

**CURRICULUM VITAE**

University of Idaho

**NAME:** Brant G. Miller

**DATE:** 6.20.2022

**RANK OR TITLE:** Professor of Science Education

**DEPARTMENT:** Curriculum and Instruction

**OFFICE LOCATION AND CAMPUS ZIP:**

College of Education Building  
Rm. 410  
83844-3082

**OFFICE PHONE:** 208.885.4077

**EMAIL:** bgmiller@uidaho.edu

**WEB:**

<https://www.uidaho.edu/ed/ci/faculty/brant-g-miller>

**DATE OF FIRST EMPLOYMENT AT UI:** January 2011

**DATE OF TENURE:** 2017

**DATE OF PRESENT RANK OR TITLE:** March 10<sup>th</sup>, 2022

**EDUCATION BEYOND HIGH SCHOOL:**

**Degrees:** (List most recent degree first: Degree, institution name, city, state, date, major or area of specialization.)

Ph.D. 2010 University of Minnesota  
Major: Science Education  
Dissertation Title: Snow Snakes and Science Agency: Empowering American Indian Students through a Culturally-Based Science, Technology, Engineering, and Mathematics (STEM) Curriculum  
Major professor: Dr. Gillian Roehrig

M.S. 2004 Black Hills State University  
Major: Curriculum and Instruction

B.S. 2001 Black Hills State University  
Major: Elementary Education  
Minor: Middle School

**Certificates and Licenses:**

South Dakota Teaching Certificate # 62451; Expiration 7/01/2024

*Professional Preparation:*

K-8 Elementary Education W/ 5-8 Middle Level  
Curriculum Director Education Specialist

*Endorsements:*

Self Contained K-4<sup>th</sup> Grade

Self Contained 5<sup>th</sup>-8<sup>th</sup> Grade  
 Middle Level Learner  
 K-4<sup>th</sup> Grade English Language Arts  
 K-4<sup>th</sup> Grade Math  
 K-4<sup>th</sup> Grade Science  
 K-4<sup>th</sup> Grade Social Studies  
 5<sup>th</sup>-8<sup>th</sup> Grade English Language Arts  
 5<sup>th</sup>-8<sup>th</sup> Grade Math  
 5<sup>th</sup>-8<sup>th</sup> Grade Science  
 5<sup>th</sup>-8<sup>th</sup> Grade Social Studies  
 Curriculum Director

## EXPERIENCE:

**Teaching, Extension and Research Appointments:** (List position titles and locations since receipt of Bachelor's degree)

### Professional Experience

2017-present	Associate Professor Department of Curriculum and Instruction College of Education, Health and Human Science University of Idaho
2011 – 2017	Assistant Professor Department of Curriculum and Instruction College of Education University of Idaho
2013 – present	Affiliate Faculty Department of Natural Resources and Society College of Natural Resources University of Idaho
2012 – present	McCall Outdoor Science School Faculty College of Education MOSS Faculty Liaison
2016 – present	Affiliate Faculty American Indian Studies Program University of Idaho
2007 – 2010	Graduate Instructor and Research Assistant Department of Curriculum and Instruction, University of Minnesota <ul style="list-style-type: none"> <li>• <i>Reach For The Sky: Integrating Technology into STEM Outcomes for American Indian Youth.</i> Funded by the NSF Information Technology Experiences for Students and Teachers (ITEST) Program. 2007- 2010.</li> <li>• <i>Student Teacher Supervision: Science Education cohort.</i> 2009-2010.</li> </ul>

- *DigMe Digital Technology Interdisciplinary Curriculum Initiative.* Assisted teachers in planning, writing, and integrating technology into an interdisciplinary curriculum for Roosevelt High School DigMe Program, Minneapolis, MN. Summer 2009.
- *Collaborative Research: Improving Engineering Students' Learning Strategies through Models and Modeling.* Funded by the National Science Foundation (NSF) Course, Curriculum, Learning, and Instruction (CCLI) Phase 3 Program. 2007-2008.

