ICUR

VIRTUAL IDAHO CONFERENCE ON UNDERGRADUATE RESEARCH
JULY 23 – 24, 2020
boisestate.edu/icur/
The Idaho Conference on Undergraduate Research (ICUR), the first of its kind in the state of Idaho, is a celebration showcasing the leading edge of undergraduate research. The mission of ICUR is to promote mentored undergraduate research, scholarship, and creative activity in Idaho in all disciplines. The goals of ICUR are to highlight the engagement of undergraduate students from multiple areas of research, to build an extended scholarly community across institutional boundaries in Idaho, and to ensure diversity in institutional representation, academic discipline, and student background.
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   President, Boise State University

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6  KEVIN D. SATTERLEE
   President, Idaho State University

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   President, University of Idaho

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Dear student researchers, faculty and friends,

Thank you for your participation and your support of the Idaho Conference on Undergraduate Research.

This collaborative event brings together some of our state’s brightest student researchers to share their impactful work. This year — just like so many other events — it has taken a different form. Researchers and event organizers had to pivot to a virtual environment. They had to learn how to study and stay focused on the work at hand. Then, they had to translate that work into digital portrayals of their research. Each of them is to be commended for their creativity, their perseverance, and their hard work.

This kind of commitment, positivity and creative thinking will be more vital than ever as we move forward through the challenges of our current moment and into the uncertainties of the future. Research will be an important part of that movement forward. Not only do discoveries create new knowledge in the world and advances that materially improve lives across the globe, but we also know the impact it has on helping students to become innovative thinkers and leaders. These are all extraordinary outcomes.

The Idaho Conference on Undergraduate Research embodies the heart of a research university — faculty and graduate students mentoring and engaging our undergraduate students and preparing them to lead the world beyond graduation. You truly are among an impressive group of innovators today. Thank you for supporting this great work.

Sincerely,

DR. MARLENE TROMP,

PRESIDENT, BOISE STATE UNIVERSITY
<table>
<thead>
<tr>
<th>TIMES</th>
<th>THURSDAY, JULY 23</th>
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| **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                          |
| 10 – 10:30 A.M.| **BREAK**                                                                                                                                                                                                         |
| 10:30 – 11:30 A.M. | **HOW AND WHY TO GET 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                  |
| 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 SUCCESSFUL RESEARCH EXPERIENCE**  
                      **Facilitator/Presenter:** Jillana Finnegan, Boise State University  
                      **Location:** Zoom Main Room                          |
<p>| 3:30 P.M.     | <strong>ADJOURN FOR THE DAY</strong>                                                                                                                                                                                                |</p>
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<tr>
<th>TIMES</th>
<th>FRIDAY, JULY 24</th>
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<tr>
<td>8:45 A.M.</td>
<td>PAIRED RESEARCH TALKS</td>
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<tr>
<td></td>
<td>Moderator: Tracy Yarnell, Boise State University, Biomolecular Research Center</td>
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<td></td>
<td>Speakers: David Estrada, Faculty, Boise State University</td>
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<td></td>
<td>Lynn Karriem, Student, Boise State University</td>
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<td></td>
<td>Devaleena Pradhan, Faculty, Idaho State University</td>
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<tr>
<td></td>
<td>Melissa Rivas, Student, Idaho State University</td>
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<td></td>
<td>Location: Zoom Main Room</td>
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<tr>
<td>10 – 10:15 A.M.</td>
<td>BREAK</td>
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<tr>
<td>10:15 – 10:45 A.M.</td>
<td>POSTER SESSION – PART 1</td>
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<td>Location: Zoom Breakout Rooms</td>
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<tr>
<td>10:45 – 10:50 A.M.</td>
<td>BREAK</td>
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<tr>
<td>10:50 – 11:20 A.M.</td>
<td>POSTER SESSION – PART 2</td>
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<td></td>
<td>Location: Zoom Breakout Rooms</td>
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<tr>
<td>11:20 A.M. – 11:30 P.M.</td>
<td>BREAK</td>
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<tr>
<td>11:30 A.M. – NOON</td>
<td>POSTER SESSION – PART 3</td>
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<td>Location: Zoom Breakout Rooms</td>
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<td>NOON – 12:05 P.M.</td>
<td>BREAK</td>
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<tr>
<td>12:05 – 12:35 P.M.</td>
<td>POSTER SESSION – PART 4</td>
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<td>Location: Zoom Breakout Rooms</td>
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<tr>
<td>12:35 – 1 P.M.</td>
<td>CLOSING SESSION</td>
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<td></td>
<td>Moderator: Donna Llewellyn, Boise State University</td>
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<td>Speaker: Will Hughes, Boise State University</td>
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<td>2 P.M.</td>
<td>INBRE SESSION</td>
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<td></td>
<td>Moderator: Dan Nogales, Northwest Nazarene University</td>
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<tr>
<td></td>
<td>Location: Zoom Main Room</td>
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</table>
Welcome to the Idaho Conference on Undergraduate Research for 2020.

Research in higher-education expands the boundaries of human knowledge through the work of dedicated scholars and teachers. When students have the opportunity to learn and engage in that process, they gain access to truly life-changing education.

At Idaho State University, we believe that undergraduate research helps students develop essential skills in problem-solving, critical thinking and networking. Undergraduate research provides truly unique and impactful learning opportunities for students. They leave our University with key skills that allow them to be competitive in the workforce.

Idaho State University faculty and administration support the pursuit of undergraduate student-faculty collaborative research across a broad range of disciplines, from political and behavioral science to biological science, from nuclear materials studies to anthropology. We provide students with opportunities to work on challenges such as water, energy, public health, and economic development while developing mentoring relationships to carry them through to graduate studies, and beyond.

The Idaho Conference on Undergraduate Research is a unique forum where we recognize achievements in research by undergraduate students within our state while promoting the importance of this aspect of their higher education. This conference showcases the efforts and results of research performed by students from each of Idaho’s universities.

On behalf of the faculty and administration at Idaho State University, I welcome you and thank you for your contributions to this student experience at the 2020 Idaho Conference on Undergraduate Research.

KEVIN D. SATTERLEE,
PRESIDENT, IDAHO STATE UNIVERSITY
Greetings,

It is my pleasure to welcome you to the Idaho Conference on Undergraduate Research (ICUR). This conference provides you an opportunity to exchange ideas across disciplines, expand your professional network and prepare for careers – all part of the University of Idaho’s mission of teaching, discovery and service. ICUR also offers a space for educators and researchers to learn more about the ways undergraduate research has enhanced your experience as a college student.

Undergraduate research is an integral part of a Vandal education that’s unique among U.S. universities. Between half and two-thirds of all U of I students participate in hands-on research as undergraduates. The University of Idaho (U of I) strives to support these activities across the state of Idaho and it is proud to be part of ICUR. Our institution recognizes the vast amount of work students put into academic inquiry and at ICUR we celebrate the undergraduate effort towards expanding the boundaries of our knowledge. The U of I applauds all students presenters at ICUR 2020.

