about behavior and hormones in the lab. I also applied for the "Welcome Initiative Award" at SBN, and I received the award.

I value that all these experiences during my time spent in Dr. Pradhan's Lab. have improved my problem-solving skills and reinforced my research interest. I have been motivated to learn more deeply about hormones. Observing the Bluebanded goby's brain under a microscope made me ask how important it is to understand the role of hormones can regulate behavior. I'm looking forward to learning more about it, and in the process, I would like to improve to be a great researcher in the future.

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Client Info:	Dr. Kathleen Lohse/Tej	Phone:		Sample info:	soil
	Idaho State University	E-mail:	klohse@isu.edu		
	Biological Sciences			No. of samples:	- 46
				Run started:	3/24/2021
ISODAT File ID:	Lohse-Tej sediment 3-24-2021			Run Ended:	3/25/2021
Lab No:	V-122343 V-12398			Data Reported:	3/25/2021

Lab ID	Sample ID	Amount	Ampl 28	Ampl 44	δ <sup>15</sup> N air	δ <sup>13</sup> C VPDB	Weight	Weight	Comments
		(mg)	mV	mV	‰	‰	%N	%C	
V-122343	deci 0-5	8.74	1467	1553	3.41	-26.03	0.34	4.17	
V-122344	deci 5-10	9.25	1038	3690	5.01	-25.69	0.23	2.59	
V-122345	Deci 10-20	9	855	2958	5.35	-25.56	0.20	2.13	
V-122346	Deci20-30	8.5	723	2519	6.02	-25.56	0.18	1.93	
V-122347	Deci 30-50	9.22	686	2425	7.59	-25.38	0.15	1.71	
V-122348	Deci 50-75	8.9	588	2004	5.97	-25.25	0.16	1.46	
V-122349	Deci 75-100	8.78	1610	1592	5.80	-25.07	0.14	1.18	
V-122350	Deci 100-115	8.4	1256	2336	5.85	-25.03	0.12	0.80	
V-122351	Deci 115-130	8.94	1130	4647	5.85	-24.91	0.12	0.76	
V-122352	Deci 130-145	9.2	1042	3988	5.63	-25.20	0.10	0.64	
V-122355	deci 145-160	8.91	842	3066	5.87	-24.82	0.09	0.49	
V-122356	deci 160-175	9.32	644	2633	5.72	-25.04	0.09	0.40	
V-122357	deci 175-190	8.95	700	2806	5.28	-25.31	0.09	0.45	
V-122358	deci190-205	9.17	668	2977	5.05	-25.69	0.09	0.47	
V-122359	RIPA 5-17	8.53	1336	15210	4.17	-24.95	0.30	10.66	
V-122360	RIPA 17-37	8.92	1146	13208	4.77	-24.63	0.26	9.79	
V-122361	RIPA 37-45	9.03	645	9859	4.77	-25.22	0.14	3.31	
V-122362	RIPA 45-58	9.16	524	6292	4.63	-25.55	0.10	2.05	
V-122363	RIPA 58-70	8.84	655	10440	5.56	-25.31	0.14	3.61	
V-122364	coni 0-5	9.19	1880	16222	3.27	-25.56	0.41	6.81	
V-122367	coni 5- 10	27.46	5035	6383	4.04	-25.40	0.37	5.98	
V-122368	coni 10-15	29.6	2729	3221	4.96	-25.37	0.20	2.59	
V-122369	coni 15-30	26.29	1705	6776	6.35	-25.16	0.14	1.71	
V-122370	coni 30-40	27.5	1474	5781	6.58	-25.04	0.11	1.37	
V-122371	coni 40-50	26.6	1160	4473	6.73	-24.78	0.09	1.09	
V-122372	coni 50-60	27.51	998	3720	6.52	-24.72	0.07	0.88	
V-122373	coni 60-70	27.03	1075	4049	6.16	-25.01	0.08	0.98	
V-122374	coni 70-80	28.8	861	3039	6.06	-24.84	0.06	0.69	
V-122379	coni 80-85	28.12	726	2573	6.04	-24.31	0.05	0.60	
V-122380	coni 85-95	29.37	735	2420	6.26	-24.21	0.05	0.54	
V-122381	coni 95-105	49.73	1193	4083	6.49	-24.21	0.05	0.53	
V-122382	coni 105-125	49.7	1353	5331	5.31	-24.83	0.06	0.70	
V-122383	coni 125-147	50.29	972	3126	6.30	-24.14	0.04	0.41	
V-122384	coni 147-157	49.76	832	2394	5.99	-24.14	0.03	0.31	
V-122385	coni 157-162	50.07	820	2580	6.13	-24.16	0.03	0.33	
V-122386	coni 162-170	50.435	853	3394	6.07	-23.98	0.03	0.43	
V-122387	coni 170-180	50.159	999	3529	5.82	-24.33	0.04	0.45	
V-122388	coni 180-189	49.717	835	2605	6.02	-24.14	0.03	0.33	
V-122391	sage 0-5	49.757	3904	4284	3.15	-26.70	0.17	2.08	
V-122392	sage 5-10	50.32	3773	4144	2.72	-26.80	0.16	2.02	
V-122393	sage 10-20	50.55	3381	3674	3.32	-26.62	0.14	1.75	
V-122394	sage 20-30	50	3190	3302	4.21	-26.19	0.13	1.59	
V-122395	sage 30-40	50.64	2360	8048	5.20	-25.88	0.10	1.08	
V-122396	sage 40-60	50.78	2064	5489	6.65	-24.89	0.08	0.71	
V-122397	sage 60-80	49.43	1115	3122	5.66	-24.03	0.05	0.41	
V-122398	sage 80-100	49.933	1437	3753	5.91	-24.54	0.06	0.49	

Lab ID	Sample ID	Amount	Ampl 28	Ampl 44	δ <sup>15</sup> N air	5 <sup>13</sup> C VPDE	Weight	Weight	Comments
	Campio is	(mg)	mV	mV	<b>‰</b>	<b>‰</b>	%N	%C	
V-122330	ISU Peptone	0.538	3672	3600	11.64	-19.11	14.16	42.38	
V-122333	ISU Peptone	0.512	3481	3434	11.62	-19.11	14.17	42.66	
V-122336	ISU Peptone	0.524	3536	3493	11.53	-19.08	14.14	42.49	
V-122339	ISU Peptone	0.528	3593	3536	11.60	-19.10	14.18	42.85	
V-122354	ISU Peptone	0.549	3679	3634	11.61	-19.09	14.1	42.5	
V-122376	ISU Peptone	0.547	3692	3656	11.59	-19.15	14.27	43.23	
V-122390	ISU Peptone	0.527	3568	3534	11.63	-19.04	14.13	42.8	
V-122400	ISU Peptone	0.539	3734	3716	11.58	-19.11	14.27	43.18	
V-122404	ISU Peptone	0.548	3736	3700	11.60	-19.11	14.2	42.74	
				avg	11.60	-19.10	14.18	42.76	
				stdev	0.03	0.03	0.06	0.30	
V-122334	Acetanilide	0.557	2682	1704	-1.07	-28.57	9.79	70.14	
V-122337	Acetanilide	0.579	2820	6402	-1.09	-28.46	10.01	71.14	
V-122340	Acetanilide	0.572	2734	6217	-1.05	-28.50	9.79	69.76	
V-122377	Acetanilide	0.561	2671	6095	-0.91	-28.55	9.95	70.23	
V-122405	Acetanilide	0.554	2643	6024	-0.99	-28.56	9.7	69.55	
				avg	-1.02	-28.53	9.85	70.16	
				stdev	0.07	0.05	0.13	0.61	
V-122335	ISU Clay	25.484	2602	8850	7.44	-25.09	0.21	2.31	
V-122338	ISU Clay	25.315	2498	8452	7.45	-25.14	0.2	2.2	
V-122341	ISU Clay	25.437	2564	8646	7.45	-25.18	0.21	2.25	
V-122378	ISU Clay	25.313	2533	8610	7.35	-25.20	0.21	2.28	
V-122406	ISU Clay	25.233	2402	8268	7.20	-25.13	0.2	2.16	
				avg	7.38	-25.15	0.21	2.24	
				stdev	0.11	0.05	0.01	0.06	
V-122332	•	0.548	4383	2535	1.00	-41.46	16.69	29.28	
V-122342		0.515	4276	2479	0.99	-41.58	17.99	30.74	
V-122366	ISU Glycine	0.519	4337	2530	1.05	-41.45	17.91	31.3	
V-122375	ISU Glycine	0.505	4215	2458	0.95	-41.52	17.76	31.34	
V-122402	ISU Glycine	0.516	4445	2597	1.01	-41.47	18.16	31.88	
V-122403	ISU Glycine	0.549	4591	2666	1.00	-41.53	17.73	31.1	
				avg	1.00	-41.50	17.71	30.94	
				stdev	0.03	0.05	0.52	0.89	

A description of the activities undertaken, how the lab/project benefited from the funds, how the research goals of the lab/project were furthered. Include your thoughts on the mentoring portion of the project. Did you complete the activities described in your proposal? What might you do differently next time?

Funding through SBOE greatly helped my lab train a new generation of female scientists. As per my plan, I had identified 2 students prior to the application and also put my efforts to recruit a third student. I have been meeting these students regularly and actively executed a mentoring plan in association with my graduate students. These students have assimilated in my lab in a <u>very</u> strong way. It is difficult to imagine what the fall semester will be like, when they do not have this funding source and are wanting to continue their projects in my lab.

The specific projects that I had planned for these students slightly changed during the course of the award period. While my students Shanna Barber and Melissa Rivas worked on the bluebanded goby project as per the proposal, Anna Jirik focused on the GEM3 project. This was primarily due to delays for the development of the fish room. All three students also helped with setting up the fish room for gobies so they were able to learn a lot of valuable fish husbandry skills.

Each of the students had unique experiences during this award period:

The highlight was that I had started Shanna with a very mundane task – something that was designed so that she could work remotely (this was especially important to recognize because she is a single mother of 4 children). She was able to turn that around and was able to come up with her own research idea based on the observations she was making. I thought it was a very interesting idea and it is important for students to be creative in their thinking so I allowed her to pursue this line of investigation rather than filling the need for the project I had needed help for. During this experience, I realized that I also needed to put a lot more time than previously planned in order to execute this project appropriately. My graduate student, Katrina White also greatly helped mentor, but this was a very independent project.

Melissa is invaluable in my lab – due to her impeccable pipetting skills she developed during her CPI experience at MRCF, she was able to contribute to multiple projects. Some laboratory assays require several hours to complete and through this funding she was able to dedicate large blocks of time. In addition, Melissa went out of her comfort zone to develop protocols, analyze and interpret data, and present her work. She has worked with a number of other students and I have seen a big change in her confidence level and ownership of her science. I think she is undecided on the specific area of research she wants to pursue in graduate school; she does need to decide soon so that she can complete her applications this fall.

Anna joined my lab in her freshman year – it is never too early! The initial part of her experience included understanding overall research approaches and activities in a lab

setting. Due to her enthusiasm and dedication, she has made excellent progress and is planning for the ways she can continue participating in my lab.

From reading their individual reports and my interactions with them, overall, each of these students learned how to work individually and part of a team. They have developed confidence, comradery, a sense of belonging in the sciences and a scientific identity – elements that are critical in shaping a researcher's mind.

Regarding funding, all of the money was used for student hourly pay and supplies. We had proposed for Shanna to get science diver certification, however, due to COVID-19, the training was canceled.

Undergraduate researchers are important to train; they are not getting that exposure in their course work. As a result, much of what could be taught in a classroom to multiple students at once is not possible and individually teaching all the information to students is extremely challenging due to other responsibilities I have – it just takes up drastically more time than what I plan for.

Students also work on their own time and so multiple students have different availabilities and when they work at the last minute for deadlines, it is overwhelming for me as PI. It makes it extremely difficult to train them while also meeting my other responsibilities. It takes much longer to teach students scientific design, hypothesis testing, analysis, and writing. Undergraduate students also are learning to manage time during this process and are unable to estimate time it takes to gain skills and make their own schedules. This is especially important to consider because when coursework and grades are the primary reason undergraduates are in college, exams and assignments are always prioritized; research is secondary or even performed last after other commitments are taken care of. In future, it would be good if there are avenues by which undergrads in this program get more set deadlines and are also taught complementary skills through biweekly workshops.

Finally. having an identified path for income supplementation for the next step for these high achieving undergraduates take in their research pathway is extremely important. My students have been benefitting from this income and they do not stop with research in the fall. Independent problems and senior theses are additional ways to continue research, however, those have finite timespans as well.

SBOE- Undergraduate Research Funds

Final Report 2021

Blatt & Mullin

Project Supervisor: Dr. Samantha Blatt Funded Student: Marissa Mullin Department: Anthropology

#### **Project Supervisor Summary**

I was awarded \$1600 in SBOE Undergraduate Research Funds in March 2021 after being declined funding initially from a proposal submitted for \$9000 with Dr. John Dudgeon. Due to the budget change from what was requested and a late award, the initial proposed project was no longer possible. Nevertheless, a new project became a successful collaboration with undergraduate Anthropology major, Marissa Mullin, who is now able to continue this path of research for her honor's thesis.

The project undertaken with these funds supported the testing and analysis of human remains discovered and excavated on a private farm on the outskirts of Pocatello, Idaho in 2015. Though reviewed after discovery in order to eliminate the possibility of forensic significance to the satisfaction of law enforcement, the remains were not previously rigorously analyzed. Pulling from the osteological and bioarchaeological background of the biological anthropology program at ISU, the project applied skills taught in anthropology courses to a real case study with many discoverable unknowns. Marissa Mullin was selected as a temporary employee student to complete this project under my mentorship because of her skillset and enthusiasm (particularly on the short notice of this award).

This project began with familiarizing the student with standard and particular lab protocols and safety and orienting her to the ways in which laboratories follow safety standards and documentation of daily activities. Though already familiar with human osteology and ethical practices of working with human remains from previous course work, Marissa and I discussed the ethical concerns of retaining humans remains as part of a legacy collection without proper analysis and without due diligence of repatriation is warranted or possible. Therefore, the ultimate goal of this project was to conduct minimally invasive analysis of the remains to help in cultural/temporal identification of these remains for reburial/repatriation. This goal involved reconstruction of the biological profile from the remains.

Under supervision, the student learned to follow the standard and the most currently accepted procedures to the discipline to estimate components of the biological profile such as ancestry, sex, age, stature, pathology, and taphonomic modifications. She learned to observe and record metric and morphometric traits, photo document the entire skeleton, document preservation, assess pathological, traumatic, and habitual markers of bone, and how to interpret the data being collected. This also included becoming familiar with analytical software used in the discipline such as Fordisc, ADBOU (TA2 and TA3), and Osteomics and the ways in which to interpret and report their statistical read-outs. These analyses and data culminated into a working draft of a forensic/bioarchaeological report. In this way, Marissa has gained hands-on experience in the components, process, and procedures of report writing which is applicable to forensic, museum, and cultural resource management careers.

This is still an ongoing project. Marissa will further develop this report with historical contextual research in order to build an Osteobiography for her honor's thesis, which will combine the technical data, cultural historical context related to this data, and a fictive narrative of the individual. This project was particularly furthered by these funds since they supported not only her employment in data collection, but testing through the University of Arizona AMS laboratory for a radiocarbon date to narrow the temporal range of individual (upon which a historical context can be gleaned) as well as carbon and nitrogen isotopes to capture dietary information from the individuals adulthood.

SBOE- Undergraduate Research Funds

Final Report 2021

Blatt & Mullin

Prior to the start of this project, the goal for these funds was to support the reconstruction of the biological profile. That has been successfully completed and is in draft form. We are currently still awaiting the radiocarbon and isotope results, but this will contribute to Marissa's honors thesis as well as the planned student presentations of this project. This project has been accepted as part of a symposium on historical and forensic skeletal analyses in Idaho at the Idaho Heritage Conference in September 2021. Marissa will present as the main author of this project there and is planning to present a poster at the ISU Undergraduate Research Forum next spring. Since, these planned conferences occur after the due date of this report, the presentation/poster are not included here. Instead, the drafted report of this project (authors by the student and myself) is attached. This report, when finalized will become part of the archives of the Idaho State Historic Preservation Office and be sent to the involved law enforcement agency (Bannock County Sheriff) for record. Additionally, I intend to include Marissa and several other students as authors to a published report after completion.

I believe that my mentoring of this project has been successful, though incomplete. With more time and funds, I would have liked to employee more than one student and be able to be further along with the historic/cultural component of the project by arranging for the student to get in-person assistance and training with a librarian and Idaho Historic Preservation representative. I would also have liked to scheduled more reading and discussion meetings with the student to dive into some of the development of the methods she was learning. Finally, in the future, I would like to maintain more regular documentation of my mentoring meetings with the student and encourage further CITI trainings.

**Table 1. Future Plans for this Project.** 

Date	Activity
July 2021	Interview landowners where remains were found
August 2021	Meeting with Idaho experts on California-Oregon
	Trail
	Integrate AMS and isotope results into drafted
	report
September 30 2021	Idaho Heritage Conference presentation
October-November 2021	Historical research
	2 <sup>nd</sup> draft of technical report
December 2021-January 2022	Draft of fictive narrative based on historical and
	technical data
March 2022	Final draft
	Honors thesis defense
April 2022	ISU Undergraduate Research Symposium poster
June-August 2022	Draft and submit manuscript for publication

<sup>\*\*\*</sup>A draft of the report is attached. As an ongoing case, this report is not to be disseminated further and since it is not complete and is only a draft, does not represent to final conclusions of the research. Images of human remains were not included in this draft for ethical reasons and maps or indications of the scene location were omitted.\*\*\*

SBOE- Undergraduate Research Funds

Final Report 2021

Blatt & Mullin

## Student Perspectives on the Benefits of the SBOE Undergraduate Research Funds: On the Path to Identifying the Pocatello Pioneer

#### **Student Introduction**

My name is Marissa Mullin and I am an undergraduate majoring in anthropology with a specific interest in forensic anthropology and bioarchaeology. I am currently in junior standing and anticipate graduating in 2022 with honors. I was given the opportunity to be funded as an employee in Dr. Blatt's lab this spring in order to contribute to a project involving the skeletal analysis and osteobiography of human remains discovered on Larson Farm outside of Pocatello, Idaho in 2015. This purpose of this report is to outline the skills I learned and direct benefits to me as a student as the result of funding through the SBOE.

#### **Skills Learned**

Starting at the beginning of this project, I first became familiar with the frustrations that come with this field/line of work and how vital information and paperwork can be lost in communication or removed from our possession entirely. When the remains that we are analyzing were first discovered in 2015, the team that unearthed them did not complete professional reports, take quality photos, or document analysis accurately. To make matters more complicated, the identification process seemed to be discarded entirely and the team who was working on said remains either graduated or otherwise left them to collect dust in a box. Six years later, Dr. Blatt was contacted by the family who originally uncovered the remains on their property and the search to find out who John Doe was started back up. However, we were left with no solid research and a pile of unsorted bones.

This is when I learned the process of starting research from scratch. We began diving into all the information we were provided with; we reread correspondence emails about the original recovery of the remains, we took quality photos of each bone and placed them anatomically together to gauge how many were missing, and we carefully looked over each bone for soil staining, sun bleaching, trauma and other irregularities that could aid in identification. My journey of independent sex, age, stature and weight estimations began and I used as many references as possible to provide accurate information, however, I still came up short in a few areas. This is where I learned to humble myself and recheck my work with Dr. Blatt on FORDISC. After discovering how to operate the program, and the numbers coming out nearly identical every time, I found out the importance of having someone (preferably one who has lots of experience) check over your work and help you find out where you made mistakes, so you can correct yourself in the future.

Overall, this project has given me more knowledge in osteology and the identification of remains, but it has also provided me with an experience to do research with professionals in a lab setting and how to correspond with people who could provide resources that would aid this type of project.

SBOE- Undergraduate Research Funds

Final Report 2021

Blatt & Mullin

Table 2. Skillset Achieved Through this Project.

Skill	Specific Tasks
Skeletal Analysis	Biological profile, 14C and isotopes sampling and
	interpretation, taphonomy, trauma, FORDISC,
	MaMD, photography, data collection, metrics,
	nonmetrics
Historical Context	Searching historical maps and documents,
	Oregon-California trail history of eastern Idaho,
	constructing a fictive osteobiography from
	technical data
Report Writing	Technical writing, formatting, creating figures and
	tables, legal issues and NDA practices and ethics
	regarding sharing data and photos
Disseminating Research	Abstract writing, preparation of professional
	presentation, presentation experience

#### **Beneficial Experience**

This research experience has benefitted me and my educational goals by connecting me with so many unique individuals who have provided me with resources and support. I truly wouldn't have the opportunity to have met so many talented and hardworking people without having worked on this project. Another beneficial aspect is that of my confidence levels when presenting the information regarding this case in a professional and logical manner. The experience I have gained through writing reports, sending emails and presenting facts to professors and researching students alike has boosted my confidence astronomically. In addition,

the information learned on how to investigate specific issues connected to the project has shown to be quite useful in a variety of non-related situations and will continue to be so in the future.

This initiative also aided in the development of self reliance. I've been encouraged to seek out my own solutions and forge my own path. While I was introduced to methods of skeletal analysis in courses, this was my first application of those skills and being able to see the complications and limitations of these methods in a real setting and learning how to then best use these methods. Because I'm demonstrating that I can be trusted to take on a task and complete it independently, this allows me to better understand my own strengths and shortcomings, as well as how I might improve them. Lastly, my organizational skills have improved as well because of this project. These abilities are required in the lab to boost production and guarantee that goals are routinely fulfilled, as well as to assist a team function well by maintaining operational efficiency.

Table 3. Benefits and Products.

Expected Date	Beneficial Product of Project
August 2021	Finalized report with biological profile
September 2021	Presentation at Idaho Heritage Conference
April 2022	ISU Undergraduate Research Symposium
April 2022	Honors thesis defense
Summer 2022	Preparation of manuscript for publication as co- author

SBOE- Undergraduate Research Funds

Final Report 2021

Blatt & Mullin

#### **Future Plans**

While we are still waiting for test results from this project and historical analysis is still underway, I am using this project to complete an honors thesis and plan to graduate in the coming year. A draft of the report being generating from this project is attached as part of this larger SBOE report. This thesis will expand the work done from this project and I hope better prepare me for advanced studies in anthropology in graduate school. Dr. Blatt and two other undergraduate students and I will be presenting the findings of this project as part of a symposium organized by Dr. Blatt at the Idaho Heritage Conference in September 2021, entitled, "Archaeology Session: Bodies, Burials, and Bootleggers: Studying the Dead in Idaho". In spring 2022, I plan on presenting my findings from this project and those expanded from my honors thesis at the ISU Undergraduate Research Symposium as a poster. Ultimately, I will be a co-author with Dr. Blatt and others on a publication of the osteobiography resulting from this project which will help me develop professionally and increase my chances of being accepted into graduate school.

This project has been one of the most beneficial and exciting experiences of my college career primarily because this is exactly the type of work that I want to go into. Research based work in a lab with lots of different aspects to analyze in a set of remains fascinates me and this undertaking has given me a glimpse into what that would be like. This project has helped me to really understand the ties of bioarchaeology with forensic anthropology and the deep contextual component that bioarchaeology adds to a biological profile. The adventure of investigative work and science to prove where someone is from or how old they were at the time of death to narrow down possible identities is incredible and I have had a passion for this since middle school. If anything, this project has fulfilled many dreams of mine and cemented that love for anthropology in me. Of course, other students and Dr. Blatt have aided me along the road, but the dedicated role models they have provided have truly pushed me to continue in this profession and seek graduate school while pursuing a degree in forensic anthropology.

SBOE- Undergraduate Research Funds

Final Report 2021

Blatt & Mullin

1596

## **Funding Expenditures**

4
\$
3

Total

SBOE- Undergraduate Research Funds

Final Report 2021

Blatt & Mullin



# **Idaho State University**

Department of Anthropology Idaho State University 921 South 8<sup>th</sup> Avenue, Stop 8005 Pocatello, Idaho 83209-8005

## **Forensic Anthropology Report:**

To:

Bannock Co. Sheriff's Office 5800 South 5<sup>th</sup> St. Pocatello, ID 83201 From: Dr. Samantha H. Blatt, Ph.D.
Department of Anthropology
921 S. 8<sup>th</sup> Ave. Stop 8005
Pocatello, ID 83209

.....

RE: Analysis of (Bannock County, ID)

Final Report Date:

#### Introduction

On Saturday, February 13, 2021, Dr. Samantha Blatt from the Idaho State University (ISU),
Department of Anthropology, was contacted by of Inkom, Idaho in regards to a set of human remains that was recovered from the Larson property on August 23, 2015
The remains were reported to have been found by the Larson grandchildren. Bannock County Sheriffs and ISU personnel confirmed that the remains were human. Though a report was generated in 2015, it was incomplete and not shared with the landowners or law enforcement.

#### **Recovery and Curation**

The remains were recovered from the scene on August 23, 2015 by former ISU forensic anthropologist, Dr. Kyra Stull, ISU lecturer Christian Petersen, and two anthropology graduate students. Arriving at the scene, remains were found protruding from a 6-foot tank of earth behind an outbuilding on the property, which was rimmed by a 4-foot wood corral fence. The landowner state that the bank was made while removing earth with a backhoe approximately 30 years prior and that the fence was built around the same time. The Larson grandchildren had subsequently created a hole penetrating horizontally into the bank and discovered bone.

[Figure- Google map image of area and scene]

Upon arrival at the scene, Dr. Stull noted that the left ribs and right humerus were protracting from the hole and several other bones had been removed by the landowners. ISU personnel took the initial step to screen the backfill earth removed by the landowner and several more bones were found. Then, a

SBOE- Undergraduate Research Funds

Final Report 2021

Blatt & Mullin

more systematic excavation proceeded. Since the position of the fence limited the direction of recovery of the remains, excavation began with shovels from the fence line and proceeded vertically to the depth of the initial discovery. The depth of the remains was not recorded by Stull, but excavation proceeded with trowels when the cranium was unearthed, which was followed by slow excavation of the bones of the upper torso. Once the skeleton was pedestalled and removed, the walls of the burial feature were extended out 4 inches in all directions and screened to ensure complete recovery. Mapping or precise photography of the recovery was not completed and so the full archaeological context of the remains is unknown. No datum depths were recorded. No organic or inorganic artifacts were recovered with the remains.

[Figure- photographs of recovery in order to estimate depths]

Remains were transferred to the research laboratories at Idaho State University after recovery. There is no documentation of formal transfer of the remains from the Bannock County Sheriff's Office, however, the landowners stated that when they contacted the Sheriff's Office in 2021, they were told the remains were considered to not be of forensic value, possibly "150 years old," and kept at ISU. Ultimately, transfer and accessioning of the remains will need to be conducted formally.

#### Methods

Anthropological analyses performed and conclusions reached are dependent on the quality and quantity of the remains and the needs or analytic requirements for a case. For this case, the Items were examined macroscopically, morphoscopically, metrically, as well as isotopically.

#### Results

#### **Inventory and Condition**

The recovered elements (see homunculus) are consistent with one adult individual. The remains are roughly 60% complete with the left and right lower legs, feet, left clavicle, left hand, left humerus, left scapular, some vertebrae and the mandible missing postmortem. Additionally, the dentition was limited to 6 teeth in the maxilla and there was post-and ante-mortem dental loss.

Primary burial, laying supine with head on the right side. Legs were removed before recovery effort so it is impossible to assess if they were extended or flexed. The positioning of right humerus and elbow joint suggests that hand was place on top of the body (but the hands were not preserved).

[Figure- homunculus image of the skeleton]

SBOE- Undergraduate Research Funds

Final Report 2021

Blatt & Mullin

[Figure- photographs of the dentition with dental inventory]

## **Taphonomic Alterations**

There is surface soil staining and root etching on nearly every bone, including the cranium, humerus, scapula, ribs, vertebrae, and phalanges. There is also sun bleaching on the distal portions of each femur, indicating that the legs were uncovered for a long period of time. Postmortem rodent tooth marks on the skull.

[Figure- photograph of gnawing marks and root etching]
[Figure- photograph of bleaching]
[Figure- photograph of cranium during recovery with roots penetrating]
Radiocarbon and Isotopic Results
Results are pending.
[Figure- isotopic triangle with points for isotope results]
Trauma and Pathology
Analysis still underway.
[Figure- cut marks on MT1]
[Figure- Cut mark on rib]
[Figure- cut marks on two vertebrae]
[Figure- arthritic changes on the right transverse processes of vertebrae]
[Figure- arthritic eburnation of joints]

SBOE- Undergraduate Research Funds

Final Report 2021

Blatt & Mullin

#### **Biological Profile**

#### Sex

Non-metric features associated with sexual dimorphism were scored independently of each other based on descriptions and diagrams from Buikstra and Ubelaker (1994). The cranial features such as the supraorbital margins, nuchal area, brow ridges, frontal, and mastoid are moderately robust overall (scoring 3's and 4's across the board) and most consistent with male morphology. Sex was then estimated using logistic discriminant function equations (Walker 2008) using non-metric scores of the glabella and mastoid. These results (4.674) also indicated that the features were consistent with male.

Additionally, craniometric analyses were conducted using Fordisc software Ver. 3.1.314 (Ousley and Jantz 2019). All of the 27 cranial measurements (excluding the mandible) were used in Fordisc could be included in the analysis (given the state of preservation). Craniometrics were first evaluated using all eight modern groups in the Fordisc databank, from both sexes, with Forward Wilks stepwise selection with default parameters. Assuming that this individual belongs to one of those groups in the databank, the combined posterior probabilities indicate that the individual is 99.97% likely to be male.

The pelvis was also assessed for morphological features. The pelvis overall is elongated and narrow with a narrow greater sciatic notch. The sacrum is also elongated. These features are consistent with male pelvic morphology (Walker 2005).

Based on the above analyses and in agreement with previous reports, the cranium is consistent with a MALE.

#### **Ancestry**

Using Fordisc software Ver. 3.1.314 (Ousley and Jantz 2019), metric analysis and non-metric morphological estimation of sex (see above), the same 27 cranial measures were selected using Forward Wilks stepwise selection with default parameters. Mandible metrics were not included as the mandible was absent. Using the Forensic Databank (FDB) with all male and female groups from modern populations available, F typicalities were highest for Hispanic Male (0.030). Assuming this individual belongs to one of the FDB groups, even though they are close to the sectioning lines distinguishing other groups, they are 57.7% likely, according to combined posterior probabilities, to be a Hispanic Male.

However, context and condition of the remains suggest that this individual would be better represented through a historic population data bank rather than FDB. Therefore, the same craniometrics were compared against the Howells modern and historic collections within Fordisc. Males and females were initially pooled. F typicalities were highest for the BERM (western European) group (0.018). When analyzed using only modern and historic male groups from Native American, European, and African populations, ISU15-005 was most consistent with a 19th Century White Male (with a posterior probability of 92.9% and F typicalities of 0.046).

Ten macromorphoscopic traits (based on shape) were also assessed according to (Hefner 2009, 2018) using Osteomics and MMS 1.61 software which uses the Macromorphoscopic Databank. This method categorized the cranium as 74.59% American White (95% CI).

Based on the above analyses, and assuming that this individual belongs to one of the groups available in the Howells databank, the cranium is most consistent with a MALE of broadly EUROPEAN ancestry.

10

SBOE- Undergraduate Research Funds

Final Report 2021

Blatt & Mullin

#### Age

Age estimation was based on the auricular surface of the right innominate (Meindl and Lovejoy 1989) and to a lesser extent using cranial suture closure (Meindl and Lovejoy 1989; Nawrocki 1998). Assessment of the deterioration of the auricular surface (Meindl amd Lovejoy 1989) yielded an age of 50 years. Scoring the cranial sutures of the ectocranial, endocranium, and palate (Nawrocki 1998) produced composite scores for suture closure of the cranial vault (27-55 years) and lateral-anterior (35-55 years) sites along the cranium. A summary age of these methods results in an estimated age of 27-55 years.

A combination of the auricular morphology and cranial suture closure was assessed using ADBOU 2.0 (Boldsen et al. 2002, 2011) which provides a likely age range from a database of known ages using transition analysis. Using a white/male mortality model and forensic hazards model, this method resulted in an age range of 17-81.9 years with a point estimate of 41.5 and 41.4 years respectively (95% CI). The corrected point estimate was 33.6 years of age.

Given the arthritic changes in the vertebrae and joints, it is likely that ISU15-005 had an overall age range of about 33-55 years.

#### Stature

Stature was estimated from the maximum lengths of the right humerus (309 mm) and left radius (231 mm) using regression formulae for white males (Trotter and Gleason 1952). Estimation from the humerus resulted in a stature of 162.83 (5'4")- 171.97 (5'8"). Estimation from the radius resulted in a stature of 162.3 (5'4")- 171.63 (5'8"). The overall stature estimation range for ISU15-005 is 5'4"- 5'8".

#### **Identifying Traits**

Still in progress...

#### **Historical Context**

Still in progress...

#### **Summary**

Still in progress...

The cranium most likely represents a MALE, 33-55 YEARS OLD, of broadly EUROPEAN ancestry. The trauma is consistent with peri-mortem sharp force trauma, but other trauma cannot be excluded. There is not direct evidence for the cause of death.

#### Recommendations

Still in progress...

SBOE- Undergraduate Research Funds

Final Report 2021

Blatt & Mullin

#### **References Cited**

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Nawrocki S. (1998). Regression Formulae for Estimating Age at Death from Cranial Suture Closure. In: KJ Reichs & WM Bass (Eds.), *Forensic Osteology: Advances in Human Identification* (p. 276-292). Springfield, IL: Charles C. Thomas.

Ousley SD & Jantz RL. (2019). Fordisc 3.1: Computerized Forensic Discriminant Functions. (Program Version 3.1.315).

Transition Analysis 3 0.8.0 software and manuals can be found here: http://statsmachine.net/software/TA3/

Walker PL. (2008). Sexing Skulls Using Discriminant Function Analysis of Visually Assessed Traits. American Journal of Physical Anthropology 136: 39-50.

**Name of lab/project:** Identify the structural determinants of metal selectivity for the major pneumococcal virulence factor Pgm

Name of faculty lead, email: Julia E. Martin, martjul8@isu.edu

#### Final progress report description:

Our expected outcomes of this project were to have defined the structural determinants selective for metal-binding in Pgm, while increasing exposure of undergraduates to research and enhancing ISU's biomedical research enterprise. Three undergraduates were supported by these funds. The students worked collaboratively towards completion of two aims: 1) identify the potential metal-binding sites of the pneumococcal Pgm using a multilayered bioinformatics approach and 2) Biochemically assess the metal binding affinity, stoichiometry, and activity of select Pgm mutant proteins. Students completed aim 1 by identifying two conserved metalbinding residues and 6 potential metal-binding residues within the Pgm protein sequence using amino acid sequence alignments and structural protein modeling. Students constructed DNA oligos that were used in site-directed mutagenesis to exchange out the select amino acid to the non-metal binding amino acid alanine. All mutant Pgm plasmid constructs were sequence verified for correct mutation. These plasmids were transformed into Escherichia coli for protein overexpression and purification. Students successfully purified one mutant Pgm construct (R308A) before the end of the funding period. The data generated thus far was used to help write project objectives for a recent NIH NIAID R15 grant application that is currently under review.

There were a number of <a href="challenges encountered">challenges prevented my team from completing aim 2 as proposed. First, commitment to the research project by students was interrupted repeatedly by various events, including COVID-19 regulations, quarantine process, and academic schedules. Second, extensive initial training was required since each student had very little to no research experience. Although time consuming, I worked independently with each student to train them in proper microbiological techniques. Each student now has a better understanding of microbes and a skill set that will be useful in other laboratory settings. Finally, I was not able to recruit students until mid-academic year. Many students were still cautiously approaching their academics due to the COVID-19 pandemic that was occurring. In all, I think the students accomplished a lot given that this was their first hands-on wet-lab research experience. I am glad to have to this opportunity.

I believe that my mentoring interaction made a significant impact on each of the students, particularly in strengthening their self-confidence to perform research and/or a higher degree. During down time when waiting for materials to incubate, solidify, dissolve, *et cetera*, we would discuss research challenges, time management, life-work balance, and graduate school.

If I was given another opportunity to apply for such funding, I would request that the start the funding application be due and awarded within the first month of the fall term. This would allow for better recruitment and more time to focus on the project. Maybe I was slightly naïve in thinking students would be eager to participate in research during COVID-19. Given the student schedule constraints during the academic year, it might be even more rewarding to have been able to extend the funding into the summer.

#### Students supported by funds received:

The funds received supported three undergraduate students working directly under my supervision. This was the first hands-on wet lab research experience for each of the students. The students worked collaboratively to accomplish the first several goals of the project to identify potential metal-binding residues within the pneumococcal Pgm using several

Undergraduate Research Funds FY21 Final lab/project report

bioinformatics approaches and to begin site-directed mutagenesis to generate plasmids expressing mutant Pgm proteins for further study. Each student has expressed interest in continuing to work in the lab next academic year.

#### Crystal Lovato, B.S. Microbiology/Music

- Junior standing at ISU, preparing to apply to graduate programs Fall 2022
- Trio-McNair Scholar
- INBRE Research Summer Fellow 2021
- As a result of this research experience, Ms. Lovato will pursue a Senior Honors Research Thesis project related to this topic under my supervision

#### Camille Hansen, B.S. Microbiology

- Junior standing at ISU, preparing to apply to graduate programs Fall 2021
- INBRE Research Summer Fellow 2021
- As a result of this research experience, Ms. Hansen is now excitedly gathering information about graduate programs across the U.S. for which she would like to apply

#### Rejeesh Gautam, B.S. Biology-Biomedical Sciences

- Senior
- As a result of this research experience, we have discussed types of research opportunities and career paths.

#### Dissemination of research data:

Each undergraduate student presented a poster at the ISU Undergraduate Research Symposium (see below, undergraduate presenter names are underlined). Two of the students, Crystal Lovato and Camille Hansen, were selected to participate in the INBRE Research Summer Program at ISU. These two students will continue to work on this project through the summer. Results will be presented at ICUR, at the annual INBRE Summer Conference in Moscow, ID, and at either the ABRCMS or the SACNAS national undergraduate conference.

- Rejeesh Gautam, Crystal Lovato, and Julia E. Martin. (2021) Identifying the second metal binding site in the pneumococcal phosphoglucomutase. ISU Undergraduate Research Symposium, virtual poster.
- <u>Crystal Lovato</u>, Rejeesh Gautam, and **Julia E. Martin**. (2021) *Identifying the structural determinants of metal selectivity for the major pneumococcal virulence factor Pgm*. ISU Undergraduate Research Symposium, virtual poster.
- <u>Camille Hansen</u> and **Julia E. Martin**. (2021) Correlating bacterial capsule production with phosphoglucomustase activity in Streptococcus. ISU Undergraduate Research Symposium, virtual poster.

Independent student reflection description start on page 4 after financial report.

Undergraduate Research Funds FY21 Final lab/project report

## **Undergraduate Research Funds, FY21 – Interim Financial Report:**

Funding spent on materials and supplies to support research project.

Transaction date	Vendor	Reason for	Amount (\$)
		Expenditure	
12/3/20	Fisher Scientific	DNA oligos for SDM	84.00
1/31/21	Fisher Scientific	DNA oligos for SDM	17.48
2/28/21	Fisher Scientific	Mag-fura-2	522.07
2/19/21	Fisher Scientific	DNA oligos for SDM	75.93
2/19/21	Fisher Scientific	Media	46.14
3/9/21	Fisher Scientific	Media	46.14
3/25/21	Cytiva	Protein purification	208.24
Total			\$1000

Funding spent to support undergraduate research assistants (URAs) for research project. <u>Student names</u>: Crystal Lovato, Camille Hansen, and Reejesh Gautam

Total spent from 10/25/20-3/20/21: \$1111.60

Anticipated amount needed to support URAs until end of funding period 6/1/21 (based on current average student hours worked): \$2000.

Undergraduate Research Funds FY21 Final lab/project report

### **Independent Student Reflections on Research Experience:**

#### Submitted by Reejesh Gautam

First of all I would like to acknowledge, my advisor Dr. Martin and SBOE for providing me mentoring and funds to experience this research opportunity. I had very less clue about my academic future in the beginning but since I started experiencing the laboratory opportunity, I have developed a handful of plans and progression towards my academic success. Since, this was my first research experience, I was unsure about how research lab works. But with this exclusive experience, I now have evolved with lot of problem solving skills, better understand published works, learn to balance collaborative and individual work, determine the area of interest, and jump start my career as researcher. I was unaware about laboratory equipment and imagining as a researcher was just limited to my dreams. With this research experience, I can now stand out of day-dreaming and I am able to mark my friendship with the laboratory equipment, report writing, explaining and presenting my research work. It has definitely helped me booming up my research career. Like a breakthrough, I am able to break down the barrier between the theoretical and practical life sciences. I feel blessed to have my advisor guiding me through every steps of experiment, colleague researchers for providing me with unconditional support and Idaho State University for having all these gems covered under biological department. After this research experience, I can see myself as an upcoming microbiologist, has strengthened my future plans and has provided me a gateway to success. My advisor has always been on my side when needed and her support has helped me stand out in the crowd and get recognized. I was passionate about pathology, virology, and overall bacterial life cycle. This research has helped me with in hand experience and strengthened to unleash my capacity to work more on these projects.

Undergraduate Research Funds FY21 Final lab/project report

#### **Submitted by Crystal Lovato**

Working in Dr. Martin's lab has been a wonderful experience and has really set the bar for my expectations of a research experience. I was able to learn new techniques such as SDS-PAGE gel construction and protocol, protein purification, and competition assay protocols. I have also had tremendous instruction on academic writing, poster construction and presentation from Dr. Martin.

This research experience has shown me how much time and dedication goes into producing usable data for the health field. I have grown as a writer, presenter, and as a student because of the hours I have spent in the lab. One of the most beneficial parts of this experience has been Dr. Martin's advice on my path after my undergraduate education. She has helped me identify graduate programs that fit my interests, application tips, and has given me an insight on what the Graduate experience will truly be like.

The time I've spent in Dr. Martin's lab has truly helped me solidify my dreams of entering the research field. I have always thought working in a lab would be the most rewarding job for me, but actually having the opportunity to do so has shown me that it's not just the wet lab experience that excites me but, also the search for answers and the process of finding them through deep thought and problem solving.

I would also like to recognize Dr. Martin's amazing talent for advocacy. She has helped many under-represented students like myself see that the road to a successful career isn't as hard to reach as it has seemed. She has inspired me to be more confident in myself and not let my identity as a latina woman be something that holds me back, but something that propels me forward.

Undergraduate Research Funds FY21 Final lab/project report

#### Submitted by Camille Hansen

Research is completely different than how I imagined it. Rather than one eye opening discovery, it's a gradual process that introduces more questions and hypotheses. Although the experience taught me important molecular techniques such as site-directed mutagenesis and constructing bacterial strains, I never anticipated the significance of working in a lab. I had to learn patience with myself. As an undergraduate arriving with a limited understanding of the project, I made a lot of mistakes. I have always been someone that excels within the limits of the comfort zone and rarely ventures outside my self-imposed limit. Making mistakes is actually important—without them I would never have the determination to improve. I am very appreciative to my mentor, Dr. Martin, for being supportive as I have slowly improved in my understanding of the techniques and subjects.

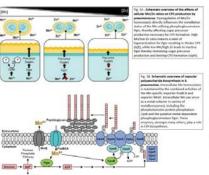
For the past three years, I have been planning to attend graduate school. Working in the lab has provided me with a skill set that will be important in the years to come. I have improved simple techniques such as pipetting accurately and running an agarose gel that I otherwise did not know was a barrier in my learning. Reading literature relating to the subject has also introduced me to other ideas and avenues that have intrigued me.

Being involved in Dr. Martin's research has been challenging but very rewarding. I look forward to being in graduate school and researching something new. I have always been captivated by bacteria and researching Streptococcus has cemented those plans as I find myself looking into potential graduate schools. Microbiology is a fascinating field that I am anxious to investigate in my career plans.

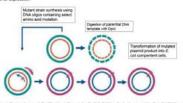
## Identifying the Second Metal-Binding Site in the Streptococcus Phosphoglucomustase

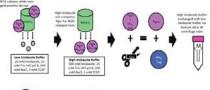
## Idaho State

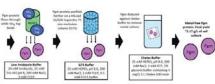
Reejesh Gautam, Crystal Lovato, and Julia E. Martin Department of Biological Sciences, Idaho State University, Pocatello, ID 83209 USA



We hypothesize that the mutation N482A in Pgm will alter metal binding affinity and stoichiometry using mag-fura-2 metal binding competition assay

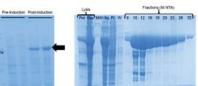






This project is supported by a 2020-2021 STEM Undergraduate Research Grant from the ID State Board of Education Higher Education Research Council through Idaho State University.







TAB 4 Page 85 **IRSA** 

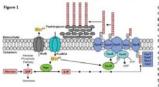
## Undergraduate Research Funds FY21 Final lab/project report

# Identifying the Structural Determinants of Metal Selectivity for the Major Pneumococcal Virulence Factor Pgm Crystal L. Lovato, Reejesh Gautam, Julia E. Martin Department of Biological Sciences, Idaho State University, Pocatello, ID 83209 USA

Abstract

Sreptococcus preumonies (Spr) Figm is a mangeness-dependent phosphosphocomutase that bridges gycolysis with the bacterial required bosynthesis pathway, Bead on structural and biophysicist characterization of other PGM/FMM family proteins. Spr Figm is opported to bridge it deates one metals in one however, with find that app Figm on bind up to two metals into per proteiner. As busy, Circliar MM/Zir ratios can directly modulate Pigm specific activity but the actual inchaniam by which these metals bind to Pigm is not claim. The protein requires approach and bioinformatics approach, with selectly average potential fresh binding postellar in Pigm. In alianiam in Pigm to generate motant Pigm portions, which will be purified to homogeneous via a political Pigm for the proteins, which will be purified to homogeneous via a political Pigm for the proteins, and the steed for metal-indinent griding and contributionary using a mangelurus2-metal competition assays. Mescale metal afficially proteins, and will suggest that the select mutated residue liskly participates in metal binding and is required for Pigm activities. These data will suggest that the select mutated residue liskly participates in metal binding and is required for Pigm activities. These data will suggest that the select mutated residue liskly participates in metal binding and is required for Pigm activities. These data will supple the protein succession of the proteins of the protein succession of the proteins of t

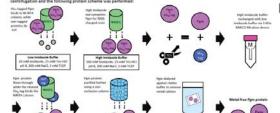
Streptococcus presumenies (Ean) is a Gram-positive besteris that causes sinustis and otitis media, and the severe invasive disease positions of the properties of the propert



Again as excepted that formulae glycolosis sets to CSS biosynthesis pathways, Ray in a metal dependent encyment that catalyzes the conversion of glycone-el-phosphate to arginose-1-phosphate, precureer rugar for CPS formation (see Figure 11 and the left). Current that data has established that wolke other PGM/PMM family proteins, the 5g Pagn bods two metal can per protocore. These activity, thereby regulating CPS expression levely Using bioinformatic approaches, we described that Span Pgm hardoors the known conserved metal benefits of the control of the second metal biology of PSM/PMM family members. In this study, we plan to elucidate the location of the second metal biologing region is

PRECEDENT AND CELEBORY

Inflication: Overnight E. Coli BL21 cells harboring phis-Pgm were diluted 1/100 onto fresh LB medium containin
nd grown aerobically at 30°C, shaking, At approximately 0.6 OQ<sub>660</sub>. I mM isopropy 8-0-1-thiogalectopyranosic
pneumonice Pgm protein synthesis at 18C for 20 h. One liter of cells were harvested by centrifugation. Cel

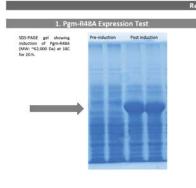


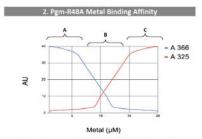
Site-directed Multagenesis: DNA oligo containing select amino acid mutation were used in site-directed multagenesis to mutate gymen on the piesi-gym planishin Peners template planishin Observation was disparted by Opon. The remaining mutanet planishin with the transformation into Ecol DRSs chemically competent cells and selected for ampicillin resistance. All plasmid mutants generated were confirmed by reopencing.

Mag furs? Metal Competition Assey: A 10mm blockened quest covertie was used to analyze the reaction in a UV-vision spectrophotomater. Equal concentrations of mag furs. 2012 and app. 4mg or app. 5mg must purplish protein user missed in 25 mil metal first NETS LOME, 310.5 Known metal in 01 kin or 201 concentrations were stated in the reaction was mentioned at 356mm at metal first purplished and second or a pumpler of biodina events.

#### Hypothesis

We hypothesize that the R48A Pgm variant will reduce the binding affinity or the number of binding events, thereby reducing Pgm specific activity and CPS expression.





dicted metal-binding curve used to calculate the metal-binding affinity of Pgm-641

A) Pgm protein is predominantly binding the metal and outcompeting MF2.

B) MF2 and Fgm protein are equally competing for the metal ions.

# - A 366 - A 325

As the equilibrium of the totation begins to flavor MB2 and the reaction comes to completion, we can use the turning point to determine the number of restal binding events. We can use the known concentrations of MB2 and Fgm protein to calculate the number of metal binding events for example, in the above graphs we see the turning point for each cone servant S by fill restal. In this reaction, the MB2 concentration used was 3 jul (MB2 can only ford a single metal ion, thus of the restal of the servant of the ser

#### Predicted Outcomes

- Loss or reduction in metal-binding/stoichiometry, when compared to wild-type Pgm suggests that that the residue R48 may participate directly in metal-binding to activate
- If there is more than 1 binding event due to the R48A mutation, there will be a clear ration

#### Future Directions

- Perform MF2-protein assay to determine the affinity and the number of metal binding execut the Perm 0.885 varient as well as other varients.
- If decreased metal-binding, then measure Pgm specific activity to determine the effect of
  the metal-binding common sets in
- If decreased specific activity is observed, then assess CPS expressions levels in vivo after

#### Acknowledgements

This project is supported by a 2020-2021 STEM Undergraduate Research Grant from the ID State Board of Education Higher Education Research Council through Idaho State University.

#### References

McFarland, A. L.., et al 2021 J Bacteriol. (accepted 4/3/2021)

Undergraduate Research Funds FY21 Final lab/project report

### Correlating bacterial capsule production with phosphoglucomutase function in Streptococcus.



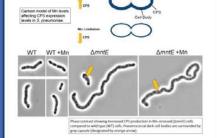
Camille Hansen and Julia E. Martin
Department of Biological Sciences, Idaho State University, Pocatello, Idaho 83209 USA

#### Abstrac

Capsular polyacehande (CPS) is a key virulence determinant for Streptococcus pneumoniae growth and persistence in the human host. High (thicker) CPS expression levels prevents surface antigens from recognition and phagocytosis by host immune response cells, white a five of the programment of the programment of the programment of the cells of the cells

#### Introduction

- Streptococcus pneumoniae is a Gram-positive bacterium that commonly colonizes the nasopharynx of healthy individuals, persisting as a harmiess bacterial commensal. Despite a largely asymptomatic colonization, 5. pneumoniae remains the leading contributory agent of the life-threaterion invasive diseases pneumonial bacteriemis and mecinicitis?
- Cuspium polyasceniane (Lr/s) is used by the bacteria to increase virunines and promote colorization.<sup>1</sup> High (thick) CPS levels help bacterial cells eved phago-posts and the not immune response system, whereas low (thin) CPS levels expose arrigens and other protein that help cells attach for colorization.<sup>3</sup> The thickness of the CPS can be regulated by the availability of oxygen, carbohydrates and metals, specifically manganese (Mn) and zinc (Zn)<sup>1,4</sup>.



Studies show that the regulation of metals within the cell is critical for the survival of S. pneumonies. Prohipopultamises light has a device effect of the biosynthesis of CPB. Metal ince play an important role in regulating Pigm enzyme activity. This enzyme catalyzes the conversion of glocoxie-i potential to glocoxie-i potential regular precursor sugar needed to for the equivalents of metal lone per protomer, despite previous all previous PDAMPAMM family members briding a single metal lone.

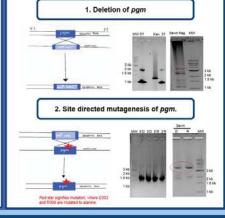
#### Hypothesis

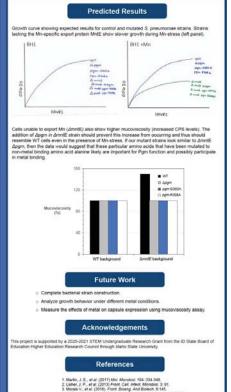
We hypothesize that S. pneumoniae strains expressing pgm mutant alleles that are incapable of binding Mn(II) will show decreased GPS expression levels similar to WT cells.

#### Materials and Methods

Bacterial Strain Construction: S. pneumoniae Aggm mutants were derived from wild by gene Sp. pneumoniae serotrope 2 D38 strain IU1781. All mutant strains were constructed by gene deletion replacement and antibiotic counterselection using the Janus Kan-ps.1- cassette. Briefly, the 0.8 - 10 - 11-bit projector upstream and odworsteam of pgm (SPD\_1336) were amplified from genomic DNA using inner primers containing regions Banking the Janus kanamyric resistance cassette (Kan-ps.1-). The two outside fragments generated were then joined together with the inner kan-ps.1- tagment. The final PCR product was transformed into competent ps.1. pneumococcal cells using standard techniques. Bacteria were grown on trypticase soy agair | 1 plates containing 3% (volviol) delibrinated sheep blood (TSAII-BA). The plates were incubated at 3.7° in an atmosphere of 3% CC2. For antibiotic selections.

Site-directed mutagenesis was used to generate amplicons containing allelic substitutions in pgm. Braftly, complementary primers were designed so that the mutation of interest was located in the center of the sequence. Overlapping fragments generated by PCR were jorned together and transformed into complexif algory molts. Bacterial cells were selected for motion and accessored for takenings in solvativity, glapping replacement of knings, and the mutant pgm allele. All resulting confisions were confirmed by DNA sequencing.





# STRATEGIC INITIATIVE Undergraduate Research Funding for STEM Majors at the University of Idaho

## FINAL PROJECT REPORT

## **Submitted to:**

Higher Education Research Council Idaho State Board of Education P.O. Box 83720 Boise, Idaho 83720-0037

## Submitted by:



875 Perimeter Drive Moscow, ID 83844

September 1, 2021

## **Table of Contents**

		Page
EXEC	CUTIVE SUMMARY	3
Spring	Semester Undergraduate Research Grants	
1.0	Project Summary Report (Badigian, J.)	4
Sumn	ner Undergraduate Research Fellowships (SURF)	
1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0	Project Summary (Blake, I.) Project Summary (Burgett, S.) Project Summary (Carey, J.) Project Summary (Flynn, M.) Project Summary (Martin, J.) Project Summary (Masango, S.) Project Summary (Matz, L.) Project Summary (Nelson, G.) Project Summary (Parr, R.) Project Summary (Yama, D.)	
1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0	Badigian, J. Blake, I. Burgett, S. Carey, J. Flynn, M. Masango, S. Matz, L. Nelson, G. Parr, R. Yama, D.	

### **Executive Summary**

Undergraduate research is recognized as a high-impact educational practice that increases the rates of student retention and engagement. At the University of Idaho, it is practiced throughout all units on campus and it is centrally placed in the institution's strategic plan. The Office of Undergraduate Research is tasked with taking the lead in enabling research opportunities for undergraduates at the U of I. Among its roles, it manages various competitive student grant programs that directly support student research.

During FY2021, generous funding from the State Board of Education/Higher Education Research Council permitted the U of I to continue its Summer Undergraduate Research Fellowship (SURF) Program. This intensive 10-week summer research experience actively engages undergraduates in faculty-mentored, independent research. Each student is provided with a \$4,000 stipend in the form of a fellowship which allows them to devote full time effort to their projects. Each student is also provided with \$1,000 to help offset materials and supplies and other project-related expenses. Selection of student participants is a competitive process in which students submit research proposals to the Office of Undergraduate Research. State Board of Education funding supported 10 SURF awards during the summer of 2021.

Funding provided by the State Board of Education/Higher Education Research Council also allowed the Office of Undergraduate Research to support an additional undergraduate researcher during the academic year. This was accomplished through a competitive Undergraduate Research Grant awarded to the student during the spring semester of 2021. This grant supported a semester-long research project under the guidance of a faculty mentor. This grant was in the amount of \$1,000 for materials and supplies and other project-related expenses.

Almost all of UI students supported by State Board of Education funds attended and presented the results of their projects at the Idaho Conference on Undergraduate Research (virtual conference) in July of 2021. One student was unable to attend the ICUR conference due to the fact that her project required her to be in the field collecting data at the time of ICUR. In lieu of presenting at ICUR, this student will present the results of her work at the UI Undergraduate Research Symposium in April 2022.

As noted above, the SURF awards include \$1,000 each for project-related supplies. This year some of our student awardees did not spend the entire amount of their project funds. The on-going pandemic hampered some of the travel and conference presentations our students had planned and budgeted for. These unspent project funds are being returned to the SBoE.

End of project feedback from students and their mentors was overwhelmingly positive. Significantly, none of the undergraduate research projects described here would have been possible without the support provided by the State Board of Education/HERC. We sincerely thank the Higher Education Research Council and the Idaho State Board of Education for making these experiences possible for our students.

This final project report combines all of the student project reports funded by the SBoE awards into a single document.

Final Project Report: Office of Undergraduate Research Spring 2021 Undergraduate Research Grant

**Grant Recipient:** Jeffrey Badigian, Biological Sciences, University of Idaho

Faculty Mentor: Paul A. Rowley, Assistant Professor, Department of Biological Sciences

Project Title: Antifungal Killer Toxin Production by Opportunistic Candida glabrata

#### **Project Description**

This project began to identify antifungal killer toxin production in the opportunistic fungal pathogen *Candida glabrata*. This commensal organism is becoming a more and more frequent cause of vulvovaginal candidiasis, being the current second most common causal organism of this illness. Isolates had been known to secrete antifungal killer toxin proteins, proteins that are used by various organisms for competitive advantages amongst other uses. The encoding origin of these proteins was unknown and debated to be either genomically encoded or encoded on dsRNA viral satellites. The satellites then repurpose the transcriptional machinery of co-infecting dsRNA Totivirus to propagate and express themselves. Totivirus has been found to increase the virulence of other fungal pathogens, so the potential benefits *C. glabrata* may be acquiring from both toxin production and the totiviruses demanded further exploration.

#### **Project Accomplishments**

To begin, 133 *C. glabrata* isolates from around the world were screened for killer toxin production; 18 killers were found, 16 of which were of clinical origin. The organisms that were the most sensitive to this toxin were the isolates that were most closely related to *C. glabrata*, suggesting a potential use for niche competition. The next step was to perform a dsRNA extraction to attempt to look for viral infection. All killer isolates, including the representative type strain *C. glabrata* CBS 138, tested negative for dsRNA infection. To begin the search for the encoding origin of these proteins within the *C. glabrata* genome, homologs of other known killer toxins were searched for. Four homologs to the *Saccharomyces paradoxus* K62 killer toxin were identified within the *C. glabrata* genome, a toxin that our lab has previously determined that *C. glabrata* isolates have a unique resistance to. Two of these homologs have been cloned into a nonkiller yeast, and both have yielded an active killer toxin when ectopically expressed. The other two remain to be cloned.

PHYRE, a protein folding recognition software, was used to determine a preliminary secondary structure of these four homologs, and they showed similarities to aerolysin-like toxins, a class of proteins known to be virulence factors for pathogenic organisms and have shown extreme toxicity against human cells. When grown on unbuffered media at pH 5.6, *C. glabrata* isolates have shown hemolytic activity, but when screened on media buffered to pH 7.2, this hemolytic activity disappeared. Killer toxins are more active at acidic pH values, so this hemolysis assay suggests that these killer toxins may show toxicity to human cells, though more research is still needed.