2005 – 2009                      Program Co-Director  
    Research Experience for Teachers (RET) Program  
    South Dakota School of Mines & Technology

2001 – 2007                      8<sup>th</sup> Grade Science Teacher  
    Douglas Middle School  
    Box Elder, SD

**Academic Administrative Appointments:** (List position titles and locations since receipt of Bachelor's degree)  
**Non-Academic Employment including Armed Forces:** (List title, brief description, date)

**Consulting:** (List company/institute name, title, brief description, date)

*Learning Beyond Limits*

Canadian Wildlife Federation Africa to the Americas Expedition – Provided curriculum and education basecamp support for an unsupported rowing expedition from Dakar, Senegal to Miami, Florida. ([www.oarnorthwest.com](http://www.oarnorthwest.com))

Adventure: Mississippi River 2014 and 2016 - Providing curriculum and education basecamp support for a source to sea expedition from the headwaters of the Mississippi River in Itasca State Park to the terminus of the Mississippi River at the Gulf of Mexico. ([www.rowboatclassroom.org](http://www.rowboatclassroom.org))

**TEACHING ACCOMPLISHMENTS:** (Academic and Extension teaching)

**Areas of Specialization:** Science Education and Learning Technologies

**Courses Taught:** (title, course number, date(s))

University of Idaho

ED 612                      Doctoral Seminar 2, Spring 2018  
 ED 611                      Doctoral Seminar 1, Fall 2017  
 EDCI 201                    Contexts of Education, Summer 2017 - Present  
 EDCI 501                    Broader Impacts and Science Communication, Spring 2017  
 EDCI 501                    SEM: Science Communication through The Confluence Project, Spring 2016  
 EDCI 502                    DS: Watershed Curriculum Development, Summer 2015  
 EDCI 505                    PD: Social Ecological Systems in the Coeur d'Alene Basin, Summer 2015  
 EDCI 570                    Introduction to Research in Curriculum and Instruction, Summer 2015

EDCI 502	Science Education Curriculum Frameworks, Spring 2014, 2015, 2016
EDCI 410	Technology, Teaching and Learning – Elementary Education, Fall 2012 - 2017
EDCI 404	Technology Tools for Teaching and Learning – Elementary Education, Spring 2012
EDCI 502	Climate Change and Indigenous Science Education, Summer 2011
EDCI 329	Elementary Science Methods, Spring 2011 - Present
EDCI 408	Elementary Practicum, Spring 2011- Present
EDCI 600	Doctoral Research and Dissertation, 2012 - Present
EDCI 599	Non-thesis Master’s Research, Spring 2012 – Present
ENVS 599	Research, Spring 2013 - Present
EDCI 598	INTERN: Immersion Experience, Spring 2013

### University of Minnesota

EdHD 5007	Technology Tools for Teaching and Learning – Elementary Education, College of Education and Human Development, Spring 2010
EdHD 5007	Technology Tools for Teaching and Learning Science, College of Education and Human Development, Fall 2008 and Fall 2009

### Black Hills State University

*The following are courses taught through Black Hills State University as part of the RET program housed at South Dakota School of Mines and Technology*

ED 692	Research Experience for Teachers, Summer 2005
SCI 492/592	Research Experience for K-12 Teachers, Summer 2005
ED 692	Transferring Research Experiences to Classroom Curriculum, Summer 2006
SCI 792	Authentic Research Experiences for 6-12 Grade Science Educators, Summer 2006
ED 692	Transferring Research Experiences to Classroom Curriculum, Summer 2007
SCI 692	Authentic Research Experiences for 6-12 Grade Science Educators, Summer 2007

### **Students Advised:**

**Undergraduate Students:** (advised to completion of degree, number per year)

**Graduate Students:** (Advised to completion of degree-major professor (student name, degree, and date)

Served on graduate committee (student name, degree, and date)

Laurren Langford (TBD)  
 Christa Howarth (TBD)  
 Nicole Recla (TBD)  
 Audrey Speicher M.Ed. (2018, Spring)  
 Alex Rheault M.Ed. (2017, Fall)  
 Kirsten LaPaglia M.Ed. (2017, Fall)

Chris Overland (2017, Summer)  
Tara Tribbett M.Ed. (2016, Fall)  
Jamie Esler M.Ed. (2016, Summer)  
Katie Mosman M.Ed. (2016, Summer)  
Marina Stevenson M.Ed. (2016, Summer)  
Megan Licht (2016, Spring)  
Michael Wang-Belt M.Ed. (2015, Spring)  
Landon Moores M.Ed. (2014, Fall)  
Kathy McGrath M.Ed. (2014, Summer)  
Carrie Anderson M.Ed. (2013, Fall)  
Frank Finley M.Ed. (2013, Summer)  
Nicolas Gastelecutto M.S. (2013, Summer)  
Dane Hansen M.Ed. (2013, Spring)  
Justin Gray M.Ed. (2012, Fall)  
Scott McAlpine M.Ed. (2012, Fall)  
Laura Kostenblatt M.Ed. (2012, Fall)  
Shawn Tiegs M.Ed. (2012, Summer)  
Jonette McQuide M.Ed. (2012, Summer)  
Shannon Moriarty M.Ed. (2012, Spring)