U of I faculty members have joined colleagues from our sister institutions to plan and produce this exceptional conference. The insight and tools you gain will no doubt enhance your college experience. The skills learned here are an investment into the future of Idaho and our research-focused impact across this great state. Thank you for joining us.

Sincerely,

C. SCOTT GREEN,

PRESIDENT, UNIVERSITY OF IDAHO
1 Design and Analysis of ForkAE-like Ciphers
Aryan Agarwal, Dr. Liljana Babinkostova (Mentor), Dr. Marion Scheepers (Mentor)
1INDIAN INSTITUTE OF TECHNOLOGY, DELHI, 2BOISE STATE UNIVERSITY
The project described was supported by Boise State University.

2 Optimization of Buffering Capacity to Increase Protein Expression
Aaron D. Ajeti, Maranda S. Cantrell, Dr. Lisa R. Warner (Mentor)
BOISE STATE UNIVERSITY
The project described was supported by the National Institutes of Health R01-HL138992-01, Sigma Xi Grants in Aid of Research G201903158399123, and Start-Up funds from Boise State University Department of Chemistry and Biochemistry. Additional support was given by Institutional Development Awards (IDeA) from the National Institute of General Medical Sciences of the National Institutes of Health under Grant Nos. P20GM103408 and P20GM109095.

3 A Multilayered Approach to Predict Metal-binding Sites in the Pneumococcal Phosphoglucomutase Protein
Hannah J. Aken, Dr. Michael L. Johnson (Mentor), Dr. Julia E. Martin (Mentor)
1IDAHO STATE UNIVERSITY, 2UNIVERSITY OF ARIZONA
The project was funded by the Ronald E. McNair Post Baccalaureate Achievement Program at Idaho State University through the Department of Education under Award No. P217A170169.

4 Proton Diffusion in Hydrogels Under Different Solidification Procedures
Ibrahim A. Al Janabi, Salman Ali, Jonathan R. Counts, Dr. Kristopher V. Waynant, Dr. Mark F. Roll, Dr. James G. Moberly (Mentor)
UNIVERSITY OF IDAHO
The project described was supported by an Institutional Development Award (IDeA) from the National Institute of General Medical Sciences of the National Institutes of Health under Grant No. P20GM103408.

5 Color Change Exploration in 3D Printed Garments
Kawthar S. Alibrahim, Lori Wahl (Mentor)
UNIVERSITY OF IDAHO
The project described was supported by a student grant from the UI Office of Undergraduate Research.

6 Determining Residual Stress Fields and Plastic Zone Sizes Surrounding Fatigue Cracks Using Nanoindentation and AFM
Evan M. Allen, Dr. Michael R. Maughan (Mentor)
UNIVERSITY OF IDAHO
This project is supported by a 2019-2020 STEM Undergraduate Research Grant from the Higher Education Research Council.

7 The Psychological Effects of the COVID-19 Pandemic
Kylee D. Amos, Dr. Clarissa M. E. Richardson (Mentor)
UNIVERSITY OF IDAHO
The project described was supported by an Institutional Development Award (IDeA) from the National Institute of General Medical Sciences of the National Institutes of Health under Grant No. P20GM103408.

8 A Case Study Analysis of Baller-Gerold Syndrome
Israel Anaya Carmona, Grace H. Coughlin, Darren J. Lighter, Karen Sanchez, Dr. Julia Oxford (Mentor)
BOISE STATE UNIVERSITY
The project described was supported by the Department of Biological Sciences and the Institutional Development Awards (IDeA) from the National Institute of General Medical Sciences of the National Institutes of Health under Grant Nos. P20GM103408 and P20GM109095.
9 Contributions of Top Ten Scholars to our Society

DeAnna Andrade, Dr. Krishna Pakala, Samantha Schauer (Mentor)

BOISE STATE UNIVERSITY

This project is supported by a 2019-2020 STEM Undergraduate Research Grant from the Higher Education Research Council.

10 Identification and Quantification of Sesquiterpene lactones (Sls) in Sagebrush (Artemisia tridentata) and Its Chemical Modification

Rosemary Anibogwu, N. Evelin Paucar, Dr. Karl De Jesus (Mentor), Dr. Rene Rodriguez, Dr. Kavita Sharma (Mentor)

IDAHO STATE UNIVERSITY

The project described was supported by the Ronald E. McNair Post-Baccalaureate Achievement Program through the U.S. Department of Education under Award No. P217A170169 and a student grant from the Idaho State University Office of Undergraduate Research.

11 In-space RF Communications and Virtual Reality Imagery: RockSat-X Suborbital Rocket Payload “Skywalker VR”

Nathan Appleby¹, Aaron Borger¹, Benjamin Campbell¹, Garrisen Cizmich¹, Devyn Duryea¹, Angelina Ouye², Braden Stoddard², Jordan Karimi², Boonyarat Onlamai², Nicholas Herrmann², Dr. Stephen Parke (Mentor)²

¹NORTHWEST NAZARENE UNIVERSITY, ²KAUAI COMMUNITY COLLEGE

The project described was supported by the NASA Idaho Space Grant Consortium.

12 Do Leaf Characteristics Display Ecotypic Variation in Showy Milkweed (Asclepias speciosa)?

Emma K. Archey¹, Mia Cinello-Smith¹, Casey Robinson¹, Zackery Szymczycha¹, Daison Weedop¹, Michaela Sonnen¹, Leslie Blackburn¹, Francis Kilkenney (Mentor)², Dusty Perkins (Mentor)¹

¹COLLEGE OF WESTERN IDAHO, ²U.S. FOREST SERVICE

This project was made possible by the NSF Idaho EPSCoR Program and by the National Science Foundation under Award No. OIA-1757324.

13 Effects of a Synthetic Flaxseed Derivative on Gut Microbiota of Mice

Reagan A. Badger, Dr. Ken Aho, Dr. Kinta Serve (Mentor)

IDAHO STATE UNIVERSITY

The project described was supported by funds allocated by the BSU Biomolecular Research Center as part of an Institutional Development Award (IDeA) received from the National Institute of General Medical Sciences of the National Institute of Health (P20GM103408), (P20GM109095).

14 Differences in Body Composition, Resting Metabolic Rate, and Sleep Quality Following a 6-week Protein Supplementation Intervention in Collegiate Dancers

Hannah M. Bideganeta, Samantha Brooks (Mentor), Dr. Ann F. Brown (Mentor)

UNIVERSITY OF IDAHO

The project described was supported by a student grant from the UI Office of Undergraduate Research.