#### **Summary of Budget Expenditures**

Supplies	Cost
Restriction enzymes	\$122.76
dNTP mix for PCR identification	\$62.21
Hydrogen peroxide	\$27.95
Syringes	\$46.15
PCR tubes	\$158.88
Kirby Bauer discs	\$36.25
Syringes	\$50.32
Miniprep kit for plasmid isolation of the homologs	\$253.52
Yeast extract for use in yeast media preparation	\$241.96
TOTAL	\$1,000.00

#### **Conference Presentations**

I presented a poster of my project at the 2021 Idaho Conference on Undergraduate Research (ICUR). I will also present my work at the UI Undergraduate Research Symposium in April of 2022.

#### **Acknowledgements**

I greatly appreciate the support that was provided by the State Board of Education/HERC as well as the University of Idaho's Office of Undergraduate Research through this spring semester Undergraduate Research Grant. This was a tremendous opportunity for me, and I truly value this experience in conducting research. This included a chance to collaborate with other students in science all across Idaho through the ICUR symposium which was a wonderful experience to be a part of. The Office of Undergraduate's support and that of the State Board of Education/HERC made this project and experience possible and is something I greatly appreciate and am thankful for.

Final Project Report: Office of Undergraduate Research (OUR) Summer Undergraduate Research Fellowship (SURF) – Summer 2021

Fellowship Recipient: Isaac Blake, Chemical Engineering, University of Idaho

**Faculty Mentor:** Matthew Bernards, Chemical and Biological Engineering, University of Idaho **Project Title:** Synthesis of Polyampholyte Tissue Engineering Hydrogels via Ultra-Violet Light

<u>Abstract:</u> Polyampholyte hydrogels display promising properties to promote healthy regeneration of tissue due to their inherent ability to bypass the body's foreign body response. Research proving these claims has been based on chemically initiated hydrogels; however, more research needs to be conducted on hydrogels photopolymerized using UV-A light. All hydrogels used in this research were created with a constant w/v ratio of the photoinitiator LAP. Four polymerization times were tested for antifouling properties as well as shore hardness and percentage swelling. Initial formulation procedures were created, however, no antifouling properties comparable to chemically initiated hydrogels were reported. It was also found that UV photopolymerization times exceeding 1.5 minutes did not result in significantly different harness and swelling properties.

**Project description:** The main goal of the research conducted this summer was to create procedures for the synthesis of UV photoinitiated hydrogels. The Bernards lab has historically created hydrogels using liquid chemical initiators to start the polymerization chain reaction. However, using UV type A light to start polymerization has many potential benefits over chemical initiators. Briefly, UV photoinitiators require far less time to polymerize and are significantly less cytotoxic to living cells. Cytotoxicity is a very important thing to consider as one end goal of this research is cell encapsulation within a hydrogel for tissue repair scaffold purposes. The first thing that must be verified if a scaffold wants to be implanted in vivo is biocompatibility. The autoimmune response known as the foreign body response is responsible for removing anything deemed foreign in the body. The first step in this process is coating of a scaffold in non-specific proteins, often called "fouling". To remain biocompatible with the body, our hydrogels must be antifouling. To evaluate the antifouling properties of the gels made, each gel was exposed to a fluorescently tagged protein known as bovine serum albumin (FITC BSA). If the gel was in fact nonfouling, then no protein should be present on the surface after rinsing with a buffer solution. Along with antifouling properties, swelling and shore hardness was also measured. Because hydrogels are porous and contain many negatively/positively charged elements, they are subject to swelling when in the presence of other ions or water. Hydrogel volume was measured before and after a 24 hour soak in a phosphate buffered saline (PBS) solution. To measure harness, a shore durometer type OO was used. These instruments measure the resistance of a surface to an applied force. With all the above methods described, data was collected and is presented below.

<u>Data:</u> Antifouling results for the photoinitiated gels have not yet been successful. Figure 1 shows a comparison of photoinitiated gels to their chemically initiated counterparts, which have been proven to be antifouling. It is easy to see the bright green on the photoinitiated gels which implies the presence of the protein that has adsorbed to the surface. Our group has many hypotheses as to why this could be happening and have testing plans for the future. Both swelling and hardness results (Figures 2 and 3 respectively) show the same general trend. This trend was that after 1.5 minutes of UV light exposure time, the data starts to taper off and no significant change is observed. The most likely reason for this is that the gel has stopped polymerizing and all free radicals that could be created already have. In the future, testing will be done with increased amounts of photoinitiator or cross linker.

Figure 1: Photoinitiated gels (left) antifouling vs. chemically initiated gels (right)

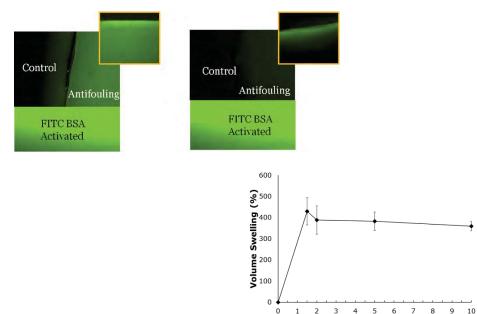
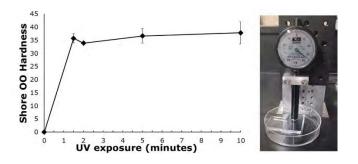


Figure 2: Volume swelling as a function of UV exposure time

Figure 3: Shore OO Hardness as a function of UV exposure time



### **Budget Expenditure:**

Reusable biopsy punch: \$565

Lab consumables: \$435 (includes gloves, pipet tips, scintillation vials, well plates, TCPS dishes)

Stipend: \$4,000 **TOTAL: \$5,000** 

<u>Conference Presentation:</u> I presented this research ICUR in July 2021. I will also be presenting a complete summary of findings at the UI Undergraduate Research Symposium in the spring of 2022 and at the NW Biomechanics conference in April of 2022.

<u>Acknowledgement:</u> I genuinely appreciate the opportunities I received through the Summer Undergraduate Research Fellowship supported by the Idaho State Board of Education/HERC. This summer research opportunity was momentous for my academic and personal endeavors. Without the support from the Idaho State Board of Education/HERC I would not otherwise have been able to have had this tremendous opportunity. Thank you.

Final Project Report: Office of Undergraduate Research (OUR) Summer Undergraduate Research Fellowship (SURF) – Summer 2021

Fellowship Recipient: Sarah Burgett, Wildlife Resources Major, University of Idaho

Faculty Mentor: Janet Rachlow, Professor, College of Natural Resources, University of Idaho

Project Title: Unexpected properties of habitat altered by ecosystem engineers: A pygmy rabbit case study

### **Abstract**

Ecosystem engineers are species that influence availability of resources by physically altering the environment. Due to these physical changes, they may influence functional properties of habitat including visibility. Habitat structure can conceal animals from predators, but it may also disrupt sightlines, thus reducing an animal's ability to gather visual information. Pygmy rabbits (*Brachylagus idahoensis*) are ecosystem engineers in the sagebrush-steppe ecosystem of the western USA. They significantly influence the growth of vegetation by burrowing, browsing, and defecating within their habitat. However, no study has examined whether pygmy rabbit activity might also alter visibility. My objective was to measure how pygmy rabbit activity influences these functional habitat properties. I estimated visibility in habitat patches around burrow sites using lidar. I am now evaluating if pygmy rabbits influence visibility by comparing active and inactive burrow sites as well as quantifying visibility as a function of duration of burrow occupancy (i.e., number of years during which the burrow system was used). Preliminary results from 23 of the 40 patches suggest that duration of burrow occupancy results in larger viewsheds, however, the analyses are ongoing. Final results are pending due to the large volume of data collected. I expect to submit a manuscript detailing results of the project for publication in a peer-reviewed journal by spring 2022.

### **Project Description**

Introduction

Ecosystem engineers modify habitat structure, which can influence habitat properties including availability of resources for other species (Jones et al. 1997). Beavers (*Castor canadensis*) are a well-studied example of an ecosystem engineer; by cutting down trees and building dams they alter the hydrology of an area and create new wetlands (Jones et al. 1996). Although the activities of ecosystem engineers are known to modify habitat structure, it is unclear how changes in structure might influence properties of habitat that serve important functions for wildlife (e.g., provisioning of thermal shelter, security, or physical protection).

Visibility, the visual information accessible to animals in their environment, is one functional habitat property that is influenced by habitat structure. Vegetation that blocks sightlines alters the area from which visual information can be gathered. All the available sightlines and their spatial extents constitute the 'viewshed' (Aben et al. 2018). Animals as diverse as greater sage-grouse (*Centrocercus urophasianus*) and anoles (*Anolis aeneu*) are known to select habitat based on viewshed (Aspbury and Gibson 2004, Eason and Stamps 1992). Activities of ecosystem engineers that change vegetation structure may modify visibility. Such effects are likely to be especially pronounced for herbivorous ecosystem engineers.

Pygmy rabbits (*Brachylagus idahoensis*) are ecosystem engineers endemic to the sagebrush-steppe of the American West. They are obligate burrowers that use burrow systems year-round. By defecating and urinating around their burrows, they add nutrients to the soil promoting sagebrush growth. Pygmy rabbits also browse sagebrush shrubs throughout the year and forage seasonally on herbaceous plants, changing the habitat structure. Because burrow systems can be occupied for decades, the cumulative effects on sagebrush growth and reproduction increase over time (Parsons et al. 2016). These structural alterations to the vegetation likely modify the viewshed available to animals in the sagebrush-steppe ecosystem.

The goal of this study was to investigate if and how pygmy rabbits alter the viewshed around their burrow systems. My objectives were to 1) contrast size and variability of viewsheds in habitat patches with and without pygmy rabbit burrows; and 2) test whether duration of burrow occupancy is related to these viewshed properties. *I* hypothesized that pygmy rabbits would increase the viewsheds around their burrow systems through herbivory, and because sagebrush is a slow-growing plant, the effects would increase over time. I predicted that a) habitat patches with occupied burrows would have greater and more variable viewsheds than habitat patches without burrows, and b) the size and variability of the viewshed would increase with duration of occupancy. Alternatively, because nutrients are added to soil by fecal pellets, increased duration of use could result in greater understory regeneration around long-

occupied burrows. If this is the case, I predict that there will be a non-linear relationship in which the viewshed will increase initially and then decrease as duration of occupancy increases. Finally, I also expect that viewshed size will be negatively related to the distance from the burrow entrance because pygmy rabbits spend more time browsing close to the safety of their burrows.

Methods

Study Site

This study was conducted at Dr. Rachlow's long-term study site in the Lemhi Valley of eastern Idaho where she has collected census data on pygmy rabbit burrows from 2002 to 2018. The vegetation of this site is dominated by sagebrush, mostly Wyoming big sagebrush (*Artemisia tridentata wyomingensis*) (Sanchez et al. 2009). At this site, rabbit burrows occur almost exclusively within mima mounds, which defined the habitat patches surrounding burrows. Field data collection

I determined the level of pygmy rabbits' activity (active or inactive) at censused mounds using methods established by Parsons et al. (2016) by looking for signs of digging and pellets. The last census was completed in 2018, and I assumed that mounds active in 2018 that were also active in my survey were continuously active during the intervening years. Using the census data and my survey, I divided the mounds into 4 categories (occupied for 4-6, 7-9, and 10-20 years, and unoccupied in all years). I randomly selected 10 mounds in each category for analysis.

At active mounds, I randomly selected one burrow entrance, and at all mounds, I randomly selected 3 sites for habitat sampling. At each site, lidar data characterizing 3D habitat structure were gathered using a Leica BLK360 terrestrial laser scanner placed at the eye height of a pygmy rabbits (~15 cm above the ground surface).

Because rabbit activity is known to influence sagebrush growth and regeneration, I also measured the three tallest shrubs to estimate shrub height on the mounds and counted the number of seedlings (<10 cm) in a 0.25m<sup>2</sup> plot at each site. I also measured the radius of the mounds to quantify patch size as a covariate. Data Processing and Analysis

I am estimating the viewshed at each site using the R package *viewshed3d*, which measures the distance that sightlines travel in every direction from the position of an animal within 3D lidar data (Lecigne et al. 2020). I will compare how the viewsheds change between and within the mounds using ANOVAs. I will also analyze the effects of duration of occupancy on the size and variation of viewsheds using generalized linear models.

### Results

This summer, I collected data at all 40 selected mounds, which included 150 lidar scans. I am continuing to process data, due to the large volume. At this time, I have calculated the viewsheds at 23 of the mounds, totaling 92 of the 150 lidar scans. Preliminary data analyses suggest that viewsheds increase with duration of occupancy as expected

I plan on finishing data processing and analysis during the fall and will continue refining my manuscript for submission to a peer-reviewed journal (e.g., *Ecosphere*) in spring 2022.

### **Summary of Project Accomplishments**

I spent 4 weeks at the field site where I assessed, selected, and collected data from 40 mounds. I learned how to collect lidar and habitat data. Also, I participated in data collection for another project, which provided me with additional field research experience, including trapping and handling pygmy rabbits, and using radio telemetry. When not in the field, I learned how to process lidar data and used the *viewshed3d* package to compute viewsheds. I also attended the Idaho Conference of Undergraduate Research and presented preliminary results of my research.

### Summary of budget expenditures

Travel	\$950
Stipend	\$4,000
Total	\$4,950

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**Acknowledgement:** I truly appreciate the generous support provided the State Board of Education/Higher Education Research Council in the form of a Summer Undergraduate Research Fellowship from the UI Office of Undergraduate Research. This was a tremendous experience for me. Without this support from the SBOE/HERC, I would not have been able to participate in this research.

Final Project Report: Office of Undergraduate Research (OUR) Summer Undergraduate Research Fellowship (SURF) – Summer 2021

Fellowship Recipient: Joshua Carey, Forestry and Sustainable Products, University of Idaho

Faculty Mentor: Lili Cai, College of Natural Resources, University of Idaho

Project Title: Effect of Lauric Arginate on the Growth and Morphology of Wood Decaying Fungi

**Abstract** 

Bio-based preservatives represent one of the most promising solutions for next-generation wood protection due to their sustainability, low environmental impacts and comparable antimicrobial efficiency to current non-bio-based counterparts. Herein, we reported the effects on the growth and morphology of Lauric Arginate (LAE), a fully biobased antimicrobial compounds, against four common wood decaying fungi using a soil block test alongside a series of light and fluorescence microscopy observations. Wood cubes of poplar and pine were treated with different concentrations of LAE, and their weights recorded, they were then placed in a culture bottle containing a feeder strip of one of four test fungi (two white rot and two brown rot). These bottles were then incubated for eight weeks, and their weights recorded again. During the incubation period, a set of microscopy observations was conducted on test fungi that had grown from a malt agar media that had been amended with low levels of LAE. These experiments revealed that, while LAE does prohibit mass loss due to fungi in our pine samples, it does not in poplar samples. Furthermore, no significant morphological changes could be detected at the cellular level during a microscopy test.

### **Project description**

### Soil Block Test

Conducting a soil block test requires sample pieces to be cut into cubes measuring 14mm on each side, these cubes are cut out of two types of wood, a hard wood and a soft wood. For this experiment Southern Yellow Pine and Poplar were used as our test species. These cubes then had their oven-dry weight recorded before being treated with one of our three types of LAE (LAE 20, 2X and 25) each corresponding to a different concentration of lauric arginate that's suspended in the solution. After treatment the cube's wet weight is recorded and they are oven dried again to determine mas gain due to treatment. After acclimating back to relative humidity, the samples are ready to be placed in culture bottle for incubation. The culture bottles are constructed by being filled halfway with soil that has been autoclaved and sifted to remove any impurities they are then inoculated with feeder strips of one of our four test fungi and allowed a gestation period before our samples are introduced to allow for the fungi to take a foothold in its new eco system. In order to introduce the samples, simply place the cubes on top of the overgrown feeder strips and label the bottle. The assembled bottles need to be placed in an incubation chamber for eight weeks to allow the fungi to overtake the new material. After the incubation period the samples are removed from the bottle and cleaned of all fungi growing around the cube. The samples are then weighed again to determine their final mass loss and compare it to the control.

### Microscopy analysis

All microscopy observation starts with the same structure for slide preparation, the main idea is to encourage the test fungi to grow off a piece of amended malt agar media and onto a microscope cover slide that can then be removed and transferred onto a clean slide and observed. In order to achieve this goal a specific construction was followed: inside of a petri dish a moist piece of filter paper is placed to provide water to the growing fungi, on top of that is a microscope slide resting on two slices of plastic netting to separate it from the filter paper, a square of amended malt agar media is placed on top of the slide which is then inoculated with test fungi by placing a small tuft of mycelium on each of the four side faces, finally a cover slide is placed on top of the malt agar square and the petri dish is sealed. After allowing the fungi to grow from the amended malt agar for a day or two depending on its rate of growth, the cover slide is removed and is either placed directly onto a clean slide or dyed beforehand depending on if the sample is to be used for light or fluorescence microscopy. These slides are then carefully recorded, and sample pictures are taken of the new growth tips that represent the morphology of the observed sample. These pictures are then carefully

examined for key differences between the amended and control groups to shed light on LAE's effects on the fungi's morphology and how it may disrupt fungal growth.

### Results and discussion

Upon reviewing the pictures taken during the microscopy trial, no clear morphological difference between the control fungi and the fungi that had grown off amended media. This could likely be due to the low concentrations of LAE that were used in the media, however when the concentration of LAE was increased no growth could be observed. These results lead to the conclusion that LAE is a fungistatic as opposed to a fungicide. The compound inhibits the growth of fungus without directly damaging any mycelium. Upon reviewing the results of the soil block test, the observed pine samples behaved as expected with a mass loss of 20% less than the control in the amended samples. However, the observed poplar samples saw an increase in mass loss of about 10% in the amended cubes. This could be caused by morphological differences between the two species of wood, or LAE's interaction with poplar once impregnated into the wood. Most likely, it is due to the preservative leaching from the poplar samples and into the soil.

### **Budget Information**

- Provided by a USDA NIFA grant (~\$1000)
  - o Culture Bottles
  - o Petri Dishes
  - Microscope Slides
  - o 4000 ml beakers
  - o Raw Poplar & Pine
- Caliper to measure the dimensions of the wood samples (\$15.99)
- Parafilm to wrap the petri dishes (\$168)
- Stipend (\$4,000)

TOTAL spent: \$4,183.99

### Acknowledgement

A special thanks to the Idaho State Board of Education/HERC for making all of this possible by providing funding via the SURF grant. It was a tremendous experience to be able to take part in, and without their support I would not be able to take part in this research.

Final Project Report: Office of Undergraduate Research (OUR) Summer Undergraduate Research Fellowship (SURF) – Summer 2021

Fellowship Recipient: Morgan Flynn, Movement Sciences, University of Idaho

Faculty Mentor: Chantal Vella, Professor, Dept. Movement Sciences, University of Idaho

Project Title: Associations between screen time and glycemic control in adults with and without type 2 diabetes

### **Abstract**

PURPOSE: To assess the associations between screen time (ST) and glycemic control, as measured by glycated hemoglobin levels (HbA1c), in middle-aged to older adults with and without type 2 diabetes. METHODS: Adults (mean±SD: age: 47.5±17.4y, BMI: 29.5±7.4 kg/m<sup>2</sup>) participated in the study. ST was subjectively measured through an 18-item screen-time questionnaire that categorized ST into weekday, weeknight, weekend, and background. Total sedentary behavior (SB) was subjectively measured using the Sedentary Behavior Questionnaire. A finger stick blood draw was completed to measure HbA1c. Participants completed a food frequency questionnaire online using the NIH Diet History Questionnaire III. Pearson correlation and linear regression analyses were used to assess the associations among the variables while controlling for age, sex, and dietary intake. RESULTS: Most participants were non-Hispanic white (80%), non-smokers (91%) and had family history of type 2 diabetes (43%). On average, participants spent 484.6 ±162.9 min·d<sup>-1</sup> in SB (50% of the waking day). Of this time,  $446.7 \pm 168.4 \text{ min} \cdot \text{d}^{-1}$  were spent on a screen, with  $45.0 \pm 23.4 \text{ min} \cdot \text{d}^{-1}$  occurring during the weeknight. Participants engaged in background ST 111.1 ± 132.8 min·d<sup>-1</sup>. Positive correlations (p<0.05) were found between HbA1c and weeknight ST (r= 0.409), and background ST (r=0.451). CONCLUSIONS: Participants spend large amounts of their day engaged in SB, which is consistent with national data. Moreover, of this time spent in SB, the majority is spent looking at a screen. Our preliminarily findings suggest that increased ST, particularly weeknight and background ST, is associated with higher HbA1c and risk of type 2 diabetes.

### **Project Report**

### **Project Description**

The aim of this project is to assess the associations between screen time and glycemic control, as measured by HbA1c. In addition, we hope to examine if these associations are different across healthy individuals in comparison to individuals with type 2 diabetes. We hypothesize that higher amounts of screen time will be associated with higher HbA1c, indicating worse glycemic control in both healthy and type 2 diabetic participants. We also hypothesize that excessive screen time may impact glycemic control of those with type 2 diabetes more than those who are healthy.

Previous studies have determined a childhood association between screen time and insulin resistance, with a paucity of data on this topic in adults. Children spending 3+ hours on a screen were found to have an increased resistance to insulin, which impacts glycemic control, in comparison to children spending only 1-2 hours on a screen (Nightingale, Rudnicka, Sattar, Cook, Whincup, & Owen, 2017). The importance of this proposed study is to determine whether various forms of screen time have a negative impact on glycemic control within an adult population. Moreover, having two participant groups, diabetic and non-diabetic, allows us to see if the associations between screen time and glycemic control vary among healthy and diseased individuals. For example, we will be able to determine if a given amount of screen time impacts glycemic control more in healthy or type 2 diabetic individuals. We can do this by looking at the slope of the relationship between screen time and glycemic control in each sample via statistical tests of interaction. For this study, we will also measure dietary intake and physical activity through surveys, as these factors can influence HbA1c. These findings will be significant in providing preliminary data to support recommendations for screen time reduction to decrease risk for future health complications.

13

### **Summary of Project Accomplishments:**

Over the course of summer 2021, we have successfully recruited and completed data collection on 35 participants (13 men and 22 women), of which 26 were healthy controls, 4 had prediabetes, and 3 had type 2 diabetes. Unfortunately, there were not enough participants to look at differences in associations between healthy and type 2 diabetes participants so all participants were grouped together for analyses. The mean age and body mass index of our participants was 47.5±17.4 y and 29.5±7.4, respectively. Most participants were non-Hispanic white (80%), non-smokers (91%) and had family history of type 2 diabetes (43%). Our preliminary findings show significant correlations between screen time and HbA1c. By separating the type of screen use (e.g., weekday, weeknight, weekend, and background), we show a positive correlation between weeknight screen time (r= 0.409) and HbA1c. Moreover, background screen time (r=0.451) is also correlated with HbA1c. To better understand these associations, our regression analysis controlled for age, sex, and family history of type 2 diabetes. The associations between weeknight screen time and background screen time remained significant even with these variables controlled for (p<0.05). Comparatively, when we controlled for diet (total energy intake and total sugars), the associations, except the associations with background screen time, were reduced to non-significance (p>0.05). As a result, we see the impact that diet poses on glycemic control. Our preliminarily findings suggest that increased screen time, particularly weeknight and background screen time, is associated with higher HbA1c and risk of type 2 diabetes.

This SURF grant allowed me to develop hands-on skills needed to work as a research assistant. I've gained administrative experience in participant scheduling and data entry. Moreover, I was given the chance to run study visits, ranging from explaining questionnaires to collecting physical data such as height, weight, and finger-stick blood draws. Lastly, I furthered my knowledge in statistical analysis. While putting together my poster, I developed a better understanding of correlation and significance. All of which was due part to the large amount of group work put in to succeed. Not only did I meet with my supervisors to review what I wrote, but my public speaking abilities were put to the test. The different types of ICUR sessions allowed me to practice a variety of ways to present my research. With the support of my mentors and the funds from the SURF grant, my research abilities had flourished. As I continue my career in research, I will be able to thank all those who supported my undergraduate studies.

**Summary of Budget Expenditures:** The \$1,000 provided for supplies was spent on supplies to collect blood samples and assay kits to measure HbA1c. This award included a \$4,000 stipend. TOTAL: \$5,000

**Conference presentation:** I presented a poster of my work at the UI Undergraduate Research Symposium in April 2017 and at the Idaho Conference on Undergraduate Research in July 2017.

**Other Pertinent Information:** This research project is a part of a larger study investigating the influence of physical activity, sedentary behavior, and diet on the gut microbiome and diabetic neuropathy. I will continue helping on this project through the fall.

**Acknowledgement:** I truly appreciate the generous support provided the State Board of Education in the form of an Undergraduate Research Grant from the UI Office of Undergraduate Research. This was a tremendous experience for me. Without this support from the SBOE, I would not have been able to participate in this research.

Final Research Report: Office of Undergraduate Research (OUR) Summer Undergraduate Research

Fellowship - Summer 2021

**Fellowship Recipient:** Julianna Martin, Geological Sciences, University of Idaho **Faculty Mentor:** Elizabeth Cassel, Department of Geology and Geography

**Project Title:** Recurrence Intervals of Glacial Lake Missoula Flooding Events Using Radiocarbon Dating

Abstract

The Great Missoula Floods were a series of cataclysmic floods caused by ice dam breakages on Glacial Lake Missoula during the late Pleistocene, 21,000 to 14,000 years ago. The periodic breaks and reformations of the Purcell Lobe of the Cordilleran Ice Sheet allowed floodwaters to move west following the Columbia and Snake rivers. These floods massively impacted the geomorphology and sedimentation of Idaho, Washington, and Oregon, creating the infamous Channeled Scablands of eastern Washington. The exact ages of these floods and the interval at which they occur are currently not well known, thus the drivers of these ice dam breakages have been loosely hypothesized. I sampled organic carbon from two locations to act as a source and sink record of the floods in order to date them, three samples were taken from each location to be dated. These samples were processed and pretreated in the Tectonics and Basin Analysis Lab on the University of Idaho campus but dating results have not yet been returned. By measuring stratigraphic sections in both Missoula lacustrine deposits and Pasco Basin flood deposits, flow properties of the floods dictate composition and layering of the sediment with sands followed my clays being indicative of a new flooding periods, giving us insight into the number of flood intervals between extracted samples. Once dates are returned, I will be able to correlate flooding periods to a paleoclimate record in order to establish any climatic drivers of ice dam breakage. Due to the timeline of my research, my presentation has been pushed back to October of 2021 and a final poster has not yet been constructed.

### **Project Accomplishments**

1. Field training, procedurals, and preliminary data

Part of my project plan was to examine potential sampling locations based on the position of the glacial lake and flood deposits in the northwestern United States. I established the Glacial Lake Missoula lacustrine deposits in and surrounding Missoula, Montana, and flood deposits in the Pasco Basin, Washington as my primary sampling locations for field work. I also used this period to explore possible sampling techniques to maximize sample outputs and to limit modern carbon contamination.

2. Sample and data collection

Once at the field sites, I measured the stratigraphic section of each sampling location to establish water level changes and the introduction of new sediments via flooding events. In order to identify carbon within the deposits, I used hydrogen peroxide to react with any carbon present. Sampling was accomplished to minimize the amount of modern carbon contamination using nitrile gloves and storage in either plastic or glass containers. Other measures such as external sediment and root removal were used to limit the amount of contamination of modern carbon from the outcrops the samples were taken from.

3. Sample processing and pretreatment

I processed each sample in lab, extracting organic carbon and chemically pretreating them using an acid-base-acid reaction series as preparation for Carbon 14 lab testing through Kecks-CCAMS lab. Seventeen samples were extracted and processed, the best three from each sampling location were chosen for carbon dating based on their carbon content and stratigraphic location. Sample blanks and a date control sample were also prepared in the lab to be sent in with the original six samples.

### Results

No official results will be found until C14 dating results are returned and analyzed. At that point I will use those dates to establish flood intervals and investigate possible climatic drivers for flooding events.

### **Summary of Budget Expenditures**

Supplies:	Cost		
Hydrogen peroxide (sampling)	\$10		
Potassium Hydroxide (pretreatment)	\$30		
Services:			
Carbon 14 Testing (6 samples)	\$620		
Subtotal (supplies)	\$660		
Stipend	\$4,000		
TOTAL	\$4,660		

### **Conference Presentation**

Due to the timeline of my research and as I outlined in my proposal, I was in the field collecting data at the time of ICUR. I will be presenting at the UI College of Science Student Research Expo in October of 2021 and the UI Undergraduate Research Symposium in Spring 2022.

### **Acknowledgments**

I would like to thank the State Board of Education/HERC for supporting undergraduate researchers like me via the Summer Undergraduate Research Fellowship. It has been a transformative learning experience that would not have been possible without the support of the SBOE. Thank you!

Final Project Report: Office of Undergraduate Research (OUR) Summer Undergraduate Research Fellowship (SURF) – Summer 2021

**Fellowship Recipient:** Shalom Masango, Mechanical Engineering, University of Idaho **Faculty Mentor:** Matthew Swenson, Mechanical Engineering, University of Idaho

Project Title: Evaluation of fatigue properties in rolled and formed aluminum sheet metal

### **ABSTRACT**

Aluminum components manufactured from sheet metal are used in numerous applications including electronics enclosures. Due to the limited data for fatigue properties of aluminum, engineers who create structural designs using aluminum sheet metal and formed sheet metal components have less data. The goal of this research is to use the sheet metal fatigue testing equipment to identify the fatigue properties of both flat and formed aluminum sheet materials. The experiment involves a proper set up of the device including sample loading, dimensional setup and centering, force measurement, software programming, and cycling verification. Each experiment is expected to span for several days. As this occurs, sample preparation for subsequent tests and data analysis will occur in parallel. Five separate sample sizes will be conducted on both flat sheet metal samples and formed sheet metal specimens. From this equipment, fatigue properties (S-N curves) will be generated for Aluminum alloy 5052 for both flat and formed sheet metal. This study will provide a methodology that will be formed for ongoing research of alternative aluminum alloys and other sheet metal materials.

### **PROJECT DESCRIPTION**

The goal for this research is to obtain S-N curves on both flat and formed aluminum sheet metal. A machine designed and made by former University of Idaho students is used during this process. This work was adopted from prior Capstone teams. Continuation of this topic was carried on due to limited data for fatigue properties of aluminum for engineers who create structural designs.

### Method

- 1. Sample loading between rollers
- 2. Dimensional setup and centering of the rollers from 4.5 inches to 9 inches
- 3. Force measurement of the load cell
- 4. Software programming using Python and Raspberry Pi monitor
- 5. Cycling verification of the center rollers

Five separate samples were ran for each spacing. More runs would have been made if the number of cycles recorded for each run were not 15% within each other. The duration for the aluminum sheet metal to break ranged from 4 minutes to 60 hours. The machine does not have an automatic stop switch therefore it was not run overnight. In some cases, the machine ran overnight on the first day of sample loading as it would take more than 16 hours for the metal to break.

### **SUMMARY**

Figure 1: Before and after pictures of the sheet metal after undergoing fatigue





Figure 2: S-N curve for flat metal

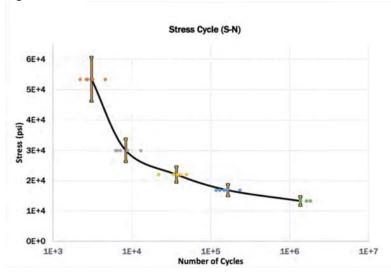
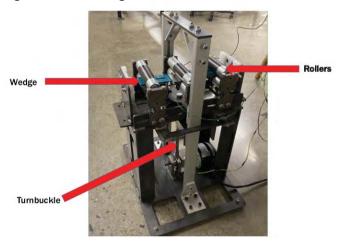


Figure 3: Stress Fatigue Machine



### Modifications

A few modifications to the design were made for the break detection. A wedge was designed and 3D printed for a more visible separation when the metal breaks. All 6 rollers were wrapped with electrical tape to reduce conduction.

### **Challenges**

Due to time constraints, there was little work done on the formed metal. It took a long time for the biggest spacings to break. A new turnbuckle was made from the machine shop for the formed metal and a durable wedge to hold the metal together.

### **Summary of Budget Expenditures:**

Supplies:	Cost
Motor Drivers	\$26.98
Sample Prep Supplies (Allied)	\$342.60
PLA	\$29.65
Sample Prep Supplies (UI ChemStores)	\$50.52
Sample Materials	\$74.52
Electrical Tape	\$1.13
Stipend	\$4,000
TOTAL	\$4,525.40

**Conference Presentation:** I presented a poster of my work at the 2021 Idaho Conference on Undergraduate Research in July.

**Acknowledgement:** I am thankful for the financial support from the State Board of Education and Higher Education Research Council that made this Summer Undergraduate Research Fellowship from the Office of Undergraduate Research possible. Without this grant I would not be able to conduct this study. I am very thankful for the help from my mentor Dr. Matthew Swenson.

Final Project Report: Office of Undergraduate Research (OUR) Summer Undergraduate Research Fellowship (SURF) – Summer 2021

Fellowship Recipient: Lenah Matz, Movement Sciences, University of Idaho

Faculty Mentor: Joshua Bailey, Assistant Professor, Department of Movement Sciences

**Project Title:** The effects of Sure Squat on lifting mechanics for individuals with a history of resistance training and non-resistant training.

**Abstract:** Context: The occurrence of knee valgus, anterior pelvic tilt, and subsequent quadricep dominance while lifting can lead to injury and hindered performance. Historically, a lumbar assistive device can be used to correct lifting form and increase performance. However, the additional correction of knee valgus and resulting quadricep dominance could also aid in injury prevention and performance improvement. Objective: To investigate the effects of an external corrective lifting device on muscle activation patterns and movement mechanics. It is hypothesized that while wearing the corrective device, movement mechanics will change causing adjustments in muscle activation patterns. Methodology: 12 apparently healthy participants completed both sessions, 9 with a history of resistance training (at least 1 year of free-weight training) and 3 without a history of resistance training in the last year. Data collection consisted of two sessions: 1) consenting, screening, familiarization of the corrective device and establishment of 5 repetition maximum (5RM) for lifting tasks (BS: Back Squat; DL: Dead lift). 2) performance of 3 trials of each task at multiple intensities (Body weight, 50% 5RM, and 100% 5RM). Device condition order was counterbalanced with odd participants performing each task without the device first and even participants performed with the device first. During session two, twelve Delsys surface electromyography (sEMG) sensors were attached to six muscle bellies bilaterally: Rectus Femoris, Bicep Femoris, Adductor Longus, Gluteus Maximus, Gluteus Medius, and Erector Spinae groupings. Movement mechanics were assessed using an 8-camera Vicon motion capture system synced with two AMTI force platforms. Participants were additionally instrumented with a full-body passive reflective marker set to represent skeletal motion. To ensure accuracy between models, reflective markers representing the pelvis (L/R ASIS, L/R ILCT, L/R PSIS) were measured from the marked points on the ground to ensure similar placement between conditions. For the BS and DL conditions, foot positions were outlined on the force platforms to reduce influence of foot position on differences between conditions. Participants self-selected their grips and shoe ware and asked to maintain that choice through subsequent trials. Following the completion of all tasks in both device conditions, participants completed a questionnaire about their thoughts on the device. Conclusion: It appears from the initial data that those who were in the non-resistance training identified a benefit using the device. It is unclear whether there is a benefit in lifting mechanics due to the data still being processed. From participant self-perceived device-aid during a task nonresistance trained individuals reported an increased awareness of form while wearing the device.

### **Project Accomplishments:**

- 1. Assessment of difference in perceived aid from correction between populations with and without a history of free-weight resistance training.
  - a. This was accomplished through a survey administered after successful completion of session 2. A notable amount of participants reported a perceived performance aid from the external corrective device; additional participant responses reported satisfaction based on questions regarding comfort, donning and doffing, and perceived fit. Though the population without a history of free-weight resistance training reported varying perceptions on device-performance aid. Overall, from the free-response questions provided in the survey participants had mixed reviews on if *Sure Squat* helped them during the tasks.
- 2. Assessment of muscle activation pattern and magnitude differences, lower extremity and trunk kinematics, and lower extremity joint moments between conditions of with and without the external lifting device.

20

a. The muscle activation and the movement mechanic data are currently being processed. To assess the differences between device conditions, dependent t-tests will be conducted on all movement mechanic dependent variables. Muscle activation patterns will be assessed in terms of muscle activation onset and root mean squared values within phases of the tasks.

### **Summary of Budget Expenditures:**

Item	Unit cost	Units	Total cost	
Rogue 45lb Ohio power bar	\$ 280.00	1	\$ 280.00	
Oso Magnetic Rogue Barbell Collars	\$ 70.00	1	\$ 70.00	
210lb Rogue US-MIL Spec bumber	\$ 435.00	1	\$ 435.00	
B&L engineering -double sided tape	\$ 15.00	5	\$ 75.00	
B&L Engineering - shipping	\$ 9.82	1	\$ 9.82	
<u>Cover-roll</u>	\$ 10.75	5	\$ 53.75	
<u>Leukotape</u>	\$ 13.90	5	\$ 69.50	
Stipend	\$ 4,000.00	1	\$ 4,000.00	
TOTAL			\$ 4,993.07	

**Conference Presentation:** I presented this research in part at the Idaho Conference of Undergraduate Research (ICUR) in July 2021. I will also be presenting my work at the U of I Undergraduate Research Symposium in April 2022 and at the NW Biomechanics conference in April of 2022.

**Acknowledgement:** I truly appreciate the opportunities I received through the Summer Undergraduate Research Fellowship program supported by the Idaho State Board of Education and the Higher Education Research Council. Participating in this summer research project was a tremendous experience for me and one for which I am grateful. Without the support from the Idaho State Board of Education I would not otherwise have been able to have had this tremendous opportunity, thank you.

Final Project Report: Office of Undergraduate Research (OUR) Summer Undergraduate Research Fellowship (SURF) – Summer 2021

Fellowship Recipient: Gabriel Nelson, Materials Sciences, University of Idaho

Faculty Mentor: Mark F. Roll, Assistant Professor, Material Sciences Engineering, University of Idaho

**Project Title:** Synthesis of mesoporous silica nanoparticles for use in extrusion polymerization

**Abstract-** A polymer synthesis technique called extrusion polymerization uses mesoporous silica particles to crystalize polymers as they form. This technique circumvents postprocessing usually required to produce such materials. The goal of this project was to synthesize mesoporous silica particles using a variety of different techniques to study the effect of mesoporous silica nanoparticle structure on extrusion polymerization. Mesoporous silica nanoparticles were synthesized using TEOS and CTAB with the addition of structure directing salts. These salts produced structure variations that will lay the groundwork for variability in future extrusion polymerization experiments. Synthesized mesoporous silica was characterized using XRD.

### **INTRODUCTION**

"Arrays of silica nanochannels (ASNCs) are ordered mesoporous silica particles with hexagonal prismatic shape. "These ordered mesoporous silica particles are synthesized in a process called "liquid-crystal templating" in which micellar rods self-assemble into an array of cylinders that become the template for silica that is introduced into the system. After the silica is attached, the organic templates are removed leaving ASNCs.

These ASNCs can be used to conduct a special kind of polymerization reaction called "extrusion polymerization." In this reaction, ASNCs act as a solid support for catalysts that drive polymerization reactions. Once a polymerization reaction is catalyzed this way the polymer will grow through the narrow channels of the ANSC which restricts the polymer's tendency to coil. This restriction produces extended polymer chains and, combined with the order created by the honeycomb structure of ASNCs, synthesizes crystalline polymer fibers.<sup>3</sup> This process circumvents the usual postprocessing steps, such as extrusion or spinning, usually needed to synthesize similar crystalline polymer fibers.<sup>3</sup>

The goal of this work was to synthesize highly ordered ASNCs using different preparation techniques to identify the effect of their structure on extrusion polymerization that will be conducted in future research. Syntheses were conducted with the addition of CaCl<sub>2</sub>, BaCl<sub>2</sub>, and TBABr that demonstrated varying effects on the structure of ASNC particles. These structural differences lay the groundwork for variability for future extrusion polymerization.

### RESULTS AND DISCUSSION

### Characterization

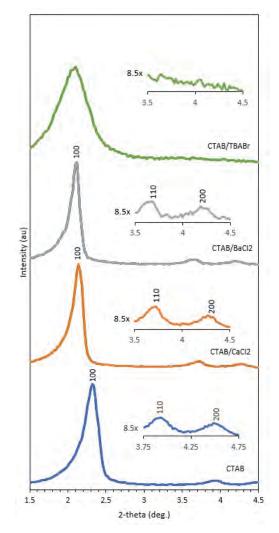


Fig. 1 XRD Patterns for uncalcinated ASNCs synthesized with CTAB/TBABr, CTAB/BaCl<sub>2</sub>, CTAB/CaCl<sub>2</sub>, and CTAB. Graphs are offset for clarity.

Powder X-ray diffraction powder patterns (Fig. 1) show 3 peaks that can be indexed to the (100), (110), and (200) reflections on a hexagonal unit cell. The pore center distance a was calculated using Bragg's law ( $\lambda n = 2d\sin\Theta$ ) and eqn (1).<sup>4</sup>

$$\frac{1}{d^2} = \frac{4}{3} \left( \frac{h^2 + hk + k^2}{a} \right) + \frac{l^2}{c^2} \tag{1}$$

Table 1 Data derived from XRD

	$d_{100}  (\text{nm})$	a (nm)
CTAB	3.81	193
CTAB/BaCl <sub>2</sub>	4.17	231
CTAB/CaCl <sub>2</sub>	4.13	227

Effect of structure directing salts on yield Reaction time and the presence of structure directing agents significantly impact the yields of ASNC synthesis. Syntheses with CTAB/CaCl<sub>2</sub>, CTAB/BaCl<sub>2</sub>, and CTAB/TBABr show greater yields overall. Additionally, longer synthesis times also have larger yields (Table 2).

Table 2 Yield Data

	Reaction time (m)	ASNC:surfactant yield ratio			
CTAB	90	0.178			
CTAB	240	0.247			
CTAB/BaCl <sub>2</sub>	95	0.344			
CTAB/CaCl <sub>2</sub>	95	0.320			
CTAB/TBAB	r 97	0.171			
CTAB/TBAB	r 160	0.280			

### **EXPERIMENTAL**

### Recrystallization of CTAB

CTAB was recrystallized to remove impurities from the surfactant. A recrystallization procedure<sup>5</sup> was developed that recovered an average of 82.5% of the initial CTAB mass as crystals and performed equally efficiently at larger scales.

### Synthesis of ASNCs

ASNCs were synthesized (with CTAB) using a procedure laid out by Zucchetto and Brühwiler. For a typical synthesis, recrystallized CTAB (4g, 11 mmol) was dissolved in a mixture of distilled H<sub>2</sub>O (76mL, 4.2 mol) and hydrochloric acid (37%, 60 mL) by stirring for

10 min in an Erlenmeyer flask. Once the CTAB was fully dissolved in solution, a structure directing salt was added, stirred until dissolved, then filtered. The solution was cooled to 0°C in an ice bath for 30 min, followed by the slow addition of cold TEOS (2 mL, 9 mmol) and additional stirring for 30 s. The mixture was left at 0°C in the ice bath for 90 min then filtered and washed with H<sub>2</sub>O. Amounts of 1.5g (13.5 mmol) of CaCl<sub>2</sub>, 2.81g (13.5 mmol) of BaCl<sub>2</sub>, and 9.67g (30 mmol) of TBABr were used in the syntheses as structure directing salts. CaCl2 took 25 minutes of stirring to fully dissolve into the mixture while the mixture had to be heated and stirred for ~10 minutes to dissolve the BaCl<sub>2</sub> and TBABr. Additional experiments were conducted in which the reaction was left in the ice bath for up to 4 hours.

During the reaction the mixture progressively gets milkier until solid precipitates begin to fall out of the solution and onto the bottom of the flask. Initially, the reactions were filtered directly after they were taken out of the ice bath; however, more precipitates formed in the filtration waste overnight and were collected again. Further analysis is required to determine if these secondary precipitates are structurally different from the ASNCs acquired in the initial filtration.

### **FUTURE WORK**

The second half of the research still needs to be conducted. The two major experiments that remain are attaching polymerization catalysts to lab synthesized ASNCs and conducting extrusion polymerization reactions using lab synthesized ASNCs. Analysis will be done to identify catalyst attachment along with material analysis of polymers synthesized with the ASNCs. Anticipated characterization techniques are XRD, GPC, NMR, electron spectroscopy, and DSC.

### **ACKNOWLEDGEMENTS**

This work was supported by the Idaho State Board of Education in the form of a Summer Undergraduate Research Fellowship and included \$1,000 for project related expenses and a \$4,000 student stipend.

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- 4 Suryanarayana C., Norton M.G. (1998) Crystal Structure Determination. II: Hexagonal Structures. In: X-Ray Diffraction. Springer, Boston, MA. https://doi.org/10.1007/978-1-4899-0148-4\_5
- For the recrystallization process CTAB (2g) was dissolved in heated methanol (6 mL). This solution was slowly added to ethyl acetate (75 mL) that had been heated to the point where it just started bubbling. Once fully dissolved, the solution was removed from heat and left to sit overnight so CTAB would crystallize out. Filtered and washed with ethyl acetate.
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Final Project Report: Office of Undergraduate Research (OUR) Summer Undergraduate Research Fellowship (SURF) - Summer 2021

Fellowship Recipient: Riley Parr, Chemistry, University of Idaho

Faculty Mentor: Dr. Mark Roll, Assistant Professor, Department of Material Science and Engineering

**Project Title:** Stereospecific Emulsion Polymerization of Isoprene

**Background:** The United States synthetic rubber program is a significant historical and scientific event that took place from 1939-1945. At the beginning of World War II, the natural supply of rubber was cut off from Southeast Asia. The United States and its allies had to come up with a solution to this very quickly as much of the infrastructure in these countries depended on rubber. In addition to this, the U.S., and other militaries required huge amounts of rubber to build new vehicles and equip their soldiers. This made designing synthetic rubber one of the top priorities of scientists around the world. During this six-year time period several companies and thousands of scientists were able to design a general-purpose synthetic rubber called GR-S rubber and manufacture enough of this rubber to meet the needs of the U.S. and its allies. GR-S rubber is still one of the most used rubbers today. (American Chemical Society, 1998)

**Intro:** GS-R rubber is synthesized by copolymerizing emulsions of styrene and butadiene. This process is called emulsion polymerization and it is the same process that is being used in the Roll lab to make rubber. The connections between the polymer chains can be altered, this is known as stereoregularity. These stereospecific polymerizations are important because only one well defined backbone is produced. This means that the material properties of the rubber can be altered depending on which functional groups are added to change the geometries. (Hill, McDonald, and Roll, 2021)

The goal of this project is to lower the glass transition phase, reexamine the GR-S catalyst system using the cationic surfactants, and analyze the stereochemistry (cis vs. trans) Synthetic rubber works for a lot of the applications of natural rubber, but it is falters in terms of stereochemistry and molecular weight. Specifically, it does not have the ideal chemical structure, and the molecular weight is significantly lower than we'd like it to be.

Surfactant is a contraction for "surface active agent" This is a molecule that lowers the surface tension of a liquid, or the interfacial tension between two liquids. (Britannica, 2020). An emulsion (figure 1) is a mixture of two liquids that are normally immiscible by dispersing the lesser of the two liquids among the other liquid. An example of this would be oil and water, and emulsions usually become opaque even if the two liquids are clear. In an emulsion the monomer (isoprene in our case) becomes surrounded by the surfactant and creates what is called a micelle (figure 2). When the initiator (hydrogen peroxide) is added, these micelles polymerize the monomer within them and create polyisoprene

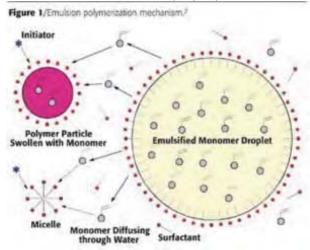


Figure 1

### **Experimental Procedures**

Recrystallization of Cetyltrimethylammonium bromide (CTAB)

The recrystallization ratio is 2g CTAB/ 4.5g methanol/ 75 mL ethyl acetate

- 1. Heat the ethyl acetate (75 mL) until bubbles start to appear.
- 2. Put the CTAB (2g) in a small beaker and slowly drop in methanol while stirring and heating until the solution turns clear (should require ~6 mL methanol).
- 3. When the ethyl acetate solution begins to bubble, slowly add the CTAB/methanol solution to the ethyl acetate using a pipette.
- 4. Allow the solution to stir and heat for a little bit longer, then remove from hotplate, cover with tinfoil, and let sit overnight (or until the CTAB has fully crystallized out).
- 5. Vacuum filter the solution to separate the CTAB crystals from the ethyl acetate.
- 6. Place CTAB crystals in vacuum pump to remove remaining ethyl acetate.

### **Emulsion Polymerization of Isoprene**

First make a surfactant solution by mixing 1.5g CTAB, 1.5g sodium pyrophosphate, 0.125g ferric sulfate, and 50g water. Sonicate this solution prior to use to de-gas it. Prepare the isoprene by adding barium oxide as a desiccant, and then filter this out with a filtered drip pipette.

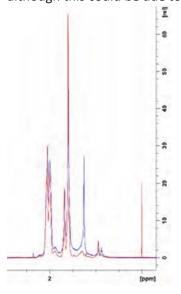
To start the emulsion polymerization reaction, mix the surfactant solution, the isoprene and hydrogen peroxide in the following ratio:

5mL isoprene:10mL surfactant solution:0.2mL hydrogen peroxide 3.405g isoprene:10.625g surfactant solution:0.222g hydrogen peroxide

Then allow this to stir and react overnight.

When the reaction is complete, precipitate the polyisoprene in methanol and then filter out the solids. When the isoprene polymerization reaction had finished, it was precipitated in methanol and then vacuum filtered and weighed. A small amount of the polyisoprene was left stuck on the sides of the reaction vial. This will have slightly influenced the reported yield values as some of the material was left behind. The polyisoprene resisted dissolving in methanol, limonene and chloroform, however it did dissolve in toluene. This allowed us to remove the leftover material from the reaction vials.

We attempted to use a few different surfactants for the polymerization of polyisoprene, but only CTAB has worked so far. In addition to CTAB, we also used Tetrabutylammonium Bromide (TBABr) and didecyldimethylammonium bromide (DDABr). The TBABr did not create an emulsion with the isoprene and was therefore unable to polymerize. And the DDABr did not fully dissolve in the surfactant solution, although this could be due to impurities in the DDABr from the manufacturer.



To the left is the NMR spectra of the Polyisoprene that was synthesized in the roll lab using the CTAB method (blue) against the NMR spectra of Polyisoprene that had been previously synthesized. As you can see, the spectra very closely match, meaning we have created a polymer that has the ideal structure that we are looking for.

**Budget:** Approximately \$250 was spent on safety equipment, including gloves, and coats; \$225 was spent on laboratory reagents, catalysts and solvents; \$75 was spent on miscellaneous parts and supplies; and \$450 was spent on purchasing monomers for polymerization and their precursors. This fellowship included a \$4,000 stipend. TOTAL: \$5,000

**Acknowledgement:** I truly appreciate the support provided by the State Board of Education/HERC that allowed me to carry out research this summer. This has been a summer of huge growth for me, and it would not have been possible without support from the SBOE/HERC. Thank you so much!

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Final Project Report: Office of Undergraduate Research (OUR) Summer Undergraduate Research Fellowship (SURF) – Summer 2021

**Fellowship Recipient:** Danielle Yama, Biological Sciences, University of Idaho **Faculty Mentor:** Paul A. Rowley, Professor, Department of Biological Sciences

**Project Title:** The Investigation of the Suicidal Phenotypes of K1 "Killer Toxin" Truncations in

Saccharomyces cerevisiae

**Abstract:** Common antifungal treatments such as fluconazole or miconazole are becoming less effective in treating fungal infections. The diminishing efficiency of such treatments is due to fungal pathogens developing an increased resistance to antimycotic drugs. Therefore, the use of antifungal "killer toxins" has become a recent focus of research in understanding how to combat these fungal infections in place of current antimycotics. This project examined the lethal effects of the K1 toxin to provide a better understanding of the K1 mechanism of action against fungi. K1 is a heterodimeric protein which consists of two different polypeptide chains: "alpha" (α) and "beta" ( $\beta$ ) which are linked by a single disulfide bond. It has been previously reported that the isolated  $\alpha$ domain of the K1 toxin (K1- $\alpha$ ) is able to cause cell death when ectopically expressed by yeast cells. We have confirmed this phenotype by first cloning and then expressing the isolated  $K1-\alpha$  domain in Saccharomyces cerevisiae using a galactose-inducible expression plasmid. This caused lethality when cells were grown on galactose media which induced the expression of  $K1-\alpha$ . To understand the host proteins that are important for  $K1-\alpha$  lethality, the systematic gene deletion collection library of non-essential genes in S. cerevisiae is now being screened for suppressor mutants. We have identified clones that appear to be resistant to K1- $\alpha$  expression and are in the process of identifying the gene deletions. This will lead us to a better understanding of the mechanism of action of the K1- $\alpha$  toxin and why it is cytotoxic to yeasts.

### **Project Accomplishments**

1. One of my goals was to determine which genes in *Saccharomyces cerevisiae* that when knocked out, would cause resistance to  $K1-\alpha$ .

The yeast genome deletion collection library consists of strains of S. cerevisiae, each of which has a single non-essential gene that has been knocked out. When transforming this deletion collection library with the lethal construct,  $K1-\alpha$ , I was able to find suppressor mutants that were resistant to this construct. By using the barcodes present in each strain from the deletion collection library, I was able to determine what those genes were that were knocked out.

**Results**: Some of the gene knockouts that were identified and confirmed played roles in salt tolerance, functions as components of the nuclear pore complex, degradation of cyclin-dependent kinase PHO85, DNA binding, transcription, and control of transcription factors.

2. Generate K1-[SS] $\alpha$  lethal construct which includes a galactose inducible plasmid, URA3 marker, and K1-[SS] $\alpha$  gene.

I had successfully cloned the K1-[SS] $\alpha$  gene, but I am currently undergoing the process of creating the pCR8 vector which would include the K1-[SS] $\alpha$  gene as well as the URA3 marker and a galactose inducible plasmid. My goal is to confirm the lethality of this construct so that I will be able to use it to transform the entire genome deletion collection library with K1-[SS] $\alpha$  using the same processes that I used when working with K1- $\alpha$ . I have not generated any results yet for this part of the project since I must still confirm that what I've generated is a lethal construct.

3. Determine which genes in Saccharomyces cerevisiae that when knocked out, would cause resistance to  $K1-[SS]\alpha$ .

My goal is to transform the entire genome deletion collection library with K1-[SS] $\alpha$  and determine if there are mutants that are resistant to K1-[SS] $\alpha$ . I plan to begin this process once I've generated the lethal construct that includes the K1-[SS] $\alpha$  gene.

4. Compare the mechanisms of action of K1 toxin domains K1- $\alpha$  and K1-[SS].

I plan to compare the mutants that are resistant to K1- $\alpha$  to those mutants that are resistant to K1-[SS] $\alpha$ . This will show insight into the differences in the mechanisms—if there are any—between the two different constructs and provide us with a better overall understanding of the K1 killer toxin.

### **Summary of Budget Expenditures**

Supplies	Cost
Primers	\$123.20
UltraFlux SnapStrip, PCR Tube, 8-strip 0.2mL	\$79.44
Trichloroacetic acid, BioXtra	\$44.05
Aspirating Pipet, 2mL capacity, polystyrene, PK 400	\$144.80
Nitrile Gloves	\$123.31
Antifungal for transformations	\$201.00
Bleach and PEG	\$113.62
Gel run purple ladder and restriction enzymes	\$111.04
Subtotal Supplies	\$940.46
Stipend	\$4,000.00
Total	\$4,940.46

**Conference Presentation**: I presented a poster of my project at the 2021 Idaho Conference on Undergraduate Research (ICUR) and will also present my work at the U of I Undergraduate Research Symposium in April of 2022.

Acknowledgements: I acknowledge and greatly appreciate the support that was provided by the State Board of Education and Higher Education Research Council as well as the University of Idaho Office of Undergraduate Research in the form of a Summer Undergraduate Research Fellowship (SURF). I was able to gain valuable insight and experience in conducting research through this opportunity. Presenting at ICUR was also an incredible experience for me. The Office of Undergraduate's support and that of the State Board of Education made this project and experience possible and is something I greatly appreciate and am thankful for.



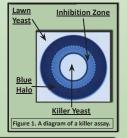
### Antifungal Killer Toxin Production by Opportunistic Candida glabrata

University of Idaho

Jeffrey T. Badigian, Lance R. Fredericks, Mark D. Lee, and Paul A. Rowley University of Idaho Department of Biological Sciences, University of Idaho, Moscow, Idaho, USA

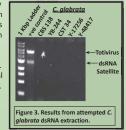
### Candida glabrata and Killer Toxins

Candidiasis affects ~150 million people annually, Candida glabrata has recently emerged as the second most common cause of this illness, afflicting ~28 million people¹. C. glabrata has been known to produce antifungal killer toxin proteins that inhibit the growth of competing fungi. The origin of these toxins in C. glabrata is unclear and could be either genomic, or via dsRNA viral satellites with help from a coinfecting dsRNA Totivirus⁴. This work aims to elucidate the origins and activity of killer toxins in C. glabrata.



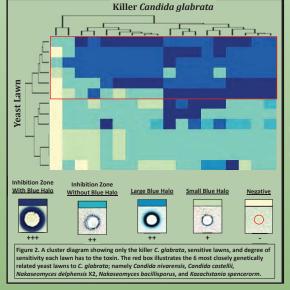
### **Viral Screening**

To determine if the toxin is virally encoded, a dsRNA extraction searching for the dsRNA satellites and totivirus was attempted on select killer *C. glabrata*; the positive control *Saccharomyces cerevisiae* YIM1307 was included. All isolates tested negative for viral infection, including type strain *C. glabrata* CBS 138 (Figure 3).



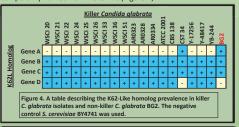
### **Killer Screening**

Killer toxin production was screened for in 133 *C. glabrata* isolates using 25 yeast lawns (Figure 1). 18 *C. glabrata* isolates (13.53%) exhibited killer toxin activity. 16 of which were clinically isolated (Figure 2).



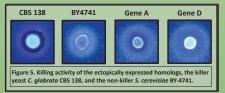
### Killer Toxin Genomic Search

Four homologs to a *Saccharomyces* K62 toxin were identified within the *C. glabrata* genome<sup>3</sup>. PCR diagnostics was used to determine which isolates contained these homologs which have been temporarily named K62-like toxins (Figure 4).



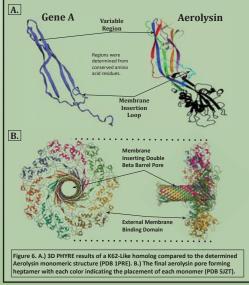
### **Protein Expression**

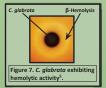
Two of the K62-like homologs were cloned into a non-killer yeast strain *S. cerevisiae* BY4741. Both clones ectopically expressed an active killer toxin, indicated by the methylene blue zones (Figure 5).



### **Killer Toxin Structure Modeling**

Secondary structure modeling using PHYRE suggests that this *C. glabrata* K62-Like toxin is an aerolysin-like toxin; toxins known to be cytotoxic to humans, and are known virulence factors for human pathogens (Figure 6). These toxins are secreted as monomers that bind a target cell membrane, undergo a conformational change, and oligomerize to create the final pore forming toxin<sup>2</sup>.





C. glabrata isolates have been previously shown to cause hemolysis when screened on acidic media at pH 5.65 (Figure 7). When we screened at pH 7.2, there was no evidence of hemolytic activity, suggesting limited cytotoxicity of these proteins to human cells.