Masters committee service:

Jon Treasure M.S. (2013, Fall)  
Brad Clark M.S. (2013, Spring)

Doctoral committee service:

Sarah Quallen (TBD)  
Cata Iturbe (TBD, PUCV Chile)  
Sammy Matsaw (2020, Fall Defense)  
Kirsten LaPaglia (TBD)  
Meghan Foard (2020, Spring Defense)  
Alissa Korsack (2016, Summer Defense)  
Marcie Galbreath (2015, Fall Defense)  
Bree Reynolds (2015, Spring Defense)  
Becky Rittenburg (2015, Spring Defense)  
John Herrington (2014, Fall Defense)  
Christopher Cox (2013, Summer Defense)

Doctoral major professor service:

Sultan Aljohani (TBD)  
Brian Tabayan (TBD)  
Justin Scoggin (TBD)  
Sarah Olsen (2019, Summer Defense)  
Steve Lysne (2015, Summer Defense)  
Jennifer Schon (2015, Spring Defense)

Jamie Esler (EDCI 599, 2015, Summer)  
 Brad Clark (EDCI 598, 2015, Fall)  
 Megan Licht (EDCI 599, 2016, Spring)  
 Kirsten LaPaglia (EDCI 502, Science Education Curriculum Frameworks, 2015, Spring)  
 Steve Lysne (EDCI 502, Science Education Curriculum Frameworks, 2014, Spring)  
 Carrie Anderson (EDCI 599, 2013, Fall)  
 Nick Gastelecutto (ENVS 599, 2013, Spring & Summer)  
 Justin Gray (EDCI 599, 2012, Fall)  
 Scott McAlpine (EDCI 599, 2012, Fall)  
 Laura Kostenblatt (EDCI 599, 2012, Fall)  
 Frank Finley (EDCI 599, 2012, Fall)  
 Jonette McQuide (EDCI 599, 2012, Summer)  
 Shannon Moriarty (EDCI 599, 2012, Spring)  
 Frank Finley (EDCI 502, Climate Change and Indigenous Science Education, 2011, Summer;  
 EDCI 599, 2012, Fall, EDCI 599, 2013, Spring)  
 Jennifer Schon (EDCI 598, 2013, Spring)

**Materials Developed:** (non-scholarship activity)

**Courses Developed:**

Adventure Learning Design and Development, EDCI 404/504, TBD  
 Technology Tools for Teaching and Learning, EDCI 404/410, Spring 2012 and ongoing

**Non-credit Classes, Workshops, Seminars, Invited Lectures, etc.:**

- Miller, B. G. (2021, May 5<sup>th</sup>). *Adventure Learning as a Response for Education in the COVID Era*. EnvS 400 Seminar – University of Idaho.
- Miller, B. G. (2020, December 9<sup>th</sup>). *Do Science, And the Rest Will Follow*. Universidad Austral de Chile. Zoom.
- Miller, B. G., & Franco, G. C. (2019, December 19<sup>th</sup> and 20<sup>th</sup>). *Possibilities of STEM Education in Chile: Scientific Challenges and Intercultural Research*. Universidad de Magallanes, Punta Arenas and Puerto Natales, Chile.
- Miller, B. G. (2019, December 17<sup>th</sup>). *Experiencias internacionales. Cómo se trabajan en las escuelas de Estados Unidos el foco STEM*. Taller de Actualization Docente Ciencias Para la Ciudadania y Química. Seminario San Rafael de Viña del Mar.
- Miller, B. G. (2019, November 9<sup>th</sup>). [Keynote] *Authenticity as Science Educators: Why Contributing to Science Brings You and Your Students to Life*. Tercer Congreso de la Sociedad Chilena de Educación Científica (SChEC), Educación en ciencias para la justicia social. Universidad del Bio-Bio, Chillán, Chile.
- Miller, B. G. (2019, October 17<sup>th</sup>). *STEAM Education: Considerations, Examples, and Possibilities from the US*. STEAM revolución educacional: Innovación, sustentabilidad e inclusión. Salón de Honor, Casa Central PUCV, Valparaiso, Chile.