15 Desulfurization of Petroleum Using Synthesized Novel Ionic Liquids and Betaine Moieties

Bryson Blad, Dr. Kavita Sharma (Mentor), Dr. Karl De Jesus (Mentor), N. Evelin Paucar, Peyton Kiggins

IDAHO STATE UNIVERSITY

The project described was funded by Idaho State University.

16 Loss of Parental Attachment at a Young Age and Its Impact on Adult Health

Sarah Bofukya Bope, Dr. Robin Allen (Mentor)

BOISE STATE UNIVERSITY

The project described was supported by the Ronald E. McNair Post-Baccalaureate Achievement Program through the U.S. Department of Education under Award No. P217A170273.
17 Circannual Patterns of Male Production in the Absence of Environmental Cues in *Daphnia magna*
Judith Boozer¹, Alison Carlson¹, Leah Cepko², Dr. Leigh C. Latta IV (Mentor)¹, Dr. Sarah Schaack (Mentor)²
¹LEWIS-CLARK STATE COLLEGE, ²REED COLLEGE
This project is supported by a 2019-2020 STEM Undergraduate Research Grant from the Higher Education Research Council. The project described was supported by the CAREER Award from the National Science Foundation. The project described was supported by the Reed College Betty C. Liu Fellowship. The project described was supported by the Institutional Development Award from the National Institute of General Medical Sciences of the National Institutes of Health.

18 Yevo: A Yeast Evolution Lab for Budding Biologists
Josephine M. Boyer¹, Dr. Bryce Taylor (Mentor)², Dr. Alexa Warwick³, Dr. Ryan Skophammer⁴, Dr. Maitreya Dunham (Mentor)², Dr. Paul A. Rowley (Mentor)¹
¹UNIVERSITY OF IDAHO, ²UNIVERSITY OF WASHINGTON, ³MICHIGAN STATE UNIVERSITY, ⁴WESTRIDGE SCHOOL
This work was supported by the National Science Foundation Award Nos. 1818368 and 093945 and a grant from the UI Office of Undergraduate Research.

19 Who's Sexting for Sexual Purposes?
Hailey B. Brotcke¹, Heather Schoenherr (Mentor)², Dr. Mary Pritchard (Mentor)¹
¹BOISE STATE UNIVERSITY, ²COLLEGE OF WESTERN IDAHO
The research described was supported by Boise State University.

20 Creation of a Recombinant Adenovirus to Observe Infection in Real Time
Hailey M. Burgoyne¹, Eric McIndoo (Mentor)², Dr. Jay Radke (Mentor)²
¹BOISE STATE UNIVERSITY, ²IDAHO VETERANS RESEARCH & EDUCATION FOUNDATION
The project described was supported by an Institutional Development Award (IDeA) from the National Institute of General Medical Sciences of the National Institutes of Health under Grant No. P20GM103408.

21 To Live in a World of Metals: Robust Microbial Communities of the Great Salt Lake
Talia Cahoon, Tyson Pattie, Chante Frerichs, Dr. Jeffrey Rosentrater (Mentor), Dr. Caryn Evilia (Mentor)
IDAHO STATE UNIVERSITY
The project described was supported by the Office of Research through Idaho State University.

22 Identifying Fire Risk by Mapping Human Development in the Wildland Urban Interface (WUI) in the Intermountain West
Savannah R. Canova¹, Zackery Szymczycha², Dr. Peter Olsoy (Mentor)¹, Dr. Megan Cattau (Mentor)¹
¹BOISE STATE UNIVERSITY, ²COLLEGE OF WESTERN IDAHO
This project was made possible by the NSF Idaho EPScor Program and by the National Science Foundation under Award No. OIA-1757324.

23 Medical Pluralism: Shifts in Traditional Knowledge and Practice Among Sobadores
Mari S. Carrillo, Dr. Kerensa L. Allison (Mentor)
LEWIS-CLARK STATE COLLEGE
This project is supported by a 2019-2020 STEM Undergraduate Research Grant from the Higher Education Research Council.

24 Estimated Ancient Volcanic Characteristics From Modern Spatter
David W. Cavell, Dr. Erika Rader (Mentor), Kevin Cerna
UNIVERSITY OF IDAHO
This project is supported by a 2019-2020 STEM Undergraduate Research Grant from the Higher Education Research Council.

25 EPRICC: Exploring Peer Relationships in an Inclusive College Classroom
Nicole M. Cherry, Julia Gorman, Dr. Lisa Beymer (Mentor)
BOISE STATE UNIVERSITY
The research described was supported by Boise State University.
26 Stuck in a Bucket: The Effect of Confinement Stress on Cortisol Levels in Brook Trout (Salvelinus fontinalis)

Kaysen R. Christensen, Alexander P. Wooding (Mentor), Melissa G. Rivas, Dr. Devaleena S. Pradhan (Mentor)

IDAHO STATE UNIVERSITY

This project was made possible by the NSF Idaho EPSCoR Program and by the National Science Foundation under Award No. OIA-1757324.

27 Communicating Science in Spanish to Diverse Audiences

Yuliana Cisneros, Eduardo Canales, Dr. Kelly Arispe (Mentor), Dr. Fatima Cornwall (Mentor), Dr. Carolina Viera (Mentor)

BOISE STATE UNIVERSITY

This project was made possible by the NSF Idaho EPSCoR Program and by the National Science Foundation under Award No. OIA-1757324.

28 The Effect of a 6-week High Intensity Interval Training Program on Aerobic and Anaerobic Fitness in Collegiate Dancers

Coby Contreras, Dr. Ann F. Brown (Mentor), Chris J. Alfiero (Mentor)

UNIVERSITY OF IDAHO

The project described was supported by a student grant from the UI Office of Undergraduate Research.

29 Vulnerabilities of the Artificial Pancreas System and Proposed Cryptographic Solutions

DJ Cooke¹, Andres Guzman¹, Brooklyn Mesia², Shawn Shields¹, Milan Zanussi¹, Jacob Palmer¹, Dr. Liljana Babinkostova (Mentor)¹, Dr. Marion Scheepers (Mentor)¹, Jay Radcliffe (Mentor)³, Robert Erbes (Mentor)³

¹BOISE STATE UNIVERSITY, ²BRIGHAM YOUNG UNIVERSITY – IDAHO, ³THERMO FISCHER SCIENTIFIC, ⁴IDAHO NATIONAL LABORATORY

This research was supported by National Science Foundation Research Experience for Undergraduates Site Grant DMS-169872 and Boise State University College of Innovation and Design.

30 Recreation and Wildlife Activity in the Wood River Valley

Sarah E. Coose¹, Edward Trout (Mentor)¹, Dr. Neil Carter (Mentor)², Dr. Kelly Hopping (Mentor)¹, Kris Thoreson³, Greg Hill¹

¹BOISE STATE UNIVERSITY, ²UNIVERSITY OF MICHIGAN, ³WOOD RIVER WOLF PROJECT

The project described was supported by a USDA Conservation Innovation Grant under Award No. NR180211XXXXG001 and the Wood River Women’s Foundation.