### References and Funding

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 Ciraugui, N. et al. 2017. Structural, Physiochemical, and Dynamic Features Conserved Within the Aen

### Evaluation of UV photoinitiated polyampholyte hydrogel properties Isaac R. R. Blake<sup>1</sup> and Matthew Bernards<sup>1</sup> IdahoINBRE University of Idaho Chemical Engineering, University of Idaho, Moscow, ID Office of Undergraduate Research Abstract **Hydrogel Swelling Antifouling Abilities** Abstract Polyampholyte hydrogels display promising properties to promote healthy regeneration of tissue due to their inherent ability to bypase the body's foreign body response. Research proving these claims have been based off chemically initiated hydrogels, however more research needs to be conducted on hydrogels photopolymerized using UV-A light. All hydrogels used in this research were created with a constant w/y ratio of the photoinitiator LAP. Four polymerization times were tested for antifouling properties as well as shore hardness and percentage swelling. Initial formulation procedures were created, however no antifouling properties comparable to hemically initiated hydrogels were reported. It was also found that UV photopolymerization times exceeding 1.5 minutes did not result in significantly different hardness and swelling properties. Gels were exposed to fluorescein isothiocyanate labelled bovine serum albumin (FITC-BSA) for 15 min before and after soak in PES pH 7.4 · Photoinitiated gels have not been able to show antifouling · Gels exhibited minor changes in Photoinitiation Chemical Initiation volume change after swelling Background Hydrogels contain a hydration layer that prevents non-specific protein Conclusions Hydrogels showed no significant change in swelling or shore Antifouling properties have been proven with chemically polymerized gels hardness past 1.5 minutes of polymerization **Shore Hardness** Current gel formation procedures most likely have too little crosslinker or photoinitiator to maintain antifouling properties Free radical polymerization yields a methacrylate **Future Directions** TMA CAA copole backbone Manipulation of crosslinker/photoinitiator concentration Photoinitiation offers unique · Cell encapsulation benefits · Time Mechanical Testing Cytotoxicity · 3D printing Gels were measured on a flat surface Shore hardness slightly but not significantly increased as UV exposure time increased past 1.5 minutes Shore hardness related to the amount of crosslinked gel Enhanced Biocompatibility of Polyampholyte Hydrogels, Stephanie L. Haag and Matthew T. Bernards, Langmuir 2020 36 (13): 3292-3299DOI: 10.1021/acs.langmuir.0c00114 $\bullet \ An\ Undergraduate\ Research\ Grant\ from\ the\ Office\ of\ Undergraduate\ Research\ at\ the\ University\ of\ Idaho\ Grant\ Grant\ Grant\ from\ the\ Office\ of\ Undergraduate\ Research\ at\ the\ University\ of\ Idaho\ Grant\ Gr$ c. Cell encapsulation in biodegradable hydrogels for tissue engineering applications, Nicodemus GD, Bryant SJ, Tissue Eng Part B Rev. 2008;14(2):149-165. doi:10.1089/ten.leb.2007.0333 An Institutional Development Award (IDeA) from the National Institute of General Medical Sciences of the National Institutes of Health under Grant #P2oGM103408

I.L., R.P., and T.V. all experienced over a 90% drop

Results

in area between the control and 12ul/ml groups No significant morphological change could be

G.T. only saw a 68% drop in area coverage

detected between a control and amended fungal

culture in either a light or fluorescence

microscopy test.

# ric Arginate on the Growth and Morphology of Wood-Decaying Fung =

OF ICUR.

USDA

**Fungal Area Growth** 

R.p.

G.L.

12uVml

9ul/ml

3ul/ml 6ul/ml

Control

6.1

Malt Agar (14 Day Samples)

of pictures taken during the growth period that we felt best represented the growth of each fungi across all Figure 5: A selection of pictures taken

R.p.

15

Fime (Day)

Fime (Day)

1.1.

T.v.

Average Fungal Growth Rate (%)

orage Fungai (%) ets A thwo

LL

(%) 30000

Lv

### Introduction

- Products used to make lumber rot-resistant serve one main purpose, to stop bacterial and fungal growth to prevent contamination of a structure. This can drastically increase the lifespan of a structure and preserve its structural integrity.
  - Most common products that are used for this purpose are copper or arsenic based witch

# can cause negative heath and environmental effects to those in close contact. LAE is a non-toxic anti-microbial compound that's been rated safe for human consumption. LAE is used in hundreds of products across the country for its anti-microbial properties including food packaging, cosmetics, and dental products. We believe that LAE could serve as a replacement for the potentially toxic wood preservatives that are commonly used today.

Malt Agar Test Method



oftware

Microscopy Method

### Jul/ml R.P. Jul/ml R.P. area growth of test fungl over a two-week period. This was obtained by period. The data was then separated by species and charted. Time (Day) Microscopy Pictures Control R.P. Average Fungal Growth Rate (%) Control T.V. 2ul/ml R.P. Tul/ml T.V. Figure 3: 3D line graph depicting the thenictures taken during the growth Fime (Day) Control R.P Control T.V. Growth Rate (%)

## Conclusion

- LAE has proven effective at limiting the growth of 3 out of 4 test funging of 1 is more resistant than other funging in areas where brown-rot fungine more common LAE may not be an ideal wood preservative end. More experimentation needs to be done to determine if LAE is effective when impregnated into wood.

3ul/ml I.L.

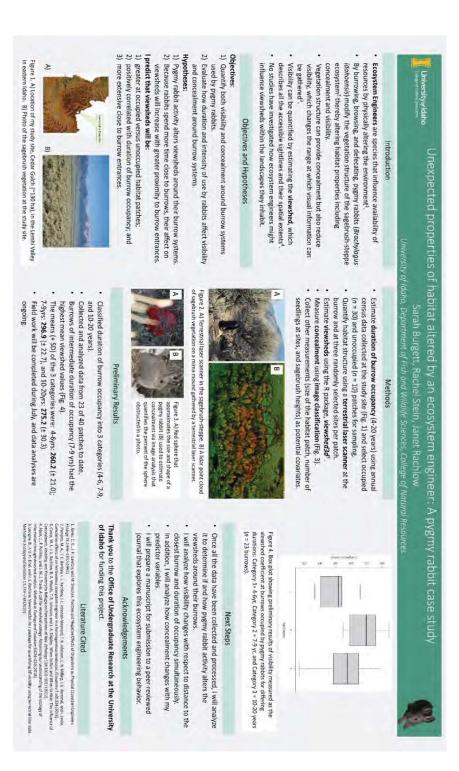
## Acknowledgements

Funding Provided by the University of Idaho Office of Undergraduate research SURF grant.

### All replicates were constructed as Microscope slide Petri dish (Top) Cover Slide Malt agar plug Plastic Mesh

Petri dish (bottom) Filter paper

After a growth period all cover slides were removed and transferred to a clean slide to be observed. seen to the left



### ASSOCIATIONS BETWEEN SCREEN TIME AND GLYCEMIC CONTROL IN ADULTS WITH AND WITHOUT TYPE 2 DIABETES

MR Flynn, OB Balemba, R Geidl, CA Vella

Exercise Physiology Research Laboratory, Department of Movement Sciences, University of Idaho

### **Abstract**

Abstract

PURPOSE: To assess the associations between screen time (ST) and glycernic control, as measured by glycated hemoglobin levels (+lbA1c), in middle-aged to older adults with and without type 2 diabetes. METHODS: adults (meant-SD: age, 49.1±18.4/7, 80) participated in the study. Screen time was subjectively measured through an 18-liem screen-time questionnaire. Total sadentary time was subjectively measured using the Sedentary Behavior Questionnaire. A finger stick blood draw was completed to measure HbA1c, Participants then completed a food frequency questionnaire online using the NHI Diet Htstory Questionnaire III. Pearson correlation analyses were used to assess the simple and partial associations among the variables while controlling for age, sex, and dietary carbotydrates. RESULTS. The majority of participants were non-Hispanic white (88%), non-enciers (88%) and had family history of Type 2 diabetes (46%). On average, participants spent 509,6±160,9 min-d¹ in sedentary behavior (SB: 53%, of the waking day). Of this time, 444.8±156,9 min-d¹ were spent on a screen. Participants ergaged in background screen time 135.7±149.09 min-d¹. Significant positive correlations (pc-0.05) were found between HbA1c and total SB (r= 0.519), and ST (r= 0.572). CONCLUSIONS:
Participants spend large amounts of their day ergaged in sedentary behavior, which is consistent with national data. Moreover, of this time spent in sedentary behavior, which is consistent with national data. Moreover, of this time spent in sedentary behavior, which is consistent with national data. Moreover, of this time spent in sedentary behavior, which is consistent with national data. Moreover, of this time spent in sedentary behavior, which is consistent with national data. Moreover, of this time spent in sedentary behavior.

### Background

Screen-based sedentary behaviors, such as smartphone and tablet use, have significantly increased in recent years. Engaging in screen time has been shown to promole unhealthy behaviors, such as snacking, and has been linked to an increased risk for chronic diseases, such as cardiovascular disease and diabetes (Wang, Li, & Fan, 2019). To reduce these health impacts, researchers have focused their studies on how individuals with type 2 impacts, researchers have tocused their studies on how individuals with type 2 diabetes are able to control glycemic levies through regular physical activity. What researchers are discovering is that a lack of physical activity and increases in total sedentary behavior are associated with higher amounts of time spent on a screen, which may impact glycemic control (O'Erien, Issartel, & Belton, 2018), Although there is a paucity of data on this topic, new research is emerging and demonstrating a relationship between screen time and s developing and control, but much is still unknown. The findings from this study will help bridge the literature gap regarding screen time and its role in an individual's level of sedentary behavior and their glycemic control.

To investigate associations between screen time and glycemic control in adults with and without type 2 diabetes.



### Methods

Participants were adults aged ≥ 18 years with and without type 2 diabetes

Exclusion criteria: irritable bowel syndrome, Crohn's, ulcerative colitis, celiac disease, colon cancer, multiple scierosis, Parkinson's disease, Alzheimer's disease, type 1 diabetes, or currently pregnant or breast feeding.

- activities at work, home and issum.

  > Height, weight.

  > Finger sick blood draw assessing hemogloin At a property of the prop

### Results

A total of 24 adults participated in the study, 7 men and 17 women. Three (13%) participants had type 2 diabetes and 11 (46%) had a family history of type 2 diabetes.

TABLE 1. Descriptive statistics for the sample

VARIABLE	MEAN ± 50	RANGE
Age (y)	49.1 ± 18.4	21.0-79.0
BMI (kg/m²)	30.5 ± 7.6	14.5-56.9
Sedentary Behavior (min-d-1)	509.6 ± 160.9	250.7-882.9
Screen Time (min-d-1)	444.8 ± 156.9	120.0-660.0
Background Screen Time (min-d <sup>-1</sup> )	135.7 ± 149.0	0-720.0
Leisure PA (MET min-d-1)	189.2 ± 150.6	0-478.3
HbA1c (%)	5.6 ± 0.8	4.9-8.2
Glucose (mg.dL-1)	102.5 ± 37.4	77-268
Energy Intake (kcals)	1794.3 ± 731.9	712.4-3572.1
Total Carbohydrates (g)	187.2 ± 90.2	75.9-362.4
Total Fats (g)	78.7 ± 33.8	27.4-170.9
Total Protein (g)	77.9 ± 31.7	26.1-162.6

### Results cont.

TABLE 2. Partial correlations between sedentary behavior, screen time and markers of glycemic control.

VANABLE	HbA3c@Q	Glasse (mg/dl)	
Sedentary Behavior (min-d-1)	0.615*	0.740*	
Screen Time (min-d-1)	0.578*	0.520*	
Background Screen (min-d-1)	0.572*	0.782*	

\*p<0.05 controlling for age, sex, and carbohydrate intake; HbA1c, glycated hemoglobin

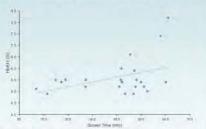


FIGURE 1. Correlation between screen time and HbA1c

- Participants spent the majority of their waking day engaged in sedentary behavior, which is consistent with national data.
- The majority of time engaged in sedentary behavior is spent looking at a
- On average, most of an individual's total screen time was spent on a computer/laptop.
- Our preliminarily findings suggest that screen time is associated with glycemic control and risk of type 2 diabetes.
- Further research is needed to develop successful interventions to reduce

**TAB 4 Page 121 IRSA** 

### EVALUATION OF FATIGUE PROPERTIES OF ALUMINUM SHEET METAL

### **OBJECTIVE**

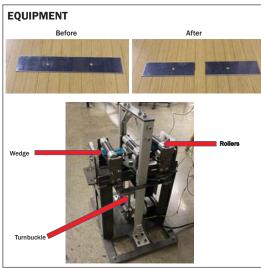
Develop similar stress cycle (S-N) curves for structural aluminum alloys commonly used by Schweitzer Engineering Laboratories and other manufacturers. Help engineers make educated designs with aluminum with the aid of the S-N curve.

### **BACKGROUND**

- Adopted work from prior Capstone teams
- Limited data for fatigue properties of aluminum for engineers who create structural designs

### **MATERIAL**

5052 H32 Aluminum

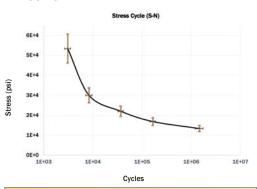


# FLAT METAL Distance between rollers change Center rollers move up and down

### **OPERATION OF MACHINE**

- Python codes are entered on a Raspberry Pi computer to read data when the machine is running.
- An Arduino board is used to run the motor with C language.
- The middle rollers move up and down, putting force on the aluminum sheet metal.
- The Raspberry Pi records the number of cycles that the sheet metal goes through and the current flowing through the circuit.
- A break detection code reports a "break". This is when current no longer flows through the circuit because of a break detection.
- Stress of the metal is calculated using the following factors:
  - force required to deflect input deflection
  - total length
  - sample thickness
  - moment of inertia

### **RESULTS**



### **SUMMARY**

- · Modifications:
- Wedges were 3D printed to physically separate the pieces after failure
- Rollers were strapped with adhesive tap to reduce conduction
- Design for the formed aluminum was improved upon for durability
- Turnbuckle was made shorter to allow the design of the formed aluminum to accommodate the new setup
- Spacings of the rollers range from 2.25" to 4.5"
- It takes about 4 minutes to 60 hours for the aluminum to break after a certain number of revolutions

### **FUTURE WORK**

- Machine should automatically shut off after detection of sample failure
- Run more samples for the formed aluminum sheet metal
- Noise reduction

### **ACKNOWLEGMENTS**

Lead Student: Shalom Masango Advisor: Dr. Matthew Swenson sex, sexual orientation and gender identity/expression, age, disability, or status as a Vietnamera veteran. This policy applies to all programs, services, and facilities, and includes, but is not limited to, applications, admissions, access to programs and services, and employment.



### THE EFFECTS OF AN EXTERNAL LIFTING DEVICE ON LIFTING MECHANICS

University of Idaho

Lenah Matz¹, Youngmin Chun¹, Devin Green¹, Nickolai Martonick¹, Cory Johannsen², Lukas Krumpl¹, Joshua¹Department of Movement Sciences, University of Idaho, ² School of Medicine, University of Washingto

College of Education

### ABSRACT:

The participants were recruited for this study to investigate the effects of muscle activation patterns and movement mechanics through utilizing a wearable external corrective device, Sure Squat, which focuses on the lumbar and distal thigh regions while lifting. Additional comparison between recruited populations will be done to identify any

Currently the mechanical data for this study is being processed; however, qualitative reports from participants who successfully completed both sessions are presented. A total of 12 participants have successful completed both sessions, 9 with a current history in free-weight resistance training, and 3 without a history of free-weight resistance training in the last year.







**METHODS:** 







- Recruitment: Participants were recruited using a convenience sample
- Session 1: Consent, screening, and familiarizing participant with protocols and activities. Activities: countermovement jump (CMJ), drop jump into a countermovement jump (DCMJ) from 30 cm and 50 cm, determined 5RM (Repetition Maximum) for back squat (BS) and dead lift (DL).
- Session 2: Completion of all tasks with and without SureSquat device (CMJ, DCMJ, BS (BW,50% & 100% 5RM), & DL (50% & 100% 5RM). Motion capture [Vicon] and muscle activation [Delsys surface electromyography (sEMG) sensors] were collected for 3 trials each to assess potential mechanical differences between conditions. Following completion of all tasks, participants completed a questionnaire to assess their feedback of the device.
  - sEMG locations: Rectus Femoris, Bicep Femoris, Adductor Longus, Gluteus Maximus & Medius, and Erector





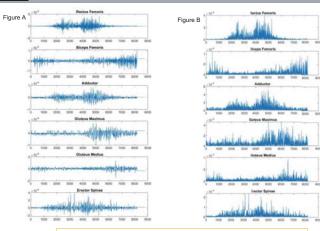


- · Mixed reviews of product aid during all tasks were reported across participants
- · Mechanical changes are being analyzed
- · Future product development planned

### **PURPOSE:**

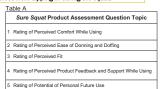
To investigate the effects on muscle activation patterns and movement mechanics through utilizing an external corrective device focusing on the lumbar and distal thigh regions while lifting.

- Lifting heavy loads can insight an increased risk of injury, of specific concern: lumbar and knee pain and injury (4,5,1,2)
- External assistive devices have a corrective mechanical effect on lifting mechanics (1,3,4,7)
- · Outside of performance, an additional need is identified for external assistive devices targeting workplace ergonomics (5)
- Project significance can advance current knowledge on knowledge on optimizing performance, increasing ergonom practices in the workplace, and overall injury prevention when employing an external assistive device to the act of lifting



'It may take more time to get comfortable with the device. "Great Idea, but doesn't work for me. I felt no difference 'It helped by keeping my knees from dipping in during the squat.'





Figures A-B. (A) sEMG signal demeaned, full back sq uat, unilateral (B) sEMG signal rectified, full back

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  Hale R., et al. (2014). Computers in Biology and Medicine, vol.52, pp 57-65.
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  E. Zink A.J., et al. (2001). Journal of Strength and Conditioning Research, 15(2) pp 235-24

ACKNOWLEDGEMENT: Funding: Summer Undergraduate Research Fellowship (SURF) program, University of Idaho Office of Undergraduate Research

**TAB 4 Page 123 IRSA** 

## University of Idaho

# Synthesis of mesoporous silica nanoparticles for use in extrusion polymerization

Department of Materials Science and Engineering, University of Idaho, Moscow, ID Gabriel Nelson, Riley Parr, and Dr. Mark Roll



# RESULTS AND DISCUSSION

The table below shows a summary of different ASNC synthesis experiments

Arrays of silica nanochamels (ASNCs) are a versatile tool in

NTRODUCTION

fields such as "sensor technology, drug delivery, catalysis,

imaging, and light-harvesting" (1).

Extrusion polymerization is a process in which catalysts are

ASNCs and produces desirable material properties in the

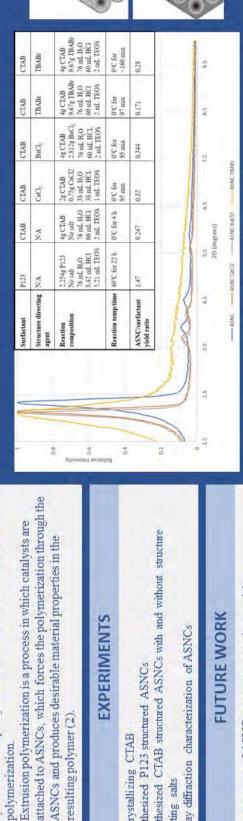
resulting polymer (2).

**EXPERIMENTS** 

synthesis techniques yield the best structure for extrusion The project focus is to synthesize ASNCs and find which

polymerization.

- The images (3) represent the surfactant micelles forming into a hexagonal array in silica
- The graph shows the results of x-ray diffraction characterization, which gives us information about the structural organization of our silica



·Synthesized CTAB structured ASNCs with and without structure

Synthesized P123 structured ASNCs

•Recrystallizing CTAB

\*X-ray diffraction characterization of ASNCs

directing salts

### REFERENCES

(1) Nicola Zuschetto and Dominik Bruhwiler, Tuning the aspect ratio of arrays of silica nanochamels. RSC Adv. (2015)

ent for Crystalline Linsar Polyethylene/Nanofibers Within a Masoporous Silica. Scienze 285 (3436), 2113-2115.

(3) Emma Björk, Synthesizing and Characterizing Masoporous Silica SBA-15: A Hands On Laboratory Experim Undergraduates Using Various Instrumental Techniques, Journal of Chemical Education, 2017. 94(1), pp. 91-94. 5, 74638. (2) Keisuke Kageyama, Jon-ichi Tamazawa and Takuzo Aida, Extrusion Polymenzation: Catalyzad Synthesis of

# ACKNOWLEDGEMENTS

of IdahoOffice of Undergraduate Research SURF grant This work was supported by the University

Scanning electron microscopy

\*Attaching catalysts to ASNCs and conduction polymerization

·Heat treatment of ASNCs to remove organic material

**FUTURE WORK** 

# Stereospecific Emulsion Polymerization

The type of surfactant we are using is called CTAB, it is The CTAB is in a powdered form when we receive it, but it must be recrystallized to be used in the most commonly used as a topical antiseptic polymerization process, to do this, we:

southeast Asia. Around this time a general-purpose synthetic rubber

Until 1945 our main source of rubber was from plantations in

quality of natural rubber in our synthetic versions. The focus of this isoprene in soapy water. Even today though, we cannot match the (GS-R) was developed. This rubber is synthesized by polymerizing

project is to synthesize a rubber with a lower glass transition

temperature than the current market standard.

- Dissolve the CTAB in methanol
- Heat up ethyl acetate to increase the solubility limit 3. Fully dissolve the CTAB in the ethyl acetate
- 4. Allow the ethyl acetate to slowly cool down

decreases drastically, this causes the CTAB to crash out of solution in a crystalline form. This material can then As the ethyl acetate cools down, the solubility limit be collected for use in future polymerizations. The yield for the CTAB recrystallization was consistently about 80%

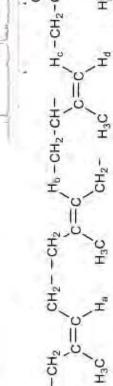
An emulsion of the monomer and water is created using a surfactant

The surfactant used here is CTAB, and the monomer is Isoprene The figure from (Ron Lewarchik, The Fundamentals of Emulsion Polymerization, 2016) below shows the primary processes in this

nililato reaction

The polymerization was conducted with the following

- 1. Degas solution with the sonicator
- Mix the surfactant solution and the monomer
  - Add hydrogen peroxide
- Precipitate in Methanol to collect material Stir at room temperature for 12 Hours



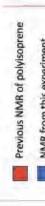
# References: Eriedmann, G., Brosse, N. Stereospecific Emulsion Polymerization of 2-Phenyl-1,3-Butadlene. European Polymer Journal 1991, 27 (8), 747–749. https://doi.org/10.1016/0014-3057/91/90002-6

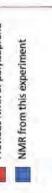
# University of Idaho

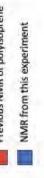
Continue improving Isoprene Polymerizations polymerizations and determine Obtain more NMR data on new microstructure

### Over our first four reactions, the yields increased from 26% to 54% Poly-Isoprene Yields

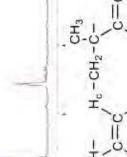
The proton NMR below indicated that polyisoprene was formed.

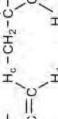


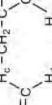














Monomer Diffusing through Water

**Page 125** 

TAB 4

**IRSA** 



### Investigation of the Suicidal Phenotypes of K1 "Killer Toxin" Truncations in Saccharomyces cerevisiae



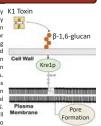
Danielle Yama, Mason Shipley, and Dr. Paul A. Rowley University of Idaho, Department of Biological Sciences

### INTRODUCTION

The current focus of this research within the Rowley K1 Toxin lab is on the K1 "killer toxin" produced by Sacchoromyces cerevisiae yeasts. Common antifungal treatments such as fluconazole or miconazole are becoming less effective in treating fungal infections such as Candida glabrata and confide plating constituities at the confidence confiden Candida albicans--opportunistic pathogens that can cause life-threatening bloodstream infections in individuals with compromised immune systems Therefore, use of antifungal "killer toxins" such as K1 has become a recent focus of research in understanding how to combat these fungal infections, K1-an antifungal protein secreted by S. Pore Formation and then interacts with KreIp which is thought to lead to the formation of pores within the membrane and causes cell apoptosis. We do

not fully understand the mechanism of suicide by these K1 protein domains. To fill this K1 Precursor

Pre Pro a y b showing gap, we leave that the deletion mutant strains of S. cerevisiae that represent a systematic collection Mature Secreted K1 Toxin **K1 Toxin Constructs** Pre Pro α γ β K1-[SS]a Pre Pro a K1-α α



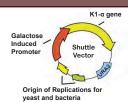
knowledge gap, we will test of all non-essential gene deletions can suppress the suicidal phenotype of K1- $\alpha$  and K1-[SS] $\alpha$  which are responsible for mediating the toxic effect.. This will provide insight into which non-essential gene deletions will provide resistance against K1-α and K1-[SS]α. This will lead us to better unde the mechanism of action of K1

### **HYPOTHESIS**

We hypothesize that the deletion of specific nonessential genes in S. cerevisiae strains will yield suppressor mutants that are resistant to K1- $\alpha$  or K1-[SS] $\alpha$  toxins. We expect those genes involved in ER protein export, protein transportation, or membrane function may prevent the lethality of S. cerevisiae cells due to K1- $\alpha$  or K1-

### AIM 1: VALIDATE THE LETHALITY OF K1-α AND K1-[SS]α IN S. CEREVISIAE

To confirm the toxic effects of  $K1-\alpha$  and  $K1-[SS]\alpha$  in the Rowley Lab at the University of Idaho, we constructed our own expression plasmid. The K1- $\alpha$ gene was introduced into a galactose-inducible expression plasmid containing the plasmid URA3 and used to transform the wild type BY4741 strain of S

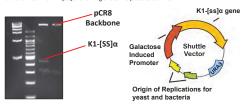


S. cerevisiae strain BY4741 was transformed with K1α. Cells that were plated on media containing dextrose were expected to show growth (left) while cells plated on media containing galactose would induce the causing the expression of

K1-α, resulting in lethality

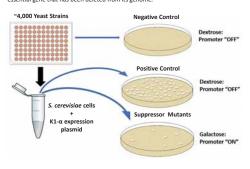


K1-[SS] $\alpha$  has been isolated and cloned using the PCR8 vector. Escherichia coli was then transformed with the K1-[SS] $\alpha$  construct and will undergo gateway cloning in order to create the full expression plasmid including the galactose induced promoter and origin lication for yeast and bacteria. BY4741 S. cerevisiae strain will then be rmed with K1-[SS] $\alpha$  following the same process as K1- $\alpha$ .



AIM 2: IDENTIFY WHICH NON-ESSENTIAL GENES WITHIN S. CEREVISIAE THAT CAUSE RESISTANCE <u>ΤΟ Κ1-α AND Κ1-[SS]α</u>

We transformed the entirety of the genome deletion collection library with K1-α. This library consists of ~4,000 different S. cerevisiae strains, each of which has a single nonessential gene that has been deleted from its genome



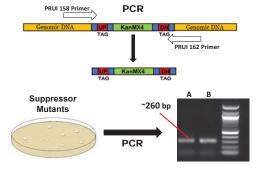
These plates show a part of the deletion collection that

Deletion Collection plate 71-74 transformed with K1- $\alpha$ was transformed with K1-α As expected, cells grew on dextrose (left), and we had found two *S. cerevisiae* strains—mutants with a single gene deletion that causes resistance to  $K1-\alpha$ —were seen growing on galactose (right). Mutant

Dextrose Promoter "OFF"

Galactose

Using primers PRUI-158 and PRUI-162, a PCR reaction was performed on those mutants resistant to K1- $\alpha$  to identify if they contained barcodes. These primers were designed on each side of KanMX4 which would serve as a marker for genes in the whole genome deletion library that have been knocked out. The nonessential gene is replaced by KanMX4 via homologous recombination. As a result, gene knockout could be confirmed on an agarose gel by a band that was ~260 bp in size.



PCR products with visible bands were sent for Sanger Sequencing. With KanMX4 serving as a marker, all single nonessential gene deletions can be identified. This process is used to identify those genes that when knocked out, cause resistance to K1-α or K1-{SS}α.

### ACKNOWLEDGEMENTS

This project was supported in part by a SURF award from the UI Office of Undergraduate Researc

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 Gier, Stefanie, Manfred J. Schmitt, and Frank Breinig. 2017. "Expression of K1 Toxin Derivatives in Saccharomyces cerevisiae Mimics Treatment with Exogenous Toxin and Provides a Useful Tool for Elucidating K1 Mechanisms of Action and Immunity." Toxins 9 (11). https://doi.org/10.3390/toxins9110345.

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TAB 4 Page 126 **IRSA** 

### FY21 Undergraduate Report for Lewis-Clark State College

				Amount	Amount		Amount	Amount		
o										
Student				Requested	Requested		Awarded	Award		
Name	Advisor	Project	S/Y	Supplies	Salary	Total	Supplies	Salary	Dissemination	Other Outcomes
		Use of Amphioxus as a Model for								
J. Boozer	L. Latta	Regnerative Medicine.	Year	\$374	\$2,268	\$2,642	\$374	\$1,600	ICUR	
		Effective Antimicrobial agents in								
		Chlorhexidine Gluconate on Multiple								
S. Eberly	L. Latta	Bacterial Species of the Mouth	Year	\$0	\$1,896	\$1,896	\$0	\$1,600	ICUR	
		Measuring Diffusive Uptake Rates of							ICUR, INBRE	
		Diffusive Organic Compounds for use in							Conference, AGU	
		Passive Sorbent Tube-Type Air							meeting, manuscript	
D. Miller	N. Johnston	Sampling	Year	\$2,000	\$1,050	\$3,050	\$0	\$1,050	for publication.	
		Effect of Y-linked Natural Variation on							ICUR, INBRE	
A. Roy	E. Stoffregen	survival of BLM-Deficient embryos.	Year	\$0	\$4,200	\$4,200	\$0	\$1,200	Conference.	
		Effects of Bio-Electro-Magnetic-Energy					\$2336 (joint			
		Regulation (BEMER) on Lactate					award for all 3		LCSC Research	
T. Coburn	C. Robinson	Threshold with Aerobic Activity.	Year	\$2,336	\$1,800	\$4,136	students)	\$1,200	Symposium, ICUR	
		Effects of Bio-Electro-Magnetic-Energy								
		Regulation (BEMER) on Lactate							LCSC Research	
B. Menti	C. Robinson	Threshold with Aerobic Activity.	Year	\$2,336	\$1,800	\$4,136		\$1,200	Symposium, ICUR	
		Effects of Bio-Electro-Magnetic-Energy								
		Regulation (BEMER) on Lactate							LCSC Research	
C. Smith	C. Robinson	Threshold with Aerobic Activity.	Year	\$2,336	\$1,800	\$4,136		\$1,200	Symposium, ICUR	
		An exploration of nursing students								
		perspectives regarding LGBTQ+ Health								
Rachel Hull	K. Allison	Care.	S	\$1,097	\$1,800	\$2,897	\$0	\$1,260	ICUR	
		The effectiveness of liquid versus								
		capsule iron supplements absorption							ICUR; LCSC research	
Carly Jones	C. Robinson	and effects on endurance athletes	s	\$3,720	\$1,200	\$4,920	\$2,480	\$250	symposium.	
		The effectiveness of liquid versus					awarded			
		capsule iron supplements absorption		shared with			\$2480 jointly		ICUR; LCSC research	
Emily Adams	C. Robinson	and effects on endurance athletes	S	Carly	\$1,200	\$1,200	with Carly	\$250	symposium.	
	-			1						
				<del> </del>						
Total						\$33,213	\$2,710	\$10,810		

### **Boozer Abstract**

The invertebrate amphioxus obtain the ability to regenerate their posterior tail end after damage or loss. To increase this rate of regeneration, the chemical compound curcumin was added to the experimental tank as it contains anti-microbial, anti-inflammatory, and wound healing properties. For 4 weeks, 6 individuals in the control tank and 6 individuals in the curcumin tank were maintained at proper salinity and temperature, fed every 3 days, and photographed every 7 days to track growth. The results indicated there was no significant difference in growth between control and experimental groups, however trends of a higher mean growth can be seen in the experimental group.

#### Colburn Abstract

### EFFECTS OF BIO-ELECTRO-MAGNETIC-ENERGY REGULATION (BEMER) ON LACTATE THRESHOLD WITH AEROBIC CAPACITY

T.Colburn, B.Menti, C. Smith, C. Robinson

ABSTRACT: The Bio-Electro-Magnetic-Energy-Regulation (BEMER) pad is a relatively new piece of technology. Currently, the technology is primarily used in physical vascular therapy, but many studies have been done to expand the scope of the BEMER pad. For example, one study has shown positive effects of the BEMER pad in the reduction of cancer cells during chemotherapy. Other studies have found positive results using the BEMER technology to increase circulation and oxygen saturation levels. PURPOSE: To determine if the BEMER pad is a viable tool to improve aerobic performance in elite athletes, as well as the general population. METHODS: The participants will be randomly assigned between a placebo group and a BEMER pad treatment group. Both groups will lay on the BEMER pad, however the pad will be turned off for the placebo group. All participants will undergo a pre-test and post-test. Both tests will be a sub-maximal V02max test on the treadmill. The tests will end once the lactate threshold is reached and participants will complete a gradual cool down. Once the pre-test is completed, the participants will be asked to complete ten consecutive days of BEMER treatments or placebo treatments lasting 10 minutes for each session. Following the ten days of treatment post-test will be performed and the lactate threshold will be calculated again. The pre-test and post-test data will then be compared to determine if there is greater positive correlation between the BEMER treatment group and lactate threshold when compared to the placebo group. In addition to lactate threshold, we will be recording blood pressure, heart rate, 02 saturation, respiratory exchange ratio (RER), and ventilatory threshold. These variables were then compared between the pre-test and the post-test.

The data for this study is currently being collected and results are pending.

This study is being supported by an Idaho HURC grant and Lewis-Clark State College Division of Movement and Sport Sciences.

The Bio-Electro-Magnetic-Energy-Regulation (BEMER) pad is a relatively new piece of technology. Currently, the technology is primarily used in physical vascular therapy, but many studies have been done to expand the scope of the BEMER pad. For example, one study has shown positive effects of the BEMER pad in the reduction of cancer cells during chemotherapy. Other studies have found positive results using the BEMER technology to increase circulation and oxygen saturation levels.

#### **Eberle Abstract**

- The antimicrobial properties of a prescription mouth rinse, Chlorhexidine Gluconate 0.12%, was studied to determine its efficacy in combating the number of microbes in the oral cavity.
- The specialty of oral surgery poses many questions involving microorganisms, namely what can be done to limit them in an environment that is so heavily contaminated.
- Subsequent studies utilized streptococci strains, S. mutans and S. salivarius.
- Microbial population growth was determined using spectrophotometric readings analyzing dose-dependence and species-dependence.

#### Miller Abstract

#### ICUR 2021 Abstract - HERC funded research by Dylan Miller with mentor Dr. Nancy Johnston

Miller, D. D., Bajracharya, A., Dickinson, G. N., Durbin, T. A., McGarry, J. K. P., Moser, E. P., Nuñez, L. A., Pukkila, E. J., Scott, P. S., Sutton, P. J. and Johnston, N. A. C. Analysis of Diffusive Rates for Use with Air Toxic Risk Assessment. Idaho Conference for Undergraduate Reference, July 2021.

Risk to human health due to air toxics exposure can be best assessed using time-weighted averages of various compound concentrations. These average concentrations are delivered by passive sampling techniques, which requires diffusive uptake rates (UTRs) for analysis. The use of these samplers is advantageous as a result of versatility in sampling duration, low costs of operation, and ease of use. Supplementing a current shortage of UTRs for samplers containing Tenax®TA, a parallel active and passive air sampling method was used to determine UTRs for 27 VOCs, including known carcinogens such as BTEX compounds, hydrocarbons, and terpenes. These rates were measured for 24-hour, 7, 14, and 28-day sampling durations to accommodate the wide time range for which passive samplers can be employed. All analysis of samples was completed by thermal desorption-gas chromatography-mass spectrometry. The applicability of the UTRs measured here was demonstrated by retrospective analysis of VOC data from the 2019 NASA/NOAA Fire Influence on Regional to Global Environments and Air Quality (FIREX-AQ) campaign. This field study examined smoke composition from wildfires in the United States. The concentrations derived from UTRs determined in this study were subsequently used to assess human health risk from exposure to fire emissions measured during FIREX-AQ. Limited fire activity in 2019 led to low exposure to carcinogenic VOCs, but the UTRs determined here are equally applicable to any employment of diffusive sampling.

#### **Stoffregen Abstract**

Lack of Blm protein during early embryonic development in Drosophila impacts the lifespan of surviving progeny

Abbey Roy, Brayden Graves, Kyra Lockett, Abygail Marler, Nathan Anderson, Karly Lacey, Leigh Latta, Eric Stoffregen

During the early stages of Drosophila embryogenesis, maternally loaded Blm DNA helicase is essential for proper DNA replication; embryos from Blm mutant females, who fail to provision Blm to their eggs, accumulate DNA damage and most do not survive this early developmental period. Despite this severe maternal effect lethality, a small percentage of embryos do survive in the absence of Blm. However, survivors of this Blm-null embryonic environment may experience sub-lethal DNA damage that poses long-term biological consequences, such as decreased lifespan. We found that flies that developed without Blm had a reduced lifespan compared to those that developed with Blm. Due to the role Blm plays in ensuring proper replication through repetitive DNA sequences, we hypothesize that Y chromosomes containing more repetitive DNA might further reduce lifespan in a Blm deficient background.

#### Lack of Blm protein during early embryonic development n Drosophila impacts the lifespan of surviving progeny

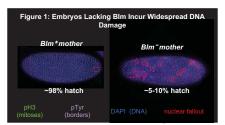
Abbey L. Roy, Brayden M. Graves, Kyra M. Lockett, Abbey J. Marler, Eric P. Stoffregen



Division of Natural Sciences and Mathematics

#### Introduction

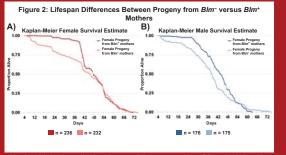
- . In humans, mutations in BLM DNA helicase cause Bloom Syndrome, an autosomal recessive cancer predisposition syndrome
- In Drosophila, Blm protein provided to eggs by mothers, plays an essential role in ensuring proper DNA replication during early embryogenesis
- Most progeny from Blm-mutant mothers die during embryonic development due to a lack of maternal Blm gene products (Figure 1).
- It is unknown what effects the lack of Blm during early embryogenesis has on flies that survive this Blm-null environment.
- We found that flies that developed without Blm had a reduced lifespan compared to those that developed with Blm. Due to the role Blm plays in ensuring proper replication through repetitive DNA sequences, we hypothesize that Y chromosomes containing more repetitive DNA content might further reduce lifespan in a Blm-deficient background.



An embryo from a Blm+ mother (left) shows one cluster of empty actin cages (dotted red outline), which reveals a region of DNA damage leading to nuclear fallout. An embryo from a Blm- mother (right), who is unable to supply the embryo with functional Blm protein has massive nuclear fallout as indicated by the dotted red outlines.

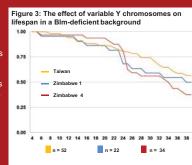


Surviving adult progeny that were deficient for Blm DNA helicase during early embryonic stages exhibit a reduced lifespan. Y-chromosome variability may exacerbate the reduction in lifespan.



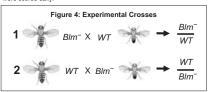
Kaplan-Meir plots display the surviving proportion of female (A) and male (B) progeny over time for both Blm and Blm mothers. Lifespan of progeny from Blm mothers was significantly reduced within the first 40 days for females and within the first 50 days for males compared to progeny from Blm+ mothers.

Kaplan-Meir plot displaying the surviving proportion of male progeny from *Blm* mothers. Each line represents a population of male progeny with a different Y chromosome. Initial estimates indicate that Zimbabwe 1 has more Y-linked DNA than Zimbabwe 4 and Taiwan



#### Methods

- The crosses shown below (Figure 4) show how we obtain the genetically matched progeny used in the lifespan experiments
- Progeny from Blm and Blm mothers were allowed to mate for 3 days post-eclosion. On day 4, the flies were segregated by sex, and deaths were scored daily.



(1): Cross between Blm mutant mothers and wild type fathers. Resulting progeny do not receive maternally loaded Blm during early cell cycles. However, as they are genotypically heterozygous. Blm will be produced once zygotic transcription begins. (2): Cross between wild type mothers and Blm mutant fathers. These flies receive maternally loaded Blm, and are also genotypically heterozygous, so they have functional Blm available during the entirety of their development. For Fig. 3, the WT or Blm- fathers have either the Taiwan, Zimbabwe 1, or Zimbabwe 4 Y chromosome.

#### Results

- Progeny from Blm mothers demonstrated significantly reduced lifespan during the first 40-50 days post-eclosion, as compared to progeny from Blm\* mothers
- Y chromosome variability may influence the reduced lifespan in the Blm background (Figure 3), but the experiment has a low number of progeny and is not yet complete

#### Discussion

- Our data supports the hypothesis that a lack of maternally loaded Blm during early embryogenesis reduces the lifespan of flies that survive to adulthood.
- There is a trend toward lifespan variability based on Y-chromosome variability that will require further experimentation.

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#### Acknowledgements

- The project described was supported by an Institutional Development Award (IDeA) from the National Institute of General Medical Sciences of the National Institutes of Hearth under Grant #F20SM/103468 and with Intellige from the Higher Education Research Council (HERC).

  \*\*Drosophila Images (Fig. 4) courtesy of @illechman.

  \*\*Thank you to Dr. Leigh Latta for help with statistical analysis.

TAB 4 Page 133 **IRSA** 

### The Utility of Curcumin as a Regenerative Aid in the Invertebrate Amphioxus



Judith Boozer, Leigh C. Latta IV

#### INTRODUCTION

- Regeneration is defined as the formation of new animal or plant tissue. Previous studies have shown vertebrate-like regeneration with the invertebrate amphioxus (Somorjai et. al).
- Curcumin has been used in multiple experiments for its anti-microbial, antiinflammatory, and wound-healing properties. Some studies have even shown the use of curcumin increases the rate of wound healing in mice (Jagetia et. al).
- -I hypothesized the use of curcumin will increase the rate of regeneration in the invertebrate amphioxus

#### **METHODS**

- Two 10-gallon saltwater aquariums were set up with enough sand to cover the bottom of the tank. They were maintained at 35 ppt salinity and 21.1°C.
- 10 mg of Curcumin was solubilized in 10 mL of ethanol and added to one tank to serve as the treatment, while 10 mL of ethanol was added to the second tank as control
- 6 Amphioxus were housed in each tank and fed 2 mL of liquid phytoplankton every 3 days and kept under natural light-dark conditions.
- To begin the experiment, all 12 individuals were anesthetized in a clove oil mixture made of 0.3 mg clove oil in 800 mL of 35 ppt salt water. The individuals had roughly 1 mm of their tail cut off with a sterile razor blade and were photographed. After tail removal, 6 individuals went into the treatment tank, and 6 individuals went into the control tank
- Every 7 days the amphioxus were extracted from their tank and photographed.
- After 4 weeks the photographs were analyzed and measured by standardizing the photographs so that each individual was 3 cm from anus to tail end at 60% magnification.
- After that, measurement of new growth was collected, and statistical analysis was done.

#### ABSTRACT

The invertebrate amphioxus obtain the ability to regenerate their posterior tail end after damage or loss. To increase this rate of regeneration, the chemical compound curcumin was added to the experimental tank as it contains anti-microbial, anti-inflammatory, and wound healing properties. For 4 weeks, 6 individuals in the control tank and 6 individuals in the curcumin tank were maintained at proper salinity and temperature, fed every 3 days, and photographed every 7 days to track growth. The results indicated there was no significant difference in growth between control and experimental groups, however trends of a higher mean growth can be seen in the experimental group.

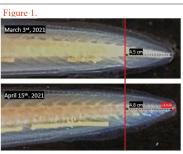
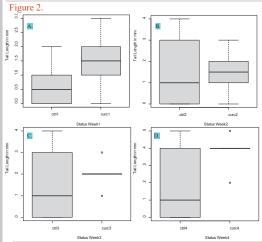


Figure 1. Proof of Regenerative Tail Growth in Amphioxus. Prior to the experiment a test was run to confirm the ability that an amphioxus could regenerate its tail after 1 mm was cut off. This individual was tracked for over a month and after standardizing the photos and lining the individual up at its anus, the individual had regenerated 3mm of its tail during this time frame. The photos were standardized by both being taken at 3.0X as well as blown up to 100% magnification.



#### Figure 2. Weekly Comparison of Tail Length Growth Between Curcumin and Control Groups. 2a. Week 1 growth between

control and curcumin group Mean is 0.5 mm for control and 1.5 mm for curcumin. 2b. Week 2 growth between control and curcumin group. Mean is 1 mm for control and 1.5 mm for curcumin. 2c. Week 3 growth between control and curcumin group Mean is 1 mm for control and 2 mm for curcumin. 2d. Week 4 growth between control and curcumin group.

Mean is 1 mm for control and 4

#### ACKNOWLEDGMENTS

Funding for this project was provided by Idaho State Board of Education Higher Education Research Council Grant and IDeA Networks of Biomedical Research Excellence Grant to J. Boozer

#### RESULTS

- Wilcoxon rank sum tests showed no significant difference in the amount of regrowth of the posterior end between control and curcumin
- Week 1 (p = 0.1808) Week 2 (p = 0.8691)
- Week 3 (p = 0.4099)
- Week 4 (p = 0.1581)

#### DISCUSSION

- Throughout the duration of the experiment, I observed differences in behavior between the control and curcumin groups. The curcumin group practiced more normal behavior each week as they all burrowed and moved rapidly after touch stimulation in contrast to the control group that all stayed on top of the substrate and moved much less after touch stimulation.
- Two of the six amphioxus in the control group degenerated throughout the duration of the experiment and remained at 0 mm of growth each week, seen in Fig 2. Similarly, the mean tail regrowth of the curcumin group remained higher as a trend throughout the 4 weeks.
- The nonsignificant trend of increased amphioxus regeneration in the presence of curcumin suggests additional experiments with larger sample sizes may yield more robust results.

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Jagetia, Ganesh Chandra Ph.D.; Rajanikant, Golgod Krishnamurthy M.Sc. Curcumin Treatment Enhances the Repair and Regeneration of Wounds in Mice Exposed to Hemibody γ-Irradiation, Plastic and Reconstructive Surgery: February 2005 - Volume 115 - Issue 2 - p 515-528. doi: 10.1097/01.PRS.0000148372.75342.D9

TAB 4 Page 134 **IRSA** 

#### Effects of Bio-Electro-Magnetic-Energy-Regulation (BEMER) on Ventilatory Threshold with Aerobic Capacity B. Menti, C. Smith, T. Colburn, & C. Robinson

<sup>1</sup>Movement and Sport Sciences, Lewis-Clark State College, Lewiston, Idaho

#### Abstract

The Bio-Electro-Magnetic-Energy-Regulation (BEMER) pad is a relatively new piece of technology. Currently, the technology is primarily used in physical vascular therapy; but many studies have been done to expand the scope of the BEMER pad. For example, one study has shown positive effects of the BEMER pad in the reduction of cancer cells during chemotherapy. Other studies have found positive results using the BEMER technology to increase circulation and oxwen stuterion levels

PURPOSE: To determine if the BEMER pad is a viable tool to improve aerobic performance in elite athletes as well as the general population.

METHODS: The participants will be randomly assigned between a placebo group and a BEMER pad treatment group. Both groups will lay on the BEMER pad, however the pad will be turned off for the placebo group. All participants will undergo a pre-test and post-test. Both tests will be a sub-maximal Vijams test on the treatmell. The tests will end once the leature threshold is reached, and participants will complete a gradual cool down. Once the pre-test is completed, the participants will be asked to complete on protective days of BEMER treatments or placebo treatments lasting 10 minutes for each session. Following the tent days of treatment post-test will be performed and the leature threshold will be calculated again. The pre-test and post-test data will then be compared to determine if there is greater positive correlation between the BEMER treatment group and leature threshold, when compared to the placebo group, in addition to leature threshold, blood pressure, heart rate, 0, saturation, respiratory exchange ratio (RER), and venilatory threshold will also be recorreded. These variables will also be compared between the pre-test and the post-test. The data for this study is currently being collected and results are pending.

#### Introduction

Aerobic capacity is one of the greatest indicators of success in aerobic sports. With access to workout facilities limited for the foresceable future, afthic populations are struggling to maintain previous levels of activity. (Hall, Phillips, Arena, & Laddu, 2020), Athletic populations have been shown to have significantly poorer performance in maintain oxygen uptake, heart rate, blood lactate levels, and ventilatory function after 2.4 weeks (hujika & Padilla, 2011). With such quick detrainines, it is hard twenty to the proposed proposed and structure of the proposed proposed are still the proposed proposed and the proposed proposed proposed proposed and the proposed proposed

The purpose of this study is to investigate if the BEMER pad can be used to help enhance aerobi-berformance in both athletes and non-athletes. This will be done using the metabolic cart to see if here is a difference in the lactate threshold between a pre-test and post-test. Participants will be anodomly placed in one of two groups, a group with BEMER treatments and a placebo. Heart rat solodop pressure, oxidation, ventilation threshold, and respiratory exchange ratio will also be tested.

#### Results

The preliminary results show very little significance in the BEMER pad being used as a root to increase ventilatory threshold. There was a slight benefit in the use of the BEMER pad, those that were in the BEMER group showed an improvement from 76% max IR to 78% max IR when they hit their ventilatory threshold. Comparatively, our placebo group went down from 76% max IR to 75% max IR and post-test vasia ho run comparing results of the pre-a modern post-test ventilatory thresholds. The treatment group (n=5) had a p=0.431 and the placebo group (n=5) had a p=0.439. With the current sample size, this is an insignificant amount and could have happened by chance. Most of the participants at the current time are highly trained arrobic athletes. With a diversification of the population and an increase in participants, results may show a statistically significant change.

the 3 times collected after the test was done. The accumulation and dissipation of lactate in the plood was similar for both the placebo and BEMER group. With the majority of the participants being highly trained athletes, the BEMER pad did not provide them much aid in the dissipation of ate throughout the 30-minute testing period.

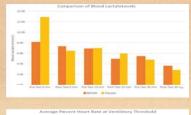
#### Methods

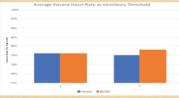
- incusives, for soft names of systems, chambers and research growing present, and Dances, may propose to time Participants will be expaired to fill out a PRAS form and consent form to counce the safety of the participant to the participant will be informed that they can ade any questions they may have and that they may drop out at any point. The participant will be informed that they can ade any questions they may have and that they may drop out at any point. By the participant will be recitige called research as essentient collected. Retaining have made tracting oxygen situation can, resting Board pressure, esting heric acid, and calculated exercise heart rate to resume safety. Participants will be assigned to a Re-Different Augment Energy equalition pad groups and pathests pours. The placeho is the BEMIR, pad turned off in the same position on the table. How participants will be assigned will be the random assignment function in stack.

Stage #	Time (Min)	Speed (Mph)	Grade (%)
1	0-3	3	3
2	3-6	4	4
3	6-9	5	5
4	9-12	6	6
5	12-15	6	7
6	15-18	6	8
7	18-21	6	9
8	21-24	6	10
9	24-27	6	11
10	27-30	6	12

es.

cipants will be asked to participate in ten consecutive days of BEMER or placebo treatments. These treatme
minutes. Once ten days are done, a post test will be done. This test will follow the same protocod as the preatta and post-test data will be compared and analyzed using a paired t-test to make a final decision on the by





#### Discussion

Discussion

The purpose of this study was to determine the effect of Bio-electromagnetic energy regulation(BEMER) therapy on ventilatory threshold (VT) and blood lactate levels during submaximal exercise. This was investigated using individuals meeting the ACSM guidelines of 150 minutes of moderate-to-vigorous exercise per week.

The ventilatory threshold was the main indicator of the accumulation of blood lactate and the switch from aerobic to anaerobic energy systems within this study. Any significant differences within the study were determined running a paried exist on the per-teritoriant results vs. the post-treatment results. For the placebo group, there was no significant difference between the pre- and post-test ventilatory thresholds (p=0.439). In the treatment group, there was also no significant difference between pre- and post-testament results (p=0.341). Another indicator used to determine effects of the BEMER was the percentage of the participants in ball bart rate (IRmax) they had achieved when they for reached their vs. exacted their Vs. as a average of 7% of their HRmax (placeho SD=6%, treatment SD=8%). During the post-test, the participants who received the placeho treatment advised their VI as a wavege of 75% of their HRmax (SD=6%). The participants is those variety of the placeho and several their ventilatory threshold of their HRmax (SD=6%). The participants that received treatment on the BEMER reached their VI as 78% HRmax (SD=4%). This was sall not a significant difference. These results show that BEMER therapy does not have any significant effect on the ventilatory threshold of arbitection diore, and the treatment also lasted for 10 consecutive days. This may not have been long enough for proper physiological charge to occur. It also may be more effective in other population groups who would be less susceptible to the ceiling effect and have higher capabilities change. BEMER therapy is a new technology and warrants further investigation into its effects on the human body.

#### Conclusion

The current data that has been collected displays that there is no difference between the placebo and BEMER group. Both groups show similar performance improvements in both ventilatory threshold and blood lactate clearing post exercise. Since no changes were made to the participants daily activities in the 10-4ay period acrobic capacity increases are most likely a result of test-retest improvement. If given the opportunity for future research, we would look into more of an intervention with the participants besides just BEMER reatment along with extending the amount of time receiving treatment. However, more data is currently being collected and with a larger N our results may change.

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  Patkowskaj, K., Kerry, S., & Ziemssen, T. (2009). Effect of BEAHER magnetic field therapy on the level of fatigue in patients with multiple selerosies: a randomized, double-blind controlled trial. The Journal of Admentive and Complementary Madison, 15(5), 507-31.

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#### Acknowledgements

**TAB 4 Page 135 IRSA** 

### Analysis of Diffusive Rates for Use with Air Toxic Risk Assessment

Dylan D. Miller, Aakriti Bajracharya, Gabrielle N. Dickinson, Timbre A. Durbin, John K. P. McGarry, Elijah P. Moser, Laurel A. Nuñez, Elias J. Pukkila, Phillip S. Scott, Parke J. Sutton, and Nancy A. C. Johnston

Physical, Life, Movement, and Sports Science Division, Lewis-Clark State College, Lewiston, ID

#### **Abstract**

Risk to human health due to air toxics exposure can be best assessed using time-weighted averages of various compound concentrations. These average concentrations are delivered by passive sampling techniques, which requires diffusive uptake rates (UTRs) for analysis. The use of these samplers is advantageous as a result of versatility in sampling duration, low costs of operation, and ease of use. Supplementing a current shortage of UTRs for samplers containing Tenax®17A, a parallel active and passive air remails are the foregree of the control of the cont sampling method was used to determine UTRs for 27 VOCs, including known carcinogens such as ETR compounds, hydrocarbons, and terpenes. These rates were measured for 24-hour, 7, 14, and 28-day sampling durations to accommodate the wide time range for which passive sampliers can be employed. All analysis of samples was completed by thermal desorption-gas chromatography-mass spectrometry. The applicability of the UTRs measured here was demonstrated by retrospective analysis of VOC data from the 2019 NASA/NOAA Fire Influence on Regional to Global Environments and Air Quality (FIREX-AQ) campaign. This field study examined smoke composition from widiffers in the United States. The concentrations derived from UTRs determined in this study were subsequently used to assess human health risk from exposure to fire emissions measured during FIREX-AQ. Limited fire activity in 2019 led to low exposure to carcinogenic VOCs, but the UTRs determined here are equally applicable to any employment of diffusive sampling. sampling method was used to determine UTRs for 27 VOCs, including

#### Introduction

- · Air toxics exposure is a concerning contributor to carcinogenic risk in humans1
- Passive sampling using sorbent tubes offers average concentrations of target compounds<sup>2</sup>.
- Passive sampling requires the use of an uptake rate (UTR), the rate at which compounds diffuse into the
- sampler and onto the sorbent.

  UTRs published in the scientific literature are lacking<sup>3, 4</sup>.
- The aim of this study was to measured the UTRs of VOCs at the 24-hour, 7, 14, and 28-day sample durations on Tenax®TA sorbent.

#### Methods

- A parallel active/passive sampling technique was used to determine 24-hour UTRs.
- UTRs of longer duration were derived from a manipulation of the concentration equation for passive samplers and rates of shorter sample duration

 $Concentration = \frac{Mass\ Sampled}{\sqrt{m}}$ UTR x time

Mass Sampled  $UTR = \frac{1}{Concentration \ x \ time}$ 

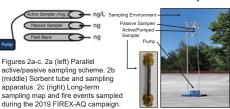
 All Samples were analyzed using TD-GC-MS and chromatograms were individually verified for quality.





Figure 1. TD-GC-MS components and role in analysis

#### Methods (cont.)





#### Results

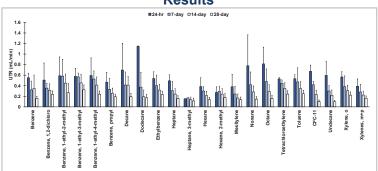


Figure 3. UTRs for 27 VOC applicable for sampling durations of 24 hours, 7, 14, and 28 days.

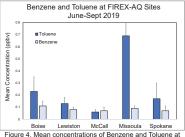


Figure 4. Mean concentrations of Benzene and Toluene at five FIREX-AQ passive sampling sites derived from UTRs determined in this study.

Cancer Risk by Location Due to Benzene						
Location	Risk					
Boise, ID	1 x 10 <sup>-6</sup>					
Lewiston, ID	0.7 x 10 <sup>-6</sup>					
McCall, ID	0.7 x 10 <sup>-6</sup>					
Missoula, MT	0.6 x 10 <sup>-6</sup>					
Spokane, WA	0.7 x 10 <sup>-6</sup>					

Table 1. Cancer risk due to Benzene at FIREX-AQ sampling sites. Risk is quantified as additional occurrences of cancer.

#### Discussion

Discussion										
Compound	Structure	Emission Source	Body Systems Affected							
Benzene	0	Biomass Burning     Fossil Fuel Combustion     Tobacco Products     Chemical Solvents								
Toluene	0	Biomass Burning     Vehicle Emissions     Printing Solvents	· 6 @							
Ethylbenzene	0	Biomass Burning     Manufacturing Solvents     Degreasing Agents     Gasoline Exhaust     Biomass Burning	<b>O</b>							
p-, m-Xylene	abla	Biomass Burning     Industrial Emissions     Fossil Fuel Combustion     Diesel Exhaust								

Figure 5. Various VOCs of interest found in wildfire smoke, their structures sources, and body systems affected.

#### Conclusions

- Diffusive uptake rates of 27 VOCs on Tenax®TA were acquired for 24-hrs to 28-days.
- 7-day UTR values ranged from 0.17-0.59 mL/min
- · Measured UTRs were successfully applied to VOC exposures at FIREX-AQ sites in 2019.
- BTEX compounds ranged from 0.01-0.69 ppbv and were elevated in the late summer • Lifetime cancer risk to benzene exposures were 1 x 10^-6
- UTRs can be applied to many passive sampling
- applications of VOCs. · Next steps are to compare heath risks from the more active wildfire seasons of 2020 and 2021.

- US EPA, 2009. Risk Ausessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part F. Supelmented Guidance for Inhabation Risk Ausessment), OHI. Superfund Rechards (International Proceedings of the Hospital Superfund Proceedings (International Superfund Proceedings Sci. 148, 167-175. https://doi.org/10.1093/chmans/483.167

#### Acknowledgements

This research was supported by an Idaho Higher Education Research Council Grant and an Institutional Development Award (IDeA) from the National Institute of General Medical Sciences of the National Institute of Health under Grant #P2COM100408, jolaho State Board of Education's Higher Education Research Council and Lewis-Clark State College.