- Miller, B. G. (2018, October 16<sup>th</sup>). *Adventure Learning as an Avenue for Science Communication*. EnvS 400 Seminar – University of Idaho.
- Miller, B. G. (2018, August 7<sup>th</sup>). *Cultivating Place and Adventure for Education*. Think Evolution IX Summer Institute invited lecture – UC Berkeley.
- Miller, B. G. (2018, May 29<sup>th</sup>). *The Confluence Approach: Connecting Early Stage Students with Place-Based Water and Climate Science*. Invited Seminar Lecture – UCSC, Concepcion, Chile.
- Miller, B. G. (2017, January 23<sup>rd</sup>). *Adventure Learning and Authentic Contexts: Rethinking Education*. Invited Lecture – ISEM 301. University of Idaho.
- Miller, B. G., Jennewein, J., & Engels, M. (2016, March 23<sup>rd</sup>). *The Confluence Project: Connecting Northern Idaho high school students with place-based water and climate science*. Invited Lecture - University of Idaho Water Resources Seminar.
- Miller, B. G. (2016, February 29<sup>th</sup>). *Adventure Learning and Expeditionary Learning: Rethinking Education*. Invited Lecture – ISEM 301. University of Idaho.
- Hougham, R. J., & Miller, B. G. (2016, February 10<sup>th</sup>). *Using Adventure as a Context for Learning*. Invited Lecture - EDU 400. University of Puget Sound.
- Miller, B. G. (2015, October 5<sup>th</sup>-6<sup>th</sup>). *AL@AK pilot*. Teacher Professional Development Workshop as part of AK EPSCoR.
- Miller, B. G. (2015, July 13<sup>th</sup>-17<sup>th</sup>). *Adventure Learning @ the Coeur d'Alene Basin*. Teacher Professional Development Workshop as part of the EPSCoR MILES project.
- Miller, B. G. (2015, February 18<sup>th</sup>). *AL@AK*. Alaska EPSCoR Mid-Course Retreat, Anchorage.
- Miller, B. G. (2014, June 16<sup>th</sup>-20<sup>th</sup>). *Adventure Learning @ Fernan Lake*. Teacher Professional Development Workshop as part of the EPSCoR MILES project.
- Miller, B. G. (2014, May 21<sup>st</sup>). *Using the adventure learning approach to communicate climate science: Lessons learned and future directions*. University of Iceland.
- Miller, B. G., & Eitel, K. B. (2013, August 1<sup>st</sup>). *Communicating climate science with k-12 students and teachers*. 3<sup>rd</sup> Annual Climate Science Boot Camp, Northwest Climate Science Center (NWCSC), University of Idaho McCall Field Campus, McCall, Idaho.
- Mackenzie, S. H., Son, J. S., Miller, B. G., Hougham, R. J., Eitel, K. B., & Thompson, G. (2012, November 15<sup>th</sup>). *College of Education Innovation Grant: Adventure Learning to promote GreenSTEM education & physical activity in schools*. University of Idaho, College of Education Brown Bag seminar.
- Miller, B. G. (2012, October 2<sup>nd</sup>). *Science Education Assessment*. Invited Lecture – EDCI 433 Secondary Science Methods. University of Idaho, Moscow.

Miller, B. G. (2012, May 22<sup>nd</sup>). *Adventure Learning and the Learning Sciences*. Invited Seminar – Learning in Informal and Formal Environments (LIFE) Center: A National Science Foundation Science of Learning Center, University of Washington.

Hougham, R. J., & Miller, B. G. (2012, April 24<sup>th</sup>). *Education at the speed of adventure: Communicating the science of climate*. Geography Department Seminar, University of Idaho, Moscow.

Miller, B. G., & Hougham, R. J. (2012, March 8<sup>th</sup>). Invited Lecture - *EDC385G: Design & Development of Adventure Learning*. University of Texas, Austin.

Miller, B. G. (2011, October 25<sup>th</sup>). *AL@UI: Exploring the possibilities for “Adventure Learning” in Idaho and beyond*. University of Idaho, Coeur d’Alene.

Miller, B. G. (2011, June 27<sup>th</sup> & 28<sup>th</sup>). *Snow snakes (Gooneginebig) in the summer: Connecting traditional knowledge and STEM*. Helping Orient Indian Students and Teachers (HOIST) summer program. Moscow, Idaho.

### **Honors and Awards:**

Cultural Studies of Science Education Journal Distinguished Paper Award for 2018

Fullbright U.S. Scholar in Chile – 2019-2020

University of Idaho Presidential Mid-Career Faculty Award 2016-2018

University of Idaho Presidential Mid-Career Faculty Award nomination, 2016

University of Idaho Hoffman Excellence in Teaching Award nomination, 2015

University of Idaho Hoffman Excellence in Teaching Award nomination, 2014

**SCHOLARSHIP ACCOMPLISHMENTS:** (Including scholarship of teaching and learning, artistic creativity, discovery, and application/integration)

### **Publications, Exhibitions, Performances, Recitals:**

**Refereed/Adjudicated:** (i.e. books, book chaps., journals, proc., abstr., etc.; provide citations-author, date, title, publisher)

Matsaw, J., Matsaw, S., & **Miller, B. G.** (Winter 2022). *River Neme: Creating New Narratives on Historic Landscapes*. *CLEARING*, 20-23.