31 Systematic Optimization of Quinoline-based Small Molecules to Prevent Breast Cancer Metastasis

Grace H. Coughlin, Thomas Conrad, Darren J. Lighter, Thaera Muhammed, Dr. Don L. Warner (Mentor), Dr. Lisa R. Warner (Mentor), Dr. Matthew King (Mentor)

BOISE STATE UNIVERSITY

This project is supported by a 2019-2020 STEM Undergraduate Research Grant from the Higher Education Research Council. Additional support was provided by Institutional Development Awards (IDeA) from the National Institute of General Medical Sciences of the National Institutes of Health under Grant Nos. P20GM103408 and P20GM109095. We also acknowledge support from the Biomolecular Research Center at Boise State with funding from the National Science Foundation, Grant Nos. 0619793 and 0923535, the M.J. Murdock Charitable Trust, and the Idaho State Board of Education.

32 Role of E1 Gene in Ad14p1 Pathogenesis

Austin Cram¹, Eric McIndoo (Mentor)², Dr. Jay Radke (Mentor)²

¹BOISE STATE UNIVERSITY, ²IDAHO VETERANS RESEARCH & EDUCATION FOUNDATION

The project described was supported by an Institutional Development Award (IDeA) from the National Institute of General Medical Sciences of the National Institutes of Health under Grant No. P20GM103408.

33 Modeling Shielding Designs for the Safe Operation of Neutron Generators

Samuel W. Cutler, Dr. Brian Jaques (Mentor), Allyssa Bateman (Mentor)

BOISE STATE UNIVERSITY

This work was supported in part through the Department of Energy In-Pile Instrumentation program under DOE Idaho Operations Office Contract DE-AC07-05ID14517.
34 Leveraging Machine Learning for Automatically Classifying Fake News in the COVID-19 Outbreak

Brian P. Daley, Dr. Francesca Spezzano (Mentor)
BOISE STATE UNIVERSITY

The project described was partially supported by the National Science Foundation under Award No. 1943370.

35 Learning to Play: An Analysis of Existing Research Into Play Interventions for Children With ASD

Maya K. Davies, Dr. Gena Nelson (Mentor)
BOISE STATE UNIVERSITY

The research described was supported by Boise State University.

36 Visualizing and Modeling of Transcriptional Bursting by Live Cell Imaging

Ethan J. Davis, Dr. Matthew Ferguson (Mentor), Abigail Figueroa, Julianna Goelzer
BOISE STATE UNIVERSITY

This project is supported by the National Institute of General Medical Sciences of the National Institutes of Health under Award No. R25GM123927.

37 Planar Bilayer Lipid Membranes: Preparation and Biophysical Characterization

Kyrie E. Davis, Patrick Eusepi, Panggal Finn, Fulton McKinney, Dr. Daniel Fologea (Mentor)
BOISE STATE UNIVERSITY

This project is supported by the Pacific Northwest Louis Stokes Alliance for Minority Participation through the National Science Foundation under Award No. HRD-1410465.

38 Developing an Ear-born Virtual Fencing System

Hope A. M. de Avila, Dr. Gordon K. Murdoch (Mentor), Dr. Karen Launchbaugh (Mentor), Dr. J. W. Karl, Dr. M. S. Hefeiida, Zane Garner
UNIVERSITY OF IDAHO

This project is supported by a 2019-2020 STEM Undergraduate Research Grant from the Higher Education Research Council. This research is supported by the University of Idaho Agricultural Research Station.

39 Volatile and Semivolatile Organic Compounds in Wildfire Smoke During NOAA/NASA FIREX-AQ Campaign

Gabrielle N. Dickinson¹, Aakriti Bajracharya¹, William Bruchard¹, Timbre A. Durbin¹, John K. McGarry¹, Dylan D. Miller¹, Elijah P. Moser¹, Laurel A. Nunez¹, Elias J. Pukkila¹, Phillip S. Scott¹, Parke J. Sutton², Dr. Nancy A. C. Johnston (Mentor)¹

¹LEWIS-CLARK STATE COLLEGE, ²BRYANT UNIVERSITY – IDAHO

The project described was supported by an Institutional Development Award (IDeA) from the National Institute of General Medical Sciences of the National Institutes of Health under Grant No. P20GM103408.

40 Undergraduate Researchers 3D-print Customized Assistive Technology Devices for High School Students With Disabilities

Maggie Dillon, Kierstyn Heilbrun, Joseph Fritz, Dr. Lisa Beymer (Mentor)
BOISE STATE UNIVERSITY

This project was made possible by the NSF Idaho EPSCoR Program and by the National Science Foundation under Award No. OIA-1757324.

41 Assessing Relationships Between Predator and Prey Distributions in the Central Volcanic Cordillera Region of Central Costa Rica

Lydia M. Druin¹, Dr. Lisette P. Waits (Mentor)¹, Dr. Roberto Salom-Perez²

¹UNIVERSITY OF IDAHO, ²PANTHERA COSTA RICA

This project is supported by a 2019-2020 STEM Undergraduate Research Grant from the Higher Education Research Council.

42 Hot Takes: Comprehensive Review of Genes That Help Plants Survive Drought

Carlos Dave C. Dumaguit¹, Anna J. Shuey¹, Dr. Stephanie J. Galla (Mentor)¹, Michael Wojahn (Mentor)¹, Peggy Martinez (Mentor)¹, John Rosato (Mentor)², Dr. Sven Buerki (Mentor)¹

¹BOISE STATE UNIVERSITY, ²COLLEGE OF WESTERN IDAHO

This project was made possible by the NSF Idaho EPSCoR Program and by the National Science Foundation under Award No. OIA-1757324.

43 Nuclear Hormone Signaling and Regulation of Cone Photoreceptor Gene Expression in the Zebrafish

Audrey M. Duncan, Ashley A. Farre (Mentor), Dr. Deborah L. Stenkamp (Mentor)

UNIVERSITY OF IDAHO

This project is supported by a 2019-2020 STEM Undergraduate Research Grant from the Higher Education Research Council.
44 The Development of Protocols for the Injection of Yeasts Into Galleria mellonella to Study Fungal Virulence and Animal Immunity
Jeremy R. Ellis, Dr. Paul A. Rowley (Mentor)
UNIVERSITY OF IDAHO
The research described was supported by the Brian and Gayle Hill Undergraduate Research Fellowship, College of Science, University of Idaho.

45 Using Community Science to Document Biodiversity at Edson Fichter Nature Area in Pocatello, Idaho
Katherine L. Englund, Dr. Charles R. Peterson (Mentor), Patrick (Dan) Giltz
IDAHO STATE UNIVERSITY
This project was funded by the Idaho Museum of Natural History at Idaho State University.