TAB 4 Page 136 **IRSA** 

### Effective Antimicrobial Agents in Chlorhexidine Gluconate 0.12% on Multiple Bacterial Species of the Mouth



Sarrah A. Eberley, Leigh C. Latta IV, and Jacob M. Hornby Division of Natural Sciences and Mathematics, Lewis-Clark State College, Lewiston, ID

#### **Abstract**

- The antimicrobial properties of a prescription mouth rinse, Chlorhexidine Gluconate 0.12%, was studied to determine its efficacy in combating the number of microbes in the oral cavity.
- The specialty of oral surgery poses many questions involving microorganisms, namely what can be done to limit them in an environment that is so heavily contaminated.
- Subsequent studies utilized streptococci strains, S. mutans and S. salivarius.
- Microbial population growth was determined using spectrophotometric readings analyzing dosedependence and species-dependence.

#### Introduction

- Microorganisms pose many potential complications in fields of surgery, particularly oral surgery.
- Dose-dependence and species-dependence values were tested using two media types that could readily be mixed as a solid or a liquid broth (Tryptic Soy Agar/Broth and Brain Heart Infusion Agar/Broth).
- The purpose of this research is to expand the literature on oral antimicrobial rinses and share knowledge throughout the dental community to continually limit oral bacterial infections following surgery.

#### **Methods**

- Preliminary studies conducted with S. mutans and S. salivarius grown in multiple media types determined that Tryptic Soy Agar/Broth and Brain Heart Infusion Agar/Broth should be used for the remaining experiments.
- The species were propagated in liquid culture for 18 hours at 200 RPM and 35 degrees Celsius and removed from the shaker table and transferred into sterile 96 well plates according to the desired loading scheme
- The plates appeared as follows: S. mutans in Brain Heart Infusion, S. salivarius in Brain Heart Infusion, S.mutans in Tryptic Soy Broth, and S. salivarius in Tryptic Soy Broth.
- The 96 well plates were placed in the Tecan to measure microbial population growth which was assessed using spectrophotometric methods using absorbance values as proxies for population size.
- absorbance values as proxies for population size.
  Spectrophotometric readings were taken every 900 seconds at 600nm for 350 kinetic cycles.

#### Methods Cont.

All data collected using the Tecan was recorded in an Excel spreadsheet for manipulation and analysis using R to estimate the doubling time (DT) and carrying capacity (K), to serve as dependent variables. The statistical tests conducted in R consisted of the Shapiro-Wilks test for normality, homogeneity of variances, the Kruskal-Wallis rank sum test, and post hoc tests using the Wilcoxon rank sum test for all pairwise possibilities.

# Results Brain Heart Infusion *S. mutans*(E) 07 (E) 06 08 08 04 07 01 000 01 0000 020000 030000 040000 050000 050000

Figure 1. An example of a growth curve created from the data collected during spectrophotometric readings of *S. mutans* in Brain Heart Infusion Broth media.

Table 1. Table 1. Mean and standard error (in parentheses) of doubling time (DT) and carrying capacity (K) for each of two strains of Staphylococcus in two types of media (brain-heart infusion - BHI; tryptic soy broth - TSB) for each dose of Chlorhevidine (QUI unedia)

Strain	Media	Dose	DT	К						
		0	2290 (57)	0.83 (0.02)						
		1	∞ (0)	0 (0)						
	BHI	2	∞ (0)	0 (0)						
		5	<b>=</b> (0)	0 (0)						
		10	∞ (0)	0 (0)						
S. mutans										
		0	1750 (29)	0.52 (0.01)						
		1	∞ (0)	0 (0)						
	TSB	2	≈ (0)	0 (0)						
		5	≈ (0)	0 (0)						
		10	≈ (0)	0 (0)						
		0	985 (20)	0.47 (0.02)						
		1	= (0)	0 (0)						
	BHI	2	= (0)	0 (0)						
		5	≈ (0)	0 (0)						
		10	∞ (0)	0 (0)						
salivarius			1 400 400							
		0	868 (12)	0.33 (0.02)						
		1	<b>∞</b> (0)	0 (0)						
	TSR	2	≈ (O)	0 (0)						
		5	⇒ (0)	0 (0)						
		10	∞ (0)	0 (0)						

#### **Results Cont.**

- The Kruskal-Wallis test determined that there was a significant difference in doubling time among Species/Media types at the zero dose (χ²=50.408; df=3; p-value=6.542e-11). There was also a significant difference in carrying capacity among the Species/Media types at the zero dose in the study (χ²= 49.827, df = 3, p-value = 8.697e-11).
- Bacterial growth in both strains in both types of media was completely inhibited by Chlorhexidine Gluconate 0.12% at any dosage.
- Inferential statistics could not be performed because the variances of DT and K were zero at every dose other than the zero dose.

#### Conclusion

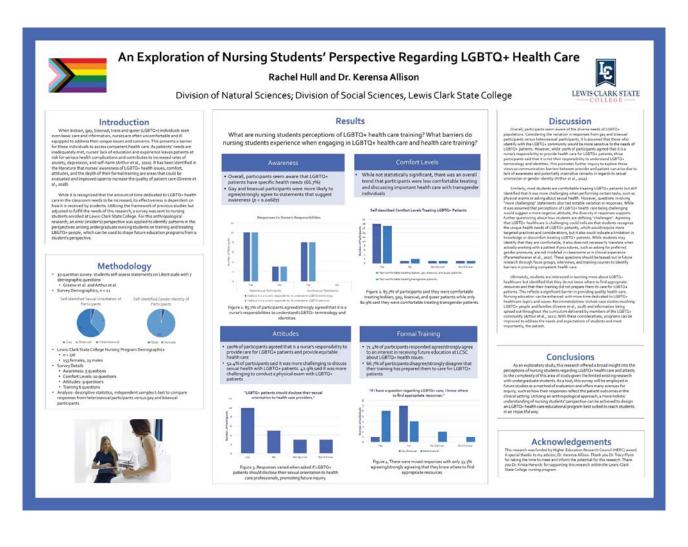
- This study determined that there is a significant difference between most media types for bacterial growth among *S. mutans* and *S. salivarius* except there was no difference between *S. salivarius* in Brain
- Heart Infusion and *S. salivarius* in Tryptic Soy Broth.
  Chlorhexidine Gluconate 0.12% used to treat bacterial species caused a rapid decrease in population numbers and proved that the antimicrobial properties were potent at many dosages.
- In the future I would experiment with lower dosages of Chlorhexidine Gluconate 0.12% and identify the lowest effective dose for bacterial growth inhibition.
- effective dose for bacterial growth inhibition.

   Additionally, I will treat different bacterial species.

#### **Acknowledgements**

- This research was supported by an Idaho Higher Education Research Council Grant and an Institutional Development Award (IDeA) from the National Institute of General Medical Sciences of the National Institutes of Health under Grant #P20GM103408, Idaho State Board of Education's Higher Education Research Council and Lewis-Clark State College.
- This research was assisted by Judith Boozer.





**Final Report for HERC Funding for the 2020 Idaho Conference on Undergraduate Research (ICUR)**Submitted by Donna Llewellyn, Executive Director of the Boise State Institute for Inclusive and
Transformative Scholarship

ICUR 2020 was held on July 23 and 24, 2020. Due to restrictions caused by COVID-19, the conference was moved to be an online event. We used the ForagerOne Symposium platform for the display of student posters and Zoom for the synchronous talks and workshops. The pandemic and this pivot to an online event caused some major changes from past years' conferences – fewer students across the state were participating in research this summer, and the conference expenses were of a very different nature. In terms of attendance, we were pleased that participation was still robust, perhaps due to the ability to log in and participate from anywhere in the world. And for the expenses, while we didn't incur any catering, facilities, or printing charges from Boise State (usually our largest expenses), we did purchase a license to use the Symposium site and we utilized a much greater amount of staff time to get the conference designed, planned, and implemented. We are grateful for the HERC funding that allowed us to hold ICUR this year in spite of the move to all remote events at Boise State.

The total attendance was 291, from 26 different institutions/organizations. This included 189 students with 150 poster presentations, and 102 faculty, industry, governmental, and community representatives. As mentioned above, each of the campuses across the state saw a decrease in undergraduate research this summer, so we were pleased with this attendance and participation. Note that none of our campuses hosted their usual REU programs with students visiting from other campuses this summer. Our planning committee of representatives from the different colleges and universities across the state really worked hard to encourage and facilitate participation.

There were two days of workshops and presentations – see the following pages for the program schedule. More details are also available at <a href="https://www.boisestate.edu/icur/">https://www.boisestate.edu/icur/</a>. Note that A pdf version of the program is available at this website.

A survey was been sent out to all of the attendees. The likert scale responses and an overview of the open-ended responses are attached. We intend to use these results to improve the conference next year, especially since we currently expect that we will once again be holding a virtual conference due to COVID-19.

The funding from HERC went to the following categories of expenditures:

Item	Amount
Program Design	\$1586.00
Online platform for poster	4000.00
displays	
Other expenses related to	302.50
online conference	
Materials and Supplies	788.64
Admin, Evaluation, and Director	\$25229.76
Support	
TOTAL	\$31,906.90

### **ICUR 2020 PROGRAM**

O A M		
9 A.M.	OPENING SESSION:	Donna Llewellyn, Boise State University
		TJ Bliss, Idaho State Board of Education  Michal Temkin Martinez, Boise State University
	Location:	Zoom Main Room
	Location.	Zoom Ham Noom
10 - 10:30 A.M.	BREAK	
10:30 - 11:30 A.M.	HOW AND WHY TO GI	ET INVOLVED IN RESEARCH WHILE AN UNDERGRADUATE
	Moderator:	Marion Scheepers, Boise State University
	Panel Discussion:	Liljana Babinkostova, Boise State University
		Cynthia Campbell, Boise State University
		Thomas Klein, Idaho State University
		Krishna Pakala, Boise State University
		Dusty Perkins, College of Western Idaho
		David Pfeiffer, University of Idaho
		Michal Temkin Martinez, Boise State University
	Location:	Zoom Breakout Room 1
	GRADUATE SCHOOL -	THE REAL STORY
	Moderator:	Cecelia Staggs, University of Oregon
	Panel Discussion:	Jonathan Barnes, University of Idaho
		Averi McFarland, Idaho State University
		Carson MacPherson-Krutsky, Boise State University
		Cecelia Staggs, University of Oregon
	Location:	Zoom Breakout Room 2
11:30 A.M. – 1 P.M.	BREAK	
1 - 2 P.M.	STUDENT LIGHTNING	TALKS
	Moderator:	Keegan Schmidt, Lewis-Clark State College
	Speakers:	Emma Archey, College of Western Idaho
		Reagan Badger, Idaho State University
		Lance Fredericks, University of Idaho
		Mikayla Manzi, Northwest Nazarene University
		Dylan Miller, Lewis-Clark State College
		Allen Skirvin, Boise State University
	Location:	Zoom Main Room
2 - 2:30 P.M.	BREAK	
2:30 - 3:30 P.M.	STRATEGIES FOR A SU	JCCESSFUL RESEARCH EXPERIENCE
	Facilitator/Presenter:	Jillana Finnegan, Boise State University
	Location:	Zoom Main Room

ICUR 2020

IRSA

### **ICUR 2020 PROGRAM**

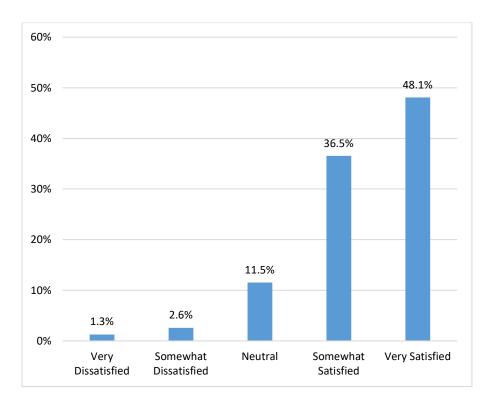
TIMES	FRIDAY, JUL	.Y 24				
8:45 A.M.	PAIRED RESEARCH TALKS					
	Moderator: Speakers:	Tracy Yarnell, Boise State University, Biomolecular Research Center David Estrada, Faculty, Boise State University Lynn Karriem, Student, Boise State University Devaleena Pradhan, Faculty, Idaho State University Melissa Rivas, Student, Idaho State University				
	Location:	Zoom Main Room				
10 - 10:15 A.M.	BREAK					
10:15 - 10:45 A.M.	POSTER SESSION - P Location:	ZART 1 Zoom Breakout Rooms				
10:45 - 10:50 A.M.	BREAK					
10:50 - 11:20 A.M.	POSTER SESSION - P	Zoom Breakout Rooms				
11:20 A.M 11:30 P.M.	BREAK					
11:30 A.M NOON	POSTER SESSION - P Location:	ZART 3 Zoom Breakout Rooms				
NOON - 12:05 P.M.	BREAK					
12:05 - 12:35 P.M.	POSTER SESSION - P Location:	ZART 4 Zoom Breakout Rooms				
12:35 - 1 P.M.	CLOSING SESSION Moderator: Speaker:	Donna Llewellyn, Boise State University Will Hughes, Boise State University				
2 P.M.	INBRE SESSION Moderator: Location:	<b>Dan Nogales</b> , Northwest Nazarene University Zoom Main Room				

Idaho Conference on Undergraduate Research 2020 Survey Results

#### **RESPONSE RATE: 54.9%**

- 284 attendees (includes 6 IFITS staff who did not receive the survey)
  - o 185 students
  - o 93 faculty/staff/other
- 156 recorded responses

### Q2) Please indicate your overall satisfaction with the 2020 Idaho Conference on Undergraduate Research.

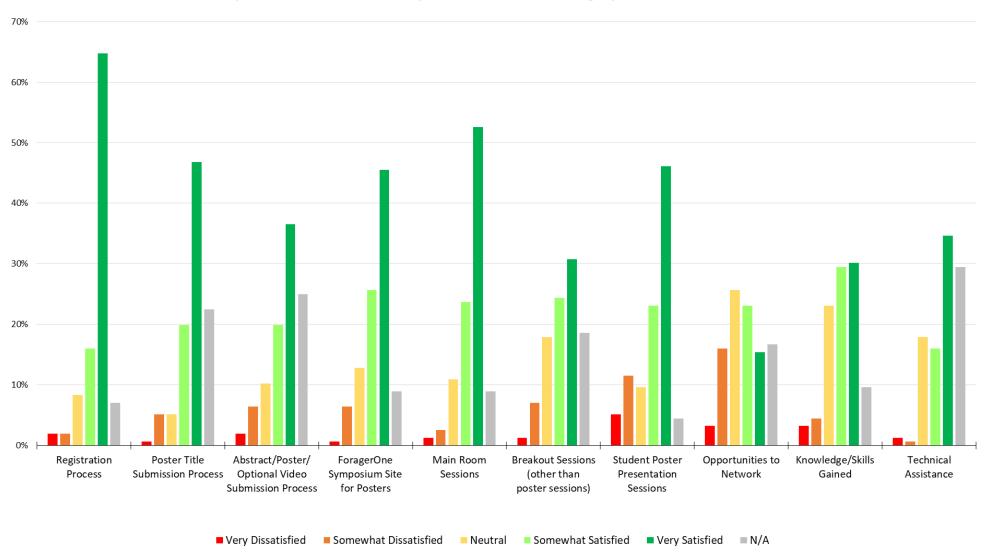


Answer	%	Count
Very Dissatisfied	1.3%	2
Somewhat Dissatisfied	2.6%	4
Neutral	11.5%	18
Somewhat Satisfied	36.5%	57
Very Satisfied	48.1%	75
Total	100.0%	156

### Q3) Please tell us how satisfied you were with the following aspects of the conference.

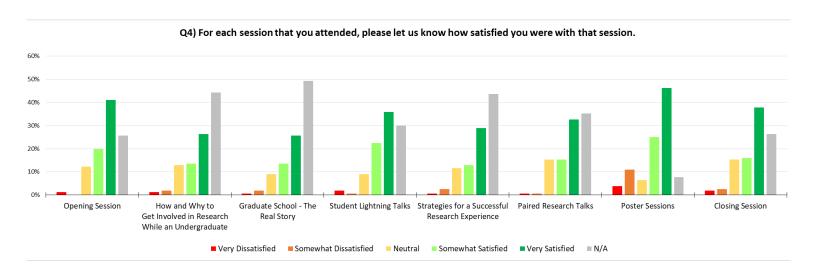
	Very Dissa	tisfied		what tisfied	Neutr	al	Some Satisfi		Very Satisf	ied	N/A		Total	
Aspect	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count
Registration Process	2%	3	2%	3	8%	13	16%	25	65%	101	7%	11	100%	156
Poster Title Submission Process	1%	1	5%	8	5%	8	20%	31	47%	73	22%	35	100%	156
Abstract/Poster/ Optional Video Submission Process	2%	3	6%	10	10%	16	20%	31	37%	57	25%	39	100%	156
ForagerOne Symposium Site for Posters	1%	1	6%	10	13%	20	26%	40	46%	71	9%	14	100%	156
Main Room Sessions	1%	2	3%	4	11%	17	24%	37	53%	82	9%	14	100%	156
Breakout Sessions (other than poster sessions)	1%	2	7%	11	18%	28	24%	38	31%	48	19%	29	100%	156
Student Poster Presentation Sessions	5%	8	12 %	18	10%	15	23%	36	46%	72	4%	7	100%	156
Opportunities to Network	3%	5	16 %	25	26%	40	23%	36	15%	24	17%	26	100%	156
Knowledge/Skills Gained	3%	5	4%	7	23%	36	29%	46	30%	47	10%	15	100%	156
Technical Assistance	1%	2	1%	1	18%	28	16%	25	35%	54	29%	46	100%	156



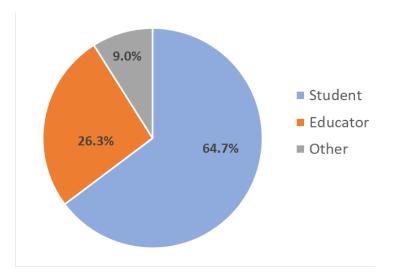


### Q4) For each session that you attended, please let us know how satisfied you were with that session.

	Very Dissat	tisfied		ewhat atisfied	Neutr	al	Some Satisf		Very S	Satisfied	N/A		Total	
Session	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count
Opening Session	1%	2	0%	0	12%	19	20%	31	41%	64	26%	40	100%	156
How and Why to Get Involved in Research While an Undergraduate	1%	2	2%	3	13%	20	13%	21	26%	41	44%	69	100%	156
Graduate School - The Real Story	1%	1	2%	3	9%	14	13%	21	26%	40	49%	77	100%	156
Student Lightning Talks	2%	3	1%	1	9%	14	22%	35	36%	56	30%	47	100%	156
Strategies for a Successful Research Experience	1%	1	3%	4	12%	18	13%	20	29%	45	44%	68	100%	156
Paired Research Talks	1%	1	1%	1	15%	24	15%	24	33%	51	35%	55	100%	156
Poster Sessions	4%	6	11 %	17	6%	10	25%	39	46%	72	8%	12	100%	156
Closing Session	2%	3	3%	4	15%	24	16%	25	38%	59	26%	41	100%	156



#### Q5) Please select your role.

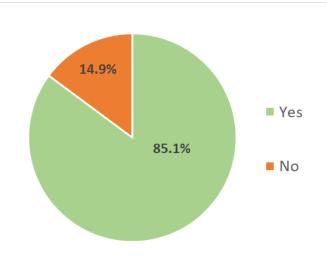


Answer	%	Count
Student	64.7%	101
Educator	26.3%	41
Other	9.0%	14
Total	100.0%	156

#### Q6) Other roles reported:

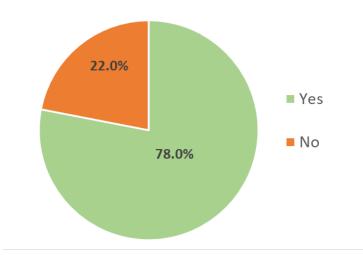
- Administrator
- Staff
- Mentor
- Panelist
- PI
- Program Director

**Q7) Did you present a poster?** (This question presented only to the respondents who selected "Student" as their Role.)



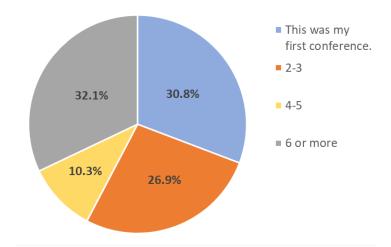
Answer	%	Count
Yes	85.1%	86
No	14.9%	15
Total	100.0%	101

**Q8)** Were you a mentor of a student researcher who presented a poster? (This question presented only to the respondents who selected "Educator" as their Role.)



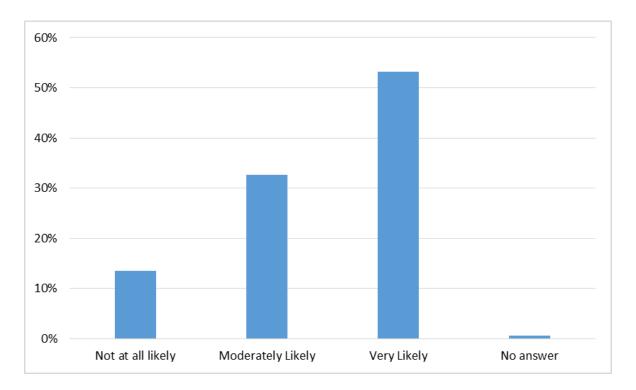
Answer	%	Count
Yes	78.0%	32
No	22.0%	9
Total	100.0%	41

# Q9) How many conferences (technical and professional conferences) have you attended including this one?



Answer	%	Count
This was my	30.8%	48
first		
conference.		
2-3	26.9%	42
4-5	10.3%	16
6 or more	32.1%	50
Total	100.0%	156

#### Q10) How likely are you to attend ICUR next year?



Answer	%	Count
Not at all likely	13.5%	21
Moderately Likely	32.7%	51
Very Likely	53.2%	83
No answer	0.6%	1
Total	100.0%	156

#### Q11) What were your greatest lessons or take-aways from the conference?

The following table summarizes categories mentioned in the open-ended responses to this question and the count of respondents who mentioned them. The summary is sorted by the greatest number of mentions to the lowest. 100 respondents answered to this question; some mentioned more than one take-away. The sum of the category counts is 139.

A criticism was received in response to this question and is indicated in red text.

CATEGORIES OF COMMENTS	COUNT
Learn about students'/others' research	28
Diversity of research	19
Opportunity to present/practice presenting my research/poster	10
Zoom conferences can be successful	6
Research during COVID-19	6
Ability and potential of students	6
Networking opportunities	5

Praise: Poster sessions	5
Lightning talks	5
Networking/interpersonal skills	4
Closing session	4
Gained confidence to present/conduct research	4
How to be a better researcher/succeed with research	4
Ability to support students	4
Students' enthusiasm	3
Research opportunities	3
Value of research	3
Graduate school info	3
New ways to get involved in UG research	2
Students' positive response to poster presentation experience	2
How to present research/posters	2
Praise: ICUR in general	2
Learn about fields and types of research	1
How to make the most of time as an undergraduate	1
Criticism: Inability to attend desired poster presentations via Zoom breakout rooms	1
Feedback on my research	1
Perseverance in research	1
Praise: Students and faculty	1
Advice from faculty	1
ForagerOne platform	1
Praise: ICUR organization	1

#### Strong responses:

- STUDENT: "The most impactful aspect of ICUR for me was the sheer variety and diversity of subject matter and method of research. Before attending this conference, I had a singular view of what research was and now I believe there is a place for everyone within this community regardless of their discipline."
- STUDENT: "It felt nice to have people celebrate my accomplishments. I often down play my accomplishments and hearing the [encouraging] words from Dr. Tromp and other presidents made a world of a difference."
  - The above statement is from a student who indicated they heard about ICUR through the LSAMP program.
- EDUCATOR: "As always, the students were eager to get involved and had great questions. Their research was phenomenal."
- STUDENT: "I really liked the end of the first day session that discussed research during covid. I felt like that was a great thing to include and made me feel much better about the whole situation."
- STUDENT: "It was really exciting to see how much the professors advocated for the students and really seemed to want the best for them and their research."

• STAFF MEMBER: "Hearing about students who proceeded with research and remained flexible in how they approached their project was awesome. Any session where I could hear students share about their experiences was my favorite. Their resilience was inspiring!"

The complete list of comments grouped by role follows, excluding "n/a" responses.

STUDENTS		
Student	All the research being done from students in many varying disciplines all over Idaho.	
Student	Being able to freely talk to students about graduate school was really helpful and impactful for this point in my career. I also loved hearing from Dr. Bliss about what it takes to continue research and talking about how to make the most of our research experience.	
Student	Being able to present	
Student	Exposure to a wide range of research projects. It was heartening to see so many fields of study united under one "roof," even if just for one day.	
Student	Finding new ways to get involved in undergraduate research.	
Student	Getting to hear from the experienced people what they love most about research and learning about all the different kinds of research happening.	
Student	Getting to see what other schools are working on, as well as building relationships within the scientific community.	
Student	Having the opportunity to present my work to my peers of many different disciplines, as well as learn about other research from different disciplines.	
Student	how diverse research can be	
Student	Humans are extremely adaptable.	
Student	I always enjoy the lightning talks and the diversity of the poster sessions. I definitely learn a lot from all of the presenters.	
Student	I enjoyed seeing how diverse the research projects were and getting good feedback on my work (from people not in my discipline)!	
Student	I feel like the range of research I now know about it extremely wide comparatively.	
Student	I felt like I was more confident in myself and my research afterward.	
Student	I found the breakout room that discussed how to succeed in undergraduate research very helpful. The tips for a successful research experience were my biggest takeaway from ICUR.	
Student	I gained new information and I learned how other students conducted their research.	
Student	I have gained more skills by talking to people that I do not know and who do not know anything about the subject of my research. Also, I liked the idea of exchanging the information between us it was something helpful for me.	
Student	I learned that the lack of physical interaction makes presenting on Zoom less stressful, at least for me.	
Student	I learned the existence of a research method course at Boise State that I am quite interested in attending!	
Student	I liked the metaphor of a river being likened to research at the closing speech portion.	
Student	I love research and we are all contributing pieces of a puzzle that will make this a better world	
Student	I love the diversity in ideas and watching so many students researching exciting topics!	
Student	I realized how important being able to present one's work is in the research community.	
Student	I really enjoyed all the information about graduate school. Many of the questions I had were answered, as well as questions that I didn't know I had. I feel much more confident and informed about the entire process now.	
Student	I really enjoyed networking and hearing about other student's research.	
Student	I really enjoyed seeing what other research is done by undergraduate students.	

Student	I really enjoyed the nector sessions and getting to hear shout projects from a variety of fields that other
Student	I really enjoyed the poster sessions and getting to hear about projects from a variety of fields that other student researchers were passionate about and to share my work.
Student	I really enjoyed the student lightning talks.
Student	I really liked listening to what undergraduates from disciplines other than my own were doing for their research.
Student	I really liked the end of the first day session that discussed research during covid. I felt like that was a great thing to include and made me feel much better about the whole situation.
Student	I was able to see what other students were working on during the summer from different fields.
Student	Importance of networking in the scientific community
Student	It felt nice to have people celebrate my accomplishments. I often down play my accomplishments and hearing the encoring words from Dr. Tromp and other presidents made a world of a difference.
Student	It helped me get a better feel for how to network and made me more convinced that I would like BioMedical research.
Student	It really helped me to see what kinds of specific research other undergrads were doing.
Student	It was great to see the variety of research projects that have been conducted in the state of Idaho. I was grateful to be apart of that group.
Student	It was really exciting to see how much the professors advocated for the students and really seemed to want the best for them and their research.
Student	Learned about various and interesting research outside my major
Student	Learning about other research being done.
Student	Learning about others research
Student	Learning about the research that others are doing.
Student	Learning about the variety of research that takes place in Idaho.
Student	Learning from other posters
Student	Learning from other students research and journeys
Student	Learning new things, experience presenting
Student	Listening to my Professor talk about research opportunities.
Student	Listening to other student's research was very eye-opening.
Student	Loved still being able to network with other researchers during these crazy times, and being reminded that we are all struggling with the impacts of this pandemic.
Student	Meeting new people
Student	My greatest take away was how significant it is to be able to effectively communicate research to an audience made up of individuals from a variety of fields.
Student	One of the most impactful parts of ICUR were being able to communicate and network using my research.
Student	presenting my lighting talk helped me learn how to succinctly communicate my research to a broad audience
Student	Research is not confined to just science.
Student	Research isn't just the super sciency stuff in a lab. It can also be art or music or film.
Student	Seeing research done in other fields and all the other options there are was eye opening.
Student	That doing research is never easy but should always be aimed for.
Student	That we all face challenges in our research and that is okay. Another take away is that I learned to just stay motivated and stay passionate because that could take me far.
Student	The ability to hear a person briefly present their research, and then review the poster at my leisure anytime during the conference.
Student	The entire process of preparing for the poster sessions was very helpful in building my presentation skills and confidence.

	FEDRUART 17, 2022 ATTACHWENT 7
Student	The importance of networking
Student	The main session talks about providing insight and tips on how to be a better researcher and succeed in your field.
Student	The most impactful aspect of ICUR for me was the sheer variety and diversity of subject matter and method of research. Before attending this conference, I had a singular view of what research was and now I believe there is a place for everyone within this community regardless of their discipline.
Student	The most impactful part of attending ICUR was seeing such a wide variety of research topics and learning about them from motivated students.
Student	The most impactful part was seeing all interest attend; including those outside of the STEM program.
Student	The overall experience.
Student	The poster sessions. I really enjoyed presenting my research to others.
Student	The practice of presenting a scientific poster at a professional event.
Student	The quality of research doesn't come out much in a one minute pitch, just the researchers excitement level.
Student	The student lightning sessions.
Student	The student presentations were fascinating and helped orient me to what I could expect for future research projects I may work on and present in conferences.
Student	There are many different areas of research that someone can go into
Student	We are all in this together.
Student	Will Hughes closing message really impacted me the most. Talk about a perfect message for wrapping up a 10 week rollercoaster of a research experience.
	EDUCATORS
Educator	As always, the students were eager to get involved and had great questions. Their research was phenomenal.
Educator	Being able to attend the conference successfully and support my students while not traveling. I wish that I had attended more sessions other than the poster sessions.
Educator	For ICUR 2020, that we can have attendance and participation from anywhere on the planet, and that students will participate if they knew and had opportunity. I think ICUR could advertise in a national or wider forum.
Educator	Frustration at not being able to select the poster presentations that I heard.
Educator	Great opportunity for students
Educator	I didn't realize how much great student research is taking place across the state! We should be very proud.
Educator	I loved getting some of the students who were sort of stuck in their own disciplines to answer much more basic questions by non-specialist audience members. In one case, the student struggled a bit, but then in round 2 of the poster breakouts, I ended up in the same room with him again and saw a much more audience-aware presentation the 2nd time! I also loved Will Hughes's moving, metaphorical comparison of students, scholarship, stages in a life, seasons, and rivers. Seriously brought tears to my eyes!
Educator	I missed the connections from the in person, but I really liked the breakout room as a way to try to replicate that.
Educator	I still enjoy the enthusiasm of the study students and the great breadth of research topics.
Educator	I was impressed with the students asking each other questions in the breakout sessions
Educator	I was very impressed at the polish the student lightning sessions.
Educator	Insight into the breadth and quality of undergrad research
Educator	My Students seemed to like the grad school panel.
Educator	Poster Sessions
Educator	Seeing students sharing what they've been working on all summer and gaining confidence.
Educator	student presentations.

	7,117,01111,111		
Educator	Students learn from each other		
Educator	Students presenting their research projects (poster sessions)		
Educator	That our students are really doing great work!		
Educator	The students manged to perform a great job during the pandemic.		
Educator	To see so much support of undergraduate research, in ways I didn't receive when I was in college		
OTHER ROLES			
Other	Diverse poster sessions and a fantastic keynote for the closing session.		
Other	Hearing about students who proceeded with research and remained flexible in how they approached their project was awesome. Any session where I could hear students share about their experiences was my favorite. Their resilience was inspiring!		
Other	learning that a zoom conference will work		
Other	My greatest take-away is the value that research has on the student experience and how incredibly talented our staff and students are. Very impressive!		
Other	Poster break-out sessions were great!		
Other	This was an excellent substitute for an in-person meeting. Bravo to the organizers.		

# Q12) What changes in the ICUR would significantly improve the conference experience for you?

The following table summarizes categories mentioned in the open-ended responses to this question and the count of respondents who mentioned them. The summary is sorted by the greatest number of mentions to the lowest. 84 respondents suggested a change; some made more than one suggestion. The total count of suggested changes/improvements is 100. 72 respondents either did not answer this question or indicated they had no suggestions for improvement.

CATEGORIES OF COMMENTS	COUNT
Poster sessions	55
Conference - general	27
Plenary/breakout/other talk sessions	8
Other logistics	6
Networking	3
Discipline focus	1

#### Highlights:

- Poster sessions
  - o 21 people requested being allowed to choose which session/room to attend
  - o 12 people stated students needed more time to present
  - 7 people made structure redesign suggestions for the suggestions
  - o 5 people recommended better randomization of the participants in each room
    - 4 of these said they were in poster sessions with the same people more than once
- Conference general
  - 13 people requested resuming an in-person conference
  - o 2 people suggested better communication of submission/registration process

- o 2 people mentioned challenges using the ForagerOne site
- Plenary/breakout/other talk sessions
  - o 2 people made session structure redesign suggestions
- Other logistics
  - 3 people requested longer/more breaks between sessions
- Networking
  - 3 people suggested better/more networking opportunities\*

#### Strong criticisms:

- STUDENT: "Better breakout room sessions with a longer break between session two and three. It would also be
  helpful if each room was conducted the same way. My favorite room had us each give our pitch and have 2 min
  of questions directly following my pitch. In The other rooms I didn't get any questions about my poster."
- STUDENT: "The only thing I can think of would be if there was some way we could choose which student presentations we listened to. I know we can leave comments on Foragerone, but its not the same as an "in person" interaction. Maybe even if there were just a few more poster sessions so you were more likely to see on of the presentations you were interested in. Or if one of the sessions was grouped by discipline so you could see other work in your field."
- STUDENT: "Setting up break out rooms for presenter/mentor pairs ahead of time might be beneficial. I know that some mentors would have liked to see their student present, however were unable to due to the random grouping. Having student/mentor pairs for one session would provide an opportunity for mentors to observe their student present so that additional feedback could be given after the conference."
- STUDENT: "I wish that we would get more time to present our posters. Actual poster presentations would actually be longer than 1-3 minutes. I feel that the short presentations don't prepare us to present at other conferences."
- STUDENT: "I found the random nature of the breakout rooms for the poster presentations frustrating. There were many presenters whose pitch I wanted to hear but wasn't able to. It felt inefficient and frustrating not to be able to hear from presenters I really wanted to while hearing from other presenters multiple times because we had been assigned to multiple breakout rooms together.

That said, I understand that hosting a conference online is difficult, and I really appreciate all the hard work that went into adapting the conference!"

EDUCATOR: "I noticed that in one of the sessions, when we were about to go into breakout rooms, the number
of attendees dropped pretty noticeably. Maybe tell people they have the option to stay in the main room if they
aren't in the mood to engage so that they don't leave altogether? It can feel like a lot for the introverts
sometimes, especially as the day goes on."

<u>Changes/Comments by Category</u> (sorted by the greatest number of mentions to the lowest):

CATEGORY > SPECIFICS	COUNT
Poster sessions	55
Allow choosing which session/room to attend	21
More time to present	12

<sup>\*</sup>Repeat highlight from last year

FEBRUARY 17, 2022 A	ITACHMENT 7
Session structure redesign suggestion	7
Better randomization	5
Group by discipline	5
Preference for small, interactive sessions on Zoom instead of large, in-person	
room	1
Option to stay in main room	1
Not specified	1
Better/more communication of sessions and details before conference begins	1
More poster sessions	1
Conference - general	27
Resume in-person	13
Better communication of submission/registration process	2
ForagerOne challenges	2
Better/more communication of sessions and details before conference begins	1
Scheduling suggestion	1
Desires in-person / did not like virtual format	1
Session structure redesign suggestion	1
Technological fluency	1
Set a standard for projects to be included	1
Include graduate students	1
Too long	1
Intersect more visibly with federally-funded programs	1
More breakout groups	1
Plenary/breakout/other talk sessions	8
Session structure redesign suggestion	2
Not specified	1
Better talks/speakers - not specified	1
More interactive sessions	1
Option to stay in main room	1
More sessions for faculty/mentors	1
More time to present	1
Other logistics	6
Longer/more breaks between sessions	3
Not enough time for lunch	1
Better/more communication of sessions and details before conference begins	1
Extended deadline for submitting posters and abstracts	1
Networking	3
Better/more networking opportunities	3
Discipline focus	1
Include disciplines other than hard science	1

The complete list of comments grouped by role follows, excluding "n/a" and "none" responses that do not elaborate further.

	STUDENTS
Student	A better platform to be able to choose what posters you would want to see and listen to a presentation on. With it being on zoom we were not able to see talks on posters that we wanted to hear and on topics that we could more-so comprehend.
Student	Although this is dependent upon the audience itself, greater interaction between participants in the breakout sessions. Perhaps some sort of mediated "round table" discussion among the members might facilitate this?
Student	An extended deadline for abstracts and posters
Student	Aside from returning to an in-person conference, I would say workshopping the due dates.
Student	Being able to contact students I made connections with.
Student	Better breakout room sessions with a longer break between session two and three. It would also be helpful if each room was conducted the same way. My favorite room had us each give our pitch and have 2 min of questions directly following my pitch. In The other rooms I didn't get any questions about my poster.
Student	better more informative talks - learning about undergraduate research isn't helpful when we are already engaged in it; grad school info session was also pretty basic and not very informative
Student	For online conference: the ability to choose the topic of interest so that you have a chance to connect to the people from your field.
Student	Grouping poster sessions to more similar categories
Student	Have breakout rooms be based on subject matter.
Student	Having it in person.
Student	Having the conference on the weekend versus weekdays—we were still running experiments and could only attend sessions we were presenting in.
Student	Honestly, especially given the circumstances with Covid-19, I thought the organizers and participants did a fantastic job! The only complaint I had was the forager one poster presentation site. It was a little bit clunky to navigate. Being able to search specific meta data for a poster would have been very helpful (author, institution, etc). Not all posters had a poster number associated with them. It was difficult to easily display the poster in a full-screen manner so that you could read the small text.
Student	hopeful for an in person conference next year.
Student	I can't think of anything besides being able to be there in person which was out of anyone's control this year.
Student	I don't mean to be rude about this at all, but having attended the undergraduate research conference at BSU a couple of times, I know firsthand that having the thing in person works infinitely better. I understand that you guys were trying to put something on just so there could be a conference, and given the circumstances, I'd say you did about the best job you could, but I would've really preferred if we could've postponed until either the fall or next spring, whenever you could find a venue large enough to allow for an in-person conference.
Student	I don't necessarily have any recommendations besides meeting in person would be much more valuable than zoom. But circumstances were against us on that one.
Student	I felt like the poster breakout sessions need improvement, or going to in person.

Student	I found the random nature of the breakout rooms for the poster presentations frustrating. There were many presenters whose pitch I wanted to hear but wasn't able to. It felt inefficient and frustrating not to be able to hear from presenters I really wanted to while hearing from other presenters multiple times because we had been assigned to multiple breakout rooms together.
	That said, I understand that hosting a conference online is difficult, and I really appreciate all the hard work that went into adapting the conference!
Student	I just hope we have the opportunity to do it in person next year!
Student	I just miss impersonation interaction so much.
Student	I really liked the "roundtable" format from the small group poster sessions. I know the conference will likely not be virtual again but it was nice to have a small group to share our research with and ask questions rather than only poster presentations in a large room.
Student	I think getting to meet people in person would improve the experience hopefully for next year.
Student	I think taking more sessions for posters just because it was a really fun different way to present but I felt like I wanted to talk to more people and hear about more research.
Student	I wish that we would get more time to present our posters. Actual poster presentations would actually be longer than 1-3 minutes. I feel that the short presentations don't prepare us to present at other conferences.
Student	I would definitely recommend giving the student presenters more time in breakout rooms for presentations. Perhaps doing two rounds of break out rooms would make more sense so that there is more time. I also was disappointed that I did not get to see all of my peers present, but I know there were limitations to this Zoom conference.
Student	I would have liked the opportunity to see more of my peers research because I ended up in the same breakout groups as other student researchers several times.
Student	I would have liked to learn about research in my area or have had the ability for my mentor to sit in on one of my 1 minute talks. The conference primarily focused on biochem and although that is a part of STEM and research it isn't the only part.
Student	I would have the students have their posters ready and share their own screens, so the mediator doesn't have to waste time searching for the students' poster. I thought it was rude and ill prepared of students to ask the mediator to share their poster for them, because they were being lazy and reading a script from their own computer.
Student	I would like the ability to have my mentors watch my presentation. Although I understand there is great difficulty in setting up an online conference to accommodate the ability for a large group of people to choose their breakout rooms, I think finding a way to facilitate at least one poster session so this could happen would be great. That being said, I did like that the randomization of breakout rooms allowed me to listen to presentations that I might not have stopped at during an in-person conference.
Student	I would prefer to experience the conference in person it would have made it better for me.
Student	If ICUR were to continue on zoom I would encourage more attendee participation by using surveys and polls to interact with everyone.
Student	If this conference is held online next year, I would suggest changing the poster sessions. I was confused about how they were going to work right up until the very beginning of the first one. I feel that the 1 minute time limit for presenting the poster was slightly too short and most groups ended up giving people 3-5 minutes to talk which was much better. Overall, more information on how things were going to work would have made my experience much better.
Student	If using Zoom, create breakout rooms with more diverse topics. I found myself in rooms with people I was already conducting research with.

	FEBRUARY 17, 2022 ATTACHMENT 7
Student	If you will be online again use a system where the posters are viewed free form and not in breakout rooms. Cut the zoom aspect entirely as this made it chaotic and hard to focus in on one poster you enjoy. The comment section below each poster is sufficient for discussion and it lets researchers focus on presenting their work in its entirety rather than having a small spotlight in a small room full of people who are disinterested.
Student	In the future, add individual zoom links to each poster during an allotted time so those interested may go to that students breakout room and hear about their research. Similarly to an in person poster session.
Student	It was fine, but I got tired after the first two poster sessions and needed a longer break for lunch. It just felt long-winded with barely any time for breaks if you are the presenter.
Student	It will be great if it can be a physical conference, but only God knows what the future holds.
Student	Longer poster breakout room sessions; 30 minutes just wasn't long enough. Possibly determine the poster breakout room's prior to Friday so we can have time to look at our co-presenters posters and have questions ready for them. It felt like a lot of our time for Q&A was just spent asking really generic questions or no questions at all.
Student	Longer poster sessions (10-15 more minutes) for more time to ask questions and/or answer them.
Student	Longer time for breakout sessions when presenting the posters and answering questions.
Student	Longer time to explain our research, or divide it in two days.
Student	Moderators for all breakout rooms
Student	More breakout groups
Student	More breaks between poster sessions. More consistency in the Poster sessions.
Student	More poster sessions/more time for students to actually interact with each other. I feel like a lot of the time we were talking at each other. Also the majority of the non-poster-session talks were hard to sit through.
Student	More time involved in smaller groups.
Student	Opportunity to network with similar disciplines. This would also provide opportunities to our field and building relationships.
Student	Perhaps having participants create a video presentation to attach to their posters in case you don't get put into the same breakout room as some that are most interesting.
Student	Setting up break out rooms for presenter/mentor pairs ahead of time might be beneficial. I know that some mentors would have liked to see their student present, however were unable to due to the random grouping. Having student/mentor pairs for one session would provide an opportunity for mentors to observe their student present so that additional feedback could be given after the conference.
Student	Submission for title submission wasn't advertised so I didn't know when or how to do it.
Student	Technological fluency in main sessions.
Student	The 30 second elevator pitch was difficult for my first time around. I realize it needs to be short, but I would have preferred for it to be longer.
Student	The online breakout room research pitch was interesting I ended up being put into the same breakout room twice and saw about 10% of the same researchers present. I don't know how randomization into room could have been better made, but there were some repeat moderators and poster presentations that I sat through.
Student	The only thing I can think of would be if there was some way we could choose which student presentations we listened to. I know we can leave comments on Foragerone, but its not the same as an "in person" interaction. Maybe even if there were just a few more poster sessions so you were more likely to see on of the presentations you were interested in. Or if one of the sessions was grouped by discipline so you could see other work in your field.

Student	The only thing I might consider is having the posters presented by topic. My research was difficult to explain
	in a short time so during my "elevator pitch" I found I was only able to explain very introductory aspects of the research. I think it might help to have presented to people who were doing similar research because that way I wouldn't have had to introduce the topics my research was based on and i would have more time to talk about my research fully.
Student	There should probably be a higher bar for some work to be included - there were a couple people who presented research that wasn't particularly enlightening.
	EDUCATORS
Educator	Allow participants to select the talks / sessions they want to attend. This can be accomplished using Zoom. I have attended a 3 day meeting with over 80 sessions where we could could the sessions we wanted to attend and even change sessions as we wished.
Educator	Being able to attend talks given by my students and also connect more with other students doing similar research as in my lab (more networking, but I am aware that it is extremely which hard to pull off in a virtual setting).
Educator	Being able to request a breakout room by the Poster Number. I arrived late and missed the first session, so there was a chance that I would not see my students. I had to have my students text me their breakout room numbers, so I could be moved.
Educator	Besides being randomly selected for the poster session, it would be useful to be able to select for attending at least my students' presentations.
Educator	Break out poster session should have each room directly linked to title of poster on website page. Should not be randomized as spectator into the rooms. So you can choose to visit a room, thereby giving more emphasis to speaker.
Educator	Have posters on Day 1 and an opportunity for poster Q&A or "office hrs" so there can be more interaction.
Educator	I noticed that in one of the sessions, when we were about to go into breakout rooms, the number of attendees dropped pretty noticeably. Maybe tell people they have the option to stay in the main room if they aren't in the mood to engage so that they don't leave altogether? It can feel like a lot for the introverts sometimes, especially as the day goes on.
Educator	I wish we had graduate students as well.
Educator	I would have liked to be able to choose which student poster presentations I attended, but I understand that would be logistically challenging over Zoom.
Educator	I'd love to have been able to choose which poster sessions to attend, since there were some that I wanted to know more about, in actual interaction with the presenter. But I also understand that this way was much fairer to distribute audience members evenly. Is there a way to have 2 or 3 rounds of random distribution, like we did, plus one round, like the coffee break table at an in-person conference, where we could interact more informally with student presenters that we seek out specifically? Maybe even have the introduce-yourself breakout rooms AFTER the poster sessions, so that we could potentially talk to people whose posters we hadn't heard about?
Educator	If it were run online again it might be better to have attendees browse the posters in ForagerOne during the poster session and then click on one to join a breakout room type thing with the presenter and any other interested attendees.
Educator	In person again if that is an option next year
Educator	It is not so much ICUR as my own schedule and commitments. I would have liked to be at more events, and to interact more with the participants. There was one event that I found a bit anomalous switching to breakout room and back to the main session every few minutes - the times in the breakout room were a little short to let people get to know each other.
Educator	Knowing when students are presenting
Educator	Maybe more for faculty mentors, but not essential. The conference is for undergrads after all.
Educator	More awareness for others to join in.

	FEBRUARY 17, 2022 ATTACHMENT 7
Educator	More choice in which posters to "visit"
Educator	Poster intros were much too short. The students barely had time to state the research and then abruptly ended. Give students at least 2-3 minutes. There was plenty of time at the end of all poster sessions.
Educator	Searching posters on the online platform wasn't uniform. It only searched the text in the poster which made it hard to fine posters if the authors were in a graphic.
Educator	The coordination of the faculty presenters went pretty well. I felt there were perhaps too many emails and online documents, but I appreciated having the dress rehearsal for practice.
Educator	Themed poster sessions rather than the random assortment. This would vastly improve the potential for useful networking interactions, and increase the quality of the questioning and feedback for students.
Educator	virtual conference is not the way to go
	OTHER ROLES
Other	Back to in-person conference.
Other	Being virtual is always tough. On the one hand, randomizing attendees into breakout rooms allowed me to see diverse poster presentations I would not normally stop at. On the other hand, it would have been nice to see my students present. In all the poster sessions I attended, the moderators did a great job making sure everyone was asked a question. After talking to our SARE students, I think this experience was not consistent. One of my students reported that she was only asked one question across all four poster sessions, and was also locked with the same moderator for most sessions. Next time, better mixing with moderators would be helpful.
Other	Give general participants a choice of poster sessions (break room) to attend.
Other	Intersect more visibly with the large federally-funded programs that include undergraduate research/creative activity such as INRBE and EPSCor, and B2B.
Other	Two days was very long for me.

### IGEM19-001

### **HERC/IGEM Project**

Yr 3: Final Report

**Project Title:** Sustaining the Competitiveness of the Food Industry in Southern Idaho:

Integrated Water, Energy and Waste Management

**Principal Investigator:** Dr. Karen Humes

Institution: University of Idaho (lead) with subcontracts to Boise State University

and Idaho State University

**Grant Number:** IGEM19-001

Award Amount: \$696,000

**Fiscal Period:** July 1, 2020 – June 30, 2021

**Progress Report Submitted to SBOE:** July 8, 2021

**Reporting Period:** July 1, 2020 – June 30, 2021

#### **Table of Contents**

1. Summary of project accomplishments for reporting period and plans for Yr 3
2. Summary of budget expenditures for period just completed
3. Demonstration of economic development/impact
4. Numbers of faculty and student participation
5. Description of future plans for project continuation or expansion
6. Expenditure report
7. Commercialization revenue
Appendix A: Detailed expenditure documentation

#### 1) Summary of project accomplishments for reporting period:

The accomplishments and plans for the four primary tasks identified in the original proposal are summarized here (Tasks A-D). A summary of accomplishments for the overall project management and coordinated stakeholder engagement activities are also summarized below, listed as Task E.

The team would like to stress that our partnerships with producers, processors, municipal treatment personnel and water management entities (private and public) are fundamental to all of our tasks and our project as a whole. Our Yr 3 activities have been influenced and enhanced by interactions with our Stakeholder Advisory Board (described in more detail under Task E below) and interactions with other stakeholders as well.

### Task A) Recovery of energy, nutrients, water and bioproducts from waste streams: bench to place-based pilot projects

Team: Erik Coats (UI, environmental engineering/molecular biology; emphasis on resource recovery from waste streams); Armando McDonald (UI, biomass conversion and bioproducts); Kevin Feris (BSU, algae-based resource recovery and microbial ecology))

Team background and overall goals: This team collaborated for 10+ years and has the required multidisciplinary experience to integrate biological, chemical, physical and thermal approaches to the recovery of energy, bioproducts and nutrients from multiple waste streams. The team is leveraging investments made by the INL, CAES, HERC, and the IGEM incubation fund. Over the last 10 years our efforts have resulted in multiple extramurally funded awards, student training opportunities, scientific publications and a pending patent. We have worked across bench and pilot scales. Support from SBOE HERC allowed us to build a pilot scale system to convert dairy waste to value added products (biogas, bio-plastic, algal biomass); previous HERC funding supported construction of two pilot systems at UI by Dr. Coats-one located at the Moscow WWTP, designed for municipal wastewater and one mobile system (24 ft. trailer) designed for dairy manure resource recovery. We are engaged in testing, validating, and extending these systems to evaluate opportunities to recover high-value products (bioplastics, algae, biofuels) from industrial/municipal wastewater while achieving treatment. Research is focused on further understanding/optimizing our integrated system to maximize utility across input streams and demonstrate "real-world" applicability. Research objectives will further technology interrogations and advance wastewater as an economic resource. Ultimately, research will advance solutions that can be applied in Idaho agricultural and food processing sectors; producing economic value from waste will enhance Idaho-based industries by diversifying product portfolios.

#### **Accomplishments this reporting period:**

The following provides detail of progress in the first half of Year 3, building from Year 1-2 successes, towards the aims described in the original proposal.

i. Bench scale: Assess and evaluate nutrient recovery, energy reduction, bioplastics production, and algal production strategies to inform pilot scale operations.

- a) Assessment of optimal process sequences (biological, chemical, physical, thermal) to recover energy, bioproducts (biofuels; bioplastics) and nutrients from mixed waste.
- (Coats) Phosphorus recovery from wastewater is most sustainably and reliably achieved through a process known as enhanced biological phosphorus removal, EBPR. Bench-scale EBPR operations are focused on ascertaining the effects of key process operational criteria on maximal P recovery. Building from past research efforts, current investigations are focused on two operational scenarios that integrate a new operational strategy. One operational scenario feeds all wastewater to the bioreactor at one time (beginning of the cycle), while the 2<sup>nd</sup> strategy feeds a more targeted, controlled wastewater (VFA-rich fermenter liquor) at the beginning of the cycle and then the raw wastewater stream at the end of the anaerobic period. The former operational strategy is identified as the A/O process, while the latter is known as the Westbank process. A central question relates to understanding the effect of adding VFAs outside of the anaerobic period. In Y2 research was expanded to incorporate a new operational strategy that controls the length of the anaerobic period, with concurrent measurement of the oxidation-reduction (redox) potential. Research suggests that "deep anaerobic" conditions (i.e., longer anerobic periods) can enhance and stabilize EBPR; we utilized real-time redox process monitoring to further evaluate this operational strategy and its impact on operational "success" vs. "failure." A Civil Engineering MS student completed all these assessments and completed her MS degree and thesis in early June 2021. Results also informed pilot (2021) operations. A publication is expected from this work.
- (Coats) Integrated with ongoing bench-scale EBPR bioreactor operations, another focus is analysis of a full-scale EBPR system to gain new insight into operation of secondary clarifiers related to achieved denitrification (reduction of nitrate to nitrogen gas). Excess nitrate recycled in an EBPR reactor can cause process failure. An MS graduate student defended his thesis June 25, 2021, focused on this topic. A publication is expected from this work.
- (Coats) Complementing EBPR investigations, we are investigating nitritation in an activated sludge wastewater treatment system achieving carbon, ammonia-N, nitrite-N, nitrate-N, and phosphorus removal. Nitritation is a biological process whereby ammonia-N is oxidized only to nitrite. Process success will result in significant energy savings in wastewater treatment. Process success was realized at both bench and pilot scale in late Y1 and in Y2/Y3; results are being reviewed to inform 2021 pilot operations, and also to generate a peer-reviewed publication.
- (Coats) Complementing the nitritation research are efforts to understand and better characterize denitritation, with the aim to further optimize the EBPR process for energy efficient nutrient recovery. Nitrate is a contaminant of concern in drinking water, and often must be removed from wastewater prior to discharge to the water environment. A primary concern with conventional EBPR processes that integrate nitrite/nitrate reduction is the potential production of nitrous oxide, which is a very potent greenhouse gas (300X CO<sub>2</sub>). Bacteria exhibit variable metabolic pathways to reduce nitrate vs. nitrite; some bacteria cannot reduce nitrate to nitrite, which requires a more complex microbial culture to successfully eliminate nitrate from the wastewater. Ongoing efforts by one of Coats' PhD students is centered on better understanding the metabolic capabilities of bacteria and how

- they reduce nitrate vs. nitrite. Preliminary research generated on this project will contribute to this student ultimately completing his dissertation in fall 2021.
- One of Coats' PhD students conducted intense evaluations of the dairy-based PHA pilot in Y1/Y2, with very successful results. Dr. Coats' student published a peer-reviewed journal manuscript that details the results from these investigations (Guho et al., 2020). The manuscript includes numerous team members, including McDonald's research team. Coats' PHA pilot also was operated spring/summer 2020 (Y2, Y3); a primary focus was to couple Coats' PHA pilot with his EBPR pilot to evaluate broader process integration for enhance waste resource recovery. Utilizing this data coupled with data generated from Coats' EBPR pilot, a peer-reviewed publication was generated (Coats et al., 2021) that focused on interrogating the "sustainability" of integrating the respective processes while also demonstrating proof of concept.
- (Coats) One of Dr. Coats' MS students in Environmental Science completed a comprehensive targeted metabolomics study of a mixed bacterial system synthesizing PHA bioplastics on fermented dairy manure. The MS student will defend her thesis July 1. Subsequent efforts will be made to i) publish the research, and ii) leverage results to further inform the manureto-plastics process.
- (Feris) Algal cultivars were used throughout year 3 for routine experimental deployment. Experiments focused on cultivation at both bench and pilot scales employing wastewaters and waste nutrient from multiple sources (e.g. currently PHA effluent provided by the Coats lab and struvite provided by the City of Boise, respectively) to maximize nutrient capture and algal biomass production as well as production of high-value PUFA enriched algal biomass. Bench scale experiments have identified which strains produce optimal levels of biomass under various cultivation conditions and have been translated to pilot-scale operations of our greenhouse-based algal cultivation systems. Bench scale experiments have elucidated the effects of nutrient deprivation and temperature shock on biomass production when using struvite sourced nutrients (e.g. nitrogen (N) and phosphorus (P)) in the presence and absence of nutrient supplementation. On-going work is measuring effects of these treatments on PUFA production rates. We are continuing to work with three algal strains known to produce high concentrations of omega-3 fatty acids under the proper cultivation conditions (i.e. Chlamydomonas reinhardtii, Nannochloropsis oculata, and Paeodactylum tricornutum). Results from this work will be drafted into a manuscript as part of a MS thesis (by Mr. Alex Torres) during Fall and Winter of 2021, with a projected submission date in late 2021 or early 2022.

(Feris and McDonald) We completed our greenhouse/pilot-scale cultivation experiments during Spring 2020 and Summer/Fall 2020 that utilized a mixed-culture approaches for the capture of nutrients from liquid wastewaters (i.e. PHA effluent from the Coats lab system). Produced algal biomass from these experiments have been (a) characterized for carbohydrate and lipid contents, (b) lipid fatty acid profiles, and (c) HTL processed by the McDonald lab in May-June 2021. The HTL aqueous fraction containing nutrients have been collected and analyzed for sugars and organic acids. During the summer of 2021 nutrients captured from the HTL processing of algal biomass will be tested as inputs to a struvite production system (either via modeling or bench scale struvite production). Struvite

produced in this way will then either be tested similar to the municipal struvite experiments described above or analyzed for mineral content to allow us to accurately estimate of the utility of the algae-capture nutrients purified by struvite production. Based on this suite of experiments we will determine the most appropriate mechanism for algal cultivation and nutrient source in our integrated system. A publication is expected from this work.

Greenhouse cultivation results indicate we can generate high and consistent/repeatable levels of algal biomass on PHA reactor effluents and that the growth rates, biomass yields, and nutrient capture rates are repeatable and reliable as well. Our data analysis suggests that our algal community and nutrient capture/biomass production system is resilient to a substantial temporal perturbation in cultivation/incubation. Therefore, providing additional evidence of the stability and reliability of this aspect of our system.

- ii. Pilot scale assessments: Conduct pilot scale evaluations from mixed waste streams; implement/evaluate treatment resource recovery processes.
  - Both Coats' pilot systems (PHA system located at the UI dairy; EBPR system located at the Moscow, Idaho treatment facility) were operational in Y1-Y3. Coats' research team was fully trained on systems operation.
  - Completed 2020 operations of Coats' pilot operations. Former efforts continued to focus on collecting data to facilitate ultimate transition to a full scale system; data was used to prepare a journal manuscript (Guho et al., 2020). PHA pilot data greatly informed potential future scale-up to commercial operations, and the team is evaluating potential new funding opportunities to make the transition to commercialization. Latter efforts focused on preliminary assessment of integrated EBPR-nitritation, with an emphasis on integrating ammonia-based aeration control (ABAC) to enhance nitritation over nitrification. Successful nitritation was achieved for the entire operational period in summer 2020 (end of Y2; beginning of Y3); data evaluation is ongoing, with the aim to inform 2021 pilot operations that will continue post-grant.
  - Coats' pilot scale system at the Moscow treatment facility is operational for May-October
     2021. This grant supported efforts to continue operations.
  - Pilot scale greenhouse systems were constructed at the Boise State research greenhouse and have been validated for suitability for cultivation of multiple algal strains. In 2019 we purchased, installed and tested a new 20L flow through centrifuge for rapid collection and concentration of the algal biomass produced in our pilot-scale greenhouse cultivation experiments. In 2020 we used this centrifuge routinely for the collection of algal biomass associated with our greenhouse cultivation experiments. These experiments have produced significant quantities of algal biomass for testing in our HTL process development (McDonald lab) as described in section (i). Data collection and analysis from the greenhouse/pilot scale experiments have been completed during the second half of year 3. These results will be used to inform decisions about which types of algal cultivation systems to couple with the AD/PHA aspects of our integrated system. We will continue to operate the pilot scale algal cultivation systems through 2021 in collaboration with the Coats and McDonald labs at UI and as described above for our struvite-based experiments.
- iii. Produce prototype products (bioplastic mulch film, biochar, biofuel) for evaluation.