2018 Palouse Prairie Charter School 4<sup>th</sup> Grade Crew, Hill, R., **Miller, B. G.** (Fall 2018). Blooming culture: The canoe as a vessel for exploring cultures. *CLEARING*, 20-24.

Hill, R., Wicks-Arshack, A., & **Miller, B. G.** (Fall 2017). Burning wisdom: The canoe as a vessel for learning. *CLEARING*, 13-17.

- Miller, B. G.** (2017). Outdoor learning. In K. Pepler (Ed.), *The SAGE encyclopedia of out-of-school learning* (pp. 560-561). Thousand Oaks, CA: SAGE Publications, Inc.
- Squires, A., Jennewein, J., Engels, M., **Miller, B. G.**, & Eitel, K. B. (Fall 2016). Integrating Watershed Science in High School Classrooms: The Confluence Project Approach. *CLEARING*, 14-17.
- Amador, J., Kimmons, R., **Miller, B. G.**, Desjardins, C., & Hall, C. (2015). Preparing preservice teachers to become self-reflective of their own technology integration practices. In M. Niess & H. Gillow-Wiles (Eds.) *Handbook of Research on Teacher Education in the Digital Age* (pp. 83-109). Hershey, PA: IGI Global.
- Hougham, R. J., Eitel, K. B., & **Miller, B. G.** (2012). AL@: Combining the strengths of adventure learning and place-based education. *CLEARING*, 38-41.
- Crowe, N., & **Miller, B. G.** (2011, April). Shushumeg (snow snakes). *Nabgabchiwanong (Far end of the Great Lake) Dibahjimowinnan (Narrating of Story)*.
- Miller, B. G.** (2010, April). 2<sup>nd</sup> annual snow snake festival revives a traditional winter game. *The Circle: News from a Native American Perspective*, 31(4), p. 6.
- Miller, B. G.**, & Shimek, R. (2010, April). 2<sup>nd</sup> annual snow snake festival at Bemidji State a great success! *Anishinaabeg Today*, 15(4), p. 32.
- Miller, B. G.** (2009, April). Reservation programs sponsor first ever snow snake festival on North Twin Lake. *Anishinaabeg Today*, 14(5), p. 20.
- Peer Reviewed/Evaluated:** (i.e. journals, articles, proceedings, abstracts, etc.)
- Bascom, W., & **Miller, B. G.** (2021). Combining the Old with the New: Using an Historical Text and a Citizen Science App to Engage Student Learning. *Science & Children*, 58(6), 86-91.
- Olsen, S. K., **Miller, B. G.**, Eitel, K. B., & Cohn, T. C. (2020). Assessing teachers' environmental citizenship before and after an adventure learning workshop: A case study from a social ecological systems perspective. *Journal of Science Teacher Education*, 31(8), 869-893. doi: 10.1080/1046560X.2020.1771039
- Gonzalez, A. A., Lizana, P. A., Pino, S., **Miller, B. G.**, & Merino, C. (2020). Augmented reality-based learning for the comprehension of cardiac physiology in undergraduate biomedical students. *Advances in Physiology Education*, 44, 314-322. doi:10.1152/advan.00137.2019.
- Engels, M., **Miller, B. G.**, Squires, A., Jennewein, J., & Eitel, K. B. (2019). The Confluence Approach: Developing scientific literacy through project-based learning and place-based education in the context of NGSS. *Electronic Journal of Science Education*, 23(3), 33-58.