46 User Experience Software Research
Tony Espinosa\textsuperscript{1}, Dr. Kendall House (Mentor)\textsuperscript{1}, Erica Brick (Mentor)\textsuperscript{2}, Ryan Vasso (Mentor)\textsuperscript{3}
\textsuperscript{1}BOISE STATE UNIVERSITY, \textsuperscript{2}KAGGLE, \textsuperscript{3}REPLYPRO
The project described was supported by Institutional Development Awards (IDeA) from the National Institute of General Medical Sciences of the National Institutes of Health under Grant Nos. P20GM103408 and P20GM109095, and National Science Foundation S-STEM Gateway Scholarships in Biological Sciences under Grant Award No. DUE-1644233. We also acknowledge support from the Biomolecular Research Center at Boise State with funding from the National Science Foundation, Grant Nos. 0619793 and 0923535, the M.J. Murdock Charitable Trust and the Idaho State Board of Education.

47 Metacognitive Learning Strategies Used by Geoscience Students
Michaela J. Faris, Dr. Karen Viskupic (Mentor)
BOISE STATE UNIVERSITY
This project is supported by a 2019-2020 STEM Undergraduate Research Grant from the Higher Education Research Council. This work was supported by NSF under Award No. DUE-1742215.

48 Synthesis and Optimization of Substituted Furans for the Treatment of Inflammatory Diseases
Andrea Feci, Joseph Tuccinardi, Cody L. Wolf, Clyde Pruett, Dr. Matthew King (Mentor), Dr. Lisa R. Warner (Mentor), Dr. Cheryl L. Jorcyk (Mentor), Dr. Don L. Warner (Mentor)
BOISE STATE UNIVERSITY
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49 Analysis of Apoptotic Cell Clearance by Microglia in Zebrafish Mutants Lacking havcr1, a Putative Phosphatidylserine Receptor
Anna P. Findley, Dr. Diana Mitchell (Mentor)
UNIVERSITY OF IDAHO
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50 Winning Strategies for Matrix Games
Pangaea Finn, Dr. Marion Scheepers (Mentor)
BOISE STATE UNIVERSITY
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51 Chronic Illness Impacts Quality of Life
Rhiana J. Fox, Dr. Heather A. Moon (Mentor)
LEWIS-CLARK STATE COLLEGE
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52 Combatting Fungal Pathogens With Killer Yeast Toxins
Lance R. Fredericks, Cooper R. Roslund, Mark D. Lee, Mason Shipley, Angela M. Crabtree, Dr. Paul A. Rowley (Mentor)
UNIVERSITY OF IDAHO
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53 Idaho Beaver Outreach Plan
Lillianne French, Rosio Ojeda, Melissa Symmes, Dr. Emily Wakild (Mentor)
BOISE STATE UNIVERSITY
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54 Dating South African Rifting Events Via Apatite Helium Thermochronology
Keggan R. Georgeson, Dr. Jessica Stanley (Mentor)
UNIVERSITY OF IDAHO
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55 Evaluation of a Testing Apparatus for High Temperature/High Pressure in Nuclear Pressure Vessel Conditions
Cody J. Gibson, Dr. Robert R. Stephens (Mentor)
UNIVERSITY OF IDAHO
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56 Lucy, the Witch, and the Shadow
Nakeata Gilliam, Dr. Julia Straight (Mentor)
NORTHWEST NAZARENE UNIVERSITY
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57 Caffeine Consumption and Beliefs Regarding Caffeine’s Effects in an Online U.S. Sample
Daniel F. Gray, Dr. Erika K. Fulton (Mentor), Becca Huber (Mentor), Erin Madison (Mentor), Gavin Crum
IDAHO STATE UNIVERSITY
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58 Transport of Organic Ions Through Bilayer Lipid Membranes
Madelynn M. Grier, Camille Bryner, Andrea Feci, Ana Velasquez, Dr. Daniel Fologea (Mentor)
BOISE STATE UNIVERSITY
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59 Visualizing Complex Crystal Structures for Constructive Mathematics Experiences
Andrew Guillen, Miu Lun Lau (Mentor), Dr. Min Long (Mentor)
BOISE STATE UNIVERSITY
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60 The Effects of a Brief Fifth-grade Math Intervention in a Special Education Classroom
Gabrielle C. Halaby, Dr. Gena Nelson (Mentor)
BOISE STATE UNIVERSITY
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61 A New Translation of Canestrelli’s A Kootenai Grammar
Emma A. Halverson, Dr. Tim Thornes (Mentor)
BOISE STATE UNIVERSITY
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63 Determination of Glucose Uptake and Glycogenesis Via IGF1R and Insulin Receptor Pathways in Mink Uterine Epithelial Cells
Ashley E. Harris, Anna DePew, Dr. Ayokunle Hodonu (Mentor)
NORTHWEST NAZARENE UNIVERSITY
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64 Heylo: Visualizing User Interests From Twitter Using Emoji in Mixed Reality
Hunter M. Harris, Makayla Thompson, Dr. Isaac Griffith (Mentor), Dr. Paul Bodily (Mentor)
IDAHO STATE UNIVERSITY
This project is supported by a 2019-2020 STEM Undergraduate Research Grant from the Higher Education Research Council.
65 Exploring the Impact of Macrophages on the Tenogenic Differentiation of Stem Cells
Kaitlyn J. Harvey, Sophia K. Theodossiou, Jett B. Murray, Dr. Nathan R. Schiele (Mentor)
UNIVERSITY OF IDAHO
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66 Relationship Between Peroneal Muscle Architecture and Dynamic Ankle Function for Individuals With Chronic Ankle Instability
Sareya J. Harvey, Wyatt D. Ihmels, Dr. Tyler N. Brown (Mentor)
BOISE STATE UNIVERSITY
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67 Towards a (Truly) Anti-racist Writing Center
Amanda N. Hawks, Dr. Whitney Douglas (Mentor)
BOISE STATE UNIVERSITY
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68 Study of Electron Instabilities in Crossed Electric and Magnetic Fields
Gerardo Herrera, David Vogel, John McClarin, Liz Gaffney, Jessica Carlson, Dr. Ranajoy Bhattacharya (Mentor), Dr. Jim Browning (Mentor)
BOISE STATE UNIVERSITY
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70 How Mutations in the Respiratory Syncytial Virus Fusion Protein Affect Fusion Activity and Antibody Binding
McKenna A. Hull, Sierra Beach (Mentor), Laura Steiner, Kevin Hutchison, Dr. Jagdish Patel, Dr. Tanya Miura (Mentor)
UNIVERSITY OF IDAHO
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71 Lysenin Channel Selectivity for Monovalent Metal Cations
Zoe E. Hutchinson, Jason Ward, Maddelyn Jackson, Malyk Walker, Dr. Daniel Fologea (Mentor)
BOISE STATE UNIVERSITY
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72 Challenging Conditions and Their Effects on the Biomechanics of Human Movement During Daily Activity
Amanda Ivy, Aidan Cormier, Amy Holcomb, Dr. Clare Fitzpatrick (Mentor)
BOISE STATE UNIVERSITY
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73 Metabolic Modeling Identifies Key Control Points in Carbohydrate Metabolism in Uterine Cancer Cell Line (Ishikawa)
Benjamin T. Johnson, Katelyn Heckathorn, Dr. Jennifer Chase (Mentor)
NORTHWEST NAZARENE UNIVERSITY
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74 Understanding Packing of New Compounds for Inexpensive Solar Panels
Chris D. Jones, Mia Klopfenstein, Emily Epstein, Gwen White, Dr. Eric Jankowski (Mentor)
BOISE STATE UNIVERSITY
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75 Assistive Technology: Wheelchair Mount
Pardis Kabeh, Miranda Nelson, Alyssa Clark, Anjelica Lee, Dr. Amy Moll (Mentor)
BOISE STATE UNIVERSITY
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76 Integrating Stable Isotope Variation and Seismic Field Perturbations to Understand Recharge to a Fractured-basalt Aquifer System
Robert A. Kane¹, Dr. Jeff Langman (Mentor)¹, Dr. James G. Moberly¹, Dr. Kristopher V. Waynant¹, Jan Boll², Dr. Tim Bartholomaus¹, Erin Brooks¹, John Bush¹, Pamela Dunlap¹
¹UNIVERSITY OF IDAHO, ²WASHINGTON STATE UNIVERSITY
This project is supported by a 2019-2020 STEM Undergraduate Research Grant from the Higher Education Research Council.