- One PhD student in McDonald's lab has been working on exploring "green" extraction and isolation procedures for producing pure PHA bioplastic generated from pilot plant operations in years 1 and 2. We have trialed the following solvents dimethyl carbonate (DMC), cyclohexanone (CYC), and ethanol in comparison with the standard solvent chloroform. We have also modified an extraction system to accommodate (0.5 kg) batches of biomass for hot extraction. It was shown the DMC was a suitable solvent to extract PHA and can be purified in 1-step rather than a 2-3 step process using chloroform. The new DMC extraction protocols have not had a major influence on PHA properties. We have written a draft manuscript and plan to submit it in July 2021.
- One M.S. student in McDonald's lab has completed her M.S. degree May 2021 and had worked on cross-linking pilot plant extracted and commercial PHA to improve its melt flow properties (rheology) for producing film products. The work shows that cross-linking has improved its melt strength (viscosity) and toughness of the modified PHA. A publication is expected from this work.
- Blends of polylactic acid (PLA) and PHBV (67/33) have been successfully blown into films
  (Figure 1) and this is a suitable strategy to utilize PHBV in film-based materials. Current and
  ongoing work will focus on increasing PHBV content by varying process parameters and/or
  cross-linking PLA-PHBV. This work has been done by McDonald's Ph.D. student. A
  publication is expected from this work.



ii. Figure 1. Photo of blown-film being produced of polylactic acid-PHBV blend

- Greenhouse scale experiments in the Feris lab have been completed and produced suitable quantities of algal biomass. Protein, carbohydrate and lipid content of the algae was determined prior to HTL experiments by the McDonald lab. And on-going analyses are comparing protein extracted/non-extracted algae for HTL. Primary outputs of HTL processing of algal biomass will include biofuel (i.e. biooil), biochar, and aqueous phase nutrients. The aqueous phase nutrients will be used for struvite production and secondary

algal cultivation (as described above).

- iv. Partnerships with producers, processors and municipal treatment personnel are fundamental to all of these tasks. Team will build on existing relationships with Twin Falls wastewater treatment facility, Food Northwest, Chobani, Amalgamated Sugar, J.R. Simplot, Idaho Dairymen's Association, and Glanbia, and expand to new partners throughout this project
  - a. A third SAB meeting was convened virtually on December 15, 2020. This meeting focused on providing research updates to our SAB committee members and inquiring with them on where they felt we should focus our efforts over the remainder of year 3. Importantly, a significant component of this conversation was focused on strategies and pathways to commercialization of the technologies we have studied and developed during this project. More work is needed in this area and will likely continue beyond the scope of this project. However, the relationships and advice developed and received by our SAB will be essential to our successful translation from the laboratory to "real-world" deployment.
  - b. A second SAB meeting was held virtually on December 17<sup>th</sup>, 2019. This meeting focused on providing research updates to our SAB committee members and inquiring with them on where they felt we should focus our efforts over the remainder of year 2. SAB members were supportive of the direction of the research but provided feedback that the team should continue to focus on potential routes towards commercialization of the technologies under investigation. SAB members renewed their commitments to help the team pursue potential routes for commercialization as opportunities arise. Additionally, the SAB provided additional detail on how to best help move portions of our work towards commercialization. These included suggestions to focus interpretation and analyses of experimental outcomes in the context of typical or example real world systems. Specifically, to look into how our technology would translate to implementation at a 1500 head dairy (the typical dairy size in ID). The SAB also suggested we look into how implementation of our technology would help Idaho Dairies reach a net zero status. One means by which the team could achieve these goals would be to engage students and faculty from the Business schools in our respective universities.
  - c. Additionally, our SAB engagement resulted in leadership from the Idaho Dairymen's Association inviting two members of our team (Feris, Coats) to the joint Idaho/Utah Dairymen's association meeting in Salt Lake City, UT in July 2019. This meeting provided an opportunity to further develop relationships with regional dairy producers and to introduce them to the potential outcomes of our project. Additionally, the Idaho Dairymen's Association networked Coats/Feris with Newtrient LLC (Steve Rowe, CEO). Newtrient is advancing an integrated set of technologies focused on achieving 'net zero' emissions from dairies. Discussions will continue with Newtrient to i) potentially ascertain how the PHA technology might be integrated, and ii) potentially collaborate on future commercialization funding.
  - d. Research plan adjustments in response to our Stakeholder Advisory Board (SAB): SAB feedback from the mid-year meeting in December 2020 continued to support our focus on the utilization of struvite as a nutrient source for algal cultivation for production of high value biomass. Further, current algal cultivation experiments are being planned within the context of potential future application at a typically sized ID dairy and in the context of net

- economic return. The Task A team also intends to build upon the SAB recommendations by contacting our university and regional support networks for business development. One of the Task A team's goals is commercialization of our integrated technology and during the 2<sup>nd</sup> half of year 3 we will work towards making appropriate contacts to forward this goal.
- e. <u>Another recommendation from our December 2019 SAB meeting was to evaluate</u> i) the greenhouse gas footprint of Coats' PHA process, and ii) evaluate the potential of Coats' PHA process to remove phosphorus. These evaluations are ongoing.
- f. One of our goals for year 3 of this project was to continue to build on our budding Stakeholder relationship with the hopes that they will blossom into partnerships for seeking pre-commercialization funding beyond the scope of this project. We continue to work towards this goal and during year 3, and beyond, we will focus our data collection efforts on system development and scale up as well as communication of research findings with our stakeholder group.
- g. Research plan adjustments in response to the COVID-19 pandemic: Research facilities at the University of Idaho and Boise State University were shut down for a significant component of the second half of year 2 of this project. During the facility shut down research activities were focused on data analysis, literature reviews, and planning for experiments once facilities were reopened. Although some delays in data collection were experienced due to the COVID-19 pandemic, as of early June 2020, research facilities at both institutions are reopening and since that time we have made significant progress towards our year 2 and year 3 research goals. Travel to and attendance at conferences/meetings that were planned were halted during this period and delivery of presentations impeded.

#### Goals/Plans for the remainder of Summer 2021 and follow-on research to be completed (Task A):

#### i: Bench scale

• Due to time limitations we have not completed our proposed experiments where the nutrients captured via HTL processing of algal biomass were to be tested in a secondary stage algae production system for high value commodity production either directly as aqueous nutrients or via production of struvite. However, we will strive to complete this work during the summer/fall of 2021 and use these data to evaluate the highest value use of the algal biomass and captured nutrients. This evaluation will be based on the algae's growth rates, yields, biomass characteristics, and economic potential when grown in the different wastewater nutrient sources.

#### ii: Pilot scale:

- We will continue to operate and analyze performance of Dr. Coats' bioplastics pilot system at the UI dairy.
  - Refine and evaluate operational criteria based on successes from Y2 operations.
  - Have produced 300 g quantities of bioplastic material from Coats' pilot scale system for McDonald's ongoing polymer characterization work.
  - Have undertaken blown film trials using commercial and pilot scale produced
     PHA bioplastics by blending with PLA (Figure 1).

- Operate and analyze performance of Dr. Coats' municipal enhanced biological phosphorus removal system located at the city of Moscow wastewater treatment system. Focus on translating/assessing operational criteria from Coats' bench scale reactors to his pilot scale systems. Specific focus will be:
  - Achieve and assess shortcut nitrogen removal
  - Evaluate the impacts of the return activated sludge flow rate on process stability and performance
  - Evaluate the impacts of integrating effluent from Dr. Coats' bioplastics pilot on overall wastewater treatment and resource recovery
- We will continue to operate the pilot scale algal cultivation systems through 2020-2021 in collaboration with the Coats and McDonald labs at UI.

#### iii: Producing prototype products:

- The Feris lab has produced suitable quantities of algal biomass in year 2 and 3 for HTL experiments in the McDonald lab. Primary outputs of HTL processing of algal biomass will include biofuel (i.e. biooil), biochar, and aqueous phase nutrients. The aqueous phase will be recycled to the algal cultivation system to enhance algal biomass production.
- o Produce bioplastic blown films of PHA/PLA blends for assessment.

#### iv: Training:

 Conducting training for the city of Moscow, Idaho wastewater treatment staff, focused on the basics of biological wastewater treatment and integrating knowledge on the operation of their enhanced biological phosphorus removal system.

## Task B) Decision-support tools for industry and community leaders to quantify and visualize trade-offs among water, energy, land use and municipal growth

*Team:* Jae Ryu, UI, systems dynamics modeling, water resources; Karen Humes (UI, water/energy nexus, geospatial analysis

#### Overall Goals:

The goal of this task is to integrate energy components into an updated version of a pre-existing system dynamics model for water supply, use and flows in the region of the Eastern Snake Plain Aquifer. The model which will serve as a decision-support tool for stakeholders (including the food producers, food processors, irrigation districts, water and energy providers and municipal communities/citizens). The tool will quantify and provide users with visuals on the linkages between water, energy, land use and municipal growth, to be used for planning and decision-making by producers, water users, businesses, utilities, state agencies and communities.

#### Accomplishments in Yr 3:

i) Improvements to the water portion of system dynamics model, including updates to correspond to most recent IDWR EPSAM output, and improved user interface to provide decision-support tool for stakeholders

- Evaluated the existing system dynamics model to determine how to implement water management options (e.g., managed aquifer recharge) given the existing data types available
- Interacted with IDWR on their newest ESPAM (Eastern Snake Plain Aquifer Model) model version and updated data to be released by IDWR in 2021
- Evaluated the feedback from IDWR and Surface Water User's Association at the stakeholder meetings in May 2019, Dec 2019, and Oct 2020 and how the ESPAM output could be more useful for stakeholders by incorporating ESPAM-derived behavior into the system dynamics model and creating a user-friendly interface that to allow stakeholders to adjust/understand the impacts of key system variables, thus serving as a decision-support tool for stakeholders
- Incorporated new features that are available in Stella Architect into the system dynamics model and user interface
- Performed an-in-depth review of the theoretical and technical background of each variable applied to the water balance, including the way it was produced by or for the IDWR ESPAM, how the data was accessed in 2008, and how it may change under new versions of ESPAM.
- Developed adaptable and individualized R coding to organize recent versions of the ESPAM data
  to work with the existing System Dynamics framework. All of this data may change along with
  changes to ESPAM, including units, size/number of entities, how calculations are performed, and
  format of the data. Thus, it was necessary for our R coding to be flexible in order to evolve with
  frequent changes.
- In order to formalize the process for reviewing and adapting the data in the future, R
  "markdown" files were used to begin development of a "bookdown", which can be used as an
  instructional guide and reference for future users working with the ESPAM data and system
  dynamics model.
- The ESPA System Dynamics model was streamlined to increase ease of updating data.
- Verified all units and calculations in the system dynamics model to ensure that they continue to match any formatting changes with the updated ESPAM data.
- Three separate model files were created for additional ease of use, depending on if the user
  wants to primarily focus on climate issues, is interested in varying the different types of
  groundwater pumping and recharge, or wants to work as deeply as the surface/groundwater
  entity scale.
- The newest version of the R bookdown file was completed and published in such a way that it is widely accessible, including researchers and water stakeholders.
- The models now represent the most recent data available from IDWR (Sept. 2018) and the new data in the system dynamics model are now available for stakeholder engagement and scenario planning.
- Improved graphical user interface by making the decision support tool available in the public domain over the internet so that all water interest groups can evaluate various scenarios by incorporating their interest and needs, ultimately enhancing water management decisions in ESPA.
- Updated available water data for Stella Architect using the outcomes from the latest version of ESPAM model
- Incorporated management options into the model, such as water conservation, managed recharge, etc.
- Developed system evaluation criteria associated with new data inputs and potential uses for the expanded and update model, such as system reliability, vulnerability, resilience, etc.

- Notes have been added to the models to reflect changes and improve ease of understanding.
- A manual was written to discuss the functioning of the model files, sources of data, and procedures for update.

ii) Further improvement of systems dynamics model to include linkages between water and energy use in irrigation

- Explored available data on energy use in irrigation, including interactions with IDWR and collaboration with experts on energy use in irrigation at Idaho Power.
- Further evaluation of spatial patterns in energy use for irrigation in the ESPA and controlling
  factors in order to identify key variables to relate water and energy use in irrigation (i.e., crop
  type, irrigation system characteristics, water source, etc.). Data analysis nearly complete, with
  publication to be submitted and relationships coded into systems dynamics model in August
  2021

Follow-on tasks post grant period:

 The team will continue to work with stakeholders to disseminate the decision support tool to water users and food production/processing entities, as well as seeking external funds to continue to improve it and disseminate it.

### Task C) Technical innovations/sensing systems to reduce water/energy/nutrient use in targeted production systems:

*Primary team members*: Donna Delparte, (ISU, drone and satellite-based sensing systems) and partners among growers and crop consultants.

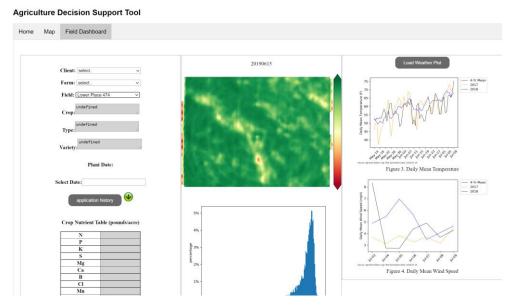
#### **Accomplishments this period:**

Progress in the following task area has been made through the subcontract award to Idaho State University and included:

#### • Goal 1 – Decision Support Systems

- With our stakeholder input and feedback, our programmer (Di Wu) implemented a
  decision support online prototype tool for sustainable agriculture decision making:
  <a href="http://avalanche.geology.isu.edu/i2i/progro\_hist2.html">http://avalanche.geology.isu.edu/i2i/progro\_hist2.html</a>
- This decision support tool was developed by working with stakeholders and our Advisory Board member (Brandon Vining, ProGro) to provide remote sensing data/tools to aid decision making that is relevant to business decision making and operations
- A key component of the decision support system is to use a historical record of vegetation health over growing seasons going back to 2016 to develop a field prescription map for variable rate nutrient application
- Stakeholders can browse satellite imagery taken over growing seasons 2016-2020 showing field variation within individual fields online and review prescription recommendations for the coming year

- Stakeholders are utilizing the outputs of the tool to improve ROI, reduce fertilizer inputs and improve precision farming techniques for sustainable agriculture
- Python code to automate nutrient prescription generation is now integrated in to the online tool and producers are adopting new fertilizer prescriptions.
- We have improved the interface to provide a dashboard (see image below) that is useful to growers.



- Goal 2 Pilot projects to use drone-based, other field-based and satellite sensors to reduce water/nutrient/energy use in production of targeted crops
  - Hyperspectral camera data collection during the 2019 and 2020 growing seasons supplied a foundation to develop a model for detection of Potato Virus Y (PVY) in potato fields. This spring, our team collected new data from 2021's potato crop and used our model to identify infected plants in the field.
  - O PhD student Mike Griffel developed Python code to apply a detection method to identify individual unhealthy plants in a grower's field. This approach leverages machine learning of hyperspectral imagery – thus offering the opportunity to reduce inputs for control and mitigation of disease. We are working with an outside venture capital company to market this technology in partnership with our spin-off company.
  - By individually detecting these plants we can provide coordinate locations for plant removal to existing spraying equipment to target and destroy these plants. By removing these plants, less nutrients are required to mitigate the impact of the virus.
  - Co-I Delparte launched a new Idaho based spin-off company (I2IGeo) to provide growers with technological innovations and decision support to aid their operations, leveraging the research outcomes from this grant.
  - To increase business market potential and kick start I2IGeo LLC, Delparte attended the Idaho I-Corps Ignite Faculty Summer Workshop offered by UI, BSU, ISU and the Center for Advanced Energy Studies.

#### Plans for the remainder of Summer 2021:

Our team will focus on the final testing and validation of UAS platform and sensor combinations for summer 2021 data collection. The emphasis will be on in-situ PVY detection, nutrient management decision support systems. Dr. Delparte will also continue to work actively toward commercialization of the most promising technologies from this research through her new Idaho company (I2IGeo) based on knowledge and skills developed in the I-Corps Ignite program.

- Additional training/testing with growers on the effectiveness of the satellite-based decision support tool for nutrient application prescriptions
- o Commercialization of early season in-situ detection of PVY in potato crops
- Final stakeholder input on preferred delivery methods of time critical data and information related to yield forecasting and best practices for the treatment and removal of infected plants.

#### Task D) Engaging the present and future workforce in the adoption of new technologies

Team members for training (primary): Karen Humes, Erik Coats, Kevin Feris, and partners at CSI, UI Idaho Falls and professional organizations such as Food Northwest, *Primary team member for drone outreach activities:* Jae Ryu (Idaho Drone League (I-Drone), Founder).

#### Overall goals:

The overall goals in this task are two-fold: 1) to provide direct support to our stakeholders in the near-term by identifying workforce development needs that universities could plan and implement, together with partners at community colleges and professional organizations (resourced primarily in Yrs 2 and 3) and 2) contribute to longer-term workforce needs by holding outreach events designed to engage the future workforce in STEM activities that will serve the food industry in Idaho in the future, such as drone operations and the analysis of data from sensors onboard drones.

#### **Accomplishments this period:**

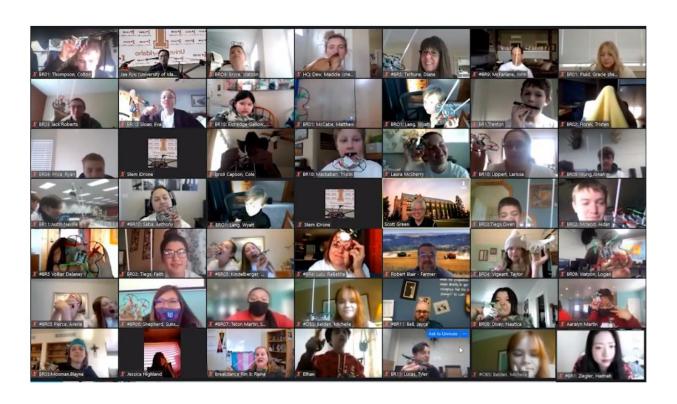
- Goal 1: Current/near-term workforce development needs
  - O Due to Covid-19 and the cancellation of the meetings for the rural water treatment association, some of the outreach planned for the end of Yr 2 and during Yr 3 for outreach to these professionals via these meetings was difficult to accomplish. However, the team is continuing to engage with our Stakeholder Advisory Board and professional organizations such as Food Northwest and stakeholders such as the IDEQ on needs and opportunities in professional development on pollution control and management. We will continue to identify and implement professional development needs in food, water, energy and waste and interact with stakeholder to identify ways in which the universities can catalyze and facilitate these.
  - In order to better prepare university graduates for careers in integrated management of food production/processing, water and waste streams, as well as maintaining the tri-

institution collaboration in this IGEM grant, the universities plan to develop and maintain an ongoing seminar series in Food-Energy-Water-Waste for faculty, undergrads and undergraduates. The seminar will be joint among the three universities and include coordination with the CAES (Center for Advanced Energy Studies) organization.

#### Goal 2: Longer-term workforce needs

An important component of meeting longer-term workforce needs throughout all years of our project has been hosting a virtual education program known as "Idaho Drone League(iDrone)" in the Treasure Valley and elsewhere throughout the state. The purpose of these events is to promote STEM pipelines and skills important to the Idaho food industry in the future.

Two Idaho Drone League events took place on October 10, 2020 and April 2-3, 2021 in Year 3. But due to the global pandemic, these events were offered online. Despite the virtual format, the event was very well attended.



For the April 2-3, 2021 event, more than 80 people joined this meeting online, including UI President Green, 12 Zoom breakout session coordinators, 65 registrants, and 10 observers.

#### Task E) Project Management/Stakeholder Engagement

Background: An important element of our project management was to put together and meet regularly with an advisory board comprised of stakeholders in the food production and processing industries, water user groups and state agencies. In Year 1 we formed this advisory and had a very successful 1<sup>st</sup> meeting in person in Boise in early May 2019. As noted in the technical progress reports (earlier sections of this report), the board feedback influenced our research plans in Year 2, as planned. The board agreed to meet in its entirety once/yr in person (May/June), once/yr via videoconference (Nov/Dec) and have specialized meetings between specific sub-groups of team and advisory board members in between.

#### **Accomplishments this period:**

- We held a 3<sup>rd</sup> meeting of our full Stakeholder Advisory Board (SAB) on Dec 15, 2020. Due to travel restrictions because of the ongoing pandemic, the meeting was held by video conference. The following SAB members attended and those listed with a (\*) were invited and had hoped to attend but were not able to do so:
  - Jeff Bohlscheid, Senior Principal Scientist, J.R. Simplot Company\*
  - Shawn Moffitt, Regional Business Manager, Jacobs Engineering (contractor for City of Twin Falls and Chobani water treatment plants)
  - o Megan Satterwhite, Operations Manager, Idaho Dairyman's Association
  - o Ben Nydegger, Biosolids Program Manager, City of Boise
  - Sean Vincent, Hydrology Section Manager, Idaho Dept of Water Resources\*
  - Ben Jarvis, Pollution Prevention Projects Coordinator, Idaho Department of Environmental Quality
  - Brian Olmstead\*, President, Surface Water Appropriators and General Manager, Twin Falls Canal Company
  - o Brandon Vining, ProGro Consulting
- As noted on early sections of this report, the Task A team has been engaged in discussions with the Idaho Dairyman's association and the Newtrient LLC on technology transfer, the Task B team is interacting with water users for dissemination of the decision support tool for water/energy planning, and the Task C team was highly engaged with stakeholders in the food production arena on decision support tools.

#### Plans for follow-on:

- We will hold a SAB meeting in August 2021 to discuss final project accomplishments from Summer 2021 field and research season and discuss plans for follow-on with stakeholders
- Develop a task force that will continue to meet beyond end date of the grant to discuss
  mechanisms for transfer of applied research from the grant into the private sector. The task
  force will consist of personnel from the research team, tech transfer and economic
  development officers from the Office of Research and Economic Development from UI, BSU and
  ISU, plus stakeholder advisory board members as available.

 Continue to build on existing relationships with Twin Falls wastewater treatment facility, Food Northwest, Chobani, Amalgamated Sugar, J.R. Simplot, Idaho Dairymen's Association, and Glanbia to engage in follow-on applied research and mechanism for technology transfer.

#### 2. Summary of budget expenditures to date for Yr 3

A detailed expenditure report for estimated expenses incurred at the UI is provided in Appendix A. Please note that this does not constitute a final report, as some expenses incurred before June 30 are still clearing the system, but this is what we anticipate to be as close to our final numbers as we are able to estimate at this time. The table below summarizes the spending in the major budget categories, relative to the budgeted amounts for Year 3. Please note that the line below for Operating Expenses (OE) includes the amounts originally budgeted for both OE and Participant Costs. This is because the expenses placed under participant costs in the original 2018 budget were judged by the UI accounting personnel to be more appropriately placed under the category of Operating Expenses.

Per grant guidelines, the UI and both subawardees, prior to June 20, the UI and both subawardees carefully projected all spending that would occur by June 30 and returned to SBOE funds that would not be spent by 6/30. The UI and ISU projected that all funds would be expended by June 30, but subawardee Boise State University projected that \$6623.60 would not be spent by June 30. The UI sent a check to SBOE in that amount just prior to June 20, 2021. A final and full financial report will be sent to SBOE within the typical timeframe for final grant closeout.

Estimate of Funds Expended (not final)					
Category	Budget	Funds Expended	Difference		
Salaries/Hourly/Fringe	297756	297378	378		
Travel	3337	2520	817		
OE	83998	85151	-1153		
Participant Support	0	0	0		
<\$5K Capital	85	85	0		
Trustee/Benefits	63410	63452	-42		
Sub Contracts	247414	240790	6624		
Total	696000	689376	6624		
Note: \$6623.63 returned t	to SBOE on 6/20/	21			

#### 3. Demonstration of economic development/impact

Patents, copyrights, Plant Variety Protection Certificates received or pending

Co-I Dr. Donna Delparte has formed a private company in Idaho called *I2IGeo* and is working to develop a commercialization pathway for her research on this grant related to the use of satellite and drone technology to assist growers in the application of nutrients, herbicides, pesticides and water.

#### • Private sector engagement

Because every aspect of our work involves considerable private sector engagement, we have noted those engagements in each of our five tasks described in Section 1, particularly under <u>Task E: Project Management/Stakeholder Engagement</u>.

#### Jobs created

Several of the research assistant and all of student research assistantship positions described in the next section were newly created in Year 1 of this grant.

#### 4. Numbers of faculty and student participation

In Yr 3, the numbers of faculty, students and other researchers participating are as follows:

Faculty: 6 (4 UI, 1 BSU, 1 ISU)

Graduate Students: 11 (7 UI (3 whom are from groups underrepresented in STEM), 2 ISU; 2

BSU (both of whom are from groups underrepresented in STEM fields)

Undergrad Students: 7 (5 at UI, 2 at BSU)

Research Scientists: 1 (1 ISU, both partially supported by this grant)

More details on staffing, by Task:

Task A: Recovery of energy, nutrients, water and bioproducts from waste streams

Coats staffing: 2 PhD students in Environmental Engineering (one PT, one FT); 3 MS student in Environmental Engineering; 4 undergraduate students in Environmental Engineering. 4 women, 5 men.

McDonald staffing: 1 PhD student in Environmental Science. 1 woman.

Feris staffing: Current staffing includes 2 male graduate students (both from underrepresented groups in STEM). Both graduate students were previously employed as research technicians on this project, however, by Jan 2020 both transitioned to the MS graduate program in the Biological Sciences with a Spring 2020 start date. Both students will participate in experimental development, data collection, and data analysis. We have recruited 2 undergraduate students (1 or 2) for the second half of year 2 and year 3 to assist with laboratory and greenhouse scale experiments.

#### Task B: Quantifying Water/Energy Linkages

• 1.5 PhD students (1 in Geography, 0.5 in Water Resources) were supported throughout Yr 3. In the last quarter of Yr 3, we sought and received permission to redirect travel funds to support two undergraduates and one additional graduate student as research assistants for this task.

Task C: Technical innovations/sensing systems for reducing water/nutrient use in targeted production systems

- 1 PhD students in Geosciences
- 3 summer Masters students in Geoscience
- 1 research/programming technician

#### 5. Description of future plans for project continuation or expansion

- PI Karen Humes is a Co-Lead on the CAES Focus Area group in the Energy-Water Nexus arena. Being a CAES Focus Area lead provides some access to CAES resources, including program development funds, to build a team of CAES researchers in pursuit of establishing CAES as a global leader in research, education, and innovation related to the energy-water nexus. Team members of this project are looking forward to leveraging our current work to pursue future opportunities. The coupling of food, water and energy is exceptionally strong in southern Idaho, from both a national and international standpoint, making a compelling case for other funding sources. Our integrated approach to water, energy and waste is also unique among teams studying the food-energy-water nexus. She and Co-I Erik Coats organized and attended a workshop at CAES in Idaho Falls on Nov 25, 2019 and are now involved in developing proposals.
- Team members are also actively writing grants to other agencies for related work, such as the NSF, USDA and NASA. This includes a current effort led by PI Karen Humes and involving Co-I Erik Coats and 6 other UI faculty) for a graduate student training grant to NSF (the NSF Research Training Grant progam, or NRT) related to water quality and public health, with emphasis on Idaho (proposal was submitted to NSF in Feb 2021 and is currently pending). This effort includes also stakeholder partners such as IDWR, IDEQ, and the City of Boise Dept of Public Works. The NSF-NRT program is highly competitive and it would be very unusual for the proposal to be funded on the first attempt; however, if not funded, the team is dedicated to strengthening the proposal (particularly the partnerships with stakeholders) and resubmit in Sept 2021.
- Co-I Erik Coats (and team leader for Task A of this grant) is a Co-I on the recently awarded 5-yr \$20M grant funded by USDA, led by the College of Agriculture and Life Science, that has among its goals the recovery of byproducts from dairy waste. Dr. Coats will ensure that progress made in the IGEM grant will be brought to bear on the USDA grant and vice-versa.
- Delparte (Lead Task C) received funding to further the PVY testing for the upcoming growing season from the Idaho Specialty Crop Block Grant (Idaho State Department of Agriculture/US Department of Agriculture). Awarded. Field Trials for an Automated Early Season Potato Virus Y (PVY) Detection System. PI- Delparte. Oct 2020 to Oct 2022. \$97,803.16
- Delparte (Lead Task C) is working towards commercialization of research supported by this initiative to aid growers in sustainable fertilizer applications and towards a targeted treatment approach for potato virus y.
- All 6 members of the Co-I team are active grant writers and continue to look for new opportunities to "bridge the gap" between academic research and state needs in this arena. One such opportunity we will be evaluating in the future is a new proposed program within the National Science Foundation (NSF) specifically designed to create stronger partnerships between academic institutions and technological needs. The current administration budget proposal for for FY22, the NSF budget includes \$865 million for the new program called Technology, Innovation, and Partnerships. We will also aggressively pursue other opportunities within USDA, NSF, EPA, NASA, and other federal agencies.

#### 6. Expenditure reports

The expenditure reports presented in Appendix A details the expenditures at the University of Idaho, as of July 7. As noted above, this is not a final report, as some personnel charges are still clearing the system and a small amount of operational expenses incurred are in the process of being removed.

#### 7. Commercialization Revenue

None to report yet, but the company I2IGeo (Co-I Delparte as Founder) has been formed. Delparte attended the Idaho I-Corps Ignite program in Summer 2021 to learn more about business development and commercializing research.

#### **Publications:**

Guho, N.M., D. Pokhrel, M. Abbasi, A.G. McDonald, M. Alfaro, C.K. Brinkman, and E.R. Coats, Pilot-scale production of poly-3-hydroxybutyrate-co-3-hydroxyvalerate from fermented dairy manure: Process performance, polymer characterization, and scale-up implications. Bioresource Technology Reports, 2020. 12: p. 100588.

Bryant, C. and E.R. Coats, Integrating Dairy Manure for Enhanced Resource Recovery at a WRRF: Environmental Life Cycle and Pilot-scale Analyses. Water Environ. Res., 2021.

Coats, E.R., \*B. Deyo, \*N. Brower, and C.K. Brinkman, Effects of Anaerobic HRT and VFA Loading on the Kinetics and Stoichiometry of Enhanced Biological Phosphorus Removal. Water Environ. Res., 2021.

### Appendix A

#### **Detailed Expense Report**

Detailed UI Expenditures as of July 7, 2021 and Final Invoices from Subawardees

Please note: This is not a final financial report, because not all expenses have cleared the reporting system. Final financial report will be forthcoming upon grant close-out, including detailed reports from subawardees

IRSA TAB 4 Page 20

7/8/2021

https://vandalweb.uidaho.edu/PROD/gokoutp.P\_ShowReq?pipe\_name=ORA\$PIPE\$04C995EF0001&sess\_id=484596579&user\_name=RENEE

FWRITEM University of Idaho

Itemized Expenditures by Grant Code From 01-JUL-2020 To 08-JUL-2021

			Food Ind-KH	08-Jul-2021 12:11 PM
Salaries				
E4106	Staff			
	Brinkman, Cynthia			8979.78
E/1100	495.02 hours Summer Salary			
E4100	Coats, Erik			2350.32
	33.60 hours			2330.32
	Humes, Karen			21228.48
	288.00 hours			
	McDonald, Armando			11225.76
	156.00 hours			40505 22
	Ryu, Jae 334.46 hours			19585.32
F4109	IA/GA Salary			
L-103	Abbasi, Maryam			19869.76
	992.00 hours			
	Brower, Nicole			17100.00
	912.00 hours			
	Deyo, Brent			22800.00
	912.00 hours			9903.52
	Mellin, Jason 272.00 hours			9903.52
	Pokhrel, Dikshya			7547.40
	420.00 hours			7317110
	Smoot, Lindsey			18700.00
	992.00 hours			
	Thompson, Emily			17245.80
F 44 7 F	780.00 hours			
E41/5	Overtime - Covered Brinkman, Cynthia	a by FLSA		45.59
	5.02 hours			45.59
	3.02 Hours			
				\$ 176581.73
Temnorary	y/Irregular Help			
E4110	Temporary Employe	e		
	Holownia, Sam			2250.00
	125.00 hours			
E4135	Temporary Student			
	Alfaro Salmeron, 0 80.00 hours	Glenda		1500.00

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Black, Edward	5810.75	
539.00 hours		
Brower, Nicole	1125.00	
60.00 hours		
Buonarati, Nickolas	459.25	
41.75 hours		
Crites, Willow	6301.65	
576.00 hours	272.00	
Cutler, Kylie	270.88	
25.00 hours	2000 00	
Deyo, Brent	2000.00	
80.00 hours	1245.75	
Emerick, Austin	1245.75	
116.50 hours Guho, Nicholas	8972.98	
323.00 hours	03/2.30	
Hurdman, Julie	688.50	
38.25 hours	555.55	
Neupane, Saurav	10657.64	
992.00 hours		
Thompson, Emily	6440.00	
280.00 hours		
Walters, Riveraine	10448.00	
434.00 hours		
Woodruff, Craig	3625.00	
145.00 hours		
	\$ 61795.40	
Fringe Benefits		
E4280 Faculty CFR Benefit Expense	16697.67	
E4281 Staff CFR Benefit Expense	3772.59	
E4282 Student CFR Fringe Expense	3627.07	
E4283 Temporary CFR Benefit Expense	177.75	
	\$ 24275.08	
Fravel		
E5360 Personal Vehicle - In-State		
28-SEP-20 I2149392 Ryu, Jae H.	147.53	
20-OCT-20 I2152672 Ryu, Jae H.	190.53	
20-OCT-20 I2152672 Ryu, Jae H.	251.98	
20-OCT-20 I2152672 Ryu, Jae H.	250.36	
20-OCT-20 I2152672 Ryu, Jae H.	251.98	
20-OCT-20 I2152672 Ryu, Jae H.	190.53	
19-NOV-20 I2156564 Ryu, Jae H.	112.70	
20-NOV-20 I2156758 Ryu, Jae H.	150.35	
23-JUN-21 I2184245 Ryu, Jae H.	175.19	
23-JUN-21 I2184245 Ryu, Jae H.	143.68	

ATTACHMENT 8

7/8/2021 https://vandalweb.uidaho.edu/PROD/gokoutp.P ShowReq?pipe name=ORA\$PIPE\$04C995EF0001&sess id=484596579&user name=RENEE E5367 Rental Vehicles - In-State 13-0CT-20 Z1010112 Car Rental Fuel 09142020 26.52 13-0CT-20 Z1010112 Car Rental Fuel 09152020 16.27 13-0CT-20 I2151573 Ryu, Jae H. 87.55 E5396 Lodging & Per Diem ? In State 28-SEP-20 I2149392 Ryu, Jae H. 49.00 13-0CT-20 I2151573 Ryu, Jae H. 26.00 Ryu, Jae H. 23.00 13-0CT-20 I2151573 42.00 I2152672 Ryu, Jae H. 20-0CT-20 20-0CT-20 I2152672 Ryu, Jae H. 49.00 20-0CT-20 I2152672 Ryu, Jae H. 49.00 42.00 20-0CT-20 I2152672 Ryu, Jae H. 20-0CT-20 I2152672 Ryu, Jae H. 49.00 19-NOV-20 I2156564 Ryu, Jae H. 49.00 I2156758 Ryu, Jae H. 49.00 20-NOV-20 23-JUN-21 I2184245 Ryu, Jae H. 49.00 23-JUN-21 I2184245 Ryu, Jae H. 49.00 2520.17 Operating Expenses E5020 Postage & Mailing 13-JAN-21 Z1012991 Shipping materials to graduate stud 28.99 E5023 Express Mail 05-JAN-21 Z1012750 RyuJa 893235 USPS Stamps and mailin 15.40 14-JUN-21 Z1018542 Shipping Charges for the Spectromet 112.80 29-JUN-21 Z1019772 McDonald, A: FedEx shipping costs t 508.27 I2185662 30-JUN-21 Ryu, Jae H. 17.99 30-JUN-21 I2185662 Ryu, Jae H. 17.99 30-JUN-21 I2185662 Ryu, Jae H. 350.00 30-JUN-21 I2185662 Ryu, Jae H. 17.99 E5025 Printing & Binding J1275946 09-SEP-20 Tckt#555840827 iDrone flyr-CALS;bc 150.00 E5070 Conference/Registration Fees 14-DEC-20 Z1012231 RyuJa 701172 Facebook Event registr 10.00 16-DEC-20 Z1012307 AGU Full meeting, advance, non-memb 350.00 16-DEC-20 Z1012307 Student (graduate): Full meeting, A 125.00 I2159740 Thompson, Emily 40.00 17-DEC-20 I2169914 Humes, Karen S.. 150.00 15-MAR-21 20-MAY-21 I2178710 Abbasi, Maryam 495.00 E5152 All Other Services 12-AUG-20 I2143936 Idaho STEM Action Center 1250.00 E5177 Program Fees 05-JAN-21 Z1012750 RyuJa 893235 Register@FAA iDrone re 5.00 E5199 Other Professional Service 20-AUG-20 I2144864 Built by Thrive LLC 1450.00 21-SEP-20 I2148357 Built by Thrive LLC 1450.00 E5320 Software/Applications - Individual 14-APR-21 Z1016016 Stella Architect software license 849.00

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	E5330 Software/	Applications	- College/Dep		
	14-DEC-20	Z1012231	RyuJa 701172 Screencastify Software	29.00	
	18-DEC-20	Z1012417	RyuJa 622558 Amazon Web Services SB	30.87	
	E5560 Technolog	y - Supplies	•		
	25-FEB-21	Z1014270	Printer cartridge for lab. Sales ta	121.58	
	25-FEB-21	Z1014270	Refund for sales tax. Index 820907	-6.88	
	E5640 R&M Sup -	Technology I	nfrastructure		
	23-JUN-21	TC062321	TDX 164787 Switch for Boise Lab 224	327.96	
	E5710 Tools				
	01-MAR-21	Z1014435	A McDonald: laser cutter for resear	389.99	
	10-MAR-21	Z1014808	A McDonald: Bench circular saw for	126.39	
	E5720 Education	al Supplies			
	07-AUG-20	J1274219	JKD/ Phys Mchn Shp Wrk: A.McDonald	373.78	
	21-SEP-20	J1276372	JKD/ Phys Mchn Shp Wrk: A. McDonald	243.31	
	E5724 Research	Supplies	,		
	09-JUL-20	Z1007362	McDonald- purchased this micromanip	62.00	
	09-JUL-20	Z1007362	McDonald-purchased some lab supplie	21.71	
	09-JUL-20	Z1007362	McDonald-purchased these sample hol	160.00	
	09-JUL-20	Z1007362	McDonald-purchased this replacement	73.32	
	14-JUL-20	Z1007430	Charge for bulk fasteners for tank	4.19	
	14-JUL-20	Z1007430	Charge for cylinders, specialty gas	49.50	
	14-JUL-20	Z1007430	Charge for misc. parts and fittings	221.47	
	14-JUL-20	Z1007430	Charge for pipette tips, research s	277.84	
	29-JUL-20	Z1007739	Book: Water in Plain Sight: Hope	15.25	
	29-JUL-20	Z1007739	Books purchased from Amazon: The C	118.97	
	29-JUL-20	Z1007739	Books: The Fate of Food: What We'l	33.18	
	04-AUG-20	Z1007879	McDonald- purchased these glass ext	147.47	
	04-AUG-20	Z1007879	McDonald- supplies for research	369.58	
	04-AUG-20	Z1007879	McDonald-purchased 2 replacement pr	196.52	
	04-AUG-20	Z1007879	McDonald-purchased a small wet/dry	53.97	
	04-AUG-20	Z1007879	McDonald-purchased these DMA access	116.60	
	05-AUG-20	Z1007927	Charge for 1000 round bottom test t	373.70	
	05-AUG-20	Z1007927	Charge for 2 ml vials and caps, 10	360.48	
	05-AUG-20	Z1007927	Charge for lab tape, research suppl	43.23	
	05-AUG-20	Z1007927	Charge for nitrogen test kits, rese	109.83	
	05-AUG-20	Z1007927	Charge for premeasured unit dose re	37.54	
	05-AUG-20	Z1007927	Charge for reagent, research suppli	738.20	
	05-AUG-20	Z1007927	Charge for standards for pH testing	59.34	
	05-AUG-20	Z1007927	Charge for sterile pipettes, resear	61.65	
	05-AUG-20	Z1007927	Charge for wipes, pipettes for lab	308.47	
	18-AUG-20	Z1008276	Charge for enzymes to test for glyc	145.55	
	18-AUG-20	Z1008276	Charge for massive re-stocking of t	3274.96	
	18-AUG-20	Z1008276	Charge for test kits for nitrogen a	456.42	
	18-AUG-20	Z1008276	Charge for two new pH probes, resea	541.95	
	20-AUG-20	I2144934	Ryu, Jae H.	1382.48	
	01-SEP-20	I2146251	Ryu, Jae H.	534.97	
	04-SEP-20	Z1008779	Charge for cable for new VFD contro	63.75	
	04-SEP-20	Z1008779	Charge for cylinders, specialty gas	195.63	
	04-SEP-20	Z1008779	Charge for medium and large nitrile	342.63	

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04-SEP-20	Z1008779	Charge for new key pad for Erik Coa	154.50
04-SEP-20	Z1008779	Charge for new sensor caps for diss	442.75
04-SEP-20	Z1008779	Charge for nitrite reagent powder,	149.07
04-SEP-20	Z1008779	Charge for universal pipette tips,	84.63
08-SEP-20	Z1008846	McDonald- item was not as described	-42.40
08-SEP-20	Z1008846	McDonald- purchased disposable glov	92.37
08-SEP-20	Z1008846	McDonald- purchased some gas fittin	26.50
08-SEP-20	Z1008846	McDonald- purchased some high tempe	12.98
08-SEP-20	Z1008846	McDonald- purchased these quick con	41.87
08-SEP-20	Z1008846	McDonald-disposable gloves for rese	104.00
08-SEP-20	Z1008846	McDonald-purchased some gas fitting	42.40
08-SEP-20	Z1008846	McDonald-purchased these hole-saws	8.19
08-SEP-20	Z1008846	McDonald-purchased this glass grind	110.00
22-SEP-20	Z1009345	RyuJa 305625 Amazon Camera mount an	35.98
22-SEP-20	Z1009345	RyuJa 305625 Amazon Monitor mount a	35.39
22-SEP-20	Z1009345	RyuJa 305625 Amazon Power outlet, t	201.73
22-SEP-20	Z1009345	RyuJa 305625 Amazon Printer pick up	12.50
22-SEP-20	Z1009345	RyuJa 305625 Amazon Table mat neede	58.03
22-SEP-20	Z1009345	RyuJa 305625 Amazon UAS development	127.07
22-SEP-20	Z1009345	RyuJa 305625 Amazon Webcam, network	205.32
22-SEP-20	Z1009345	RyuJa 305625 Costco A small monitor	169.59
22-SEP-20	Z1009345	RyuJa 305625 Costco CAMP office sup	83.72
22-SEP-20	Z1009345	RyuJa 305625 Staples Storage boxes	91.12
22-SEP-20	Z1009354	RyuJa 221612 Amazon Data storage an	31.71
22-SEP-20	Z1009354	RyuJa 221612 Amazon SBOE research p	9.53
22-SEP-20	Z1009354	RyuJa 221612 Amazon SBOE research p	12.77
22-SEP-20	Z1009354	RyuJa 221612 Amazon SBOE research p	22.44
22-SEP-20	Z1009354	RyuJa 221612 Amazon SBOE research p	8.99
22-SEP-20	Z1009354	RyuJa 221612 Amazon SBOE research p	7.99
22-SEP-20	Z1009354	RyuJa 221612 Amazon SBOE research p	-80.55
22-SEP-20	Z1009354	RyuJa 221612 Amazon SBOE research p	203.66
22-SEP-20	Z1009354	RyuJa 221612 Amazon SBOE research p	19.99
22-SEP-20	Z1009354	RyuJa 221612 Amazon SBOE research p	73.17
22-SEP-20	Z1009354	RyuJa 221612 Amazon SBOE research p	65.52
22-SEP-20	Z1009354	RyuJa 221612 Amazon SBOE research p	35.23
22-SEP-20	Z1009354	RyuJa 221612 Amazon SBOE research p	122.14
22-SEP-20	Z1009354	RyuJa 221612 Amazon SBOE research p	10.96
22-SEP-20	Z1009354	RyuJa 221612 Amazon SBOE research p	244.92
22-SEP-20	Z1009354	RyuJa 221612 Amazon SBOE research p	219.94
22-SEP-20	Z1009354	RyuJa 221612 Tower Hobbies SBOE res	13.76
22-SEP-20	Z1009354	RyuJa 221612 Verizon SBOE research	182.82
24-SEP-20	Z1009447	Charge for cylinders, specialty gas	195.63
24-SEP-20	Z1009447	Charge for liners for Erik Coats' G	174.53
24-SEP-20	Z1009447	Charge for new septa for Erik Coats	78.40
29-SEP-20	I2149458	Oxarc Inc.	80.75
29-SEP-20	I2149453	Oxarc Inc.	68.36
01-0CT-20	J1276792	cfc: ct from 691709 to 691680	8.49
02-0CT-20	I2150083	Oxarc Inc.	80.75
08-0CT-20	I2151006	Ryu, Jae H.	8077.76

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09-0CT-20	Z1009984	McDonald- PTFE sheets for research	40.99
09-0CT-20	Z1009984	McDonald- Return of amazon research	-22.60
09-0CT-20	Z1009984	McDonald- items for research	38.34
09-0CT-20	Z1009984	McDonald- purchased this item for r	59.19
09-0CT-20	Z1009984	McDonald- purchased this replacemen	94.34
09-0CT-20	Z1009984	McDonald- sharpening stones for res	22.60
09-0CT-20	Z1009984	McDonald- supplies for research	183.08
09-0CT-20	Z1009984	McDonald-purchased replacement UPS	29.90
09-0CT-20	Z1009984	McDonald-replacement temperature co	20.00
13-0CT-20	I2151582	Ryu, Jae H.	132.32
28-0CT-20	Z1010668	Charge for cylinders, specialty gas	483.22
28-0CT-20	Z1010668	Charge for enzymes for glycogen tes	162.62
28-0CT-20	Z1010668	Charge for metabolites, research su	304.87
28-0CT-20	Z1010668	Charge for metabolites, research su	301.45
28-0CT-20	Z1010668	Charge for metabolites, research su	86.40
28-0CT-20	Z1010668	Charge for vials with screw top cap	360.48
09-NOV-20	Z1011044	McDonald- book for research	13.98
09-NOV-20	Z1011044	McDonald- items purchased for resea	243.61
09-NOV-20	Z1011044	McDonald- items purchased for resea	13.00
09-NOV-20	Z1011044	McDonald- purchased book for resear	7.98
09-NOV-20	Z1011044	McDonald- temperature controller fo	19.74
11-NOV-20	I2155421	Oxarc Inc.	68.36
12-NOV-20	I2155674	Oxarc Inc.	80.75
20-NOV-20	Z1011508	Charge for cylinders, specialty gas	57.00
20-NOV-20	Z1011508	Charge for enzymes for glycogen ana	145.55
20-NOV-20	Z1011508	Charge for metabolites for analysis	453.09
20-NOV-20	Z1011508	Charge for metabolites for analysis	139.41
20-NOV-20	Z1011508	Charge for metabolites for analysis	250.28
20-NOV-20	Z1011508	Charge for new caps for ammonia pro	2634.54
20-NOV-20	Z1011508	Charge for new column for LC/MS to	654.93
03-DEC-20	Z1011818	McDonald- hot blade for research	19.99
03-DEC-20	Z1011818	McDonald- lab supplies for research	38.34
03-DEC-20	Z1011818	McDonald- lab supplies for research	16.00
03-DEC-20	Z1011818	McDonald- lab supplies for research	10.88
03-DEC-20	Z1011818	McDonald- research supplies	194.67
03-DEC-20	Z1011818	McDonald- research supplies	152.87
03-DEC-20	Z1011818	McDonald- steel rulers for the lab	7.98
03-DEC-20	Z1011818	McDonald- supplies for research	321.42
04-DEC-20	I2158036	Oxarc Inc.	80.75
14-DEC-20	Z1012231	RyuJa 701172 Amazon Rubber bands ne	5.18
14-DEC-20	Z1012231	RyuJa 701172 Amazon Weight scale ne	25.02
14-DEC-20	Z1012231	RyuJa 701172 Amazon Wood chips need	27.95
15-DEC-20	Z1012248	Charge for cylinders, specialty gas	195.63
15-DEC-20	Z1012248	Charge for new jugs for wastewater,	39.82
18-DEC-20	Z1012417	RyuJa 622558 Staples Box storage fo	90.91
18-DEC-20	Z1012417	RyuJa 622558 VistaPrint Refund of I	-5.08
18-DEC-20	Z1012417	RyuJa 622558 VistaPrint Refund of I	-3.30
18-DEC-20	Z1012417	RyuJa 622558 VistaPrint Refund of I	-12.46
18-DEC-20	Z1012417	RyuJa 622558 VistaPrint SBOE Stem C	58.30

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18-DEC-20	Z1012417	RyuJa 622558 VistaPrint STEM Camp i	89.75
18-DEC-20	Z1012417	RyuJa 622558 Vistaprint Idaho sales	219.64
05-JAN-21	Z1012750	RyuJa 893235 Amazon Certificate cov	7.11
05-JAN-21	Z1012750	RyuJa 893235 Amazon Certificate pap	41.93
06-JAN-21	I2161260	Oxarc Inc.	80.75
13-JAN-21	Z1012991	Chemicals for research purposes.	183.08
13-JAN-21	Z1012991	Chisel for research purposes.	7.99
13-JAN-21	Z1012991	DSC Sample Pan and Pan Style Lid Ki	475.07
13-JAN-21	Z1012991	Electronic balance for research.	293.22
13-JAN-21	Z1012991	Fastener for research purposes	2.60
13-JAN-21	Z1012991	Filters for research purposes	170.95
13-JAN-21	Z1012991	GCMS septa for research purposes	295.02
13-JAN-21	Z1012991	PurpleAir air monitor for research	288.33
13-JAN-21	Z1012991	Switches and outlets for research.	16.85
04-FEB-21	I2165000	Oxarc Inc.	426.22
04-FEB-21	I2165028	Oxarc Inc.	88.80
19-FEB-21	B1847480	Oxarc Inc.	-80.75
19-FEB-21	I2166735	Oxarc Inc.	80.75
25-FEB-21	Z1014270	Oxarc cylinder rental on index 8209	57.00
25-FEB-21	Z1014270	PGO enzyme kit for research. Index	145.55
26-FEB-21	Z1014361	Bearings for pumps. Index 820907 su	76.40
26-FEB-21	Z1014361	Brush to clean glassware. Index 820	7.19
26-FEB-21	Z1014361	Diffuser stones for bioreactors. In	17.97
26-FEB-21	Z1014361	Gasses for my GC/FID. Index 820907	57.00
26-FEB-21	Z1014361	Gene fragment for conducting RT-qPC	100.91
26-FEB-21	Z1014361	Jugs for wastewater. Index 820907 s	60.93
26-FEB-21	Z1014361	Mechanical seals for pumps. Index 8	58.98
26-FEB-21	Z1014361	New pump for lab bioreactors. Index	450.50
26-FEB-21	Z1014361	New pump for lab reactors. Index 82	413.03
26-FEB-21	Z1014361	Test tubes and caps for research. I	547.40
26-FEB-21	Z1014361	Tubing for lab reactors. Index 8209	9.09
26-FEB-21	Z1014361	pH probes for research. Index 82090	673.95
01-MAR-21	Z1014435	A McDonald: Quartz slides for resea	19.28
01-MAR-21	Z1014435	A McDonald: replacement battery for	4.49
09-MAR-21	I2169187	Oxarc Inc.	80.75
10-MAR-21	Z1014808	A McDonald: label maker, USB hub, r	50.24
10-MAR-21	Z1014808	A McDonald: storage containers for	27.98
07-APR-21	I2172827	Humes, Karen S	31.79
14-APR-21	Z1016039	Caps for DO probes. Index 820907 su	483.95
14-APR-21	Z1016039	Chemicals to inhibit nitrification.	249.21
14-APR-21	Z1016039	DNA fragments for ongoing molecular	110.04
14-APR-21	Z1016039	GC vials and caps for Coats' resear	714.58
14-APR-21	Z1016039	Gas for instruments. Index 820907 s	64.50
14-APR-21	Z1016039	Pump parts for my scale model syste	2628.59
14-APR-21	Z1016039	Wastewater jugs. Index 820907 sueb	40.62
14-APR-21	Z1016039	gene fragments for transcriptomics.	126.63
14-APR-21	I2173614	Oxarc Inc.	80.75
22-APR-21	J1286681	CTMA from 826717 to 820907	369.11
22-APR-21	I2174805	Oxarc Inc.	446.78

**ATTACHMENT 8** 

7/8/2021 https://vandalweb.uidaho.edu/PROD/gokoutp.P\_ShowReq?pipe\_name=ORA\$PIPE\$04C995EF0001&sess\_id=484596579&user\_name=RENEE

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29-APR-21	Z1016653	A McDonald: bolts for research proj	6.24
04-MAY-21	J1287367	JKD/ Phys Shp Wrk: AMcDonald	45.00
10-MAY-21	Z1017010	A McDonald: DSC pans for research	708.89
10-MAY-21	Z1017010	A McDonald: Visitorspc Unctd Ansi f	69.95
10-MAY-21	Z1017010	A McDonald: assorted rubber o-rings	7.19
10-MAY-21	Z1017010	A McDonald: lab supplies: wire whee	12.99
10-MAY-21	Z1017010	A McDonald: lab/woodshop supplies f	34.79
10-MAY-21	Z1017010	A McDonald: lab/woodshop supplies f	37.68
10-MAY-21	Z1017010	A McDonald: microscope slides for 1	11.95
10-MAY-21	Z1017010	A McDonald: pellet die set for rese	92.05
10-MAY-21	Z1017010	A McDonald: pipe fittings for rese	58.44
10-MAY-21	Z1017010	A McDonald: plug for research equip	3.49
10-MAY-21	Z1017010	A McDonald: quick disconnect compre	34.04
10-MAY-21	Z1017010	A McDonald: replacement v-belt for	6.59
10-MAY-21	I2177451	Oxarc Inc.	71.02
10-MAY-21	I2177459	Oxarc Inc.	88.80
24-MAY-21	J1288566	JKD/ Phys Mchn Shp Wrk: McDonald	105.00
24-MAY-21	J1288569	JKD/ Phys Mchn Shp Wrk: McDonald	138.95
28-MAY-21	Z1017886	Electromagnetic flow meters for my	1619.44
28-MAY-21	Z1017886	New redox probe for research. Index	502.95
28-MAY-21	Z1017886	Nitrate test kits and syringes for	1001.90
28-MAY-21	Z1017886	Nitrate test kits. Index 820907 sue	119.25
28-MAY-21	Z1017886	Phosphorus, ammonia, nitrate test k	2018.55
28-MAY-21	Z1017886	Receipt for Oxarc invoice. Index 82	49.50
02-JUN-21	I2180685	Oxarc Inc.	88.80
14-JUN-21	I2182710	Oxarc Inc.	15.00
22-JUN-21	I2183987	Ryu, Jae H.	1799.00
22-JUN-21	I2183987	Ryu, Jae H.	5000.00
22-JUN-21	I2183987	Ryu, Jae H.	380.22
22-JUN-21	I2183987	Ryu, Jae H.	977.07
24-JUN-21	Z1019058	McDonald, A: Ceramic terminal cover	68.45
28-JUN-21	Z1019296	Gasses for GC/FID. Index 820907 bba	49.50
28-JUN-21	Z1019296	pH buffer solutions for probe calib	139.37
29-JUN-21	Z1019577	Book to be used in completing the g	29.95
29-JUN-21	Z1019577	Book: A systems approach to modelin	49.95
29-JUN-21	Z1019577	Book: System approach to Modeling V	49.95
29-JUN-21	Z1019577	Books and computer accessories to b	124.98
29-JUN-21	Z1019577	Calibration and new optical attachm	2599.00
29-JUN-21	Z1019577	Energy Use in Global food productio	121.88
29-JUN-21	Z1019772	McDonald, A: TA sample holder for r	418.70
29-JUN-21	Z1019772	McDonald, A: TMA standard accessory	371.00
29-JUN-21	Z1019772	McDonald, A: polylactic acid pellet	112.05
29-JUN-21	Z1019772	McDonald, A: replacement PTFE react	84.80
29-JUN-21	Z1019772	McDonald, A: replacement gaskets fr	121.80
29-JUN-21	Z1019772	McDonald, A: small fridge needed fo	139.00
30-JUN-21	F0210814	GRT237742- CALS SOIL/H20	-585.00
30-JUN-21	Z1019899	RyuJa 166416 Amazon Research and ed	159.99
30-JUN-21	Z1019899	RyuJa 166416 Amazon Research and ed	125.16
30-JUN-21	Z1019988	Nitrogen test kits. 768.10 on 82090	768.10

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	30-JUN-21	I2185662	Ryu, Jae H.	8.99
	30-JUN-21	I2185662	Ryu, Jae H.	650.00
	30-JUN-21	I2185662	Ryu, Jae H.	864.78
	30-JUN-21	I2185662	Ryu, Jae H.	190.94
	30-JUN-21	I2185662	Ryu, Jae H.	79.95
	30-JUN-21	I2185662	Ryu, Jae H.	1088.00
	30-JUN-21	I2185662	Ryu, Jae H.	1218.99
	30-JUN-21	I2185662	Ryu, Jae H.	4.99
	30-JUN-21	I2185663	Ryu, Jae H.	356.49
	30-JUN-21	I2185663	Ryu, Jae H.	309.99
	30-JUN-21	I2185663	Ryu, Jae H.	1347.99
	30-JUN-21	I2185663	Ryu, Jae H.	90.00
	30-JUN-21	I2185663	Ryu, Jae H.	699.95
	30-JUN-21	I2185663	Ryu, Jae H.	309.99
	06-JUL-21	J1291836	CT/MA from 826703 to 826699	-1347.99
	06-JUL-21	J1291836	CT/MA from 826703 to 826699	-309.99
			Gasses for GC/FID. Index 820907 bba	
	06-JUL-21	Z1020186		49.50
	06-JUL-21	Z1020186	Gloves for laboratory research work	1543.66
	06-JUL-21	Z1020186	New controller for lab operations.	1474.11
	06-JUL-21	Z1020186	Nutrients test kits for IGEM resear	1435.65
	06-JUL-21	Z1020186	Parts for pumps at my scale model w	1450.03
	06-JUL-21	Z1020186	qPCR reagents for ongoing transcrip	2000.54
E:	5741 Med Lab &	• • •		72.02
	13-JUL-20	U0135598	Chemstores/Smoot	73.92
	23-JUL-20	U0135673	Chemstores/Crites	2.70
	04-AUG-20	I2142886	Oxarc Inc.	80.75
	10-AUG-20	U0135767	Chemstores/Abbisa	62.99
	10-AUG-20	U0135768	Chemstores/Abbisa	16.95
	10-AUG-20	U0135769	Chemstores/Crites	16.95
	01-SEP-20	U0135958	Chemstores/Abbasi	13.37
	23-SEP-20	U0136136	Chemstores/Abbissa	75.29
	23-SEP-20	U0136144	Chemstores/Abbissa	60.52
	25-SEP-20	U0136171	Chemstores/Abbissa	58.35
	01-0CT-20	J1276988	cfc: ct from 691709 to 691680	19.45
	02-0CT-20	U0136231	Chemstores/Abbissa	62.99
	06-0CT-20	U0136264	Chemstores/Crites	69.74
	15-0CT-20	U0136349	Chemstores/Guho	36.09
	20-0CT-20	U0136368	Chemstores/Abbissi	33.91
	22-0CT-20	U0120730	Chemstores/Brower	60.90
	23-0CT-20	U0121249	Abbasi	50.86
	26-0CT-20	U0136387	Chemstores/McDonald	19.21
	09-NOV-20	U0136505	Chemstores/Neubane	21.76
	24-NOV-20	I2148563	Fisher Scientific Co.	110.72
	24-NOV-20	I2148546	Fisher Scientific Co.	88.82
	15-JAN-21	U0136853	Chemstores/Smoot	39.87
	29-JAN-21	U0137007	Chemstores/Abissa	11.19
	29-JAN-21	U0137017	Chemstores/Smoot	29.32
	12-FEB-21	U0137139	Chemstoes/McDonald	37.04
	22-FEB-21	U0137189	Biostore/Brinkman	195.86