- Miller, B. G.**, & Roehrig, G. H. (2018). Indigenous cultural contexts for STEM experiences: Snow Snakes' impact on students and the community. *Cultural Studies of Science Education*, 13(1), 31-58. DOI :10.1007/s11422-016-9738-4
- Lysne, S. J., & **Miller, B. G.** (2017). A comparison of long-term knowledge retention between two teaching approaches. *Journal of College Science Teaching*, 46(6), 64-71.
- Miller, B. G.**, Cox, C.J., Hougham, R.J., Walden, V.P., Eitel, K.B., Albano, A.D. (2015). Adventure learning as a curricular approach that transcends geographies and connects people to place. *The Curriculum Journal*, 26(2), 290-312.
- Lysne, S. J., & **Miller, B. G.** (2015). Implementing Vision & Change in a community college classroom. *Journal of College Science Teaching*, 44(6), 10-15.
- Kimmons, R., **Miller, B. G.**, Amador, J., Desjardins, C., & Hall, C. (2015). [Technology integration coursework and finding meaning in pre-service teachers' reflective practice](#). *Educational Technology Research & Development*, 63(6), 809-829.
- Anderson, C., **Miller, B. G.**, Eitel, K. B., Veletsiano, G., Eitel, J. U. H., & Hougham, R. J. (2015). Comparing a technology enhanced approach and a traditional approach to K-12 field-based environmental education. *Electronic Journal of Science Education*, 19(6), 1-19.
- Lysne, S. J., & **Miller, B. G.** (2015). Using mobile devices to engage students in evolutionary thinking. *The American Biology Teacher*, 77(8), 624-627.
- Hougham, R. J., Eitel, K. B., & **Miller, B. G.** (2015). Technology-enriched STEM investigations of place: Using technology to extend the senses and build connections to and between places in science education. *Journal of Geoscience Education*, 63(2), 90-97.
- Veletsianos, G., **Miller, B. G.**, Eitel, K., Eitel, J., Hougham, J., & Hansen, D. (2015). Lessons learned from the design and development of technology-enhanced outdoor learning experiences. *Tech Trends*, 59(4), 78-86.
- Rittenburg, R. A., **Miller, B. G.**, Rust, C., Kreider, R., Esler, J., Squires, A. L., Boylan, R. D. (2015). The community connection: Engaging students and community partners in project-based science. *The Science Teacher*, 82(1), 47-52.
- Lysne, S. J., & **Miller, B. G.** (2014). A review of research on student learning with implications for teaching college science in Idaho. *Journal of the Idaho Academy of Science*, 50(1), 54-64.
- Adams, A., **Miller, B. G.**, Saul, M., & Pegg, J. (2014). Supporting elementary pre-service teachers to teach STEM through place-based teaching and learning experiences (12958). *Electronic Journal of Science Education*, 18(5), 1-22.
- Schon, J. A., Eitel, K. B., Bingaman, D., **Miller, B. G.**, & Rittenburg, B. (2014). Small leaders in a big project: Creek restoration led by 5<sup>th</sup> grade scientists. *Science & Children*, 51(9), 48-53.

- Lysne, S. J., **Miller, B. G.**, & Eitel, K. B. (2013). Exploring student engagement in an introductory biology course. *Journal of College Science Teaching*, 43(2), 16-21.
- Donna, J. D., & **Miller, B. G.** (2013). Using cloud-computing applications to support collaborative scientific inquiry: Examining pre-service teachers' perceived barriers towards integration. *Canadian Journal of Learning and Technology*, 39(3), 1-17.
- Eitel, K. B., Hougham, R. J., & **Miller, B. G.**, Schon, J., & LaPaglia, K. (2013). Upload, download: Empowering students through technology-enabled problem-based learning. *Science Scope*, 38(7), 32-39.
- Miller, B. G.**, Hougham, R. J., & Eitel, K. B. (2013). The practical enactment of adventure learning: Where will you AL@? *Tech Trends*, 57(4), 28-33.
- Miller, B. G.**, Doering, A., Roehrig, G., & Shimek, R. (2012). Fostering Indigenous STEM education: Mobilizing the adventure learning framework through snow snakes. *Journal of American Indian Education*, 51(2), 66-84.

**Other:** (reports, proceedings, papers, citations and references, performances)

- Miller, B. G., Hougham, R. J., Cox, C., Walden, V., & Eitel, K. B. (2014). Adventure Learning @ the Learning Sciences. In J. L. Polman, E. A. Kyza, D. K. O'Neill, I. Tabak, W. R. Penuel, A. S. Jurow, K. O'Connor, T. Lee, & L. D'Amico (Eds.), *Learning and becoming in practice: The International Conference of the Learning Sciences (ICLS) 2014, Volume 3*, (pp. 1509-1510). Boulder, CO: International Society of the Learning Sciences.
- Miller, B. G., Hougham, J. & Bradley Eitel, K. (2012). AL@UI: Connecting People to Places for Meaningful Learning. In P. Resta (Ed.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2012* (pp. 672-677). Chesapeake, VA: AACE. Retrieved from <http://www.editlib.org/p/39649>.
- Veletsianos, G., Miller, B. G., Bradley Eitel, K., Eitel, J.U.H. & Hougham, R.J. (2012). Localizing Adventure Learning: Teachers and Students as Expedition Leaders and Members. In P. Resta (Ed.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2012* (pp. 2164-2169). Chesapeake, VA: AACE. Retrieved from <http://www.editlib.org/p/39905/>
- Storrs, D., Mihelich, J., Hormel, L., Putsche, L., Miller, B. G., Kern, A., Kane, S., McMurtry, J., Howard, M., & Schwisow, A. (2011, August). *Micron STEM education research project report of focus group research findings*. Moscow, ID: University of Idaho.
- Miller, B. G., & Moore, T. J. (2008, June). Impacts of an engineering research experience for teachers on classroom integration of STEM concepts in grade 6-12 science. Proceedings of the *American Society for Engineering Education National Conference*, Pittsburgh, PA. \*Nominated for Best Paper in the Division\*