77 Quantum Mechanical Calculations of the Interaction Energy in Ionic Liquids
Philomon Kanjiah Bileng¹, Dr. Donna Baek (Mentor)², Dr. Rene Rodriguez (Mentor)¹
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This project was funded by the Critical Materials Institute, BEA/Idaho National Lab, Idaho State University, Contract No. DE-AC07-05ID14517.

78 Re-designing Boise State University’s Rock-climbing Gym
Abigail L. Keh, Dr. Kendall House (Mentor)
BOISE STATE UNIVERSITY
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79 Gene Annotation and Primer Design to Study Sperm DNA Methylation Patterns in Smoke-exposed Mice
Rachel D. Kessinger, Dr. Luke Montrose (Mentor)
BOISE STATE UNIVERSITY
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80 Exploring Electrical Properties of Mesenchymal Stem Cells Via Dielectrophoresis
Sierra L. Knowles, Anthony T. Giduthuri (Mentor), Sophia K. Theodossiou, Dr. Nathan R. Schiele, Dr. Soumya K. Srivastava (Mentor)
UNIVERSITY OF IDAHO
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82 Relationships Between Jealousy in Intimate Partnerships and the Use of Snapchat
Mariem Laaraj, Cody Andrus, Ellie Begin, Dr. Mary Pritchard (Mentor)
BOISE STATE UNIVERSITY
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83 Developing a Plan to Study the Effects of River Restoration on the Amphibians and Reptiles of the Blackfoot River Wildlife Management Area
Kenneth M. Long, Dr. Charles R. Peterson (Mentor)
IDAHO STATE UNIVERSITY
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84 Novel *Entamoeba histolytica* MTA Nucleosidase Inhibitors to Treat Amoebic Dysentery

Libbie Luevanos, Dr. Ken Cornell (Mentor)

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86 Motor Module Composition in Competitive Athletes

Justin D. Lyon¹, Dr. Craig P. McGowan (Mentor)¹, Dr. Alena M. Grabowski²

¹UNIVERSITY OF IDAHO, ²UNIVERSITY OF COLORADO BOULDER

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87 Hidden Figures of Environmental Racism: Undocumented Farmworkers and Pesticide Exposure

Karla M. Magana, Dr. Isaac Castellano (Mentor)

**BOISE STATE UNIVERSITY**

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88 Interaction of Alpha–crystallin With Sphingomyelin Membrane

David Maldonado, Dr. Raju Timsina (Mentor), Dr. Laxman Mainali (Mentor)

**BOISE STATE UNIVERSITY**

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89 Body Dysmorphia Occurrence in College Athletes vs. College Students

McKenzie N. Malm, Ryan S. Glimp, Dr. Clay Robinson (Mentor)

**LEWIS-CLARK STATE COLLEGE**

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90 Variation Across Time and Space in Grazing Within Thunder Basin National Grassland, Wyoming

Jessica Mancha, Dr. Vicken Hillis (Mentor), Molly Levy (Mentor)

**BOISE STATE UNIVERSITY**

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91 Comparison of Antibacterial Activities of Garlic and Goldenseal Infused ZnO Nanoparticles

Mikayla S. Manzi, Breann A. Porter, Dr. Jamee Nixon (Mentor)

**NORTHWEST NAZARENE UNIVERSITY**

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92 Leopard Geckos and Those That Are Drawn to Them: A Study of Who Is Attracted to Leopard Geckos

Ashley Noelle Maples, Dr. Shelly Volsche (Mentor)

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93 Physical Properties of Cholesterol Bilayer Domains

Mason J. Marosvari, Jackson Thieme, Dr. Laxman Mainali (Mentor)

**BOISE STATE UNIVERSITY**

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94 Investigating the Amino Acid Involved in Notch N4ICD Dimerization
Monik D. Marquez, Dr. Allan R. Albig (Mentor)
BOISE STATE UNIVERSITY
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96 The Effects of “Physical BEMER Vascular Therapy” on Work Performance During Repeated Wingate Tests
Gary “Bear” N. McEwen, Dr. Collin M. Fehr (Mentor), Dr. Clay Robinson (Mentor)
LEWIS-CLARK STATE COLLEGE
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97 Evolution of Biomedical Research Community Over 20 Years
Tragon A. McFall, Diane B. Smith (Mentor), Dr. Julia Oxford (Mentor)
BOISE STATE UNIVERSITY
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98 Analysis of Sulfur Dioxide Emissions in the Lewis–Clark Valley
John K. McGarry, Dr. Nancy A. C. Johnston (Mentor), Elijah P. Moser
LEWIS-CLARK STATE COLLEGE
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99 Testing Novel Therapeutic Inhibitor to Counter Breast Cancer Metastasis
Cooper R. McGrath, Darren J. Lighter, Clyde Pruett, Riley Olsen, Dr. Don L. Warner, Dr. Cheryl L. Jorcyk (Mentor), Dr. Matthew King
BOISE STATE UNIVERSITY
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100 Photometric Monitoring of MRK 501: A Model for Measuring the Optical Variability of BL Lacs
Nathan J. McGregor, Dr. Daryl J. Macomb (Mentor)
BOISE STATE UNIVERSITY
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101 Microbiota Compositional Changes Correlated With Oseltamivir Phosphate in Mouse Models With Influenza and MRSA Co-infection
Andrea C. Meyer1, Dr. Sumiko Gomi (Mentor)2
1BOISE STATE UNIVERSITY, 2BOISE VA MEDICAL CENTER
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**102 Quantification of Reactive Oxygen Species Generated by Cold Atmospheric Pressure Plasma Discharge**