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24-MAR-21	U0137411	Chemstores/Peters	87.74	
17-MAY-21	U0137815	Chemstores/Abbasi	13.06	
07-JUN-21	U0137944	Chemstores/Peters	22.98	
10-JUN-21	U0137986	Chemstores/Black	93.39	
E5747 Safety		enems cor es, brack	33.33	
10-MAR-21	Z1014808	A McDonald: galvanized safety can f	30.00	
	Machinery & Eq	-	30.00	
01-JUN-21	I2180550	Culligan Water Conditioning	29.95	
01-JUL-21	I2185873	Culligan Water Conditioning	29.95	
01 301 21	12103073	culligan water conditioning		
			\$ 86662.06	
Subawards				
	rd 1 Expenses	B	24046 22	
06-NOV-20	I2154863	Boise State University	24016.80	
21-DEC-20	I2160003	Boise State University	5033.24	
21-DEC-20	I2160004	Boise State University	7119.96	
09-FEB-21	I2165725	Boise State University	5682.39	
26-FEB-21	I2167676	Boise State University	4981.14	
19-MAR-21	I2170575	Boise State University	14500.61	
14-MAY-21	I2178317	Boise State University	11071.18	
14-MAY-21	I2178320	Boise State University	15468.67	
11-JUN-21	I2182512	Boise State University	28847.79	
ES002 Subawai	rd 2 Expenses			
19-MAR-21	I2170470	Idaho State University	59513.70	
28-JUN-21	I2184831	Idaho State University	64554.89	
			\$ 240790.37	
Small Equipment	• • •			
	fice Furniture			
05-AUG-20	Z1007927	Charge for 2 adjustable swivel bar	84.79	
			\$ 84.79	
Tuition Remission	on and Training			
E7140 Tuitio	n and Fees - Gr	ad Assistants		
14-AUG-20	J1274562	G1GB for 171-55579	786.00	
14-AUG-20	J1274562	SHI1 for 171-55579	951.00	
14-AUG-20	J1274562	T1GB for 171-55579	4152.00	
21-AUG-20	J1274874	G1GB for V00664521	786.00	
21-AUG-20	J1274874	SHI1 for V00664521	951.00	
21-AUG-20	J1274874	T1GB for V00664521	4152.00	
21-AUG-20	J1274874	VVSF for V00664521	100.00	
02-SEP-20	J1275593	G1HD for 142-24168	43.50	
02-SEP-20	J1275593	N1HD for 142-24168	534.50	
02-SEP-20	J1275593	SHI1 for 142-24168	475.50	
02-SEP-20	J1275593	T1HD for 142-24168	231.00	
08-SEP-20	J1275909	G1GA for 151-29182	786.00	

**ATTACHMENT 8** 

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08-SEP-20	J1275909	G1GB for 051-04535	786.00
08-SEP-20	J1275909	G1GB for 151-22411	786.00
08-SEP-20	J1275909	T1GA for 151-29182	4152.00
08-SEP-20	J1275909	T1GB for 051-04535	4152.00
08-SEP-20	J1275909	T1GB for 151-22411	4152.00
28-0CT-20	J1278784	G1GB for V00665494	786.00
28-0CT-20	J1278784	SHI1 for V00665494	951.00
28-0CT-20	J1278784	T1GB for V00665494	4152.00
28-0CT-20	J1278784	VVSF for V00665494	100.00
06-JAN-21	J1281486	G2GB for 171-55579	786.00
06-JAN-21	J1281486	SHI2 for 171-55579	951.00
06-JAN-21	J1281486	T2GB for 171-55579	4152.00
08-JAN-21	J1281710	G2GA for 151-29182	786.00
08-JAN-21	J1281710	G2GB for 051-04535	786.00
08-JAN-21	J1281710	G2GB for 151-22411	786.00
08-JAN-21	J1281710	T2GA for 151-29182	4152.00
08-JAN-21	J1281710	T2GB for 051-04535	4152.00
08-JAN-21	J1281710	T2GB for 151-22411	4152.00
14-JAN-21	J1281351	G2GB for V00665494	786.00
14-JAN-21	J1281351	SHI2 for V00665494	951.00
14-JAN-21	J1281351	T2GB for V00665494	4152.00
14-JAN-21	J1281351	VVSF for V00665494	100.00
01-FEB-21	J1282802	G2HD for 142-24168	43.50
01-FEB-21	J1282802	N2HD for 142-24168	534.50
01-FEB-21	J1282802	SHI2 for 142-24168	475.50
01-FEB-21	J1282802	T2HD for 142-24168	231.00
20-MAY-21	J1288392	RSN3 for 151-22411	137.25
20-MAY-21	J1288396	RSN3 for 051-04535	137.25
20-MAY-21	J1288398	G3HA for 151-29182	87.00
20-MAY-21	J1288398	T3HA for 151-29182	462.00
21-MAY-21	J1287827	G3HB for V00665494	87.00
21-MAY-21	J1287827	T3HB for V00665494	462.00
01-JUN-21	J1288997	cfc: ct from 820928 to 82	20907 137.25
			\$ 63451.75
	Tot	al Expenses	\$ 656161.35
FWRITEM	100	University of Idaho	\$ 000101.00
LMK11 FM		d Expenditures by Grant Code	•
	From	01-JUL-2020 To 08-JUL-2021	
Grant: SG4609 - 1		21 Sustain Food Ind-KH	08-Jul-2021 12:11 PM
Salaries			
E4106 Staff			
	n, Cynthia		8979.78
	.02 hours		
E4108 Summer			
	-		

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11/14

7/8/2021		https://vandalweb.uidaho.edu/PROD/gokoutp.P_ShowReq?pipe_name=ORA\$PIPE\$04C995E	F0001&sess_id=484596579&user_name=RENEE
	Coats, Erik	2350.32	
	33.60 hours		
	Humes, Karen	21228.48	
	288.00 hours		
	McDonald, Armand		
	156.00 hours		
	Ryu, Jae	19585.32	
	334.46 hours		
F4109	IA/GA Salary	,	
L-103	Abbasi, Maryam	19869.76	
	992.00 hours		
	Brower, Nicole	17100.00	
	912.00 hours		
	Deyo, Brent	22800.00	
	912.00 hours		
	Mellin, Jason	9903.52	
	-		
	272.00 hours		
	Pokhrel, Dikshya		
	420.00 hours	18700.00	
	Smoot, Lindsey		
	992.00 hours		
	Thompson, Emily	17245.80	
F 417F	780.00 hours		
E41/5	Overtime - Cover		
	Brinkman, Cynthi		
	5.02 hours		
		\$ 176581.73	
		¥ =/333=1/3	
Temporary	y/Irregular Help		
	Temporary Employ	/ee	
	Holownia, Sam	2250.00	
	125.00 hours		
E4135	Temporary Studen		
	Alfaro Salmeron,		
	80.00 hours		
	Black, Edward	5810.75	
	539.00 hours		
	Brower, Nicole	1125.00	
	60.00 hours		
	Buonarati, Nicko		
	41.75 hours		
	Crites, Willow	6301.65	
	576.00 hours		
	Cutler, Kylie	270.88	
	25.00 hours		
	Deyo, Brent	2000.00	
	80.00 hours		
	Emerick, Austin	1245.75	
	zme. zek, nastin	12-3.73	

# INSTRUCTION, RESEARCH AND STUDENT AFFAIRS FEBRUARY 17, 2022

**ATTACHMENT 8** 

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	. ==
116.50 hours	
Guho, Nicholas	8972.98
323.00 hours Hurdman, Julie	688.50
38.25 hours	008.50
Neupane, Saurav	10657.64
992.00 hours	
Thompson, Emily	6440.00
280.00 hours	
Walters, Riveraine	10448.00
434.00 hours Woodruff, Craig	3625.00
145.00 hours	3023.00
113100 110413	
	\$ 61795.40
Fringe Benefits	
E4280 Faculty CFR Benefit Expense	16697.67
E4281 Staff CFR Benefit Expense	3772.59
E4282 Student CFR Fringe Expense E4283 Temporary CFR Benefit Expense	3627.07 177.75
E4283 Temporary CFR Benefit Expense	1/7.73
	\$ 24275.08
	,
Travel	
E5360 Personal Vehicle - In-State	
E5367 Rental Vehicles - In-State	
E5396 Lodging & Per Diem ? In State	
	\$ 2520.17
	\$ 2320.17
Operating Expenses	
E5020 Postage & Mailing	
E5023 Express Mail	
E5025 Printing & Binding	
E5070 Conference/Registration Fees	
E5152 All Other Services	
E5177 Program Fees	
E5199 Other Professional Service	
E5320 Software/Applications - Individual E5330 Software/Applications - College/Dep	
E5560 Technology - Supplies	
E5640 R&M Sup - Technology Infrastructure	
E5710 Tools	
E5720 Educational Supplies	
E5724 Research Supplies	
E5741 Med Lab & Tech Supplies	
E5747 Safety Supplies	
E5910 Rent - Machinery & Equip	

## INSTRUCTION, RESEARCH AND STUDENT AFFAIRS FEBRUARY 17, 2022

**ATTACHMENT 8** 

7/8/2021

https://vandalweb.uidaho.edu/PROD/gokoutp.P\_ShowReq?pipe\_name=ORA\$PIPE\$04C995EF0001&sess\_id=484596579&user\_name=RENEE

\$ 86662.06

Subawards

ES001 Subaward 1 Expenses ES002 Subaward 2 Expenses

\$ 240790.37

Small Equipment (<\$5K)</pre>

E7951 <5K Office Furniture

\$ 84.79

Tuition Remission and Training

E7140 Tuition and Fees - Grad Assistants

\$ 63451.75

\_\_\_\_\_

Total Expenses

\$ 656161.35



## **Final Invoice**

105323

Invoice Date	Invoice Amount	Due Date
6/8/2021	\$28,847.79	Payment due upon receipt

**Bill To** 

University of Idaho 875 Perimeter Dr

Moscow, ID 83844 US

Attn: Kay Dee Holmes

Sponsor Award Number	Project Title	Department Number	BSU Award Number	Project Number	Invoice Period
SGA609-877862	Sustaining the Competitiveness of the Food Industry in Southern Idaho YR 3	70600	3221007	2000001742	5/1/2021 to 6/30/2021

Category	Budget	Current Expenditures	Cumulative Expenditures	Remaining Budget
Salary	\$ 80,963.00	\$ 17,691.24	\$ 73,798.36	\$ 7,164.64
Fringe	\$ 10,106.00	\$ 2,231.32	\$ 11,293.78	\$ -1,187.78
Other Expense	\$ 13,000.00	\$ 8,925.23	\$ 12,353.64	\$ 646.36
Student Costs	\$ 19,276.00	\$ 0.00	\$ 19,276.00	\$ 0.00

Original Budget	Total Current Expenditures	Total Expenditures	Remaining Budget
\$ 123,345.00	\$ 28,847.79	\$ 116,721.78	\$ 6,623.22

Total Expenditures:	\$ 116,721.78
Less: Revenue Received:	\$ 87,873.99
Less: Outstanding Invoices:	\$ 0.00
Amount Now Due:	\$ 28,847.79

Where required for federal or federal flow-through agreements, by signing this report, I certify to the best of my knowledge and belief that the report is true, complete, and accurate, and the expenditures, disbursements and cash receipts are for the purposes and objectives set forth in the terms and conditions of the Federal award. I am aware that any false, fictitious, or fraudulent information, or the omission of any material fact, may subject me to criminal, civil or administrative penalties for fraud, false statements, false claims or otherwise. (U.S. Code Title 18, Section 1001 and Title 31, Sections 3729-3730 and 3801-3812).

Please direct questions regarding this invoice to Diana Smlatic at postaward@boisestate.edu.

By Mail:

### Payment Options ACH/Wire Payments:

Boise State University
1910 University Drive
Account Number:
Account Number:
20000011141546

JPMorgan Chase
ACH Routing Number:
028000024
Wire Routing Number:
021000021

Please reference invoice number on electronic payments

IRSA TAB 4 Page 35



### ESTIMATED FINAL INVOICE

For information regarding this invoice contact:
Aaron Tolman
(208) 282-3056

Karen Humes University of Idaho 875 Perimeter Dr. MS 1026 Moscow, ID 83844-1026 (208)885-7230

Date Prepared: June 10, 2021

Award Number: SG-3587-SB-877869
Invoice No.: RGEO2R-10
Reference invoice number on payment.

PERIOD COVERED: 03/01/2021 - 06/30/2021

CUMULATIVE	(Over)/Under
EXPENSES	BUDGET
\$101,310.04	\$0.00
\$8,499.59	\$0.41
\$0.00	\$0.00
\$9,925.96	\$0.00
\$1,833.00	\$0.00
\$2,500.00	\$0.00
\$124,068.59	\$0.41
<u> </u>	7

#### PLEASE NOTE

The Total Now Due represents the current billing amount and any prior billings that have not yet been received as of the invoice date. If you have already sent payment for an invoice listed as billed-not received, please remit the CURRENT expense amount rather than the cumulative total. THANK YOU!

Lisa Wood, Director Sponsored Programs Accounting

Please make remittances payable to Idaho State University and remit to:

921 South 8th Avenue, Stop 8219 Pocatello, ID 83209-8219

### IGEM19-002



### **Final Report**

**IGEM # 19-002: Nucleic Acid Memory** 

Will Hughes

Chad Watson

Tim Andersen

Eric Hayden

Wan Kuang

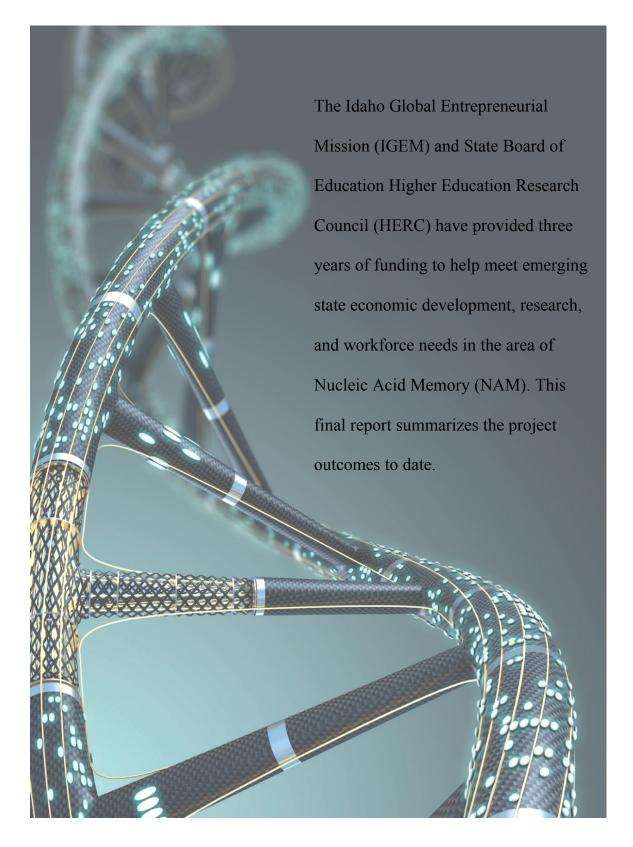
George Dickinson

Will Clay

Luca Piantanida

Mike Tobiason

IRSA TAB 4 Page 37



### I. Executive Summary

According to our theoretical study with Micron, Harvard, and the Semiconductor Research Corporation<sup>1</sup>, DNA has a retention time that ranges from thousands to millions of years, 1 kg of DNA can store the projected digital universe in 2040, and DNA's energy of operation is 100 million times less than current electronic memory. As a result, nucleic acid memory has become a global conversation, a national investment, an industrial opportunity, and a local strength in Idaho. With support from IGEM/HERC, <u>our vision</u> was to prototype a digital data storage paradigm by designing, building, and testing non-volatile nucleic acid memory (NAM) technologies that are inspired by DNA circuits and made possible by innovations in DNA nanotechnology. The focal point for this research was to prototype digital nucleic acid memory (dNAM), a storage medium where data is encoded into the physical address of DNA strands within a DNA origami breadboard.

<u>To achieve working implementations of the dNAM prototype</u>, our team prioritized the following objectives: NAM coding (*objective 1*), NAM sequences (*objective 2*), NAM scaffolds (*objective 3*), NAM fabrication (*objective 4*), and NAM reading (*objective 5*). The following deliverables are aligned to the project objectives and have been coded to reflect progress on each. Green, yellow and red mean that the deliverable has respectively been accomplished, has been partially accomplished, and has not been accomplished. The red deliverables have not been accomplished for two important reasons: (1) the seqNAM prototype in *objective 5* was replaced with a new technique called <sub>3D</sub>NAM – which is described below. In addition, selective area immobilization in *objective 4* was unnecessary once our computer algorithms compensated for the orientation of the DNA nanostructures.

Objective	Year	Original Deliverable (progress to date)
1		An information encoding/decoding algorithm for dNAM
1	2	An information encoding/decoding algorithm for seqNAM
	1	A high-throughput data pipeline for metrics-based optimization of data cells
2	2	Sets of optimized codons and words for seqNAM data encoding
	3	Optimized insertion sequences for custom scaffold synthesis
3		Create viable phage modules from E.coli
3	2	Validate phage genomes for use in DNA origami synthesis
	1	Process for design and fabrication of DNA origami storage nodes
4	2	Protocols for statistical correlated AFM/SRM defect metrology in DNA origami
	3	Protocols for selective area immobilization of DNA origami
	1	Optical readout of dNAM
5	2	Optical readout of seqNAM
	3	3 nm imaging resolution for SRM

IRSA TAB 4 Page 39

<u>Summarized here are products created during the award period</u>, including patents, journals, commentaries, news briefs, software packages, select presentations, dissertations, and a company. Items highlighted in blue were accomplished since the last reporting period.

Product	Status	Details
Patent	filed	NUCLEIC ACID MEMORY (NAM) / DIGITAL NUCLEIC ACID MEMORY (DNAM): The present application claims priority to the earlier filed U.S. Provisional Application having Serial No. 62/705,995, and hereby incorporates subject matter of the provisional application in its entirety. The invention relates generally to nucleic acid memory (NAM). More specifically, the invention relates to digital Nucleic Acid Memory (dNAM) which use a nucleic acid architecture to create a physical address by providing docking sites for single stranded nucleic acid for information processing. The invention further relates to methods for enhanced data retention and retrieval and systems for use.
Journal	published	Dickinson, G.D., Mortuza, G.M., Clay, W., Piantanida, L., Green, C.M., Watson, C., Hayden, E.J., Andersen, T., Kuang, W., Graugnard, E., Zadegan, R. Hughes, W.L. An alternative approach to nucleic acid memory. <i>Nature Communications</i> 12, 2371 (2021).
Journal	published	Green, C.M., Hughes, W.L., Graugnard, E., Kuang, W. Correlative Super-Resolution and Atomic Force Microscopy of DNA Nanostructures and Characterization of Addressable Site Defects. ACS Nano Article ASAP
Journal	submitted	M. Tobiason, B. Yurke, W.L. Hughes, "Generation of DNA Oligonucleotides with Similar Hybridization Rates," <b>Nucleic Acid Research</b> , Submitted 2021.
Journal	in preparation	Llewellyn, S., Mortuza, G., Guerrero, J., Suyehira, K., Hughes, W.L., Andersen, T., Zadegan, R. Algorithms for Digital Data Storage in Nucleic Acid Memory, Summer 2021 Submission Goal.
Commentary	published	G. Dickinson, L. Piantanida, W.L. Hughes, "DNA 'Lite-Brite' is a promising way to archive data for decades or longer," The Conversation, May 10, 2021. https://theconversation.com/dna-lite-brite-is-a-promising-way-to-archive-data-for-decades-or-longer-157856
Commentary	accepted	L. Piantanida, W.L. Hughes, "A PCR-free approach to random access in DNA," <b>Nature Materials</b> , Accepted 2021 (NM21051571A).
News	published	NSF Research News – Researchers advance DNA as a storage material, May 13, 2021. www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=302717&org=NSF&from=news
News	published	Chemical & Engineering News – Method offers new approach to DNA data storage, April 29, 2021. https://cen.acs.org/biological-chemistry/dna/Method-offers-new-approach-DNA/99/i16
Software	open- access	The DeviceProfiler (DevPro) program by Michael Tobiason calculates the fitness of an existing set of DNA oligonucleotides (oligos). https://github.com/MTobiason/Sequence-Analysis
Software	open- access	The SequenceEvolver (SeqEvo) program by Michael Tobiason generates fit sets of DNA oligos. https://github.com/MTobiason/Sequence-Analysis
Software	open- access	The NAM program by Golum Mortuza encodes, decodes, and performs error correction on nucleic acid memory. https://github.com/BoiseState/NAM
Presentation	poster	Amanda Wolf, Sarah E. Kobernat, Luca Piantanida, Eric J. Hayden. DNA origami FRET Ruler for Nucleic Acid Memory. Idaho Conference on Undergraduate Research, virtual, July 21-22, 2021.
Presentation	poster	Benjamin Balzer, Amanda Wolf, Sarah E. Kobernat, Luca Piantanida, Eric J. Hayden. Enhancement of Digital Nucleic Acid Memory by Customizing DNA Origami Scaffolds. Idaho Conference on Undergraduate Research, virtual, July 21-22, 2021.
Presentation	oral	Christopher M. Green, William L. Hughes, Elton Graugnard and Wan Kuang. Correlative DNA-PAINT/AFM Microscopy of DNA Nanostructures and Characterization of Addressable Sites, FNANO 2021: 18th Annual Conference Foundations of Nanoscience, April 12–14, 2021.
Presentation	oral	George D. Dickinson, Golam Md Mortuza, William Clay, Luca Piantanida, Christopher M. Green, Chad Watson, Eric J. Hayden, Tim Andersen, Wan Kuang, Elton Graugnard, Reza Zadegan and William L. Hughes. Digital Nucleic Acid Memory: A New Approach to DNA-based Data Storage, FNANO 2021: 18th Annual Conference Foundations of Nanoscience, April 12–14, 2021.

Presentation	oral	Luca Piantanida. Digital Nucleic Acid Memory, ASU Center of Molecular Design & Biomimetics Annual Symposium, June 6-9, 2021.		
Presentation	oral	G.D. Dickinson, G.M. Mortuza, W. Clay, L. Piantanida, C.M. Green, C. Watson, E.J. Hayden, T. Andersen, W. Kuang, E. Graugnard, R. Zadegan, and W.L. Hughes, "Digital Nucleic Acid		
Presentation	poster	Memory" <i>TECHCON</i> , September 15-17, 2020.  Sarah Kobernat, George Dickinson, William Clay, Luca Piantanida, Chad Watson, Tim Andersen, Wan Kuang, William Hughes, and Eric Hayden. "Improving DNA origami through scaffold optimization" <i>26th International Conference on DNA Computing and Molecular Programing</i> , September 14–17, 2020.		
Presentation	poster	Sarah Kobernat, George Dickinson, William Clay, Luca Piantanida, Chad Watson, Tim Andersen, Wan Kuang, William Hughes, and Eric Hayden. "Improving DNA origami through scaffold optimization" 26th International Conference on DNA Computing and Molecular Programing, September 14–17, 2020.		
Presentation	oral and poster	M. Tobiason, B. Yurke, and W.L. Hughes (2019). Engineering Kinetically Uniform DNA Devices, 2019 TECHCON conference presented by the SRC. Austin, Texas.		
Presentation	poster	M. Tobiason, B. Yurke, and W.L. Hughes (2019). Engineering Kinetically Uniform DNA Sequences, 25 <sup>th</sup> International Conference on DNA Computing and Molecular Programing (DNA25). Seattle, Washington.		
Presentation	poster	M. Tobiason, B. Yurke, and W.L. Hughes (2019). Engineering Kinetically Reproducible DNA Devices, 16 <sup>th</sup> Annual Conference on Foundations of Nanoscience: Self-Assembled Architectures and Devices (FNANO19). Snowbird, UT.		
Presentation	poster	M. Tobiason, B. Yurke, and W.L. Hughes (2019). Engineering Kinetically Reproducible DNA Devices, Semiconductor Research Corporation: Semiconductor Synthetic Biology (SemiSynBio) Annual Review. College Park, MD.		
Presentation	oral and poster	C.M. Green, M. Tobiason, R.M. Zadegan, W.L. Hughes (2019). Nucleic Acid Memory, Semiconductor Research Corporation: Semiconductor Synthetic Biology (SemiSynBio) Annual Review, College Park, MD.		
Presentation	poster	C.M. Green, G. Dickinson, R.M. Zadegan, W.L. Hughes, E. Graugnard, W. Kuang (2019). Correlative metrology and defect analysis of DNA origami, <i>Semiconductor Research Corporation: Semiconductor Synthetic Biology (SemiSynBio) Annual Review</i> , College Park, MD.		
Presentation	oral	W. Clay, G. Dickinson, L. Piantanida, C. Watson, W.L. Hughes, W. Kuang, "Real-Time Drift Correction for Super-Resolution Microscopy using Multiple Tracking Markers" <i>TECHCON</i> , September 15-17, 2020.		
Presentation	oral	Christopher M. Green, William L. Hughes, Elton Graugnard and Wan Kuang. Correlative DNA-PAINT/AFM Microscopy of DNA Nanostructures and Characterization of Addressable Sites, FNANO 2021: 18th Annual Conference Foundations of Nanoscience, April 12–14, 2021.		
Dissertation	published	Green, Christopher Michael, Nanoscale Optical and Correlative Microscopies for Quantitative Characterization of DNA Nanostructures (2019). <i>Boise State University Theses and Dissertations</i> . 1639.		
Dissertation	published	Tobiason, Michael D., In Silico Sequence Optimization for the Reproducible Generation of DNA Structures (2019). <i>Boise State University Theses and Dissertations</i> . 1614.		
Dissertation	published	Burden, Steven J., The Development of Nucleic Acid Biosensors with Allosteric Fluorescence Signals (2019). <i>Boise State University Theses and Dissertations</i> . 1627.		
Dissertation	published	Suyehira, Kelsey, "Using DNA For Data Storage: Encoding and Decoding Algorithm Development" (2018). <i>Boise State University MS Thesis</i> .10.18122/td/1500/boisestate		
Company	launched	Facible is a purpose-driven biodiagnostic technology company focused on a new hospital-grade fast track test that offers speed, accessibility, and accuracy. Steven Burden is the founder and CEO of the company, which includes 25 employees.		

Based on the above listed outcomes, the Nucleic Acid Memory (NAM) Institute at Boise State was invited to join the DNA Data Storage Alliance. The alliance is the first and most extensive bridge between industry and academic organizations that are pioneering DNA data storage. Its mission is to "create and promote an interoperable storage ecosystem based on DNA as a data storage medium". The alliance will recommend the creation of specifications and standards (e.g., encoding, reliability, retention, file systems) which enable end-users to add interoperable DNA-based storage solutions to their existing storage hierarchies. The founders include Illumina, Twist Biosciences, Western Digital, and Microsoft. Member organizations include but are not limited to: Ansa Biotechnologies, Battelle, Catalog, The Cloude Nobs Foundation, DNA Script, EPFL, ETH Zurich, Imagene, IMEC, Iridia, Kioxia, Molecular Assemblies, PFU, Quantitative Scientific Solutions, Quantum, Seagate, Semicondcutor Research Corporation, Spectra Logic, University of Arizona, University of Washington, Digital Preservation, Oligo Archive, Lost Alamos National Laboratory, Cinémathèque Suisse, 21e8, DNAli, and University of Marburg. This network is critical as Boise State attempts to license the NAM intellectual property and/or the research team spins-off companies in the memory/biotechnology arena.

<u>Supported by this research project</u>, Steven Burden (founder/CEO) and Clementine Gibard Bohachek (co-founder/CSO) spun-off Facible, a biodiognostics company in Boise that has 25 employees and is seeking FDA approval for a novel COVID-19 screening technology. In service to future generations of biotechnology start-ups in Idaho, Facible and the Nucleic Acid Memory Institute are actively exploring the creation of a biotech incubator in Boise.

<sup>&</sup>lt;sup>1</sup> V. Zhrinov, R. Zadegan, G. Sandu G.M. Church, W.L. Hughes, "Nucleic Acid Memory," **Nature Materials**, 15, 366-370 (2016). doi.org/10.1038/nmat4594

<sup>&</sup>lt;sup>2</sup> M. Tobiason, B. Yurke, W.L. Hughes, "Generation of DNA Oligonucleotides with Uniform Structure Formation," **Nucleic Acid Research**, Submitted 2021.

<sup>&</sup>lt;sup>3</sup> C.M Green, W.L. Hughes, E. Graugnard, W. Kuang, "Correlative DNA-PAINT/AFM Microscopy for Characterization of Strand Defects in DNA Nanostructures," **ACS NANO**, Accepted 2021 (nn-2021-01976x).

<sup>&</sup>lt;sup>4</sup> G.D. Dickinson, G.M. NatureMortuza, W. Clay, L. Piantanida, C.M. Green, C. Watson, E.J. Hayden, T. Andersen, W. Kuang, E. Graugnard, R. Zadegan, and W.L. Hughes; An Alternative Approach to Nucleic Acid Memory, **Nature Communications**, vol 12, number 2371, 2021 (doi.org/10.1038/s41467-021-22277-y).

## II. Technical Summary

To realize our vision, we report the successful use of in-silico fitness score optimization to generate DNA sequences for dNAM with similar hybridization rates. Three optimization criteria were utilized: a network fitness score (N) where points are accumulated for interoligo secondary structures, an oligo fitness score (O) where points are accumulated for intra-oligo secondary structures, and a class of weighted fitness scores (W) which are linear combinations of N and O. Hybridization rates for both optimized and non-optimized oligosets were experimentally characterized and compared. A total of 144 hybridization rates were measured using fluorescent quenching and reported. For a duplex-formation reaction, W-fit oligo-sets were found to exhibit Arrhenius temperature dependence with consistent Arrhenius parameters. However, non-optimized oligo-sets exhibited an Arrhenius temperature dependence with variable Arrhenius parameters for the same duplexformation rate. Optimization was observed to substantially decrease hybridization-rate variation, with three W-fit oligo-sets exhibiting typical hybridization-rate dispersions of ± 7.7% (duplex-formation) and  $\pm$  14% (strand-displacement). For the duplex-formation of both optimized and non-optimized oligo-sets, a very strong linear relationship between the two Arrhenius parameters was observed, indicating that this model may be over parameterized. For comparison, an alternative model describing the experimental data using a single variable parameter was derived. Further analysis of hybridization rates reported in the literature indicated a statistically significant (p < 0.05) correlation between decreasing O values and decreasing hybridization-rate dispersion in five separate datasets. This work has been submitted to Nucleic Acids Research<sup>2</sup>. The resulting computer programs created for this study (DevPro / SeqEvo) are freely available for academic use and can design NAM prototypes with predictable kinetic performance.

To further realize our vision, we developed a metrology technique for analyzing defects in DNA-origami that combined super resolution microscopy (SRM) and atomic force microscopy (AFM); achieving strong correlations between structures visualized with both tools<sup>3</sup>. With the ability to detect single molecules, we resolved data sites with: (1) no observed defects in AFM and SRM ( $74 \pm 2\%$ ), (2) defects observed in AFM only ( $8 \pm 2\%$ ), (3) defects observed in SRM only ( $16 \pm 1\%$ ), and (4) defects observed in AFM and SRM ( $2 \pm 1\%$ ). In doing so, we observed that unresolved data sites in the SRM images are not strongly correlated with defects seen with AFM, revealing that most site defects do not arise from unicorporated strands but from strands that are present in the structure, and are most likely damaged due to photo-oxidation and UV damage. Our analysis indicates that there is significant room for progress in the design of data sites to overcome strand defects. We believe this method, in conjunction with the software tools above, will extract defect mechanisms and inform new design principles for increasing the yield and fidelity of NAM prototypes.

The culmination of the above listed research was published in Nature Communications<sup>4</sup>, where we encoded 'Data is in our DNA\n' into dNAM. In dNAM, data is encoded by selecting combinations of single-stranded DNA with (1) or without (0) docking-site domains. When self-assembled with scaffold DNA, staple strands form DNA origami breadboards. Information encoded into the breadboards is read by monitoring the binding of fluorescent imager probes using SRM. To enhance data retention, a custom multi-layer error correction scheme that combined fountain and bi-level parity codes was used. Each origami encoded unique data-droplet, index, orientation, and error-correction data. The error-correction algorithms fully recovered the message when individual docking sites, or entire origami, were missing. Our prototype achieved an areal density of 1000 Gbit/cm<sup>2</sup>. After accounting for using 2/3 of the bits for indexing and error correction, this resulted in an areal data density of 330 Gbit/cm<sup>2</sup>. Although relevant only for reading throughput, for comparison, recent advancements in tape report an areal information density of 31 Gbit/cm<sup>2</sup>. Unlike other approaches to DNA data storage, reading dNAM did not require sequencing. As such, the technology offers a novel approach to explore NAM viability.

To improve our data density, we designed, built, and started to optimize a custom SRM system that is capable of 3 nm resolution. Our design is highly rigid with no moving parts and is compatible with the enclosures and vibration isolation tables traditionally used to stabilize scanning probe microscopes. We also replaced seqNAM with 3DNAM. Briefly described, 3DNAM integrates time-correlated SRM and DNA self-assembly to read nonvolatile information with sub 5 nm lateral and 1 nm axial resolution. To enable timecorrelated imaging measurements, we developed a TCI array in a 180nm semiconductor process provided by a commercial foundry (X-FAB). We also used an industry standard toolset (Cadence) to simulate and verify the design of our imager. X-FAB provided a comprehensive model of the SPAD to enable co-simulation with our design. The photon detection efficiency of our SPAD is around 25%, near the minimum required for our application. We anticipate improving this to 50% in our next revision due to refinements in the fabrication process by X-FAB. We submitted our design for fabrication in January 2021 and received the bare imager die in June 2021. We are in the process of packaging the die for benchtop characterization and then microscope integration. Back of the envelope calculations indicate that 3DNAM could have information densities above 10 Tbit/cm<sup>2</sup> and read speeds over 56 Tbit/day. It also has the potential to be used as a new sequencing technology. Regardless if this can be achieved, the time correlated imager we are creating has potential for commercial development. Single photon detection and precision timing capabilities are only available as bulky and low-throughput devices. Thus, by developing TCI, we are not only providing an enabling technology for 3DNAM, but are also addressing an unmet commercial need for this class of scientific instrumentation.

What follows are select project accomplishments that reinforce the technical summary.

## **III.** Project Accomplishments

## **Objective 1: NAM Coding**

### 1. Introduction

Objective 1 addresses the development and testing of algorithms for encoding and decoding information stored in NAM prototypes, which are robust to high levels of insertion, deletion, and substitution errors, and, in the case of seqNAM, which avoid biologically deleterious sub-sequences. Both objectives have been met, with encoding/decoding algorithms developed for both seqNAM and dNAM, and validated with in-silico simulations, as well as wet-lab experiments.

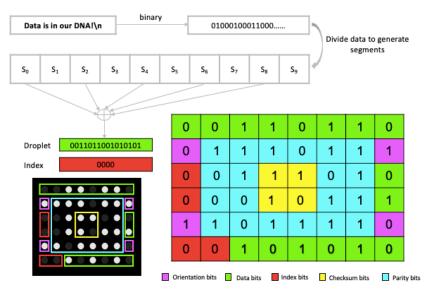
## 2. Deliverables

Objective	Deliverables
1A	An information encoding/decoding algorithm for dNAM (year 1)
1B	An information encoding/decoding algorithm for seqNAM (year 2)

## 3. Most significant results, outcomes and deliverables.

<u>Deliverable 1A</u> — An information encoding and decoding algorithm for dNAM. Robust dNAM-specific information encoding and decoding algorithms were developed and validated. With dNAM, the presence and absence of individual DNA molecules (staple strands) on a DNA-origami scaffold is used to store bit values. These bit values, i.e. the presence/absence of the DNA staple strands at various locations on the origami surface, are read using SRM, which is subject to relatively high read errors due to incomplete staple strand incorporation, defective imager strands, fluorophore bleaching, and background fluorescence. This high error rate necessitated the development of robust information encoding and decoding algorithms, combining multiple levels and strategies of error correction and error handling. Information is encoded using a fountain code, combined with a custom, bi-level, parity-based, and orientation-invariant error detection scheme (Fig. 1). Fountain codes are an optimal mechanism for transmission of data over extremely noisy and unreliable channels, and work by dividing a data file into small segments, combining these segments via XOR into what are called droplets, and then sending the droplets at random to a receiver. Our algorithm encodes each droplet onto a single origami and adds additional bits of information for error correction to help ensure that individual droplets can be recovered. Together, the error correction and fountain codes increase the probability that the message can be fully recovered while minimizing the number of DNA origami that must be observed.

Through wet lab experiments, as well as through exhaustive simulation we have validated that the combination of the multi-level error correction strategy and fountain codes provide extremely robust storage and recovery of file information for dNAM. This approach took dNAM from an idea to practice.



**Figure 1. Example of Fountain Code implementation of dNAM digital encoding.** The figure illustrates some of the main steps involved in encoding a digital message into dNAM. First a character string is divided into non-overlapping segments. These segments are combined in various patterns via an XOR operation to generate data droplets. Each droplet is assigned an index, error-correcting (checksum and parity) and orientation information and positioned within a grid to form the design used to synthesize a dNAM origami. Origami index 0 is depicted from the prototype.

<u>Deliverable 1B</u> — An information encoding and decoding algorithm for seqNAM. When encoding binary data into sequences representing DNA strands, the algorithms should account for biological constraints representing the idiosyncrasies of working with a molecular substance. In response, we developed REDNAM (Robust Encoding and Decoding of Nucleic Acid Memory). REDNAM includes a novel mapping scheme and translation stage which converts hexadecimal data to codons while accounting for four constraints: removing start codons, avoiding repeating nucleotides, excluding longer repeating sequences, and maintaining close to 50% GC content. We have integrated this mapping scheme into the fountain code algorithm to balance information density with error correction and parity data.

The primary innovation of REDNAM is the mapping approach, which is inspired by the codon to protein mapping scheme used in living cells. Uniquely, our codon-base mapping removes biologically active sequences—such as start codons and some known promoter regions—avoids multiple repeats of unique nucleotides, and excludes repeating sequence strings. This promotes more robust encoding and decoding of the information stored in the DNA, as it avoids structural problems that lead to synthesis and sequencing errors, and is also safer from a biological perspective, as our algorithm avoids the occurrence of start and other codons involved in transcription and translation.

As with dNAM, our implementation of REDNAM is used in combination with a fountain code to increase robustness. *Figure 2* shows the basic steps in the information encoding/decoding process. The fountain code algorithm is ideal because the mapping

scheme is entirely separate from the rest of the encoding and decoding processes. This allows us to easily include our mapping and translation stage, which takes more biological constraints into account.

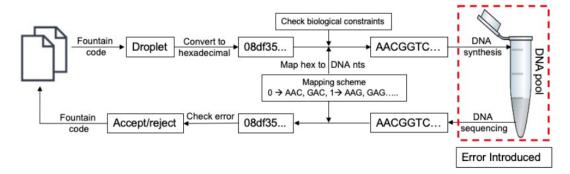


Figure 2. Overview of the REDNAM DNA based storage system.

To validate the REDNAM algorithm, we encoded a JPEG file of size 13,170 bytes, resulting in 604 DNA sequences, each 250 nucleotides long. The synthesized sequences were sequenced using the Illumina Miseq platform, producing 78 million reads of sequences, where 5M reads were unique to the pool (*Fig 3*). To check the robustness of our algorithm, we sub-sampled portions of the 78 million reads and tested the decoders ability to recover the original message. For sub-samples greater than 9000 reads, the decoder successfully recovered the file 100% of the time. While this seems like a large number of required samples, it is primarily due to the repetition of the reads in the sub-samples, as some sequences occur much more frequently than others.

To further test the robustness and efficiency of our algorithm, we performed simulations on randomly generated files, testing the encoding and decoding of files ranging from 1 to 49 MB at 1 MB intervals, where each of the encoded files was subjected to varying levels of simulated errors—including insertion, deletion, or mutation of any random nucleotide or even total deletion of any random sequence. In all cases, the decoding algorithm was able to recover missing/corrupted data.

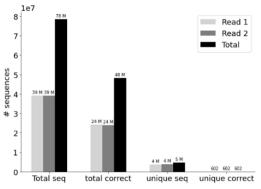


Figure 3. Sequence frequency distribution among two reads. In total there were 78 million sequences read where 5 million reads were unique. Out of all the reads, 62% of the reads were correct.

## **Objective 2: NAM Sequences**

### 1. Introduction

For NAM applications, it is ideal to have uniform hybridization rates. For these purposes, hybridization-rate variation results in inconsistent synthesis or inconsistent kinetics during DNA-PAINT. *Objective 2* focused on improving sequence-performance relationships and improving our ability to generate new sequences for NAM devices. Important outcomes include the creation of: (1) three high-performing metrics for *in-silico* sequence optimization, (2) one computer program (SeqEvo, which optimizes these metrics), (3) one kinetic model describing the temperature-dependence of DNA duplex-formation rates, and (4) new sequences for future 2D and 3D-NAM devices. Together these outcomes increase our predictive capacity for engineering NAM systems.

### 2. Deliverables

Objective	Deliverables
2A	A high-throughput data pipeline for metrics-based optimization of data cell anchor strands (year 1)
2B	Sets of optimized codons and words for seqNAM data encoding (year 2)
2C	Optimized insertion sequences for custom scaffold synthesis (year 3)

## 3. Most significant results, outcomes and deliverables.

<u>Three</u> fitness scores were developed for quantifying inadvertent hybridization reactions a given oligo-set may undergo: (1) a network fitness score (N) – which quantifies inadvertent inter-oligo simple secondary structures; (2) an oligo fitness score (O) – which quantifies inadvertent intra-oligo simple secondary structures; and (3) a weighted fitness score (W) – which is a linear combination of N and O.

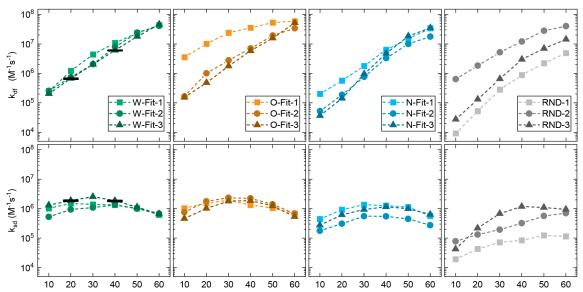
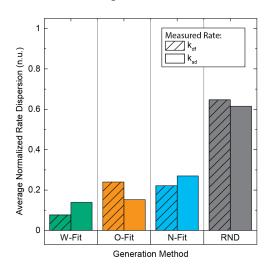


Figure 4. Hybridization rates were experimentally measured for 12 unique oligo-sets (aka "DNA sequences"). These sets were named according to the method used to generate them (i.e. the W-Fit-1 oligo-set was the first generated using optimization of the W fitness score). Rates were measured for six experimental temperatures, for both a duplex-formation ( $k_{\rm df}$ , above) and a strand-displacement reaction ( $k_{\rm sd}$ , below).

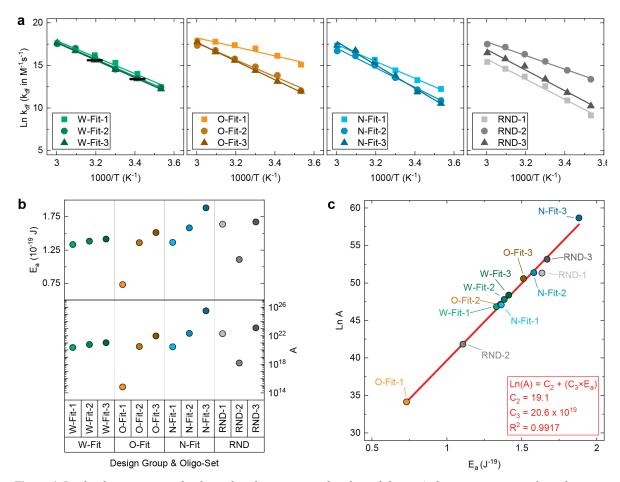
A model DNA system was used to study the relationship between DNA sequence and hybridization-rates. *In-silico* optimization of the three fitness scores were used to generate novel sets of oligos. In total, twelve oligo-sets (*i.e.*, DNA sequences) were generated and experimentally characterized. 144 hybridization-rate measurements (*Fig 4*) were collected, which enabled the study of hybridization-rate dispersion as a function optimization criteria (*Fig 5*). Optimization of the W-fitness score was observed to result in low hybridization rate dispersions. Typical dispersions of  $\pm 7.7\%$  for the duplex-formation reaction and  $\pm 14\%$  for the strand-displacement reaction were observed for the oligo-sets.



**Figure 5.** In-silico optimization of the W fitness score was observed to yield oligo-sets with the most favorable hybridization-rate dispersions.

Duplex-formation rates were observed to exhibit an Arrhenius temperature dependence ( $Fig\ 6$ ) with strongly correlated activation energy ( $E_a$ ) and pre-exponential factor (A). This enabled the derivation of a new kinetic model for the duplex-formation reaction, which reduced the number of sequence-dependent parameters necessary to predict duplex-formation rates from 2 to 1. This new model simplifies the task of predicting *in-silico* hybridization-rates. In addition, the hybridization rates observed for the sampled sequences ( $Fig\ 4$ ) suggest that this parameter results from inadvertent intra-oligo structures, and that the reaction rates can be accurately predicted *in-silico*.

The SeqEvo code was designed to generate sequences for relatively small networks of interacting DNA oligos. In order to generate oligo-sets large enough for NAM, refactoring of the code was necessary. This process reduced the time to calculate the N, O, or W fitness scores, enabling larger oligo-sets to be generated. By the end of this objective, run-time was sufficiently low to enable the design of an oligo-set containing 8,000 total bases and 517 total oligos. The refactored SeqEvo code was used to generate four new oligo-sets for novel designs (*Table 1*). This included new sequences for a 10x10x10 DNA molecular canvas,<sup>a</sup> which is an attractive substrate for future 2D-NAM and 3D-NAM devices. It is speculated that this structure will have hybridization-rate dispersions similar to those observed in *Fig 5* (i.e. conservatively estimated at  $\pm 14\%$ ).



**Figure 6.** Duplex formation rates for the twelve oligo-sets were found to exhibit an Arrhenius temperature dependence with strongly correlated values of the activation energy  $(E_a)$  and pre-exponential (A). This enabled the derivation of a new kinetic model for this reaction which reduced the number of variable parameters necessary to predict duplex-formation rates from 2 to 1.

*Table 1. Oligo-sets generated for four designs using SeqEvo.* The source of these designs included: [a] Ke, Y.G., Ong, L.L., Shih, W.M. and Yin, P. (2012) Three-dimensional structures self-assembled from DNA bricks. Science, 338, 1177-1183; [b] Qian, L. and Winfree, E. (2011) Scaling up digital circuit computation with DNA strand displacement cascades. Science, 332, 1196-1201; [c] Kotani, S. and Hughes, W.L. (2017) Multi-Arm Junctions for Dynamic DNA Nanotechnology. J Am Chem Soc, 139, 6363-6368; and [d] Zhang, D.Y., Turberfield, A.J., Yurke, B. and Winfree, E. (2007) Engineering entropy-driven reactions and networks catalyzed by DNA. Science, 318, 1121-1125.

Design	№ Oligos	Oligo-Set	N	0
10x10x10 Canvas <sup>a</sup>	517	As published	2.22 x 10 <sup>25</sup>	2.15 x 10 <sup>8</sup>
10x 10x 10 Canvas		W[108] Optimized	1.96 x 10 <sup>11</sup>	1.94 x 10 <sup>6</sup>
Four-Input OR Network b	45	As published	2.71 x 10 <sup>22</sup>	8.08 x 10 <sup>4</sup>
roul-input OK Network		W[10 <sup>4</sup> ] Optimized	3.13 x 10 <sup>10</sup>	5.18 x 10 <sup>4</sup>
Autocatalytic Network <sup>c</sup>	10	As published	1.11 x 10 <sup>45</sup>	$6.35 \times 10^5$
Autocatalytic Network	10	W[10 <sup>6</sup> ] Optimized	$3.97 \times 10^7$	9.78 x 10 <sup>4</sup>
Autocatalytic Network d	6	As published	1.32 x 10 <sup>6</sup>	7.50 x 10 <sup>4</sup>
Autocatalytic Network		W[10 <sup>2</sup> ] Optimized	4.10 x 10 <sup>5</sup>	1.51 x 10 <sup>4</sup>

## **Objective 3: NAM Scaffolds**

### 1. Introduction

Objective 3 addresses the design, construction and production of single stranded DNA used as scaffolds for the DNA origami that dNAM is built upon. We have produced several ssDNA scaffolds of different sizes in E. coli. We have designed and are building a larger ssDNA scaffold by shuffling together the DNA from these different sized scaffolds. This larger scaffold will be used to synthesize a dNAM node with increased per node data.

### 2. Deliverables

Objective	Deliverables
3A	Create viable phage modules from E. coli
3B	Validate phage genomes for use in DNA origami synthesis

## 3. Most significant results, outcomes and deliverables.

<u>Use viable phage modules to build larger scaffolds for improved data density</u>. In our dNAM design, several data sites are used for orientation and error correction. Larger origami could include more data sites used for encoded information. Towards this goal, we have designed a scaffold that can produce a 78x120nm origami, which is 60% larger in area than our previously demonstrated structure. This larger origami can achieve an 8x10 data grid with two extra rows and columns of data compared to our previous 6x8 data grid. Synthesis of this scaffold is underway, as described next.

In our scaffold production approach, E. coli are transformed with phagemids, which are circular DNA plasmids that can produce ssDNA upon subsequent infection with "helper phage". We developed a strategy to build the DNA phagemid needed to produce the larger scaffold by shuffling together parts of smaller phagemids. Modular phagemid parts are extracted from smaller scaffolds by PCR, and can be combined back together in numerous combinations to meet design requirements. For our design goal of a larger scaffold, three unique 11,054 nt scaffolds were designed using a 10,080 bp phagemid combined with inserts from the smaller phagemids. Distinct 982 bp regions of the 3kb, 5kb, and 8kb phagemids were amplified with PCR primers that add KpnI and BglII cleavage sites. They were then cut with restriction enzymes and pasted into the matching restriction sites in a 10,080 bp phagemid using DNA ligase. These ligated phagemids were transformed into E. coli which will be grown and screened for the desired size. Scaffold production with helper phage when folded into an origami rectangle, the 11kb dNAM contains 8x10 data sites, compared to the original 6x8 dNAM (60x90nm); increasing the operable size by 60%.

## **Objective 4:** NAM Fabrication

### 1. Introduction

Objective 4 addresses the design, build, and test of NAM prototypes. dNAM was created and while outside the scope of this project, 3D-NAM has been designed and is currently under test. Single-molecule defect analysis was performed by correlating SRM and AFM together; which was enabled by creating cross-compatible substrates.

### 2. Deliverables

Objective	Deliverables
4A	Process for design and fabrication of DNA origami storage nodes (year 1)
4B	Protocols for statistical correlated AFM/SRM defect metrology in DNA origami (year 2)
4C	Protocols for selective area immobilization of DNA origami (year 3)

## 3. Most significant results, outcomes and deliverables.

dNAM was successfully designed, built, and tested. Our first prototype included data domains spaced at 10 nm intervals to achieve an areal density of 1000 Gbit/cm<sup>2</sup>. After accounting for using 2/3 of the bits for indexing and error correction, this resulted in an areal data density of 330 Gbit/cm<sup>2</sup>. Although only comparable for reading throughput, not storage, this is significant because recent advancements in magnetic tape have reported a two-dimensional areal information density up to 31 Gbit/cm<sup>2</sup>, though the current commercially available material typically has lower density. Our dNAM prototype is the first and only example of reading and writing DNA without the need for sequencing technology. It is also the only DNA-based memory system that does not require custom sequences to be synthesized to change the encoded and decoded message.

3D-NAM is a newly proposed modification to dNAM that has the potential to provide an order of magnitude higher information density. This technique relies on super resolution microscopy to perform spatial and temporal readout with sub 5 nm lateral and 1 nm axial resolution. While outside of the scope of this project, the DNA nanostructures for 3D-NAM have been designed and are currently being tested. This work, if successful, is significant because it would enable a new way to sequence DNA, at a single-molecule level, without signal amplification.

In Support of dNAM and 3D-NAM, an accessible strategy for high resolution, correlative DNA-based points accumulation for imaging in nanoscale topography (DNA-PAINT) super-resolution and atomic force microscopy (AFM) of DNA nanostructures was created, enabled by a simple and robust method to selectively bind DNA origami to cover glass. Using this correlative microscopy technique, addressable "docking" sites on DNA origami were examined to distinguish between two defect scenarios – structurally incorporated but inactive docking sites, and unincorporated docking sites. In addition to creating a new microscopy technique, the results are significant because over 75% of defective docking

sites were incorporated but inactive, suggesting unincorporated strands played a minor role in limiting the availability of addressable sites. The effects of strand purification, UV irradiation, and photooxidation on availability were also explored, providing insight on potential sources of defects and pathways towards improving the fidelity of DNA nanostructures for 2D and 3D-NAM.

To enable the above listed outcomes, cross-compatible SRM and AFM substrates that combined transparency, favorable DNA origami adsorption, low affinity for single-stranded DNA imager strands, and near atomic-level flatness were created via glow discharge. The results were validated by prior observations of DNA origami adsorption to piranha/HF-cleaned, thermally-grown silica, for which it was postulated that pH-dependent adsorption resulted from the deprotonation of silanol groups generated during cleaning. This is significant because DNA origami are typically bound to cover glass by biotin-avidin binding between biotinylated DNA present in the origami and surface-bound, biotinylated proteins (commonly biotinylated bovine serum albumin – BSA-biotin). While the surface proteins passivate the surface to diffusing imager strands during image acquisition, they are too rough to perform high-resolution AFM and/or SRM.

## **Objective 5: NAM Reading**

### 1. Introduction

Objective 5 addresses NAM readout. The information stored in DNA is read by a super-resolution fluorescent microscopy technique. We achieved optical resolution as small as 5 nanometers to enable high areal density data storage. We also worked with Objectives 2-4 to create an optimized set of sequences that produces the least imaging defects. However, the imaging resolution is insufficient for seqNAM. A change in direction (see *III. Significant Changes in Direction*) was introduced in 2020 to address the resolution with a 3D super-resolution technique.

### 2. Deliverables

Objective	Deliverables
5A	Optical readout of dNAM (year 1)
5B	Optical readout of seqNAM (year 2)
5C	Sub-nanometer imaging resolution for SRM (year 3)

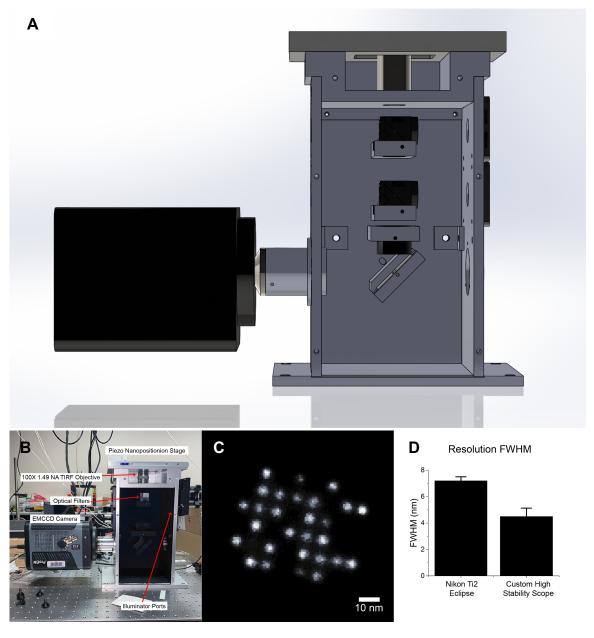
## 3. Most significant results, outcomes, and deliverables.

<u>NAM readout with the use of super-resolution imaging of DNA</u>. The result is published recently in Nature Communications<sup>3</sup>.

<u>Image drift is one of the limiting factors for single-nanometer resolution super-resolution imaging</u>. Several improvements are made to the real-time active drift correction system. A temperature stabilized single-frequency laser source is utilized to increase the wavelength stability. The position of the slides is determined in all three dimensions by imaging the reference gold nanoparticles with a resolution of 3 nanometers. The resulting resolution as small as 4.5 nanometers is achieved which is important for NAM data density.

An additional pathway to improving resolution is through the elimination of mechanical and optical noise from the microscope system. Commercial optical microscopes have many moving parts that are susceptible to both vibration and drift coming from mechanical and thermal sources. They also have external light leaks, internal stray light, and internal optics that are not needed for DNA-PAINT microscopy. To improve performance, a custom SRM system has been designed. The design eliminates all macroscopic moving parts, is mechanically rigid, and uses a minimal number of components so to minimize mechanical sources of drift and noise. The design is also light-tight and designed to minimize stray light and optical loss internally. Additionally, the system's compact and lightweight design will make it possible to integrate it onto mechanical and thermal isolation systems used for AFM and other forms of high-sensitivity microscopy. A rendering of the mechanical design is shown in *Figure 7A*.

The prototype design has been constructed and tested on our dNAM samples. An averaged image of a dNAM tile is shown in *Figure 7B*. The system hasn't been integrated with mechanical or thermal isolation, but does utilize the active drift correction system described above. The system has not been fully optimized in terms of the illumination and experimental conditions but our initial experiment with the system has shown 4.5 nm FWHM resolution. This is superior to our best results of 7.2 nm on the commercial system, and we're optimistic more improvements can be made through optimization.



**Figure 7.** (A) CAD rendering of custom microscope design. showing third-party components attached to custom body. (B) Fabricated Microscope. (C) Super-resolution image of DNAM Tile recorded with custom scope. Showing 4.5 nm FWHM resolution. (**D**) Head-to-head resolution comparison between a highly optimized Nikon SRM system and the new custom SRM system.

## IV. Significant Changes in Directions

Objective 1. None to date.

**Objective 2.** The initial strategy proposed for this objective was to build upon the previously-developed SeqEvo computer program to generate new NAM sequences. Experimental results collected while validating the SeqEvo software created a feedback-loop which changed the course of this research. As a result, further effort than anticipated was spent studying the kinetics of DNA oligo hybridization and developing new methods of in-silico optimization.

**Objective 3**. While we had originally planned to modify phage directly, the phagemid and helper phage approach was determined to be more modular. In addition, we are able to use numerous phagemids developed by others as modular sources of DNA that can be shuffled together without concern of reproduction effects.