**Refereed/Adjudicated (currently scheduled or submitted):** (provide citations)

**Peer Reviewed/Evaluated (currently scheduled or submitted):**

Merino, C., Marazábal, A., Quiroz, W., Pino, S., López, F., Carrasco, X., **Miller, B. G.** (under review). *Use of augmented reality in chromatography learning: How is this dynamic visual artifact fostering the visualization abilities of chemistry undergraduate student?*

Merino, C., Iturbe-Sarunic, C., **Miller, B. G.**, Parent, C., Phillips, J., Pino, S., Miguel Garrido, J., Arenas, A., & Zamora, J. (accepted). *Snailed it! Inside the shell: Using augmented reality as a window into biodiversity.*

**Miller, B. G.**, & Hougham, R. J. (in press). Beyond Field Environmental Philosophy: Integrating science education and technology. In R. A. Rozzi, T. W. Tauro, I. Klaver, N. Avriel-Avni, & R. May (Eds). *Field Environmental Philosophy: Education for Biocultural Conservation*. Springer, Dordrecht: The Netherlands.

Dousay, T. A., **Miller, B. G.**, & Parent, C. E. (accepted) CURating science literacy and professional identity among biology and science education majors. *Innovations in Science Teacher Education*.

Merino, C., Marzabal, A., **Miller, B. G.**, Romero, X. C. (under review). *Science teacher education in Chile: On the verge of a turning point towards STEM-oriented science education.*

Phillips, J. G., Jung, B. L., **Miller, B. G.**, & Parent, C. E. (in preparation). *Genomic Diversity and Evolution of Succineid Land Snails in the Galápagos Archipelago.*

Warwick, A. R., Phillips, J., Scoggin, J., Parent, C. E., **Miller, B. G.** (in preparation). *Fostering understanding of evolution in Galápagos elementary students using endemic land snails.*

**Presentations and Other Creative Activities:** (i.e. slide sets, web pages, video productions, etc., provide date and location)

Miller, B. G. (Photographer). (September 18<sup>th</sup>, 2013). NSF 360 Picture of the Day: Fog bows over Summit Station, Greenland. <http://news.science360.gov/obj/pic-day/f4949226-8521-4ec9-976e-930bad21f721/fog-bows-over-summit-station-greenland>.

Miller, B. G. (Photographer). (2013). Supercooled water clouds over Summit Station, Greenland [Cover photo]. *Nature*, 496(7443). Also on the NSF website here: [http://www.nsf.gov/news/news\\_images.jsp?cntn\\_id=127438&org=NSF](http://www.nsf.gov/news/news_images.jsp?cntn_id=127438&org=NSF)

Miller, B. G. (Photographer). (2013, Spring). Idaho branching out with access to STEM [Cover photo and photos pg. 4-6, 16-17]. *Envision*, University of Idaho, College of Education magazine.