*Dalton Miller, Dr. Jim Browning (Mentor), Dr. Ken Cornell (Mentor)*

*BOISE STATE UNIVERSITY*

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**103 Determination of Diffusive Uptake Rates for VOCs on Passive Thermal Desorption Air Samplers**

*Dylan D. Miller, Dr. Nancy A. C. Johnston (Mentor)*

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**104 Applying Molecular Modeling to Design Substituted Pyrimidines As Potential Anti-inflammatory Drugs**

*Abdi D. Mohamed, Dr. Don L. Warner (Mentor), Joseph Tuccinardi, Riley Olsen*

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**105 Effect of Regional Geologic Chemistry on Arid Snail Shell Types**

*Elijah P. Moser¹, Dr. Keegan L. Schmidt (Mentor)¹, Mason Linscott²*

*LEWIS-CLARK STATE COLLEGE, UNIVERSITY OF IDAHO*

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**106 High-precision U-Pb Zircon Age Calibration of Mid-Miocene Flora, Northern Idaho**

*Jessica M. Mueller, Dr. Mark D. Schmitz (Mentor)*

*BOISE STATE UNIVERSITY*

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**107 “Quality Education”: Educational Inequality in Kebrribeyah Refugee Camp; An Autoethnography**

*Ahmed A. Muhumed, Dr. Saleh Ahmed (Mentor)*

*BOISE STATE UNIVERSITY*

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**108 Evaluating the Role of Wnt/β-catenin Signaling in Tenogenic Stem Cell Differentiation**

*Jett B. Murray, Sophia K. Theodossiou, Dr. Nathan R. Schiele (Mentor)*

*UNIVERSITY OF IDAHO*

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**109 Nanoporous Niobium Oxide Electrode for Sodium Ion Batteries**

*Dustin D. Nguyen, Kiev Dixon, Pete Barnes, Dr. Hui Xiong (Mentor)*

*BOISE STATE UNIVERSITY*

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**110 Milk Processing by Nonthermal Liquid Plasma Discharge Technology**

*Elisabeth C. Nickell, Dr. Sarah Wu (Mentor), Yuan Yuan, Jordan Ommannay*

*UNIVERSITY OF IDAHO*

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112 Encapsulation of Lactobacillus acidophilus and Lactobacillus casei to Determine Cell Viability in a Hydrogel Biobead Matrix
Laura A. Nutter, Isabell K. Strawn, Addie White, Jonathan R. Counts (Mentor), Connor Hill, Dr. Mark F. Rolli, Dr. Kristopher V. Waynant (Mentor), Dr. James G. Moberly (Mentor)
UNIVERSITY OF IDAHO
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113 The Effects of Undergraduate Education Research on Our Lives: A Self-study
Claire M. Oberg, Julianne Mori, Dr. Sherry Dismuke (Mentor)
BOISE STATE UNIVERSITY
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114 Association Between Collagen Crimp and Mechanical Properties in Developing Tendons
Nicholas M. Pancheri, Sophia K. Theodossiou, Jeffrey M. Courtright, Dr. Michele R. Brumley, Dr. Nathan R. Schiele (Mentor)
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115 The Brahmagupta Triples and Record Numbers
Christine Patterson, Dr. Marion Scheepers (Mentor)
BOISE STATE UNIVERSITY
The research described was supported by Boise State University.

117 Analysis of Nitrate and Other Anions in Natural Water Sources of North Central Idaho
Elias J. Pukkila, Dr. Nancy A. C. Johnston (Mentor)
LEWIS-CLARK STATE COLLEGE
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118 The Potential Role of Solanum sisymbriifolium Cystatin-like Protein in Plant Defense to Globodera pallida
Tana Rayburn, Dr. Joseph Kuhl (Mentor)
UNIVERSITY OF IDAHO
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119 The Plasticity of Social Status: Stress Hormones in a Hermaphrodite Fish
Melissa G. Rivas, Katrina J. White, Dr. Devaleena S. Pradhan (Mentor)
IDAHO STATE UNIVERSITY
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120 That Sounds Familiar!: An Analysis of People’s Stances Toward Accent
Jesus A. Rivera Orozco, Dr. Gail Shuck (Mentor)
BOISE STATE UNIVERSITY
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121 Sacrificing the One for the Many: Ethical Decisions About Robots, Dogs, and People
Ashleigh N. Robishaw, Dr. Brian W. Stone (Mentor)
BOISE STATE UNIVERSITY
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122 Perceptions & Stereotypes About Female Sex Offenders
Gabriela G. Roggy, Dr. Laura King (Mentor)
BOISE STATE UNIVERSITY
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123 AFM Study of Cholesterol Containing Lipid Bilayer
Erica L. Rowe, Dr. Nawal K. Khadka (Mentor), Dr. Laxman Mainali (Mentor)
BOISE STATE UNIVERSITY
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124 Long-term Biological Consequences of Blm-deficiency During Early Embryonic Development in Drosophila melanogaster
Abbey L. Roy, Nathan L. Anderson, Karly Lacey, U. Isaiah Linabary, Dr. Eric Stoffregen (Mentor)
LEWIS-CLARK STATE COLLEGE
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125 Using Computational Methods to Design Pyrazolopyrimidines As Potential Inhibitors of an Inflammatory Cytokine
Alondra Sarmiento, Dr. Don L. Warner (Mentor), Riley Olsen, Joseph Tuccinardi
BOISE STATE UNIVERSITY
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126 Pressure–Temperature Record From the Eastern Alps, Austria, Reveals Dynamics of Plate Collision
Kyra L. Schroeder, Maya Cizina, Sam Couch, Dr. Matt Kohn (Mentor)
BOISE STATE UNIVERSITY
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127 Identification of Steroidal Alkaloids in Veratrum parviflorum
Jared T. Seale, Joseph Collins, Madison Dirks, Dr. Owen M. McDougal (Mentor)
BOISE STATE UNIVERSITY
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128 Assessing the Effects of Hydrogen Bonding on the Reactivity of Zinc Thiolates
Cole M. Shaffer, Dr. Eric C. Brown (Mentor), Josiah G. Elsberg
BOISE STATE UNIVERSITY
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130 Seen, but Not Heard? Evaluating the Visibility of Plants in the Conservation Translocation Literature
Anna J. Shuey¹, Carlos Dave C. Dumaguit¹, Dr. Stephanie J. Galla (Mentor)¹, Michael Wojahn (Mentor)¹, Peggy Martinez (Mentor)¹, John Rosato (Mentor)², Dr. Sven Buerki (Mentor)¹
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131 A Northwest American Sound in Classical Music
Allen W. Skirvin, Dr. Eric S. Alexander (Mentor), Dr. Linda Kline (Mentor)
BOISE STATE UNIVERSITY
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132 The Workflow of Modeling the Downstream Consequences of the 1976 Teton Dam Failure’s Flood
Hannah R. Spero, Dr. Donna Calhoun (Mentor)
BOISE STATE UNIVERSITY
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133 Inflammatory Cytokines Promote Expression of SERPINs
Gwynn E. Spielman, Simion Dinca, Cody L. Wolf, Dr. Cheryl L. Jorcyk (Mentor)
BOISE STATE UNIVERSITY
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134 Multivariate Calibration Domain Adaptation With Unlabeled Data
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IDAHO STATE UNIVERSITY
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135 Plasma Inactivation of Planktonic Bacterial Pathogens on Industrial Surfaces
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136 The Relationship Between the Type of Resources Teachers Use to Develop Lesson Plans and Teacher Characteristics
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BOISE STATE UNIVERSITY
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137 Tracking Human Development in the Wildland-Urban Interface: A Digitizing Workflow for Open Source Education
Zackery Szymczycha1, Savannah R. Canova2, Dr. Peter Olsoy (Mentor)2, Dr. Megan Cattau (Mentor)2
1COLLEGE OF WESTERN IDAHO, 2BOISE STATE UNIVERSITY
This project was made possible by the NSF Idaho EPSCoR Program and by the National Science Foundation under Award No. OIA-1757324.