**Objective 4.** While protocols for immobilization of DNA origami were achieved (described above), selective area protocols proved unnecessary for two algorithmic reasons: (1) custom pattern-recognition software was created that distinguished, rotated, and registered NAM structures so that they could be successfully read, and (2) custom encoding and decoding algorithms enabled reading NAM structures, with multiple messages, without needing to physically partition the data via typical approaches to random access.

*Objective 5.* In the project, an increased localization accuracy and enhanced drift correction are achieved. Theoretically, localization accuracy can be continuously improved by increasing photons collection since the imager strands are continuously replenished from solution. In practice, it is observed that the docking sites can become unavailable after 10s of minutes of imaging due possibly to photo damage. It limits how much further the resolution can be reduced. Sub-nanometer imaging resolution may not be achieved with resolution enhancement alone. Instead, 3DNAM is being explored to achieve an effective nanometer resolution. The data imager strands are designed in a way that imager strands will be attached at multiple distance from the donor fluorophore.

## V. Future Directions

## Objective 1.

<u>dNAM</u>. We will examine more advanced error correction codes in order to reduce the space devoted to error correction on the origami. We will determine how to utilize the information in the SRM image to guide the decoding algorithm as it corrects errors. i.e. look at how we can prioritize bits in the error correction search based on the information that supports that bit as found in the SRM image. Finally, we are working on developing deep NN based algorithms for reading the SRM image.

<u>seqNAM</u>. We are currently researching how we can improve the encoding algorithm by viewing the encoding process as the search for a shortest path in a weighted graph. The approach we are developing starts by constructing a weighted graph from the local constraint matrix and the information to be encoded, and then proceeds to search for the shortest paths through this weighted graph using a uniform-cost search. We are also interested in how we can incorporate non-local constraints in this process, such as the avoidance of long repeats or palindromic sequences, or other structural issues. To this end, we are exploring using a transformer deep learning model to speed structure problem prediction during the graph search, so that this can be run real-time during the search to provide guidance to the shortest path algorithm.

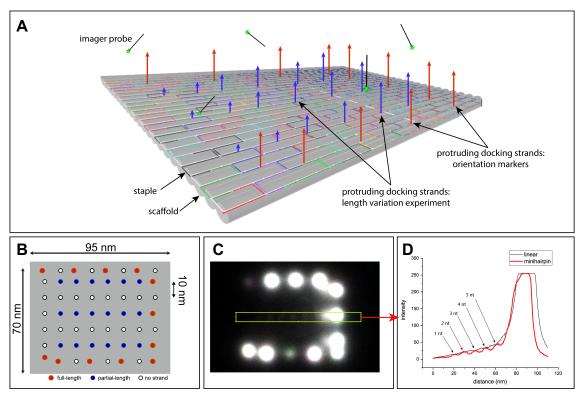
**Objective 2**. As a result of this research, it is now possible to generate high-quality DNA sequences for relatively large oligo-sets for NAM-based memory systems, as well as other DNA-based systems. However, it is not yet clear how much this will improve synthesis yields and/or performance of NAM devices. A quantitative study of the performance of the newly generated NAM sequences will be necessary to validate and further improve the sequence generation process.

**Objective 3**. We will continue to synthesize our 8x10 dNAM using the larger scaffold. In addition, we plan to design larger structures using multiple orthogonal smaller scaffolds stitched together with staple strands.

*Objective 4*. During this project, three super-resolution microscopes have come online. The first is a commercial-grade SRM system with vibrational and environmental control. The second is a modularly built SRM system that is used to experiment with novel approaches to SRM including but not limited to time-correlated SRM for <sub>3D</sub>NAM. And the third is a state-of-the art custom designed and built SRM system from the frame-up. In the future, the first microscope will be used to test new NAM prototypes in a controlled environment, the second will pilot new SRM techniques, and the third will push the resolution limits of SRM as close to its theoretical limit as possible. Together, they will explore <sub>3D</sub>NAM and eventually a new approach to sequencing DNA.

20

As an important step in this direction, *Figure 8* is a calibration standard created on a dNAM substrate to probe the physical limits of SRM. The top and left images are three- and two-dimensional representations of the substrate, where the red and blue protruding strands are respectively orientation makers and data sites with various lengths. The SRM image in the center and the corresponding photon intensity versus distance plot on the right indicate that we have imaged length 1 through 7 nts in increments of 1 nt. As shown in the intensity plot, when the imager probe was a mini-hairpin structure, the short data sites could be read. In comparison, when the linear probe was used as a control, the data sites could not be read. The ability to image 1 nt with SRM is below the resolution of AFM. Looking to the future, we will validate or debunk our findings through careful design and execution of control studies. If validated, will also explore the imaging mechanism.



*Figure 8.* (A) Three and (B) two-dimensional representation of a dNAM substrate, where the red protruding strands are orientation makers and the blue protruding strands are data sites with various lengths. (C) Corresponding SRM image of a dNAm substrate with (D) the corresponding intensity versus distance profile.

*Objective 5.* To enable 3DNAM, we are developing a custom imaging array that combines high resolution, high light sensitivity, and high timing sensitivity. Conventional imagers use a lengthy exposure time to capture an image in a low-light environment, as we have in imaging the fluorescence of 3DNAM. Due to this exposure time, conventional imagers are incapable of extracting fluorescent lifetime. The time correlated imager (TCI) we developed uses single-photon avalanche diodes (SPADs) which have a binary response to a single photon, meaning we can extract the exact moment of a photon's arrival. While there are commercially available SPAD imagers, they are unsuitable for 3DNAM imaging

as they only have a single pixel or have poor photon detection efficiency. Fortunately, SPADs can be integrated directly into integrated circuit technology, meaning we can develop our own imager with supporting circuits to extract lifetime information. *Figure 9A* shows the cross section of the SPAD structure we used to implement our TCI. *Figure 9B* shows a simplified architecture of our first TCI prototype. It is comprised of a 16x16 SPAD array, column-level monostable circuits to stretch SPAD events and then reset the SPAD after photon detection, and shared time-to-digital converters (TDCs) that convert the photon's arrival time with respect to the laser into a digital code. Our TDC has a timing resolution of 62 ps and a selectable range to accommodate up to an 80MHz laser pulse repetition rate (*Figure 9C*). Our next prototype will include lifetime computation on-chip to compress data. We will use a center-of-mass method that directly extracts fluorescent lifetime with low computational overhead and is scalable to larger arrays (*Figure 9E*).

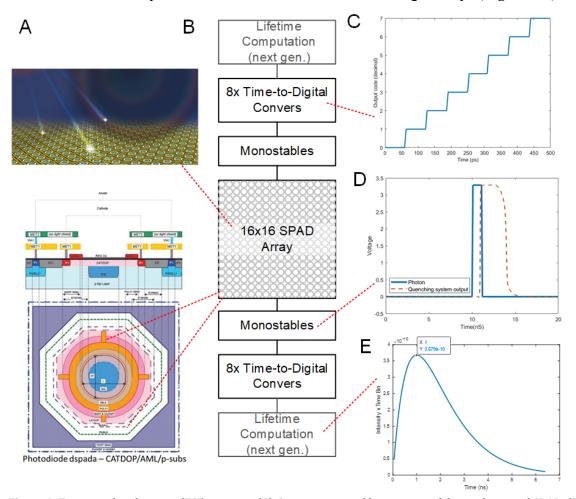


Figure 9. Time correlated imager (TCI) overview. (A) Cross section and layout view of the implemented SPAD. (B) System architecture of the TCI consisting of a 16x16 SPAD array, column-level monostable circuits, time-to-digital converters (TDCs), and on-chip fluorescent lifetime computation. (C) Plot of the simulated transfer function (photon arrival time vs. digital output) for the TDCs. (D) Plot of simulated photon arrival and corresponding monostable circuit output. (E) Time histogram of simulated fluorescent events with a fluorophore lifetime of 1ns. The center-of-mass closely matches the fluorescence lifetime.

## VI. Demonstration of Economic Development and Impact

External Networks. As outlined in the Executive summary, the Nucleic Acid Memory (NAM) Institute at Boise State was invited to join the DNA Data Storage Alliance. The alliance is the first and most extensive bridge between industry and academic organizations that are pioneering DNA data storage. Its mission is to "create and promote an interoperable storage ecosystem based on DNA as a data storage medium". The alliance will recommend the creation of specifications and standards (e.g., encoding, reliability, retention, file systems) which enable end-users to add interoperable DNA-based storage solutions to their existing storage hierarchies. The founders include Illumina, Twist Biosciences, Western Digital, and Microsoft. Member organizations include but are not limited to: Ansa Biotechnologies, Battelle, Catalog, The Cloude Nobs Foundation, DNA Script, EPFL, ETH Zurich, Imagene, IMEC, Iridia, Kioxia, Molecular Assemblies, PFU, Quantitative Scientific Solutions, Quantum, Seagate, Semicondcutor Research Corporation, Spectra Logic, University of Arizona, University of Washington, Digital Preservation, Oligo Archive, Lost Alamos National Laboratory, Cinémathèque Suisse, 21e8, DNAli, and University of Marburg. This network is critical as Boise State attempts to license the NAM intellectual property and/or the research team spins-off companies in the memory/biotechnology arena.

**External Impacts**. As outlined in the Executive Summary, Steven Burden (founder/CEO) and Clementine Gibard Bohachek (co-founder/CSO) spun-off Facible, a biodiognostics company in Boise that has 25 employees and is seeking FDA approval for a novel COVID-19 screening technology. In service to future generations of biotechnology start-ups in Idaho, Facible and the Nucleic Acid Memory Institute are actively exploring the creation of a biotech incubator in Boise.

External Funding. Beyond the IGEM/HERC investment, the NAM Institute has secured \$1,549,995 in grants from the National Science Foundation and the Semiconductor Research Corporation. According *The Implementation Group* (TIG) -- which is a research development firm specializing in strategic positioning, proposal development, and team science to increase Boise State's competitiveness for external funding – the awarded grants are among the most competitive and prestigious within the Boise State portfolio because we outcompeting MIT, Stanford and many other premier institutions that were positing for SemiSynBio funding. Building on our initial success, the NAM Institute is preparing to submit proposals to the NSF SemiSynBio III proposal opportunity this academic year, as well as the NSF Partnership for Innovation pathway to help the team evaluate if and how it should spin-off a company. To strengthen our proposal, we have designed, built, and started to test a custom SRM with 4.5 nm resolution. We have also designed and fabricated a custom 16×16 time-correlated imaging (TCI) array for super resolution and fluorescence

lifetime imaging microscopy (FLIM). Both the microscope and the TCI array are viable scientific instrumentation products that could be licensed or sold.

**Future Funding**. In support of future funding, the research team has provided thought partnership to IARPA on its proposed Biologically Templated Nanofabrication (IGATA) initiative; including but not limited to sharing technical ideas, suggesting performance metrics for the community to consider, introducing IARPA to leaders in the DNA nanotechnology community, reviewing drafts of their whitepaper (which will translate into an RFP), and offering to support their workshop once the RFP is approved.

In addition, the NSF Germination program aims to foster the development of frameworks, platforms, or environments to enable faculty to form research questions and ideas with potentially transformative outcomes. Based on the success of 2 NSF Germination Awards (# 1745944, 1629659), the PI has been invited to design, test, evaluate, and implement frameworks, platforms and/or environments that enable academics to formulate research questions and ideas that have the potential to address critical societal challenges.

## VII. Demonstration of Economic Development and Impact

<b>Demonstration</b> (07/01/2018–07/27/2021)	Amount
External Funding	\$ 1,549,995
Number of External Grants	3
Private Sector Engagement	~ 20 companies
University Engagement	~ 20 universities
Industrial Alliances Joined	1 (DNA Data Storage Alliance)
Federal Agency Engagement	5 agencies (NSF, SRC, IARPA, DARPA, NIH)
Industry Involvement	2 companies (Micron, SRC)
U.S. Patents Submitted	1
Publicly Available Software Packages	3
Plant Variety Protection Certificates	0
Technology Licenses Signed	0
News Releases	3 articles
Start-up Businesses Started	1 (Facible with 25 employees)
Jobs Created outside of BSU	~ 10

## VIII. Numbers of Student, Staff, and Faculty participation

We were fortunate to have a diverse team of perspectives, experiences, and expertise. From the initial ideation phase leading to our proposal, to the research that led to our outcomes, we have embraced team science in addressing the future information storage needs outlined in the SemiSynBio Roadmap. In the following table, we recognize the people that have enabled the research during the project, from our students, staff, and principal investigators.

Contributor	Objective/Support	Experience	Professional Outcome
Steven Burden, PhD student	Objective 3	Biology	Earned his PhD, Co-founder and CEO of Facible
Chris Green, PhD student	Objective 4 and 5	Materials Science	Earned his PhD; NRC postdoctoral fellow
Mike Tobiason, PhD student, postdoctoral researcher	Objective 2 (PhD student), Objective 1, 2, and 5 as postdoctoral researcher)	Materials Science	Postdoctoral researcher for the NAM Institute
Golam Md Mortuza, PhD student	Objective 1	Computer Science	Passed his PhD proposal; intern at Facebook during summer 2021
Reza Zadegan, postdoc	Objective 1 and 4	Materials Science	Tenure-track faculty at NCA&T
Chad Watson, project manager	N/A	Project Management, Research Development	Boise State's Division of Research and Economic Development and the Center for Advanced Energy Studies
Kelsey Suyehira, MS student	Objective 1	Computer Science	Earned MS in Computer Science; Software Development Engineer at Cradlepoint
Elton Graugnard, co-PI	Objective 4	Materials Science, Physics	Transitioned off project to focus on developing atomically-thin semiconducting materials; awarded \$126k by the Micron Foundation
Will Hughes, PI	Objectives 1-5	Materials Science	N/A
Wan Kuang, co-PI	Objective 5	Electrical Engineering	N/A
Tim Andersen, co-PI	Objective 1	Computer Science	N/A
Eric Hayden, co-PI	Objective 3, VIP	Biology	N/A
Shoshi Llewellyn, MS student	Objective 1	Computer Science	N/A
Will Clay, postdoctoral researcher	Objective 5	Optical Physics	N/A
Luca Piantinada, postdoctoral researcher	Objective 4, VIP	Bionanotechnology	N/A
George Dickinson, postdoctoral researcher	Objective 1, 4, 5	Biology, Computer Programing, Optical Physics	N/A
Clementine Gibard Bohachek, postdoc	Objective 3, VIP	Biology	Cofounder and CSO of Facible
Ben Johnson, collaborator	Objective 5	Electrical Engineering	N/A
Mehdi Bandali. PhD Student	Objective 5	Electrical Engineering	N/A
Natalya Hallstrom. Lab Man.	Objective 2–4, VIP	Biology	N/A
Sarah Kobernat, PhD student	Objective 3, VIP	Biology	N/A
Jacob Elmore, Julie Ramirez, Levi Orr, Amanda Wolf, Kaelee Ryner, Ben Balzer, Madia Bazso, Baylee Zanone, Ashlyn Trapp, Tia Senger, Hailey Jorgensen, Isaiah Keylor Aidan Poe, Katie Mateo Kelly Mazur, Hannah Hernandez, Gabe Frandsen, Lauren Grillo, Kayla Jonas, Olivia Paulsen, Brendan Yoshino, Hagen Shults, Madison Edwards, Tanner Pollock	A total of 24 students participated in our NAM VIP course over the last three years. These students range from freshman to seniors and span multiple majors: biology, pre-med, health sciences, chemistry, and psychology. The VIP students supported Objective 3.		Ben Balzer and Amanda Wolf selected to be summer undergraduate researchers for the NAM Institute; Ashlyn Trapp selected for an NSF REU on Data-Driven Security.

## IX. Dissemination

See the summarized table of disseminated products on page 3 of this report.

## X. Summary of Budget Expenditures

The investments from IGEM/HERC were largely infrastructure-centric; bringing the biological, computer, and materials sciences closer together by moving the NAM Institute into the Micron Center for Materials Research. Equipment that supported this project and its team integration included a:

- Custom super-resolution microscope for pushing the physical limits of SRM
- Commercial super-resolution microscope for routine NAM characterization
- SRM Environment Chamber to minimize humidity and temperature effects
- SRM Vibrational Table to minimize noise from vibrations during SRM
- Autoclave for sterilizing solutions and equipment
- Shaker incubator for microbial growth
- Sterile incubator for growth and maintenance of E. coli strains.
- Gel imager for validation, quantification and documentation of all Nucleic activities d materials including oligos, plasmids, scaffolds, and origami structures.
- Refrigerator for storage of temperature sensitive biological material

With a desire to grow our computational capacity, and in anticipation of the long-term effects of the pandemic on our experimental research, our team also invested into a:

 Dell PowerEdge DSS 8440 RTX 8000 GPU node with 8 NVIDIA Quadro RTX 8000 48 GB GPU cards and 384 GB of system memory.

The above node continues to support our research via deep neural models to improve and speed up performance on such tasks as localization of fluorescent markers in SRM imagery, translation of SRM imagery to binary strings, and secondary structure prediction for our NAM encoding algorithms.

For this and more, the faculty, staff, and students would like to extend their greatest appreciation to IGEM/HERC. This project, and its resulting outcomes would not have been possible in the absence of your investment.

26

## IGEM20-001



College of Science and Engineering

**Department of Civil and Environmental Engineering** 

## **IGEM20-001**

A Disaster Response Complex for Emergency Responders in Idaho 2<sup>nd</sup> Year Annual Report July 1, 2020 – June 30, 2021

## **Table of Contents**

1.0	Basic Project Information		
2.0	Executive Summary		
3.0	Summary of Project Accomplishments (2 <sup>nd</sup> Year)		
A.	Researc	h Pillar	4
B.	Curricul	lum and Certification Pillar	6
C.	Training	g and Exercise Pillar	7
4.0	Plans fo	or the Upcoming Reporting Period	15
A.	A. Research Pillar		
B.	3. Curriculum and Certification Pillar		
C.	Training	g and Exercise Pillar	16
D.	Promotion, Marketing, Development Work		
5.0	0 Expenditure Report		16
6.0	Partners	ships	17
7.0	0 Economic Impact		18
8.0	Faculty and Student Participation		18
9.0	Metrics for Establishing Project Success and Economic Impact		19
10.0	Future Plans		20
11.0	.0 Commercialization Revenue		20
Appendix 1		Media Articles	
Apper	ndix 2	Sample Student Activities	



**IRSA** 

Appendix 3 Expenditure Report



## 1.0 Basic Project Information

## **Funding Agency**

Higher Education Research Council - Idaho Global Entrepreneurial Mission Program

### **Awarded Institution**

Idaho State University, College of Science and Engineering, Department of Civil and Environmental Engineering

### **Grant Number**

IGEM20-001

### **Project Title**

A Disaster Response Complex for Emergency Responders in Idaho

## **Principal Investigator**

Mustafa Mashal, Ph.D., P.E., Associate Professor

## **Co-Principal Investigator**

Bruce Savage, Ph.D., P.E., Professor and Department Chair

## Report Type

2<sup>nd</sup> Year Annual Report: July 1, 2020 – June 30, 2021



## 2.0 Executive Summary

In the post 9/11 years, the national demand for training of emergency responders from the military and law enforcement branches has grown rapidly. There is a higher demand for training of emergency responders than the current facilities can support. In 2019, researchers at Idaho State University were awarded funding from the State of Idaho under the HERC-IGEM Grant. The focus of the project is the development of a Disaster Response Complex (DRC) for research, certification, and training of emergency responders in collaboration with the Directorate of National & Homeland Security at the Idaho National Laboratory (INL), and the Center for Advanced Energy Studies (CAES). The DRC has three pillars: 1) research, 2) curriculum and certification, and 3) training. All three pillars include the development of new indoor and outdoor complexes with training lanes/simulations to be used in both research, teaching, and training of emergency responders and the instrumentation of a collapsed structure. The training lanes will be used in combination with Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE) surrogates/markers, the use of robots/small Unmanned Aerial Vehicle (sUAV), Virtual Reality (VR), Augmented Reality (AR), Geographic Information System (GIS), Light Detection and Ranging (LiDAR), and Radio-Frequency Identification (RFID). The curriculum pillar includes offering courses in topics such as emergency response, gamma/chem spectroscopy, and safety protocols. For the training pillar, the facility can be used to host events for clients such as the Department of Defense (DoD) CBRNE Response Enterprise (CRE), military personnel, Idaho National Guard, and law enforcement agencies/fire departments from Idaho and the region. It is expected that the DRC will be a comprehensive facility that will incorporate natural (earthquakes, hurricanes, flooding) and man-made hazards in the training of emergency responders.

## 3.0 Summary of Project Accomplishments (2nd Year)

This is the annual report for the second year of the project. The second-year budget for the project was \$271,400, which included a \$4,000 budget cut due to the developments with COVID-19. The project personnel would like to thank the State Board of Education for offering a no-cost extension for the first year of the project. This certainly assisted in making more progress during a pandemic. Despite the ongoing global pandemic, the project personnel made substantial progress in the second year toward all three pillars of the DRC as described below.

While still under construction, the DRC started its training on October 31, 2020. Since then 350 individuals including instructors and role players have participated in exercises and trainings offered through the DRC. From these, about 180 were civilian responders (ISU EMT and other programs, ISU Public Safety, Idaho State Police, Pocatello Police, Fire departments, and local search and rescue units) and approximately 170 were military responders, primarily Civil Support Teams from the National Guard representing about 20 states. An additional 150 or more members of the National Guard from across the country are expected to train at the DRC by Fall 2021. ISU is collaborating with INL on the training of the National Guard units. Dozens of civilian responders are also expected to use the DRC for their training in the remaining half of 2021.

Most of the National Guard units are training at a former Armory building in Pocatello. The Armory was originally planned to be excessed by ISU, however, after a proposal by the DRC team, it was assigned to the DRC project to serve as an indoor year-round training facility. The space inside the Armory was cleaned out and new classrooms, offices, and meeting rooms, equipped with all facilities were established. New state-of-the-art training lanes were designed and constructed inside the Armory building. ISU and the state of Idaho have a lot to be proud of for having the National Guard back training in the former Armory building after half a century. The DRC has been expanding its collaboration with local, regional, and national stakeholders. Tours and discussions were held for potential partners from the Federal Bureau of Investigation (FBI), Southeast Idaho Health District, counties, and Local Emergency Planning Committees (LEPCs) in Southeast Idaho and other partners from the public/private industry.



Additional research funds were obtained from ISU and CAES to engage more students and researchers on the DRC project. Students and researchers participated in scholarly activities in disaster response, such as submission of peer-reviewed journals, presentation of the project in the 2021 American Society of Civil Engineers (ASCE) Southern Idaho Section Civil Engineering Conference.

Many tours of the DRC were provided for the stakeholders and potential partners on the project. Several media articles were published to promote and spread the word about the DRC. In line with ISU's branding, logos and white pages for the DRC were created. A website has also been launched (<a href="https://isu.edu/cee/research-facilities/drc/">https://isu.edu/cee/research-facilities/drc/</a>). In 2021, the project personnel initiated more marketing/promotion efforts, development work, alumni engagement, and business plans to make the DRC sustainable after the end of the project (e.g. June 2022).

#### A. Research Pillar

Efforts in the research pillar were primarily focused on the use of robotics, AR, VR, GIS, LiDAR, and Radio-Frequency Identification (RFID). Other research areas such as electronic simulations of markers/surrogates for CBRNE training were also initiated with researchers from INL and ISU. Updates in each area of the research pillar are outlined as follows.

#### Robotics:

O An ISU graduate student has been working on the robotic aspects of the project in collaboration with ISU and INL researchers. The student successfully passed his qualifier exam for a doctorate degree at ISU and is making progress toward his dissertation focused on the use of robotics in disaster response.

#### AR/VR:

- Three to four students from ISU have been working under the supervision of the INL researchers on the AR/VR aspect of the project. The researchers from ISU and INL have been holding regular weekly/biweekly meetings to identify further research opportunities in this area. The AR/VR is an emerging area of research interest to many public and private institutions, especially during a pandemic when travel is limited. The project personnel discussed the use of AR/VR for the training of emergency responders with both private and public entities.
- o ISU partnered with INL researchers and developed a concept paper for the use of new technologies in disaster response and training. CAES provided \$24,700 in funding for INL researchers to develop the concept paper in collaboration with ISU researchers.
- In December 2020, Dr. Mashal was awarded \$20,000 for research in AR/VR through Idaho State University Center for Advanced Energy Studies (ISU-CAES) funding. The project aims to develop AR/VR templates (e.g. exercises) for responders from both military and civil sectors. ISU is collaborating with researchers from INL on this project.
- A new Visualization laboratory was established to assist with AR/VR research at ISU. Funding (\$16,000) for the laboratory was provided through ISU-CAES. The new "Visualization Laboratory" is equipped with two pro-grade virtual reality (VR) headsets with eye-tracking; one Vive Cosmo and one Oculus Quest headsets that allow users to visualize information in a 3D immersive virtual environment. Additional equipment includes one Dell Alienware laptop and two Alienware desktops to develop VR environments, an iPad pro with built in Light Detection and Ranging (LiDAR) scanner for augmented reality (AR), four monitors and other accessories, and MS HoloLens 2. Three students from Mechanical Engineering have already started using the Visualization Laboratory for research as part of the DRC project.



- o ISU-CAES provided additional \$5,000 in 2021 for purchase of equipment such as high-speed camera and other accessories in the visualization laboratory.
- o ISU-CAES provided approximately \$10,800 to engage ISU students in the DRC project; the students are co-supervised by INL researchers. This funding provided the student's hourly pay to work on the research pillar of the project.

### • GIS and LiDAR:

o The outdoor collapsed structure was surveyed and shot using LiDAR during different construction stages. Results will be used for the AR/VR aspect of the project.

## • Radio-Frequency Identification (RFID):

A faculty with expertise in Electrical and Computer Engineering at ISU has been collaborating with the project personnel on the use of RFID in civil engineering applications. Although the project focuses on applications of RFID for moving of precast concrete elements, there is potential for using this technology in monitoring the movement of concrete rubble as part of the post-disaster response and monitoring. The researchers at ISU have discussed applications of RFID technology in disaster response with INL and are looking for potential opportunities for funding and collaboration.

## • Chemical, Biological, Radiological, Nuclear, and High Yield Explosives (CBRNE) Simulation:

- Numerous meetings were held between ISU and INL researchers to discuss electronic simulations of CBRNE training. ISU and INL are also exploring collaboration with some private companies that offer such capabilities.
- o In 2021, CAES funded \$50,000 for program development for a Radiological Dispersal Device (RDD) Training using electronic simulations. While the principal investigator for the project is an INL employee, majority of the funding (e.g. \$43,000) have been allocated to ISU to support a graduate student from health physics to participate in this project. The project has three phases and will continue until May 2022.

## Other Technologies:

Other technologies such as the use of sUAV have also been considered for applications in disaster response. INL has good capabilities in sUAV. In addition, the project personnel have discussed collaborating with the College of Technology at ISU, which has several sUAVs; some equipped with LiDAR. INL has loaned a unique training resource (e.g. vehicle) for the DRC to ISU. sUAV was used for the preparation of this resource before it was shipped to ISU in early 2021. The training resource has already been used in the training of emergency responders at ISU and is unique in the Pacific Northwest.

### Scholarly Activities:

- A journal paper titled "A Disaster Response Complex for Training of First Responders in Idaho" was submitted to "Countering WMD Journal" which is published by the United States Army Nuclear and Countering WMD Agency. The journal is currently under review.
- O Another journal paper titled "Virtual and Augmented Reality in Disaster Management: A Literature Review of the Past 10 Years" was submitted to 2021 IEEE International Symposium on Mixed and Augmented Reality (ISMAR). After receiving the peer-reviews, the project personnel have been working to refine the paper and submit it again in a peer-reviewed journal/conference.
- A 50-minute presentation on "A Disaster Response Complex (DRC) for the training of Emergency Responders in Idaho" was made during the 2021 American Society of Civil

Idaho State University

Engineers (ASCE) Southern Idaho Section Civil Engineering Conference. The presentation was selected from many other submissions. Participants received Professional Development Units (PDUs) from the ISU presentation.

- A master's level student has been writing his MS project on the DRC. The MS project will
  include civil engineering design, construction, as well as the state-of-the-art technologies
  for disaster response.
- O Another master's student has been working toward his thesis in electronic simulation of HazMat in disaster training.

### • Outreach and New Collaboration/Partnership:

- Numerous meetings and tours of the DRC were held to discuss research collaboration with INL, CAES, ISU, law enforcement, office of emergency management, local fire departments, and private companies.
- o Tours of the DRC were held for dignitaries from the Department of Energy, INL, and ISU.
- ISU has signed Memos/Master Agreements with public and private firms that are partnering on the DRC project.
- The DRC participated in discussions for a proposal by ISU's Kasiska Division of Health Sciences (KDHS) to Federal Emergency Management Agency (FEMA).

### B. Curriculum and Certification Pillar

- On the curriculum side, the project personnel and INL researchers/instructors have been holding regular weekly meetings to develop new curriculum in disaster response that uses the indoor and outdoor DRC facilities.
- The project personnel are collaborating with ISU's KDHSto develop and offer a unique curriculum focused on earthquake response in the fall of 2021.
- In partnership with Battelle Energy Alliance (BEA) and CAES, Idaho State University offered the Laboratory Operations Supervisor Academy (LOSA) at no cost to 30 participating faculty, staff, and students in August 2020. LOSA is a prestigious training program developed by BEA, the operating contractor for INL and several other national labs for the Department of Energy. This half-day training discussed principles for the Safe Conduct of Research (SCoR) and utilized simulations and scenarios to demonstrate and build a culture of lab safety. The Project PI (Dr. Mashal) and Project Manager (Jared Cantrell) offered this training at ISU. The LOSA Pilot training was sponsored by BEA for nearly \$14,000. The project personnel have plans to expand LOSA for other faculty, staff, and students at ISU and make it a class under the DRC for the upcoming semesters.
- ISU, INL, and a non-profit entity pursued funding to develop a pandemic-focused version of LOSA. The training was titled LOSA-COVID-19 and targeted employees of the lab, ISU, and other state entities. Initiatives such as "Train-the-Trainer" were part of this plan. ISU submitted a \$428,000 proposal to CAES on the LOSA-COVID-19 initiative. The proposal was not successful.
- ISU has completed a Master Agreement with a private company in Idaho to offer curriculum for the DRC. Thirty-eight courses have been shortlisted and discussed for this initiative.
- The project personnel have had discussions and tours of the outdoor DRC with potential instructors/partners from local fire departments and the private industry to develop curriculum for emergency responders in the military, law enforcement, emergency management, and fire departments.

Idaho State University

- The project personnel followed up with ISU's College of Technology's Continuing Education/Workforce Training and private industry to explore the initiative of getting Continuing Education Units (CEUs) for the responders taking curriculum at ISU.
- Dr. Mashal and Dean Snyder presented the DRC project at the ISU Alumni Association Town Hall on January 20, 2021.
- Dr. Mashal made an online presentation during the December 3, 2020 meeting of the Eastern Idaho
  Fire Chiefs Association and shared information about the DRC. The project personnel reached out
  to local fire departments to consider collaborating with ISU on the curriculum/certification and
  training/exercise pillars of the DRC.
- Dr. Mashal and Jared Cantrell (DRC manager) presented to Caribou County Local Emergency Planning Committees (LEPCs) on seismic vulnerability in Southeast Idaho and the DRC project on June 16, 2021.

## C. Training and Exercise Pillar

In the second year, despite the COVID-19 and lockdown restriction, the project personnel were able to start the training at the DRC while it has been still under construction. More than 350 individuals including instructors and role players have participated in exercises and trainings offered through the DRC since October 31, 2020. From these individuals, about 180 were civilian responders (ISU EMT and other programs, ISU Public Safety, Idaho State Police, Pocatello Police, Fire departments, and local search and rescue units) and approximately 170 were military responders, primarily Civil Support Teams from the National Guard representing about 20 states.

- Other updates from the second year of the project includes, but not limited to:
  - o Purchased and transferred multiple conex boxes and various materials and supplies that will be used for the construction of outdoor and indoor training lanes.
  - o Finalized design and drawings for the three basic lanes.
  - o Completed construction of a complex subterranean lane (Figure 1).
  - o Completed construction of a shoring lane inside a conex box.
  - Hosted visits and open houses during construction of the facility to gather more feedback from the potential users which included Public Safety, Emergency Management from ISU, Idaho State Police, Idaho Falls Fire Department, Pocatello Fire Department, Office of Emergency Management, Pocatello Police Department, INL, Department of Energy, Idaho National Guard, Idaho Civil Support Team, INL Oversight Program, and many others from public/private entities (Figure 2).
  - O The project personnel worked with ISU's Facilities and were granted the Old Armory Building (Figure 3) for research and academic use. This selection was based on the feedback from INL, Idaho National Guard, and other clients. The Armory building is an ideal place for smaller-scale training and offering special focused courses. The Armory building was built in 1939 and originally housed the National Guard Armory. It was subsequently used by ISU for the Diesel Technology program. With the move of the Diesel Technology program in August 2020 to another location on campus, the Armory building was re-purposed to be used toward serving the National Guard units again. The building has a high-bay area. It also includes spaces that can be used for offices and classrooms. Together with the outdoor facility, the Armory building provides substantial support for all three pillars of the DRC. The project personnel prepared extensive designs and drawings

Idaho State University

for the indoor facility, which houses a mock-city block (Figure 4) for indoor training scenarios. Construction for the main part of the mock-city (e.g. storefront and roadway) have been completed (Figures 5 & 6). Furthermore, several classrooms, offices, meeting rooms were painted and set up to support all three pillars of the DRC (Figure 7).







Figure 1. Completed Subterranean Lane

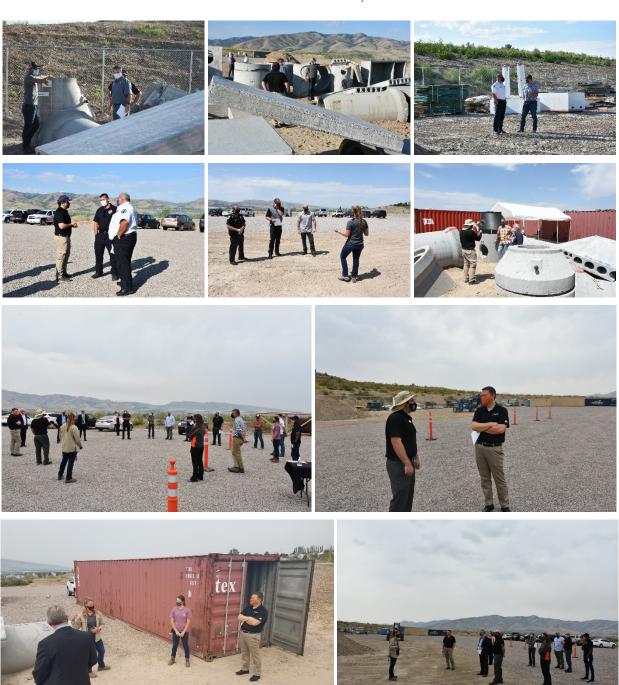


Figure 2. DRC Open House in Fall 2020





(a) Front View

(b) Parking Lot on the West Side

Figure 3. Armory Building at ISU

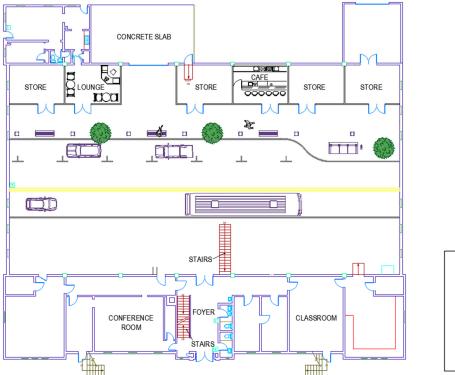




Figure 4. Mock-City Layout at the Armory Building at ISU





Figure 5. Construction of Mock-City Block in the indoor DRC





Figure 6. Completed Mock-City Block with National Guard conducting a training in June of 2021



**Figure 7.** Typical refurbished space in the Armory that serves as a classroom, shown in the photo was a joint exercise by the National Guard and local responders from Idaho

• ISU Research Office as part of the Higher Education Research Council's Research Infrastructure provided \$225,000 in funding toward materials and supplies, and building infrastructure in the Department of Civil and Environmental Engineering. A part of this funding (approximately \$30,000) was spent toward the construction of the DRC outdoor training campus and installation of a perimeter fence around the site.

## • Sample Training Events:

- o In October 2020, twenty students and six instructors in the Idaho State University College of Technology's Emergency Medical Technician program utilized the outdoor DRC for a real-world training. This training was highlighted in the media (Idaho State Journal and ISU website), refer to Appendix 1. Several other training events for the ISU's EMTs were held since October 2020.
- In November 2020, twenty-five members of the Pocatello Fire Department's Urban Search and Rescue team used the outdoor DRC facility to conduct a special operation exercise that included structural collapse training (Figure 8). The newly constructed subterranean lane was utilized for the training. The event received coverage on Local News 8 as well as Idaho State Journal, refer to Appendix 1. [Devin Christensen, a captain with the fire department who heads the special team, had to travel to Texas A&M University in College Station, Texas, with another member of the department the last time he participated in structural collapse training. "We can train 25 guys here today for the money it takes to send two to a class in Texas," Christensen said].









Figure 8. Training by the Pocatello Fire Department's Urban Search and Rescue team

On January 16, 2021, a training in the indoor DRC was hosted for the Snake River Search and Rescue Inc. The training included 10 K9 trainers, 12 K9's, 4 student/faculty participants for live finds (Figure 9).



Figure 9. K9s and their handlers training at the indoor DRC

- On February 11, 2021, the Radiological Control Fundamentals Exercise was hosted at the outdoor DRC. This was organized by ISU's College of Technology. ISU Students practiced measuring background radiation levels at the outdoor DRC site; 18 students and 2 instructors participated in the exercise.
- On March 11, 2021, the DRC hosted a "Confined Space" Exercise for the Idaho Falls Fire Department (IFFD) at its outdoor facility. 20 trainees and 4 instructors participated. IFFD practiced confined space maneuvers while practicing use of oxygen and monitoring oxygen levels. The participants also performed tripod extractions and lifts (Figure 10).









Figure 10. Confined Space exercise by the Idaho Falls Fire Department

On April 3, 2021, ISU's Emergency Medical Technician (EMT) Workshop was held simulating mass casualty response at outdoor DRC site. The training also included landing of an air medical services helicopter at the DRC outdoor site. The event was part of the ISU's Continuing Education and Workforce Training (CEWT). Thirty-six participants including role-players, students, and instructors were part of the workshop (Figure 11). The DRC is collaborating with the CEWT and was featured on the cover page of CEWT's Summer 2021 magazine (Figure 12).

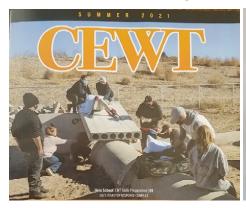








Figure 11. ISU EMT students training at the DRC





The Disaster Response Complex (DRC) at Idaho State University is one of the most recent additions to the university's research portfolio. The DRC comprises three areas of focus, all providing training for emergency responders: Research, Curriculum and Certification, and Training and Exercise.

Research is focused on providing hands-on experience to emergency responders in a variety of research areas, including training using virtual and augmented realities, the use of geographic information science (GIS) in emergency responses, and the use of robotics in confined or hazardous conditions. Curriculum and Certification includes offering courses in emergency response training, providing certification for first responders, and offering additional more expansive coursework to existing ISU majors. Training and Exercise focuses on making the facilities available to interested parties to host and conduct various training and exercises.

Continuing Education and Workforce Training's EMT students utilize the DRC as they receive their education.

The DRC was created with a nearly \$1.1 million grant from the Higher Education Research Council of the Idaho State Board of Education through the Idaho Global Entrepreneurial Mission.

Figure 12. ISU's CEWT magazine featured the DRC on its front page

• Between April – June 30, 2021, six training events were held for the Civil Support Teams from the National Guard. Some of the training events offered the opportunity for the local responders from the ISU Public Safety, ISU State Police, and other entities to participate in the exercise with the military free of charge. An article highlighting the National Guard training at ISU was published in the media, refer to Appendix 1.

### 4.0 Plans for the Upcoming Reporting Period

Plans for each pillar of the DRC project are discussed below.

#### A. Research Pillar

- Continuing collaboration with ISU and INL researchers and developing the templates for a trench rescue and radiological training using AR/VR for civilian and military responders, respectively.
- Exploring funding opportunities in different areas such as AR/VR, instrumentation, and new technologies for disaster response.
- Publishing peer-reviewed papers from the research work.



#### B. Curriculum and Certification Pillar

- Developing curriculum for the indoor and outdoor DRC in collaboration with INL, KDHS in ISU, and other partners.
- Obtaining input from stakeholders.

### C. Training and Exercise Pillar

- Completing construction of the basic training lanes for the outdoor DRC.
- Adding more details to the mock-city for the indoor DRC.
- An estimated 150 members of the National Guard from across the country are expected to train at the DRC by Fall 2021. ISU is collaborating with INL on training of the National Guard units.
- Multiple events have been scheduled at the DRC for local and regional responders. Dozens of civilian responders are expected to use the DRC for their training in the remaining half of 2021.
- ISU will be co-hosting a HazMat Training for the Idaho Office of Emergency Management in the summer of 2021.

### D. Promotion, Marketing, Development Work

- The project personnel are working with colleagues at ISU on the following initiatives:
  - o Develop marketing details (e.g. brochures)
  - Host outreach efforts
  - Present and attend regional conferences in disaster response
  - o Arrange tours for state legislators, members of the U.S. Congress, leadership from the National Guard units, and other stakeholders to the DRC
  - Develop a business plan for the DRC to be sustainable after the end of the IGEM-HERC project in June of 2022

### **5.0 Expenditure Report**

The project expenditure until June 23, 2021 is presented in Table 1. The project spent all its allocated budget of \$271,400 for the second year. There was a rollover of \$32,947 from FY20 (total of \$304,347 for the 2<sup>nd</sup> year of the project) which has been spent as well. Appendix 3 includes a breakdown of the budget and expenditure report.

**Table 1.** Summary of Budget Expenditures

Total	\$304,347
Salary & Fringes to be posted through June 30, 2021 (faculty, graduate students, research engineer)	\$17,233
Tuition Remission (graduate student)	\$9,926
Services and Supplies	\$52,547
Capital Expense	\$64,292
Travel	\$925
Salaries & Fringes already posted June 23, 2021 (faculty, graduate students, research engineer)	\$159,424



**IRSA** 

### 6.0 Partnerships

The project personnel have had discussions with the interested individuals and entities listed in Table 2 on this project with one or more pillars of the DRC project. The impact of the partnership with some of the entities named in Table 2 has created opportunities for students and faculty at ISU as well as the collaborators.

A full-time Research Engineer/Lab Manager position was created for this project. The position was filled and the Research Engineer/Lab Manager started on November 4, 2019. The Research Engineer/Manager helps with all three pillars of the DRC project as well as supervising several students.

Table 2. Entities that have toured/visited/briefed/or collaborated on the DRC project

No	Entity Name
1	Idaho National Laboratory  • National and Homeland Security Directorate
1	<ul> <li>Energy and Environment Science and Technology</li> <li>Nuclear Science and Technology</li> </ul>
2	The Center for Advanced Energy Studies
3	Department of Energy  • Idaho Operations Office
4	Idaho Department of Environmental Quality  • INL Oversight Program
	Idaho Office of Emergency Management
5	<ul><li>Southeast Idaho</li><li>East Idaho</li></ul>
	Boise Area
	Idaho National Guard
6	Homeland Response Force
	Civil Support Team
7	Idaho Falls Fire Department
8	Pocatello Fire Department
9	Pocatello Police Department
10	Idaho State Police
11	Qal-Tek Associates, LLC
12	Technical Resources Group, Inc.
13	Snake River Search and Rescue, Inc.
14	Argon Electronics
15	Preparedness Innovations
16	Eastern Idaho Fire Chiefs Association
_17	Eastern Idaho Safety Consultants
18	Bannock County Emergency Services
20	Caribou County Public Safety and LEPC
21	Idaho State University  • College of Technology

- Nuclear Operations Technology
- Continuing Education/Workforce Training)
- Kasiska Division of Health Sciences
  - Institute of Emergency Management
  - Department of Community and Public Health
- College of Science and Engineering
  - Department of Mechanical Engineering
  - Department of Computer Science
  - Health Physics
  - Physics
  - Department of Chemistry
  - Electrical and Computer Engineering
  - Environmental Monitoring Laboratory
- Department of Public Safety
- Emergency Management
- GIS Center
- Idaho Accelerator Center

### 7.0 Economic Impact

Excluding the research and curriculum pillars, and considering only the training & exercise pillar for the DRC, as of June 30, 2021, more than 350 individuals from across the United States have used the DRC for the world-class and unique training. If a regional multiplier model is used to measure the economic impact, and a conservative estimate of \$500 per participant who trained at the DRC is used, the regional multipliers for the Southeastern Idaho based on Idaho's Department of Labor's most recent data from June 2021 for "Professional and Management Development Training" would be as follows:

Sales Multiplier = 1.48

Jobs Multiplier = 1.12

Earnings Multiplier = 1.31

Regional Economy Impact (Sales) =  $350 \times $500 \times 1.48 = $259,000$ 

Regional Economy Impact (Jobs) =  $350 \times $500 \times 1.12 = $196,000$ 

Regional Economy Impact (Earnings) =  $350 \times $500 \times 1.31 = $229,250$ 

### 8.0 Faculty and Student Participation

Through June 30, 2021, the numbers of faculty, students, and other researchers who participated in one or more areas on the DRC project at ISU are listed in Table 3. Appendix 2 provides sample student activities for some of the students working on the project.

<sup>&</sup>lt;sup>1</sup>A multiplier model uses an approach to measure how important one industry is to other industries in the region. For instance, a multiplier of 1.5 means that for every dollar spent on that industry, the regional economy will be affected by 1.5 times of the original investment.



Table 3. Participating Researchers

Position	Numbers
Faculty	7 (including the PIs)
Graduate Students	7
Undergraduate Students	10
Researchers	6
Total	30

### 9.0 Metrics for Establishing Project Success and Economic Impact

Table 4 presents a summary of the metrics for establishing project success and economic impact for the second year of the project.

Table 4. Summary of the Criteria for Measuring Success for Year 2

Cuitouio	Pillars of the Disaster Response Complex		
Criteria	Research	Curriculum & Certification	Training & Exercise
Original Proposal (Jul 2020 – Jun 2021)	1. Detailed design/construction of the Phase II rubble pile, addition of new training lanes. 2. Publication of 3-4 papers. 3. Hiring two additional graduate students.	<ol> <li>Development of two additional classes in emergency training in collaboration with INL/CAES.</li> <li>Obtaining certification.</li> <li>Offering training courses to 100 students/first responders.</li> </ol>	Training of 400 DoD CRE customers/Idaho National Guard personnel.     Expanded customer base offering CBRN training.
Actual Performance (Jul 2020 – Jun 2021)	1. Detail design and construction of the rubble pile was completed. A citymock for the indoor DRC has been developed and construction is complete.  2. Logos were created, a website was launched.  3. A journal paper was submitted; another journal paper is currently under revision; a concept paper was prepared by INL researchers.  4. Five graduates and multiple undergraduates were hired to work on the DRC project under the supervision of ISU/INL researchers.  5. One PhD student is currently working on his dissertation on the use of	1. Course description and topics were developed for a class in gamma spectroscopy. Unfortunately, this class will not go through after receiving instructions from the government.  2. A training for building safety culture (LOSA) was piloted to 30 students/faculty/staff at nocost under a contract with BEA. LOSA is part of the curriculum under the DRC.  3. Thirty-eight classes have been shortlisted and discussed between ISU and a private company. Materials for the classes are ready. ISU is planning to work with the collaborators to advertise some of these classes under the DRC in 2021.	1. More than 350 individuals have used the DRC for their training events between Octobe 31st, 2020 – June 30th, 2021. This number included emergency responders from the military (e.g. 170) and civilian (e.g. 180) sectors.  2. Multiple training events were scheduled at ISU under the DRC project in 2020. The number of emergency responders in these training events was projected to be more than 100. Unfortunately, the pandemic, lockdown, and travel/gathering restrictions did not allow for holding training events. This was beyond the control of the project personnel or ISU.

robotics in disaster response.  6. A master's student is writing his MS Project on the DRC project.  7. Another master's student is working toward his thesis on the use of electronic simulations for HazMat in disaster training.	4. ISU is collaborating with KDHS on an earthquakeresponse curriculum and training that will be hosted at the DRC in the fall of 2021.  5. The project personnel are actively looking for certification and continuing education unit opportunities for the classes offered through the DRC.	
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### 10.0 Future Plans

Multiple training and exercise events at the DRC are planned for 2021. In addition, work is on-going to develop the curriculum and certification, and the research pillars. The intent of the DRC was originally to be a self-sustaining entity by the end of the three years of funding. The pandemic and lockdown put limitations on hosting training events in Pocatello and at ISU between February 2020 – May 2021. Several planned training events for 2020 had to be canceled. DRC will need more than three years from the start of the project in August 2019 to become self-sustaining. Additional funding and opportunities are actively being explored to make the DRC a long-term resource for the training of emergency responders from Idaho and the region.

Future improvements and renovations of the Armory building such as: adding new training lanes in the indoor/outdoor facility, partnerships with the private and public industry, hiring new researchers and students to work on different pillars of the project, training more emergency responders, arranging tours for potential partners and stakeholders, and spreading the word about the DRC in Idaho and the Pacific Northwest. Funding opportunities are actively being pursued to further develop the facilities for project continuation and expansion.

### 11.0 Commercialization Revenue

Nothing to report for the period July 2020 – June 2021. The Project has potential for developing intellectual property.



### **Appendix 1.** Media Articles



# Idaho State EMT program partners with the Disaster Response Complex for 'real-world' training

Article Link (ISU): <a href="https://www.isu.edu/news/2020-fall/idaho-state-emt-program-partners-with-the-disaster-response-complex-for-real-world-training.html">https://www.isu.edu/news/2020-fall/idaho-state-emt-program-partners-with-the-disaster-response-complex-for-real-world-training.html</a>

Article Link (Idaho State Journal): <a href="https://www.idahostatejournal.com/community/isu-s-emt-program-partners-with-the-disaster-response-complex-for-training/article\_335920c3-04c2-5f15-b8c8-26de999f3acd.html">https://www.idahostatejournal.com/community/isu-s-emt-program-partners-with-the-disaster-response-complex-for-training/article\_335920c3-04c2-5f15-b8c8-26de999f3acd.html</a>

By Miriam Dance, COSE Director of Public Relations | November 5, 2020

POCATELLO – Twenty students and six instructors in the Idaho State University College of Technology's Emergency Medical Technician program received real-world emergency response training at the new ISU Disaster Response Complex, which is run by the Department of Civil and Environmental Engineering.

Training scenarios were constructed to simulate emergency situations. The simulated scenario training is a typical component of the EMT program, which is part of the College of Technology's Continuing Education and Workforce Training programs. However, conducting the training at the Disaster Response Complex allowed for the development of new mass casualty and individual injury incidents of an industrial nature that were not possible before, including extractions from buildings that may have collapsed or dark tunnels that may have flooded. "We were thrilled to be able to conduct training at the new DRC facility," said RaeLyn Price, health programs coordinator for Continuing Education and Workforce Training. "The training exercise on Saturday went as well as anyone could ever expect. Students and instructors all enjoyed the experience."





During the Halloween Day training, trainees worked together to assess the situation and then determine how to enter the scene to safely assist and treat injured individuals. Once rescued, trainees prepared the injured for transport to appropriate medical facilities. Each training scenario required the students to work as a team to safely rescue the mock victims.



To set the stage for the emergency scenarios, victims were dressed in full moulage, which involves creating realistic-looking mock injuries on volunteer 'victims.' Using moulage created a new element for the trainees since they hadn't yet experienced anything as true to life while in the course. One challenge participants faced was getting past the realistic appearance of victims and using the skills they learned in the course to address the situation.

"It was awesome to watch the students seriously take on their roles and work together to provide appropriate treatments and rescue," Price said. "We look forward to utilizing the DRC for more training opportunities in the future."

The Idaho State Disaster Response Complex is a unique facility recently added to the university's research portfolio. It was created with a nearly \$1.1 million grant from the Higher Education Research Council of the Idaho State Board of Education through the Idaho Global Entrepreneurial Mission.

"The DRC is a unique facility in the Northwestern United States," said Mustafa Mashal, associate professor in the Department of Civil and Environmental Engineering and

Principal Investigator for the Disaster Response Complex project. "We have capabilities to simulate various scenarios for training emergency responders. There are numerous collaborators, faculty, and students working on the DRC project. The ultimate goal of the project is to save lives during an emergency scenario, through efficient and effective responses."

The DRC has three focus areas: research, curriculum and certification, and training and exercise. The training and exercise focus area encourages local and regional emergency responders to use the DRC for real-world simulations of natural and man-made disasters. Search-and-rescue scenarios can be structured in several ways using precast concrete elements to create situations that require navigating training lanes such as collapsed structures, confined spaces, and vehicle rescue.

"From the perspective of an educational institution, the project benefits our students through a wide variety of learning and research processes," Mashal said. "From a community perspective, this project benefits Idahoans and beyond by helping ensure the emergency responders have an exceptional facility to conduct training and exercise events."

The DRC outdoor facility is still under construction and more training lanes are planned to be added in the upcoming months. The EMT program is the first group to use the DRC's outdoor facility.

"We welcome emergency responders from our community, region, and nation to use the DRC for their training and exercise events," Mashal said. "The doors of the DRC are open for anyone who wants to explore collaboration with ISU on disaster response. The DRC is a long-term resource for our emergency responders and we are very glad to have this facility here in Pocatello."

To learn more about the DRC, please visit <a href="https://www.isu.edu/cee/research-facilities/drc/">https://www.isu.edu/cee/research-facilities/drc/</a>.



### Local first responders train at ISU's new Disaster Response Complex

Article Link (Local News 8): <a href="https://localnews8.com/isu/2020/11/17/local-first-responders-train-at-isus-new-disaster-response-complex/">https://localnews8.com/isu/2020/11/17/local-first-responders-train-at-isus-new-disaster-response-complex/</a>

By Emma Iannacone



POCATELLO, Idaho (KIFI/KIDK) - Local first responders trained at Idaho State University's new Disaster Response Complex on Tuesday.

Members of the Pocatello Fire Department's search and rescue team spent hours in a simulated building collapse, trying to rescue a mannequin. In light of the many recent earthquakes in our area, PFD felt it was a good time to brush up on their rescue skills.

The training is one of the first of its kind at the Disaster Response Complex. The Complex was created with a nearly \$1.1 million grant from the Higher Education Research Council of the Idaho State Board of Education.

ISU's Department of Civil and Environmental Engineering associate professor Mustafa Mashal was the principal investigator for the project.

"When we started this project, we noticed there is no facility of this kind in the Northwestern United States," Mashal said.

Mashal's team successfully applied for a grant in 2019, opening the door to create a curriculum in emergency response at ISU.

The structural collapse training is the second to take place at the Disaster Response Center near Alvin Ricken Road in Pocatello.

"We're just really excited to have the facility ISU has provided here. We normally would have to go out of town, as far as Texas, to get a facility like this," said Captain Devin Christensen, with PFD.



The Disaster Response Complex offers more than just training for our first responders. It also offers technological research opportunities for ISU students and faculty.

Engineering students were tasked with creating the simulated building collapse.

"It's kind of a real-life exercise," said Bruce Savage, department chair of Civil and Environmental Engineering. "They get to evaluate the different forces and different scenarios the training teams want to partake in, and then evaluate what's going to make this safe but still allow them a realistic opportunity to test their skills."

The Disaster Response Complex is available to first responders all over the region. New scenarios will be created by engineering students.





# 'Saving lives': Pocatello firefighters practice rescuing victims from collapsed structures at new ISU facility

Article Link (Idaho State Journal): <a href="https://www.idahostatejournal.com/news/local/saving-lives-pocatello-firefighters-practice-rescuing-victims-from-collapsed-structures-at-new-isu-facility/article c5924635-e7cd-5f79-9703-21df08dff407.html">https://www.idahostatejournal.com/news/local/saving-lives-pocatello-firefighters-practice-rescuing-victims-from-collapsed-structures-at-new-isu-facility/article c5924635-e7cd-5f79-9703-21df08dff407.html</a>

By JOHN O'CONNELL/IDAHO STATE JOURNAL

POCATELLO — One group of Pocatello firefighters cut through structural steel with a blowtorch Tuesday morning while others sawed into a slab of concrete, making certain no debris would fall on the dummy trapped below.



Members of the Pocatello Fire Department's Urban Search and Rescue team practice rescuing trapped victims from collapsed concrete structures at a new research and training facility opened by Idaho State University

Members of the department's Urban Search and Rescue team got to simulate tactics to rescue survivors from a collapsed concrete structure at Idaho State University's new Disaster Response Complex.

The facility, located east of campus in a spacious, fenced area above the Idaho Accelerator Center, is unique in the Pacific Northwest. It's primary purpose is university research, but it should also provide an invaluable training and certification resource for several ISU departments, local and regional emergency responders and even soldiers with the Idaho National Guard.



Devin Christensen, a captain with the fire department who heads the special team, had to travel to Texas A&M University in College Station, Texas, with another member of the department the last time he participated in structural collapse training. He anticipates the team will now train locally at least twice per year, at a considerable savings to local taxpayers.

"We can train 25 guys here today for the money it takes to send two to a class in Texas," Christensen said.

The training grounds include several concrete culverts arranged in a winding tunnel, piles of debris and steel supports and concrete slabs that can be cut during rescue training and replaced afterwards.

Christensen explained the training could prepare his team to rescue victims trapped under a collapsed highway bridge, or covered beneath rubble after a bombing or an earthquake.

"I think the main thing is it's a great opportunity to work with ISU and to bring departments from the region together," Christensen said.

ISU engineering students designed the facility. It was funded with a \$1.1 million grant from the Higher Education Research Council of the Idaho State Board of Education through the Idaho Global Entrepreneurial Mission.

Mustafa Mashal is an associate professor in the Department of Environmental Engineering and the principal investigator for the Disaster Response Complex project. He said additional lanes at the facility will include an area to simulate vehicle rescues and a structure that simulates roof collapses.

ISU engineering students are designing the facilities. Mashal said they're also using the facility to test robotic and virtual reality technology they're developing for use in rescues. Some students, for example, are writing a Ph.D. dissertation on adding capabilities to a rescue robot enabling it to navigate through confined spaces. The new collapsed structure facility will enable them to conduct a full-scale validation of those capabilities, he said.

Mashal said the facility will also be useful in develop curriculum and obtaining certifications.

Mashal witnessed the need for such research and training during the aftermath of the 2011 earthquake while in Christchurch, New Zealand.

"Saving lives is the ultimate goal of this project," Mashal said.

Jared Cantrell, project manager of the Disaster Response Complex, said ISU's College of Technology recently used the facility to conduct mass casualty training for future emergency medical technicians. He said the university's GIS program is also interested in using the facility.

Cantrell expects the facility will be self-sustaining with funding from users throughout the community who take advantage of training opportunities.

He hopes to conduct one to two small trainings per week and a couple of larger trainings per month at the facility, with the goal of keeping the cost to users as affordable as possible.

"We're trying to make this as open and available as possible to serve the community," Cantrell said.



# Idaho State University Disaster Response Complex Hosts Training Events for Emergency Responders

Article Link (ISU website): <a href="https://isu.edu/news/2021-spring/idaho-state-university-disaster-response-complex-hosts-training-events-for-emergency-responders.html">https://isu.edu/news/2021-spring/idaho-state-university-disaster-response-complex-hosts-training-events-for-emergency-responders.html</a>

April 20, 2021



Taking COVID-19 pandemic challenges in stride, the Idaho State University Disaster Response Center (DRC) is preparing to host multiple training events in the coming months to assist with the readiness and skill development of emergency responders.