139 Spatial Analysis of Soil Lead Exposures From Lead Poisoning Tragedy in Artisanal and Small-scale Gold Mining Villages of Zamfara, Nigeria
Madison L. Thurston1, Dr. Margrit von Braun (Mentor)1, Dr. Ian von Lindern (Mentor)2, Dr. Casey Bartrem (Mentor)2
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This project is supported by a 2019-2020 STEM Undergraduate Research Grant from the Higher Education Research Council. The analysis was supported by TerraGraphics International Foundation (TIFO). Data were generated during emergency response activities and collected by Zamfara State Environmental Sanitation Agency (ZESA), Anka Local Government Area (LGA), and Anka Emirate, with the support of Médecins Sans Frontières (Doctors Without Borders, MSF) and TIFO.

140 An Application of the Finite Element Method to the Enhanced Snake Plain Aquifer Model
Jacob Tolman, Dr. Yunrong Zhu (Mentor)
IDAHO STATE UNIVERSITY
The project described was supported by the Idaho State Higher Education Research Council and the Career Path Internship program at Idaho State University.
141 Using Sequential Art to Communicate Engineering Course Content

Addie P. Totman, Dr. Krishna Pakala (Mentor), Samantha Schauer, Christi Nogle

BOISE STATE UNIVERSITY

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142 Online Learning in STEM Courses During Times of Disruption

Ulises J. Trujillo Garcia\textsuperscript{1}, Dr. Krishna Pakala (Mentor)\textsuperscript{1}, Samantha Schauer (Mentor)\textsuperscript{1}, Dr. Diana Bairaktarova\textsuperscript{2}, Dr. Bhaskar Chittoori\textsuperscript{1}, Dr. Devshikha Bose\textsuperscript{1}

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143 Synthesis and Characterization of ZnO Nanoparticles From Extracts of \textit{Allium sativum} and \textit{Hydrastis canadensis}

Emily A. Wade, Cody J. Massie, Daniel F. Harris, Dr. Jerry D. Harris (Mentor)

NORTHWEST NAZARENE UNIVERSITY

The project described was supported by an Institutional Development Award (IDeA) from the National Institute of General Medical Sciences of the National Institutes of Health under Grant No. P20GM103408.

144 Kinetic Study of Novel MTA Nucleosidase Inhibitors Against \textit{Borrelia burgdorferi} BpG, MtnN, and Pfs Nucleosidases

Julie Wagner, Brandi Sweet, Zoey Carr, Dr. Ken Cornell (Mentor)

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145 Ionic Selectivity of Protein Channels in Subconducting States  
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BOISE STATE UNIVERSITY  
The project described was supported by the Ronald E. McNair Post-Baccalaureate Achievement Program through the U.S. Department of Education under Award No. P217A170273. The project described was supported by the National Science Foundation under Award No. 1554166.

146 Sagebrush Steppe: Past, Present, and Future (a Documentary Film)  
Sacha L. Wells, Dr. Janet Rachlow (Mentor)  
UNIVERSITY OF IDAHO  
The project described was supported by a student grant from the UI Office of Undergraduate Research. The project described was supported by the Kenneth Hungerford Wildlife Scholarship and Research Award.

147 Implementing in Silico and Other Bioinformatic Tools to Predict Vaccine Potential From Prioritized Staphylococcus aureus Antigens  
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This project is supported by the National Institute of General Medical Sciences of the National Institutes of Health under Award No. R25GM123927.

149 Inflammation May Play a Role in the Progression of Prostate Cancer  
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BOISE STATE UNIVERSITY  
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150 Phage Engineering to Understand Virus Host Range
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151 Southern Idaho Fauna and Its Effect on the Reproductive Success of Horned Larks
Taegan A. Wyatt, Madeline Aberg (Mentor)

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152 Digital Imaging of Amphibian and Reptile Specimens at the Idaho Museum of Natural History
Austin R. Young, Dr. Charles R. Peterson (Mentor), Patrick (Dan) Giltz

IDAHO STATE UNIVERSITY
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153 Population Structure Affects Outcomes of Gene Drive Interventions Against Vector-borne Diseases
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154 Stressors and Supports That Affect Refugee Fathers’ Parenting and Their Children’s Development

Rabia Zahid, Dr. April S. Masarik (Mentor)
BOISE STATE UNIVERSITY

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155 Exploration of the Feasibility of Hops As a Textile Material

Margaret E. Zee, Dr. Armando McDonald (Mentor), Chelsey Byrd Lewallen (Mentor)
UNIVERSITY OF IDAHO

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Since 1889, the University of Idaho (U of I) has challenged students to expect more of themselves and more from life. Students here learn to inspire others, push boundaries and lead the way to the breakthroughs that change the world. At its main campus in Moscow, Idaho — and educational centers throughout the state — students uncover what’s next and share those discoveries with others. The University of Idaho is consistently ranked as one of the best colleges in the U.S. by entities such as the Princeton Review and Washington Monthly. With a unique combination of outstanding majors and graduate programs, accomplished faculty, world-class facilities, and the most research in the state, U of I is a spectacular setting for the driven and curious from around the globe.

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THANK YOU FOR SUPPORTING ICUR 2020!

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