The DRC is currently working with local, regional, and state entities to host training events at its facilities on ISU campus in Pocatello.

Training scenarios for emergency responders include subterranean, breaching, and HAZMAT response. One of the emergency responder communities that the DRC will be hosting includes the Civil Support Teams (CSTs). CSTs are part of the United States National Guard which supports civil authorities during domestic natural or human-made disasters that may result in catastrophic loss of life or property. There are 57 federally sustained but state-controlled CSTs throughout the United States and its territories that are on standby for emergencies 24 hours a day, year-round. The Idaho National Guard's CST is based in Boise and consists of 22 soldiers and airmen.



Local first responders, like firefighters and law enforcement agencies, are also able to utilize the DRC training facilities to practice efficient and effective responses to natural and human-made disaster situations.

"This training facility will not only better lives, but it will save lives," President Kevin Satterlee said. "The complex simulates real-world training exercises for first responders. It is unique for our region, and the knowledge gained will be used to address disaster and emergency situations that may impact our state, our region, and our entire nation."

The DRC is a unique training facility in the Northwestern United States. Training events hosted at the DRC simulate real-world emergency and search-and-rescue scenarios and have the potential to improve and maintain life-saving skills used by responders during disaster remediation. Training scenarios can be customized and structured in several ways. For instance, precast concrete elements are used to create situations that require navigating training lanes that simulate collapsed structures, confined spaces and vehicle rescues.

The principal investigator on the DRC project is ISU's Associate Professor Mustafa Mashal, the coprincipal investigator is Professor and Chair Bruce Savage, both from the Department of Civil and Environmental Engineering.

"The DRC's ultimate goal is saving lives when a catastrophe hits. As a citizen of the United States, I am truly honored that our DRC project supports the community of emergency responders in various ways," Mashal said.

While construction on the core DRC facilities is complete, projects to expand facility capabilities are planned to continue this year. As the DRC broadens its offerings, customizable training can focus on issues beyond cleaning up the aftermath of disasters to the protection of national security.

The DRC opened for training events in 2020 and has already hosted more than 100 first responders. The DRC kicked off 2021 by hosting a K-9 training event for the Snake River Search, Inc. in January. Ten K-9 trainers, 12 K-9's, and four ISU students and faculty participated in the exercise.

"It is also exciting to see how far we have come with the DRC project," Mashal said. "In August of 2019, we started this project from nothing. Today we have a nearly 3-acre outdoor facility that has already started hosting training events for the emergency responders, and has created opportunities for numerous engineering students at ISU to work in different areas of the project, including research, design, construction, curriculum, and training events. The credit for the DRC goes to our hard-working engineering students at ISU who despite all the odds imposed by the global pandemic have done a fantastic job."

Recently the DRC hosted a training for the Idaho Falls Fire Department where 20 trainees and four instructors participated in a confined space exercise.

The DRC has also been an advantageous resource for ISU students, faculty, and staff who have utilized the DRC for practical training on several occasions. One such example is ISU's College of Technology's Emergency Medical Technician program that has been utilizing DRC to provide hands-on and realistic training to the participants.



The DRC has three focus areas: research, curriculum and certification, and training and exercise. The training and exercise focus area encourages local and regional emergency responders to use the DRC for real-world simulations of natural and man-made disasters. The development of the DRC was made possible by funding from the Idaho State Board of Education under the Higher Education Research Council – Idaho Global Entrepreneurial Mission (HERC-IGEM). 18 engineering students from ISU have been working on different pillars of the DRC. The facility is managed by ISU's Department of Civil and Environmental Engineering.

To learn more about the DRC, please visit <a href="https://www.isu.edu/cee/research-facilities/drc/">https://www.isu.edu/cee/research-facilities/drc/</a>.



**Appendix 2: Sample Student Activities** 

Dates	Daniel Garz	Katie Hogarth	Uma Shankar Medasetti
July, 2020		DRC precast inventory Conex lane 1 drawings White page development Jouranl completion	Finalize purchases for Viz lab Setup lab in ERC Tested/setup lab equipment
August, 2020	Open House Cityscape roof design Journal summaries	Open House Began conex lane fabrication Began 3D conex drawing Finalize journal	Open House Funding proposals
September, 2020	Presidents visit GIS drone flight	Presidents visit Conex lane fabrication	Presidents visit Develop concept paper
October, 2020	Armory layout Finalize cityscape layout	Finished conex lane fabrication reloacted conex and other materials to DRC	Develop concept paper
November, 2020	Construction staking for conex tower Cityscape framing	Continue conex drawings	Finalize concept paper
December, 2020	Cityscape framing Walls, sheeting, drywall	Place conex footings Transfer materials	
January, 2021	Writing MS project on the DRC	Research for Taping and Mudding Taping and Mudding of indoor DRC Volunteer for Dog training	Journal work with Shisir
February, 2021			3MT Event Prep Argon Meeting Alineware Backpack/Hololens work
March, 2021		Aid in set up for Idaho Falls Fire Department	AR/VR Development Branch Review Paper

### INSTRUCTION, RESEARCH AND STUDENT AFFAIRS **FEBRUARY 17, 2022**

**ATTACHMENT 8** 

Oculus Quest work

April, 2021	Set-up and assisted with INL Event Selection of images and framing for armory	Digital Forum Terrorism meeting
May, 2021	Hang Framed photos for armory	Review Paper

Begin Signage and Furnishing of Indoor DRC

June, 2021 Preparing for MS project defense

Dates	Mahesh Acharya	Mahesh Mahat
July, 2020	Outdoor DRC rubble pile construction	Outdoor DRC rubble pile construction
August, 2020	Open House	Open House Inventory of incoming materials for DRC Footings construciton
September, 2020	Presidents visit	Presidents visit Continue inventory Footings construction Clean and empty armory
October, 2020		Finish footing construction Clean armory
November, 2020	Set lane for PFD training	Set lane for PFD training Cityscape framing
December, 2020	Cityscape framing Walls, sheeting, drywall	Cityscape framing Walls, sheeting, drywall
January, 2021	Planning for Trench Design for Outdoor Facility Weeley Meetings	Mudding the drywall gaps Painting the indoor facilities
February, 2021	College of Tech. tour of DRC Indoor and Outdoor Facility Trench Design Literature	Painting the indoor facilities
March, 2021	Dr. Karen tour of DRC Indoor and Outdoor Facility Trench Design Calculations	Painting the indoor facilities

# INSTRUCTION, RESEARCH AND STUDENT AFFAIRS FEBRUARY 17, 2022

**ATTACHMENT 8** 

April, 2021	Continue work on detailing and design of trench Help on training of the first responders at the facility	Removing the old furnitures from armory offices Setting up new furnitures Wood panel installation in the interior facilities Training at Stephan's
May, 2021	Drawings and details of the trench Work to obtain quotes from precast yards	Blinds installation Lights installation Window frame/ pixie glass/ wall baseboard installation Bench installation for classroom/ Batching for hollowcore
June, 2021		Painting the classroom

Dates	Samantha Kerr	Rachel Brownell
July, 2020	Indoor drawing development Outdoor DRC rubble pile construction	White page development Garage structure drawings Material lists
August, 2020	Open House Continue indoor development	Open House Journal summaries for writing Assit with conex lane fabrication
September, 2020	Presidents visit Begin trench deveopment Determine materials for indoor cityscape Determine final cityscape layout Create cut sheets for construction	Presidents visit Conex lane fabrication DRC materials inventory Review journal Began handling DRC website DRC tower drawing
October, 2020	Develop budget and pricing of materials Search for cheap options for cityscape Finalize drawings and cutsheets for cityscape	Finish conex lane fabrication CMS website training Continue website work
November, 2020	Lead indoor cityscape framing Continue searching for materials	Website maintenance
December, 2020	Cityscape framing Continue searching for materials	Website maintenance
January, 2021	Left Project	Left Project
February, 2021		

IRSA TAB 4 Page 98

March, 2021

Dates	Zachary Free
July, 2020	Setup lab and equipment Test equipment
August, 2020	Open House Funding proposals
September, 2020	Presidents visit Develop concept paper
October, 2020	Develop concept paper
November, 2020	Finalize concept paper
December, 2020	
January, 2021	
February, 2021	VR Discussion with INL Began work on Radiological Response training in VR with Uma Shankar and Jack Dunkar VR environment set-up (Stephens Performing Arts Center as setting) Weekly meeting for PAC Training
March, 2021	

# INSTRUCTION, RESEARCH AND STUDENT AFFAIRS FEBRUARY 17, 2022

**ATTACHMENT 8** 

April, 2021 Participated in the Rad-response training at Holt Arena Character controls in VR environment

May, 2021

June, 2021

Dates	Jack Dunker
July, 2020	
August, 2020	
September, 2020	
October, 2020	
November, 2020	
December, 2020	
January, 2021	Joined Project
February, 2021	Setup demo project. Joined Project VR project Meeting Researched translation of c++ function for Unreal to C# for Unity. DRC meeting VR project Meeting Setup repository for project. DRC meeting VR project Meeting
March, 2021	Setup initual instance of Stevens Performing Arts Center in engine. DRC meeting VR project Meeting Setup landscape actor in Unity VR project Meeting Added concrete and asphalt materials to landscape. Cleaned up excess assets. DRC meeting VR project Meeting Increased landscape resolution. Started on player avatar. DRC meeting VR project Meeting

# INSTRUCTION, RESEARCH AND STUDENT AFFAIRS FEBRUARY 17, 2022

**ATTACHMENT 8** 

	Setup basic movement controls for avatar. DRC meeting VR project Meeting
April, 2021	VR project Meeting DRC Meeting
	Started translating c++ code from demo project to c# for radiation simulation. VR project Meeting
	Setup user interface readout to display dose rate. DRC Meeting VR project Meeting
	Disaster Response roleplay. Connected user interface to radiation simulation VR project Meeting
May, 2021	VR project Meeting DRC Meeting
	Started translating c++ code from demo project to c# for radiation simulation. VR project Meeting
	Setup user interface readout to display dose rate. DRC Meeting VR project Meeting
	Disaster Response roleplay. Connected user interface to radiation simulation VR project Meeting
June, 2021	Fixing and updating environment to be more accurate to Stevens PAC area. VR project Meeting

Encumbrances Reservations Total by ROWS

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(9,925.96 12,547.25

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Fiscal_Month (As of June 29, 2021)				Temporar	y Budget Ju	ul ,	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Subtotal	YTD	YTD	
				Amount	А	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount
ndex Only	Account			Value	٧	/alue	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
AHRC48_APPR IGEM	Labor																				
Response Complex for Eme					0.00																
		610_Salaries			0.00	(2,153.85)	(5,384.62)	(5,384.62)	(8,076.93)	(5,384.62)	(5,115.39)	(5,071.64)	(6,265.73)	(6,318.71)	(9,483.12)	(5,763.36)	(5,303.86)	(69,706.45)			.00 (69,706.45
		620_Irregular Help			0.00	(429.84)	(7,583.31)	(6,749.49)	(3,908.13)	(2,481.63)	(2,323.11)	(4,095.50)	(2,551.96)	(2,473.86)	(3,715.03)	(9,831.92)	(17,560.66)	(63,704.44)	(0.00	J) 0.	.00 (63,704.44
		630_Fringe Benefits			0.00	(125.68)	(2,126.31)	(2,322.52)	(2,935.62)	(1,928.71)	(1,859.76)	(1,940.25)	(2,254.47)	(2,272.23)	(3,410.15)	(2,258.77)	(2,577.88)	(26,012.35)	(0.00	a) o.:	.00 (26,012.35
	Direct Expenditures		·																		
		700_Travel			0.00	0.00	0.00	(924.69)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(924.69)	0.0	JO 0.	.00 (924.69
		720_Services		3	304,347.00																304,347.0
			722_General Services			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(14.50)	(35.50)	(50.00)	0.0	0.00	.00 (50.00
			724_Professional Services		0.00	0.00	(540.50)	(165.28)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1,153.46)	(163.84)	(2,023.08)	0.0	JO 0.	.00 (2,023.08
			727_Administrative Services		0.00	0.00	0.00	(1,509.00)	(1,864.70)	(250.00)	0.00	(23.45)	0.00	(129.00)	(164.60)	0.00	0.00	(3,940.75)	0.0	0.00	.00 (3,940.75
			728_Computer/Tech Services		0.00	0.00	(88.88)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(88.88)	0.0	0.00	.00 (88.88
			729_Repair and Maintenance Services		0.00	0.00	(839.68)	0.00	0.00	(109.99)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(949.67)	) 0.0	JO 0.	.00 (949.67
			741_Rentals and Operating Leases		0.00	0.00	0.00	0.00	(466.20)	0.00	(132.50)	0.00	0.00	(93.50)	0.00	(535.20)	(4,668.50)	(5,895.90)	0.0	JO 0.	.00 (5,895.90
		730_Supplies																			
			731_Administrative Supplies		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(480.46)	(2,198.95)	(2,431.73)	(5,271.69)	(10,382.83)	0.0	JO 0.	.00 (10,382.83
			732_Fuel and Lubricants		0.00	0.00	(46.16)	0.00	(23.24)	(57.20)	(54.88)	(51.74)	(58.77)	(55.02)	(84.42)	0.00	(145.16)	(576.59)	0.0	JO 0.	.00 (576.59
			733_Computer Supplies		0.00	0.00	(125.96)	(64.98)	(131.87)	(55.07)	0.00	0.00	(69.98)	0.00	0.00	(341.96)	0.00	(789.82)	9) 0.0	00 0.	.00 (789.82
			734_Repair and Maintenance Supplies		0.00	(560.95)	0.00	(2.95)	(24.38)	(2,034.84)	32.00	0.00	(172.00)	(43.07)	(289.88)	(31.94)	(56.82)	(3,184.83)	0.0	00 0.	.00 (3,184.83
			736_Institutional/Specific Use		0.00	(537.94)	(1,461.61)	(517.60)	(1,135.64)	(1,374.77)	(5,438.77)	(575.51)	(2,216.16)	(7,075.29)	(1,271.93)	(6,861.32)	(884.61)	(29,351.15)	i) 0.0	JO 0.	.00 (29,351.15
		800_Capital Expense																			
			820_Buildings and Improvements		0.00	0.00	0.00	(10,000.00)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(5,267.42)	0.00	(15,267.42)	!) 0.0	00 0.	.00 (15,267.42
			830_Computer Equipment		0.00	0.00	(7,545.25)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(7,545.25)	0.0	JO 0.	.00 (7,545.29
			835_Educational Materials and Equipment		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1,996.00)	0.00	0.00	0.00	(1,996.00)	0.0	0.00	.00 (1,996.00
			840 Motorized Equipment		0.00	0.00	0.00	0.00	0.00	(3,659.00)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(3,659.00)	0.0	JO 0.	.00 (3,659.00

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(989.97) (7,037.14) (15,488.23)

Accounted Budget Year-to-Date

0.00 0.00

0.00 0.00

0.00 0.00

0.00

Note: All project budget for the second year (\$304,347) will be spent by June 30, 2021. There are some expenses that have not been posted in this spreadsheet.

870\_Educational and Training Assistance

840C\_> \$5K Motorized Equipment

871\_Educational and Training Assistance

845\_Office Equipment

850\_Specific Use Equipment

Appendix 3: Expenditure Report
Data\_Description

### IGEM20-002











# ISBOE HERC-IGEM Cellulosic 3D Printing of Modular Building Assemblies

SECOND YEAR REPORT
FISCAL PERIOD – JULY 1, 2020 - JUNE 30, 2021

SUMMARY OF PROGRESS June 30, 2021

### Prepared for:

HERC-IGEM – Idaho State Board of Education Dr. TJ Bliss

#### **Authors:**

Ken Baker, M. Arch - PI

Dr. Armando McDonald - Co-PI

Dr. Michael Maughn – Investigator

Dr. Tao Xing – Investigator

Dr. Ralph Budwig – Investigator

Dr. Damon Woods - Investigator

Report Number: 4 – June 30, 2021

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ii

### CONTENTS

1. Introduction	1
2. Summary of Project Accomplishments for the reporting period just completed	2
Year 2 report overview Error! Bookmark	not defined.
3. Summary of budget expenditures	10
4. Demonstration of economic development/impact	11
5. Numbers of faculty and student participation	12
6. Description of future plans for project continuation or expansion	12
7. Commercialization revenue	12

### ACRONYMS AND ABBREVIATIONS

3D printing Three-dimensional printing
AM Additive manufacturing`
IDL Integrated Design Lab
UI University of Idaho

Integrated Design Lab | Boise 1

### 1. Introduction

The project objective is to identify the methodology, process, and materials necessary to three-dimensional cold print (3D print) building assemblies utilizing, to some maximum extent, wood products. Moving a significant portion of construction into a factory setting where labor and work is organized and executed more efficiently will have the following benefits: 1) increase the quality and energy efficiency of buildings; 2) lower overall construction costs; 3) provide appropriate compensation for a more skilled labor force and, 4) assist in mitigating the current construction skilled labor shortage challenge in Idaho.

#### Tasks for Year 2:

- 1) Identify private industry investors and solicit financial commitment from industry partners
- 2) Build a small-scale printer and print a two foot by two-foot by eight-inch wall section
- 3) Program a computer model for running printer.
- 4) Perform heat transfer and structural tests on a wall section.

#### **Summary for Year 2:**

Significant discovery was made on each of the four tasks identified as Year 2 deliverables. We do not as yet have private industry support for the project as we are, 1) working toward a provisional patent that would allow our disclosure of the resins and process for creating our product and, 2) we are in process of building a new business model under a program developed through the Boise State University Venture College and funded through NSF. Our acceptance in the I-Corps Ignite program is providing a structured business development process that we plan to fully implement over year three of the grant.

U of I Engineering has designed and built a first prototype printer and we have successfully printed single-layer prints. Our refined goal for year three is to print in layers.

Our resin and curing process has successfully produced a hardboard product that looks to be competitive with other hardboards on the market. Unlike current market products, our hardboard has no toxic resins, looks to be highly moisture and fire resistant (testing begins in October 2021), sequesters carbon at a high rate (currently being documented) and, prints and is able to cure without added heat energy.

We have built a guarded hot plate for thermal testing our material and panel sections when complete.

This has been an excellent discovery process for faculty and students. Engineering graduate student, Conal Thie has completed his master's thesis, focusing on the flow characteristics of wood fibers and our resin and extrusion process. Environmental Science doctoral student, Berlinda Orji is documenting the flow and curing process of the mix as part of her dissertation.

#### 2. SUMMARY OF PROJECT ACCOMPLISHMENTS FOR THE REPORTING PERIOD JUST COMPLETED

Research and identify the printing mix of wood/natural fibers, binders and adhesives.

Prepared by: Armando McDonald, Ph.D

#### **Second Year Report**

Year 2, reporting Dr. McDonald staffing: 1 Ph.D. student in Environmental Science. 1 woman. Salary expenditures and student tuition in the McDonald lab have focused on supporting the research efforts of one Ph.D. student. Capital and operational expenses are in line with ongoing and projected research activities on wood-resin curing research. Appropriated funds will be expended by the end of year 2.

The second-year research focused on the use of a selected adhesive amongst the options available for wood composite production due to its ease of use and less squeeze out during extrusion. Continuous capillary extrusion using this wood and adhesive blend were performed using the INSTRON capillary rheometer at high shear rates to determine compressive pressure and viscosity values. Frequency sweeps of the wet blends was done using the purchased DHR2 rheometer between two 25 mm parallel plates, to attain viscosity values at lower shear rates as seen in Figure 1. Dynamic rheology temperature ramps (30°C - 200°C) on wet samples helped in understanding the curing reactions of different wood-adhesive blends.

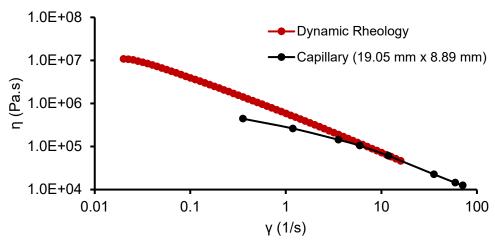


Figure 1: Dynamic viscosity and capillary viscosity from low to high shear rates

A larger capillary setup in Figure 2a, with large dies was machined for bigger sample load with thicker extrudate diameter. With the understanding of the vertical capillary rheology setup, a horizontal extruder setup was coupled together for extrusion and printing purposes. An industrial food processor was also purchased for mixing larger volumes of wood-adhesive samples (Figure 2b). Wet woodadhesive blends were also pressed in 1-inch and 3-inch molds for characterization. Obtained extruded and pressed samples were cured at different temperatures (60°C - 105°C) and further characterized.







Figure 2: a) Large Capillary rheology setup and, b) Industrial food processor.

The use of carbon dioxide (CO<sub>2</sub>) for curing was employed to understand its effect in improving the mechanical and thermal properties of the cured samples produced, whilst reducing environmental issues and improving sustainability. The adhesive used was exposed to 99% of pure CO2 at different time intervals (0.5 to 20 min) to observe gelation crosslinking reactions before further curing of woodadhesive blends. Adhesive showed effective gelation and cross linking. Post curing was attained in the oven at different temperatures (60°C - 105°C). Curing of the wet wood adhesive blends with CO<sub>2</sub> was done using a pressure vessel (Figure 3) and in a controlled temperature environment. For the controlled temperature environment, samples pressurized under CO2 were placed in a water bath at 60 °C for specific times. Wet wood-adhesive blends were cured thermally in the absence and presence of CO<sub>2</sub> with further characterization. Physical and chemical changes were observed with the presence of CO2 in the cured wood-adhesive blend.



a). Before curing



b) After curing at 105°C



c) After CO<sub>2</sub> (60 psi and 60 °C) and thermal curing



Figure 3: Pressure vessel used for CO<sub>2</sub> curing

Integrated Design Lab | Boise 4

Wet and cured extruded slabs from horizontal extruder setup are presently characterized to obtain their properties. Surface chemistry changes were observed with the addition of the adhesive to wood, presence of CO<sub>2</sub>, and after curing using the FTIR analysis. Thermal degradation properties of the cured samples which was done using TGA, improved in the presence of CO<sub>2</sub>. bending tests, dynamic mechanical analysis (DMA) for mechanical tests, dynamic rheology for flow properties and water soak tests.

Current and future studies involve the improvement of  $CO_2$  curing techniques, use of different additives, catalysts, pressure and temperature modifications for curing, for improvements in properties of the 3D printed cured composite blends.

### Build a prototype printer.

Prepared by: Michael R. Maughan, Ph.D, PE and Tao Xing, Ph.D PE

Year-End Update Report, IGEM, June 2021 - University of Idaho Mechanical Engineering

The University of Idaho (UI) Mechanical Engineering (ME) team has the responsibility of developing a 3D printing process and printer for depositing a wood waste composite mixture developed by researchers in the UI College of Natural Resources (CNR). The goal is to make bespoke small-scale composite structural building panels. UI ME is also responsible for thermal modeling and optimization of the 3D printed composite building panels.

In 2021 the Mechanical Engineering team has continued to make progress on the development and implementation of the system. We have refined the previously identified extrusion technique to eliminate defects on the surface known as shark-skin. This defect is caused by friction and shear gradient within the flowing mixture. In addition to improving extrudate quality, we have identified a suitable hose and attachment method to convey the wood product from the extruder barrel to the nozzle. A nozzle system has been developed with geometry acceptable to print prototype panels. Fig. 4 shows a prototyping progression of the nozzle.

Integrated Design Lab | Boise 5



Figure 4. Progression of printer nozzle design.

Continuous flow extruder — We have added a 1hp motor to the extruder. This is necessary to overcome the high pressures required to move and form the composite mixture. Adapting the motor require machining a custom adapter and alignment blocks to support the motor. The machine is now capable of higher output and operates effectively. We have used this machine and a round nozzle to make cylindrical samples which were used to test strength and modulus. We have identified a curing method that achieves properties equal to or exceeding those of particle board. Preliminary moisture and fire testing have been conducted.

**Direct extrusion frame and simulation** — Using the direct extrusion frame and prior computational model, the simulation has been refined and is being incorporated into a student's Master of Science Thesis. The team has identified a state-of-the-art Discrete Element Modeling (DEM) based simulation software that is fully integrated with ANSYS multiphysics, which will be used to improve the simulation accuracy.

**Modular 3D-printer frame** – Since December 2020, we have completed the primary wiring and motion gantry. The computer numerical control components of the printer have been installed and the printer has functional motion control. Figure 5 shows the printer with the extruder. In testing with the extrudate, we have learned that adhesive and pressure are required to make the layers bond, so our next task is to incorporate an adhesive spraying system and pressure panel that can be used to maintain adhesion during the first stages of curing. The system utilizes stepper motors for position control. The

target layer geometry is wide and thin, which enables a large surface area to promote interlayer adhesion.



**Graduate research assistants** – UI ME has been staffed with two graduate research assistants (GRA) since December 2020. GRA1 has focused on the deposition process and performance modeling of the material. The GRA2 has wired and finished the printer frame and developed the extrusion nozzle.

Figure 5. 3D printer with extruder system.

#### Develop guarded hot plate for thermal testing

Prepared by: Damon Woods, Ph.D, P.E., Ralph Budwig, Ph.D, P.E.

Staff: William (Bob) Basham

Graduate Students: Tais Mitchell and Conal Thie

Over the last year, we pursued two separate methods to characterize the thermal properties of the 3D-printed wood composite. Initially, we used a transient probe from East 30 sensors to measure the thermal conductivity of the samples. The transient probe is useful for measuring small samples produced by the rheology press. We used the thermal conductivity results to develop a numerical model and estimate the insulation properties of a full wall assembly made from these materials. We ran further simulations to estimate the potential energy savings for residents compared to other wall types. We used DOE's scout energy analysis tool to estimate the potential market penetration and total energy savings.



Figure 6. Thermal Testing Using a Transient Probe Method.

Once we collected preliminary results with the probe, we worked on a secondary method to measure more thermal properties in accordance with building code requirements. This secondary testing method will provide details on how the layering effects of the 3D printed process impact the thermal properties of the material (Fig. 6). To meet this goal, we have designed and fabricated a thermal testing apparatus in accordance with the ASTM Standard C177 (Fig. 7). In addition to complying with the ASTM standard, the apparatus was designed as a modular assembly for ease of manufacturing. Renderings and photos of the device are shown below. It consists of an aluminum frame to hold the materials, heating plates and sensors controlled by an Arduino board, and a water refrigeration system.

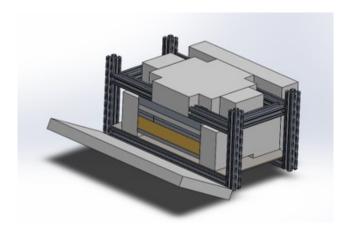




Figure 7. Rendering of 2nd Apparatus (Left) and calibration testing of Apparatus (Right).

The apparatus shown above (Fig. 7) is currently undergoing verification experience with a standard reference material to ensure reliability and compliance towards the standard. We are planning further refinements to make the device computer automated during the test and process the recorded data. The device will characterize the thermal properties of the printed material so that we can optimize the panel materials and configuration.

Integrated Design Lab | Boise 8

In addition to the thermal testing, the team also worked to develop a life cycle assessment analysis comparing the environmental impacts of the preliminary wall assembly to other wall envelops in residential and light commercial buildings. The scope of the analysis focused on quantifying the embodied energy of a typical 8-foot by 8-foot wall section in each stage of its life. This includes the material, manufacturing process, building energy usage, and end of life stages. We worked to quantify other Eco indicators including acidification, global warming potential, and Ozone depletion. We learned from the study that the stage responsible for the largest environmental impact is that of the building energy usage phase. Based on our estimates, the 3D printed wood-waste wall showed the some of the lowest energy impacts of any wall assemblies that we studied.

### **Constructability Analysis**

R. Casey Cline, Boise State University, Department of Construction Management Kirsten A. Davis, Boise State University, Department of Construction Management J. Ty Morrison, Boise State University, Department of Construction Management

The Boise State University Construction Management (BSU CM) research team has focused on three areas supporting the research efforts: assisting in developing the business case, developing a construction sequencing model, and continuing with the constructability reviews.

### Assisting with business case development:

The UI team has been developing the business case for the 3D printed panels. The BSU CM team has been providing assistance in reviewing this work and adding to it based on our areas of expertise in the construction industry.

Discussions have been held with the Idaho Associated General Contractors (AGC) about the progress of the 3D printing project. (Note: The AGC provided a letter of support during the grant application process). The main takeaway at this time is that approaching contractors to participate in testing of the 3D product will be easier, and more likely to be successful, once a product is available.

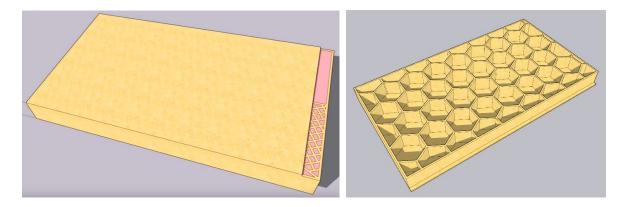
There have been preliminary discussions with the Idaho Forest Products Commission (IFPC) and other building related companies about the concepts and products this work is creating and they are interested in learning more once the details of the panels are more fully developed.

The BSU CM team has also been evaluating the best market (residential, light commercial, etc.) for panels like this based on constructability, using the current and projected panel and material info from the UI teams. For either market, the adoption and use of a 3D printed panels in construction will depend on cost, schedule, and availability of skilled labor. The intent is to have a process where the panels are manufactured in a local factory setting, or possibly fabricated on site.

### **Developing construction sequencing model:**

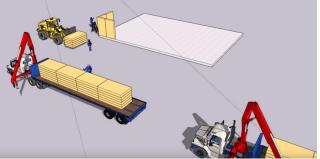
Using 3D modelling and video editing software, models and a video have been developed to begin determining the panel configurations and ideal construction sequencing of panels. This work includes a simulation of full-size panel printing, proposed panel shapes, and a possible construction sequence. Several iterations of the panel configuration have been explored, reflecting the initial fabrication and tests of extrudent. Final refinement of the ideal panel shape and structure is dependent on completion of the extrusion manufacturing process and related properties testing. The modelling and sequencing will continue to evolve and improve as more details about the panel fabrication processes from the UI teams become available. Limitations in the panel fabrication process may affect delivery and erection requirements, causing changes to the final panel shapes and construction sequencing. Several screen shots included below depict examples of the refinement of conceptual design ideas.

Also, as mentioned above, the BSU CM team has identified the possibility of panels for use in residential and light commercial applications which will require adaptation of the basic panel concept (configuration and sequencing) to better facilitate implementation in these two distinct arenas of construction markets.



Examples of possible panel makeup with interior honeycombing revealed





Beginning of possible construction sequence

## Continuing constructability review:

The constructability review has continued to evolve as the details of the panel materials have been developed by the UI teams. The BSU CM team has provided troubleshooting on the project and has developed priorities for the wood fiber material and panel development, based on constructability aspects. These priorities include items such as:

- water resistance,
- dimensional stability,
- durability,
- ability to modify panels at job site with common tools such as saws, drills, routers, etc. with minimal damage to panels,
- suitability of panel for paint, adhesives, sealants to stick to panel with minimal prep,
- size and texture of finished panels, and
- ability to embed metal and/or plastic items during 3D printing process to facilitate transportation, connections, utilities located in or attached to panels, and finishes applied to panels.

#### **Future Plans:**

We are looking forward to experimenting with small sections of full-thickness panels to help ensure that the panels will meet our constructability priorities. Samples of 3D printed material will also allow us to determine how panels can be connected together to create a wall or other part of a structure, as well as whether those connections actually work. Aspects such as durability of the panels and suitability for finishes will also be explored over the next year.

The construction process and sequencing will be updated to reflect improvements made by the UI teams.

## 3. SUMMARY OF BUDGET EXPENDITURES

\$152,528.40

Salaries:

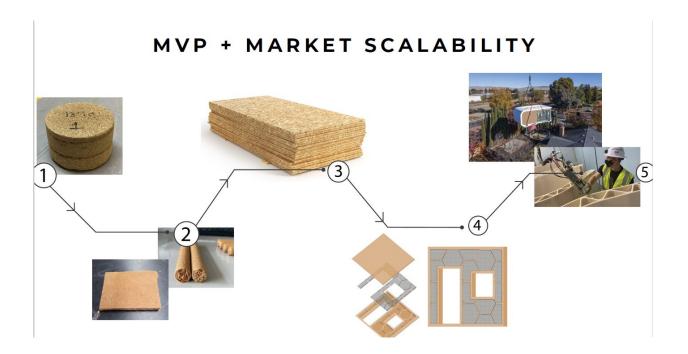
	. ,
Temp Help	\$18,090.00
Fringe	\$ 30,993.12
Travel	\$ 00
Operating	\$ 28,549.67
Small Equip	\$ 844.95
Capital Equip	\$9991.11
BSU Sub	\$28,908.15
Tuition	\$46594.00
TOTAL	\$316,499.4

## 4. DEMONSTRATION OF ECONOMIC DEVELOPMENT/IMPACT

- Patents, copyrights
  - We are actively working on a provisional patent for the cold-setting process.
- Technology licenses signed
  - None at this time
- Private sector engagement
  - PI Ken Baker and masters' student Kelsey Ramsey were selected by the I-Corps Ignite committee to participate in a four-week three-university class on lean startup business development. We are engaged in moving our product to date forward and finding private funding and a new business case. A large aspect of this class is identifying private sector clients and performing client interviews. These will take place beginning this summer.
- Jobs created
  - None outside the universities at this time.
- External funding
  - We submitted on an NSF Track 2 grant proposal (Michael Maughan PI) and were notified on June 29 that it will be funded. Under this proposal we will expand our current research to other bio-based materials for our panel prints and explore the architectural resiliency expressions of materials in design applications.
  - We have submitted a DOE BENEFIT grant proposal (Ken Baker PI) and are awaiting confirmation of award. This proposal would work toward development of the scale up panel manufacturing process and, solicit a manufacturing partner.
  - We have submitted an ARPA-E concept paper to DOE (Armando McDonald PI) to develop products from our cold-setting mix of wood, sodium silicate and carbon dioxide. We are waiting to receive a go ahead for a full proposal.
- Other pertinent information

 Although we do not yet have a printed panel, we do have a minimum viable product in the form of a hardboard that we believe will be competitive with current products. The goal under this grant is to get to image #4 below. We are currently approaching #3.

Integrated Design Lab | Boise 12



## 5. NUMBERS OF FACULTY AND STUDENT PARTICIPATION

There are nine faculty participating in the grant, six from the U of I and three with BSU. There were five Research Associates working on the grant in year two.

## 6. DESCRIPTION OF FUTURE PLANS FOR PROJECT CONTINUATION OR EXPANSION

Four key outcomes were expected in year 2 of the three-year grant:

- 1. The print mix for cold setting print will be identified. Completed.
- 2. The printer specifications and printer will be further defined as a product that could scale up for manufacturing large-scale panels. Completed
- 3. Business/industry partners will be engaged and private investment will be solicited. We are currently reworking our business plan under the I-Corps Ignite program.
- 4. The thermal characteristics of printed panels will be assessed. Ongoing as new prints are developed.

### 7. COMMERCIALIZATION REVENUE

None to date.

# INSTRUCTION, RESEARCH AND STUDENT AFFAIRS FEBRUARY 17, 2022

### **SUBJECT**

Postsecondary Student Experience Survey Report

## **REFERENCE**

December 2021 The Board discussed initial findings from this survey

during the Work Session.

# APPLICABLE STATUE, RULE, OR POLICY

Section 33-138, Idaho Code

## **BACKGROUND/DISCUSSION**

During the 2021 Idaho legislative session, allegations were made that some students at Idaho's public postsecondary institutions are being treated negatively because of their personal beliefs and viewpoints. To determine if there is merit to these serious allegations, the Office of the State Board of Education conducted a research study in November 2021 that included a survey of the more than 54,000 students at Idaho's eight public institutions.

The survey included questions that asked students if they feel valued, respected, and like they belong at their institutions. It also asked students if they have experienced pressure to affirm or accept beliefs they find offensive, or if they have been shamed or bullied for sharing their personal viewpoints and perspectives. Students who indicated any degree of pressure or shaming/bullying were given an opportunity to identify, generally, from whom they experienced this treatment (faculty, other students, administrators, etc.). Students were also given an opportunity to provide demographic information, including age, gender, ethnicity, class status (freshman, sophomore, etc.), and political ideology. All questions on the survey were optional to allow maximum freedom and discretion in providing responses.

8,989 students completed the survey, for a total overall response rate of 16.4%. College of Southern Idaho had the lowest response rate (8.9%) and Idaho State University had the highest response rate (24%). All responses to the survey were completely anonymized to protect student privacy. The Board office did not collect data about which students responded or did not respond, nor can the office connect any specific response to any specific student.

The preliminary results of this survey were presented to the Board on December 15, 2021. The Board directed staff to develop a full report of the results. Staff have created an interactive dashboard, with explanatory language, and full datasets made available to the public. Data have been aggregated or masked to ensure student privacy and confidentiality where cell sizes were smaller than five (5) students. The dashboard can be accessed at

https://dashboard.boardofed.idaho.gov/StudentExperienceSurvey.html

# INSTRUCTION, RESEARCH AND STUDENT AFFAIRS FEBRUARY 17, 2022

# **IMPACT**

The Board may want to use the data from this survey to inform how to respond to allegations of bias on Idaho's postsecondary campuses. The data could also help inform future Board policies that protect freedom of expression and encourage diversity of thought at Idaho's public postsecondary institutions. The information could also help institutions develop awareness and implement strategies to improve the campus experience for all students.

### **ATTACHMENTS**

Attachment 1 – Postsecondary Student Experience Survey Questions and Consent Language

## **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

Board staff, particularly the Chief Academic Officer and the Chief Research Officer, worked closely with Board members and institutional research officers to develop a survey protocol that minimized disruption on campus. While the Board office worked with the institutions to develop the protocol for administering the survey, the data analysis and interpretation was conducted solely by Board staff. The use of a national Institutional Review Board (IRB) for human subjects research, rather than one of the institutions' IRBs, provided an additional layer of independence.

This report was presented to the Council on Academic Affairs and Programs and to then to the Instruction, Research, and Student Affairs Committee of the Board on February 3, 2022.

# **BOARD ACTION**

This item is for informational purposes only.

# SURVEY INSTRUMENT with CONSENT

This survey is being administered by the Idaho State Board of Education as part of study to better understand how students perceive their higher education experiences.

Taking this survey is completely voluntary. There are no negative consequences if you choose not to participate. If you start the survey, you can always change your mind and stop at any time.

No personally identifiable information will be preserved by the State Board, including your name or email address. Your responses to this survey will not be connected with your personally identifiable information. You will not be identified in any report or publication of the data collected through this study. You will be asked to voluntarily provide high level demographic data like your age, gender and ethnicity. Any demographic categories with fewer than 5 individuals will be suppressed in publications and in the case of public records requests, as an added level of identity protection.

For questions about this survey and study you may send an email to board@osbe.idaho.gov with the subject line: Campus Climate Survey.

Your participation in this study is completely voluntary, and you can withdraw at any time by closing your browser window. By clicking the NEXT button, you are indicating your informed consent to participate in this research study.

#### **SURVEY ITEMS**

- 1. What is your age?
  - a. Drop down menu with ages in years

[Go-to end of survey if "17" or below]

- 2. Which institution do you primarily attend? (Select the institution where you are currently taking most of your credits)
  - a. Boise State University
  - b. College of Eastern Idaho
  - c. College of Southern Idaho
  - d. College of Western Idaho
  - e. Idaho State University
  - f. Lewis-Clark State College

- g. North Idaho College
- h. University of Idaho
- i. Other

# [If "Other" go to end of survey]

- 3. What is your current class status?
  - a. Freshman
  - b. Sophomore
  - c. Junior
  - d. Senior
  - e. Graduate Student
  - f. I don't know or prefer not to answer
- 4. Are you Hispanic or Latino?
  - a. I am Hispanic or Latino
  - b. I am NOT Hispanic or Latino
  - c. I don't know or prefer not to answer

# [If "Hispanic or Latino" Go to #6]

- 5. What is your race or ethnicity? (Select all that apply)
  - a. American Indian or Alaska Native
  - b. Asian
  - c. Black or African American
  - d. Native Hawaiian or other Pacific Islander
  - e. White
  - f. I don't know or prefer not to answer
- 6. What is your gender?
  - a. Female
  - b. Male
  - c. Other
  - d. I prefer not to answer
- 7. To what extent do you feel you belong at your college or university?
  - a. Not at all
  - b. Somewhat
  - c. Quite a bit
  - d. Very much
  - e. I don't know or prefer not to answer
- 8. To what extent do you feel valued at your college or university?

- a. Not at all
- b. Somewhat
- c. Quite a bit
- d. Very much
- e. I don't know or prefer not to answer
- 9. To what extent do you feel you are treated with respect at your college or university?
  - a. Not at all
  - b. Somewhat
  - c. Quite a bit
  - d. Very much
  - e. I don't know or prefer not to answer
- 10. While attending your college or university, how often have you felt pressured to accept or affirm beliefs you found offensive?
  - a. Never or very rarely
  - b. Occasionally
  - c. Often
  - d. Very frequently
  - e. I don't know or prefer not to answer

## [If "Very rarely or never" go to #12]

- 11. Who would you say has pressured you to accept or affirm beliefs you found offensive? (Select all that apply)
  - a. Professors or instructors (faculty)
  - b. Other students or peers
  - c. Administrators
  - d. Other employees of the college or university
  - e. I don't know or prefer not to answer
- 12. While attending your college or university, how often have you experienced shaming or bullying from others when you have shared your personal beliefs or viewpoints?
  - a. Never or very rarely
  - b. Occasionally
  - c. Often
  - d. Very frequently
  - e. I don't know or prefer not to answer

# [If "Very rarely or never" go to #15]

- 13. Who would you say has bullied or shamed you for sharing your personal beliefs or viewpoints? (Select all that apply)
  - a. Professors or instructors (faculty)

- b. Other students or peers
- c. Administrators
- d. Other employees of the college or university
- e. I don't know or prefer not to answer
- 14. How safe have you felt to express your personal beliefs with others at your college or university without fear of negative consequences?
  - a. Not at all safe
  - b. Somewhat safe
  - c. Mostly safe
  - d. Very safe
  - e. I don't know or prefer not to answer
- 15. How familiar are you with safeguards and policies at your college or university that protect your rights regarding freedom of expression?
  - a. Not at all familiar
  - b. Somewhat familiar
  - c. Mostly familiar
  - d. Very familiar
  - e. I prefer not to answer.
- 16. To what extent do you agree or disagree with the following statement: "It is important to participate in courses and activities at my college or university that are designed specifically to enhance my understanding of others' beliefs and viewpoints?"
  - a. Strongly disagree
  - b. Somewhat disagree
  - c. Somewhat agree
  - d. Strongly agree
  - e. I don't know or prefer not to answer
- 17. How would you characterize your political views?
  - a. Far left
  - b. Left
  - c. Center
  - d. Right
  - e. Far right
  - f. Other
  - g. I don't know or prefer not to answer

TAB	DESCRIPTION	ACTION
1	DEVELOPMENTS IN K-12 EDUCATION	Information Item
2	FEDERAL CORONAVIRUS RELIEF K-12 FUNDING UPDATE	Information Item
3	IDAPA 08.08.03.105 – GRADUATION REQUIREMENTS – PARTIAL WAIVER – COLLEGE ENTRANCE EXAM	Action Item

SDE TOC Page 1

# **SUBJECT**

Developments in K-12 Education

# **BACKGROUND/DISCUSSION**

Sherri Ybarra, Superintendent of Public Instruction, will share developments in K-12 Education with the Board, including:

- Legislative Update
- Mastery Based School Tour
- ESSA Consolidated State Plan Amendment Update

# **BOARD ACTION**

This item is for informational purposes only.

# STATE DEPARTMENT OF EDUCATION

# **SUBJECT**

Federal Coronavirus Relief K-12 Funding Update

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EFERENCE	
March – April 20	response to the coronavirus (COVID-19) pandemic and the availability of funding through the CARES Act.
April 27, 2020	The Board received an update on the allowable uses and amount of funds available to Idaho through the Elementary and Secondary School Emergency Relief Fund and Governor's Emergency Education Relief Fund.
May 4, 2020	The Board directed staff to move forward with data analysis for the discussed proposals and to identify sources of funds for those proposals.
June 10, 2020	The Board approved the use of the ESSER 10% SEA reserve funds for grants to local education agencies and for funding for professional development to provide social emotional and behavioral health supports remotely;
July 15, 2020	The Board approved a methodology and grant application for \$30,000,000 from Idaho's relief funds through the Governor's Coronavirus Financial Advisory Committee.
August 26, 2020	The Board approved a methodology and allocation for \$1,000,000 from the ESSER 10% SEA reserve funds for social emotional and behavioral health supports.
October 21, 202	• •
February 17, 20	The Board received a CARES Act funding update and a CRRSA Act overview.
April 5, 2021	The Board approved the use of \$1,851,300 of CRRSA Act ESSER II State Set-Aside Reserve funds to be distributed to local education agencies who received no ESSER II funds or low ESSER II funding and approved the use of up to \$300,000 in ESSER II SEA Reserve funds for the State Department of Education to administer the federal coronavirus relief funds. The Board approved to preliminarily designate the use of the 2.5% of the ARP ESSER State Set-Aside Reserve funds to local education agencies who
	received no ARP ESSER funds or low ARP ESSER

SDE TAB 2 Page 1

funds.

April 22, 2021	The Board received an update on the COVID Relief K- 12 funds, which included CARES Act ESSER, CRRSA Act ESSER, ARP ESSER, CRRSA EANS and ARP EANS.
June 16, 2021	The Board was provided an update on the Coronavirus Relief, CFAC Funds and ESSERF, including CARES Act, CRRSA Act, EANS, and ARP ESSER.
August 25, 2021	The Board received an ESSER draw down overview and a brief update on the CRRSA Act Emergency Assistance to Non-Public Schools grant.
October 21, 2021	The Board received a brief update on expended ESSER funds, the status of the LEA Safe Return to In-Person Instruction Plans and the LEA ARP ESSER Use of Funds Plans, and the amendment for the Idaho ARP ESSER State Plan. The Board also approved the distribution methodology of 2.5% of the 10% ARP ESSER SEA reserve.
December 15, 2021	The Board received a high level update on expenditure amounts and percentages for the CARES Act, CRRSA Act, and ARP ESSER, a brief overview of the U.S. Department of Education's (USED) proposed ESSER reporting requirements, and an update on the Governor's Substitute grant, which closed for reimbursement requests December 15, 2021.

## **BACKGROUND/DISCUSSION**

The CARES Act, signed into law March 27, 2020, provides financial relief to local educational agencies (LEAs) from the Elementary and Secondary School Emergency Relief (ESSER) Fund and the Coronavirus Relief Fund through the Governor's Coronavirus Financial Advisory Committee. The CARES Act allowed the State Education Agency (SEA), to reserve up to 10 percent of the Elementary and Secondary School Emergency Relief (ESSER) Fund for grants to LEAs to be used for emergency needs as determined by the SEA to address issues responding to COVID-19. These funds were required to be awarded by May 18, 2021, and expended by September 30, 2022. At its July 15, 2020 meeting, the Board adopted the funding distributions, which included \$3.785 million for distance/blended learning with a priority for a learning management system (LMS). At the July 15 meeting, the Board also approved a methodology and grant application for \$30 million in funding from Idaho's relief funds through the Governor's Coronavirus Financial Advisory Committee to close the digital divide. A Review Committee was convened to read the applications and make recommendations for funding.

The Coronavirus Response and Relief Supplemental Appropriation (CRRSA) Act was signed into law December 27, 2020. Included in the CRRSA Act, the performance period for the CARES Act Coronavirus Relief Fund was extended

from December 30, 2020 to December 31, 2021. The Division of Financial Management closed the Coronavirus Relief Funds June 30, 2021, which means Departments last Grant Reimbursement Application (GRA) payment to LEAs was made June 25, 2021.

The CRRSA Act provides Idaho an additional \$195,890,413 for K-12 public education under ESSER II. Of this amount, 90% or \$176,301,372 has been allocated to local education agencies (LEAs) based on each LEA's proportional share of Title I-A funds for 2020-2021. The remaining 10%, or \$19,589,041, represents a state set-aside reserve for emergency needs as determined by the SEA to address issues responding to COVID-19, including measuring and addressing learning loss. Of these state set-aside funds, \$979,452 may be used for administrative costs. The State Department of Education requested \$300,000 of these funds to administer the federal fund distributions. All CRRSA Act ESSER I and ESSER II funds must relate to preventing, preparing for, and responding to COVID-19.

The American Rescue Plan (ARP) Act was signed into law March 11, 2021 and provides Idaho \$440,131,922 for K-12 education. Of this amount, 90% was allocated to LEAs. LEAs must spend 20% of their allocation on addressing lost instructional time. The remaining 10% State Set-Aside Reserve must be used to address learning loss (5%), summer enrichment (1%), after school programs (1%) and emergency needs and administrative costs (3%) identified by the Board. The Idaho ARP ESSER State Plan was approved with conditions on September 13, 2021. An amended plan with more information on stakeholder engagement (Section C) and identification of the evidence-based interventions (Section D) was provided to the U.S. Department of Education on October 28, 2021. Idaho received its final award amount for ARP Act ESSER Funds on September 13, 2021.

During the October 21, 2021 regular Board Meeting, the Board approved the methodology for allocating 2.5% of ARP ESSER State Set-Aside funds for non-Title and low Title LEAs, including the Idaho Bureau of Educational Services for the Deaf and Blind (IBESDB). The methodology included funding IBESDB \$590,000 first and using the base amount of \$349,143 to 16 non-Title LEAs and 42 low-Title I-A LEAs to bring them up to a base amount.

The Governor's Emergency Education Relief Fund (GEER) includes a separate program of Emergency Assistance for non-Public Schools (EANS) under the CARES Act for which eligible non-public schools may apply to an SEA to receive services or assistance related to the pandemic. The EANS Certification and Agreement application was submitted to and approved by the U.S. Department of Education on February 11, 2021. The State Board identified the State Department of Education as the administrator of this program. Idaho received \$19,581,608 for services and assistance to non-public schools. \$5,543,122 is obligated for assistance, services, and reimbursements to non-public schools. This includes

\$200,000 for the Department to implement the program, monitor the schools for uses of funds, and to oversee inventory expenditures. \$13,838,486 was reverted back to the Governor's office.

On November 12, 2021, Idaho was awarded \$21,961,960 through the ARP EANS grant to provide services and assistance to non-public schools. Similar to the CRRSA Act EANS, the Governor is the grantee and the SEA is the fiscal agent and administrator of the grant, the Department of Education was delegated to administer the grant on behalf of the Board. The Department has released an application to all non-public schools. The application period closes February 9, 2022. Applications will be reviewed for eligibility and to ensure that all required information is provided. Consultation with each individual non-public school will determine which services or assistance the Department will provide either directly to private schools or through contractors. The Department will provide technical assistance support to these non-public schools through the life of the grant, September 30, 2024. Unobligated funds in the amount of approximately \$15.9M remaining six months after the grant was issued, will revert to the Governor's office for use on any authorized activity under the Governor's Emergency Education Relief (GEER) fund.

## **IMPACT**

This agenda item provides the Board with a high-level update on the most recent information on the COVID-19 relief funds.

## **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

The CARES Act established multiple funds dedicated to addressing impacts to education due to the COVID-19, two of these provide allocations at the state level. while a third fund, the Higher Education Relief Act is distributed directly to the postsecondary institutions. The two funds that provided allocations at the state level are the Governor's Emergency Education Relief (GEER) Fund and the Elementary and Secondary School Emergency Relief (ESSER) Fund. CARES Act ESSER Fund allocated funds to the state education agencies based on the same proportion as states receive funds under Part A of Title I of the Elementary and Secondary Education Act in fiscal year 2019. Idaho's share of this fund was \$47,854,695. From this amount a minimum of \$43,069,20226 (90%) had to be distributed to the local education agencies (LEAs) based on the LEAs' proportional share of the state's Part A, Title I funds. These funds are then distributed based on each LEAs' propositional share of Part A, Title I funds received in 2019. Not all LEAs receive Part A, Title I funds. Part A, Title I funds are distributed based on an LEAs share of eligible Title I students. Up to 10 percent (10%) of these funds, \$4,785,470, could be reserved by the SEA "to be used for emergency needs as determined by the SEA to address issues responding to COVID-19." States have one year from date of the federal ESSER award to award or subgrant the funds.

The Coronavirus Response and Relief Supplemental Appropriations Act, 2020 (CRRSA Act) expanded the ESSER Fund. Funds appropriated through the CRRSA Act are referred to as the ESSER II funds. The ESSER II fund awards to SEAs are in the same proportion as each State received funds under Part A of Title I of the Elementary and Secondary Education Act of 1965, as amended, in fiscal year 2020. Idaho will receive \$195,890,413 in ESSER II funding. Of this amount, at least \$176,301,372 must be distributed to LEAs based on the Title I distribution methodology. Like ESSER I, 10% of the funds may be reserved for use by the SEA. Of these reserve funds ½ of 1% of the total award may be used for administrative costs. The SEA 10% reserve is \$19,589,041, of this, up to \$979,452 could be used for administrative costs. The State Department of Education requested spending authority for \$300,000 of these funds to administer the distribution of the federal funds. To date, the Board has earmarked the following portions of the SEA set aside for use:

Total 10% SEA Set Aside	\$43,994,204	Proposed Use	Remaining
3% of Total - Emergency Needs	\$13,198,261	2.5% Non-Title, Low-Title	\$599,710
		\$10,998,551	
		Statewide PD and mentoring	
	<b>^</b>	Platform \$1,600,000	
5% of Total - Learning Loss	\$21,997,102	AOC Use \$100,000	
		Mathematics Accelerated	\$297,102
		Learning Collaborative	
		\$3,500,000	
		Dyslexia Handbook	
		\$100,000	
		ISEE Enhancements	
		\$18,000,000	
1% of Total - Summer Enrichment	\$4,399,420	ISEE Enhancement	\$0
		\$1,000,000	·
		Summer/After School	
		Learning Initiative	
		\$3,399,420	
1% of Total - After School Programs	\$4,399,421	ISEE Enhancement	\$2,398,842
	+ ,,	\$1,000,000	. , ,
		Summer/After School	
		Learning Initiative	
		\$1,000,579	

# **BOARD ACTION**

This item is for informational purposes only.

### **SUBJECT**

IDAPA 08.02.03.105 - Graduation Requirements - Partial Waiver - College Entrance Exam

## REFERENCE

March 23, 2020 Board approved partial waiver of IDAPA 08.02.03.105,

waiving the college entrance exam and senior project graduation requirements for students graduating in

2020.

October 2020 Board approved partial waiver of IDAPA 08.02.03.105,

waiving the senior project graduation requirement for

students graduating in 2021.

December 17, 2020 Board approved partial waiver of IDAPA 08.02.03.105,

waiving the college entrance exam and senior project graduation requirements for students graduating in

2021.

June 16, 2021 Board approved temporary rules re-enacting education

related administrative rules that would have expired at

the end of the 2021 Legislative session.

August 25, 2021 Board approved proposed rule, docket number 08-

0202-2101, removing the college entrance exam from the high school graduation requirements while maintaining the assessment as one of the required

assessments schools must administer annually.

October 21, 2021 Board approved proposed omnibus rule docket

number 08-0000-2100, incorporating negotiated rule,

Docket 08-0203-2101.

November 29, 2021 Board approved pending rule, docket number 08-0000-

2000, removing the college entrance exam from the high school graduation requirements while maintaining the assessment as one of the required assessments

schools must administer annually.

# APPLICABLE STATUTE, RULE, OR POLICY

Idaho Administrative Code, IDAPA 08.02.01 - Administration and 08.02.03.105, High School Graduation Requirements

# **BACKGROUND/DISCUSSION**

In accordance with IDAPA 08.02.03.105, students must take a college entrance exam to meet minimum state graduation requirements. This requirement was put in place as part of the high school redesign efforts in 2006, effective for students entering the 9th grade in 2009. At that time, it was determined that many students were choosing not to take a college entrance exam because they did not feel they would be successful in college or had just not contemplated going on to some form of postsecondary education after high school. It was also determined that the cost of taking the exam was a barrier for many students. By requiring a college entrance

exam as part of the State's minimum graduation requirements, the Board and the State Department of Education were able to advocate for and received funding for a statewide administration of a college entrance exam, allowing students the opportunity to take the exam during their junior year at no cost to themselves. Through the state procurement processes, the College Board and the SAT were contracted with to provide the exam.

The statewide administration of the exam takes place in the spring each year. Due to the Coronavirus pandemic the administration of the Spring 2020 exam was cancelled, and consequently the requirement was waived for the Class of 2020. The Fall 2020 exam was provided in place of the cancelled Spring 2020 exam for the Class of 2021 to meet the requirement; however, the Board later waived the requirement for the Class of 2021 due to public safety concerns from COVID-19, as well as a significant gap in instructional time earlier in the year.

For the Class of 2022, of the 22,730 unique seniors who were enrolled in Idaho public schools as of the first Friday of November, only 82.1% (n=18,658) participated in the Spring 2021 exam. This is identical to that of the Class of 2021 for whom the requirement was waived by the Board, as referenced in the agenda for the December 17, 2020 board meeting. Although some of the non-participants are exempt from the graduation requirement or participate in ACT or ACCUPLACER in accordance with IDAPA 08.02.03.105, our students, schools, and communities still struggle with COVID-19. SAT is a paper-and-pencil assessment, and no remote testing option is available due to test security reasons. In addition, once the pending rule docket number 08-0202-2101 takes effect, the Class of 2023 and beyond will not be held to this graduation requirement.

# **IMPACT**

Waiver of the college entrance exam requirement for students graduating at the end of the current school year will remove the requirement as a minimum state requirement while still allowing schools who want to maintain it to still require it. Given the ongoing uncertainties of the pandemic, students' ability to participate could be affected.

## **BOARD STAFF COMMENTS AND RECOMMENDATIONS**

IDAPA 08.02.01.007 authorizes the Board to waive education rules not required by state or federal law. This authorization grants the Board the ability to provide school districts and charter schools with added flexibility to respond to unforeseen circumstances. Waivers approved by the Board are specific and time limited.

The Board waived the requirement for the students graduating in 2021 from having to take a college entrance exam to graduate at the December 2020 regular Board meeting. The 2021 graduating class had limited opportunities to take the exam during their junior year as a result of the pandemic. As seniors, in 2021, this class of students was provided an opportunity to take the SAT during the Idaho school test days in September (September 23<sup>rd</sup>) and October (October 14<sup>th</sup> and 27<sup>th</sup>) and

had multiple opportunities to participate in the assessment during the national test dates. Even though the graduation requirement had been waived for seniors graduating in FY 2021, approximately 80% of seniors took the SAT prior to graduating spring 2021.

While there have been continuing disruptions due to the pandemic in FY 2022, there has been a much greater level of access and more opportunities for students to take a college entrance exam in FY 2021 and FY 2022 than there were for students who were juniors in FY 2020. Additionally, the pending rule promulgated by the Board removing the college entrance exam as a graduation requirement will take effect when the 2022 Legislature adjourns in the spring. Due to the expiration of the previously codified administrative rules, the current graduation requirements were enacted through a temporary rule approved by the Board at the June 2021 Regular Board meeting. The rule will expire at the same time the new rule takes effect. Due to the expiration of the previously codified rules, in order for the graduation requirement to stay in place, the legislature would need to take affirmative action by passing legislation to retain it. At this time there has been no indication that either the House or Senate Education Committees have concerns with the removal of the high school graduation requirement.

At this time, it is expected the new rule, removing the requirement for the graduating class of 2022, will take effect prior to the end of the current school year. Nevertheless, local education agencies are getting ready to administer the SAT, so they would benefit from certainty and as much advance notice as possible regarding the status of the graduation requirement.

### **BOARD ACTION**

I move to waive IDAPA 08.02.03.105.03 co	ollege entrance examination for students
graduating during the 2021-2022 school y	ear, including summer 2022 term.

Moved by	Seconded by	Carried Yes	No
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