**Professional Meeting Papers, Workshops, Showings, Recitals:** (provide date and location)

## International and National

- Miller, B. G., Donna, J. D. (2019, January 3<sup>rd</sup>). “I am never not thinking about the nature of science”: A field season in the Galapagos with scientists and the impact of the experience on an elementary science educator. *Association for Science Teacher Education (ASTE) International Meeting*, Savannah, GA, 3-5 January 2019.
- 2018 Palouse Prairie Charter School 4<sup>th</sup> Grade Crew, Hill, R., Miller, B. G. (2018, October 11<sup>th</sup>). Blooming culture: The canoe as a vessel for exploring cultures [poster]. *North American Association for Environmental Education (NAAEE) National Conference*, Spokane, WA.
- Johnson, S., Miller, B. G., Kretser, J. Schmidt, M. (2018, October 13<sup>th</sup>). Civic engagement live: Empowering students to create climate action projects [Bright Spot]. *North American Association for Environmental Education (NAAEE) National Conference*, Spokane, WA.
- Olsen, S., & Miller, B. G. (2017, April 28<sup>th</sup>). Science Communication Training for Busy Graduate Students [poster]. *National Alliance for Broader Impacts*, Stevenson, WA.
- Miller, B. G., Hougham, J., & Hanssen, J. (2016, April 3<sup>rd</sup>). Using Expeditions as Contexts for Teaching Science: Adventure Mississippi River. *National Science Teachers Association (NSTA) National Conference*, Nashville, TN.
- Donna, J., Miller, B. G., & Hick, S. (2016, April 2<sup>nd</sup>). Warm the Water to Save Your City: An Engineering and Educational Technology NGSS Student Assessment Task. *National Science Teachers Association (NSTA) National Conference*, Nashville, TN.
- Tenuto, A., Pollard, M., & Miller, B. G. (2016, March 31<sup>st</sup>) Creating a NASA-based Research Environment in a High School Classroom: Mission to Outer Space. *National Science Teachers Association (NSTA) National Conference*, Nashville, TN.
- Miller, B. G. (2016, January). Adventure Learning @ The Confluence. *Association for Science Teacher Education (ASTE) International Meeting*, Reno, NV, 7-9 January 2016.
- Adams, A.E., Miller, B.G., Eitel, K.B., & Schon, J. (2015, February). Learning from each other: Science and education students co-learning to teach environmental education. *11<sup>th</sup> Annual International Globalization, Diversity, and Education Conference*, Spokane, WA.
- Miller, B. G., Donna, J. D., & Hick, S. R. (2015, January). Technology Enhanced Performance Tasks (TEPTs): An Approach to Developing and Assessing Science and Digital Literacy the NGSS Way within Middle School Science Classrooms. *Association for Science Teacher Education (ASTE) International Meeting*, Portland, OR, 7-10 January 2015.
- Miller, B. G., & Hougham, R. J. (2015, January). Adventure: Mississippi River (AMR)—An Approach to Engaging Audiences around an Adventure Narrative to Teach Science. *Association for Science Teacher Education (ASTE) International Meeting*, Portland, OR, 7-10 January 2015.

- Miller, B. G., Hougham, R. J., Cox, C., Walden, V., & Eitel, K. B. (2014, July). Adventure Learning @ the Learning Sciences [poster session #3]. *Learning and becoming in practice: The International Conference of the Learning Sciences (ICLS)*, Boulder, CO, 24-27 July 2014.
- Miller, B.G., Cox, C.J., Hougham, R.J., Walden, V.P., Eitel, K.B., & Albano, A. (2013, December). ED33E-05. Adventure Learning @ Greenland. From Pole to Pole: Experiences Educating About the Polar Region I. *American Geophysical Union Fall Meeting*, San Francisco, 9-13 December 2013.
- Hougham, R. J., Miller, B.G., Eitel, K.B., Mackenzie, S.H., Son, J.S., & Thompson, G. (2013, October). Adventure learning to promote GreenSTEM education and physical activity in schools. *Symposium on Experiential Education Research*, Denver, CO.
- Roehrig, G.H., Miller, B.G., & Carlson, S. (2013). An approach to developing culturally relevant STEM programming with American Indian students [poster #70.050]. *American Education Research Association*, San Francisco, CA, 27 April – 1 May 2013.
- Roehrig, G.H., Miller, B.G., Carlson, S., & Moore, T. (2013, April). Reach for the Sky: Improving STEM outcomes for American Indian Students. *American Education Research Association*, San Francisco, CA, 27 April – 1 May 2013.
- Cox, C.J., Miller, B.G., Hougham, R.J., Walden, V.P., & Eitel, K.B. (2013). Adventure learning @ Greenland: Education and outreach in the Arctic [poster #39]. *American Meteorological Society's 12<sup>th</sup> Conference on Polar Meteorology and Oceanography*, Seattle, WA, 29 April – 1 May 2013.
- Roehrig, G.H., Carlson, S., & Miller, B.G. (2013, April). Reach for the Sky: Improving Science Agency for American Indian Students. *National Association of Research in Science Teaching*, Rio Grande, Puerto Rico.
- Eitel, K. B., Miller, B. G., Veletsianos, G., Eitel, J., O'Hair, M., Schon, J., & Hougham, R. J. (2012). Adventure Learning Through Water and MOSS – a novel approach to engaging K-12 students in climate change issues. *American Geophysical Union Fall Meeting*, San Francisco, 3 - 6 December 2012.
- Hougham, R. J., Miller, B. G., Cox, C. J., Walden, V. P., & Eitel, K. B. (2012). Communicating climate science to high school students in the Arctic: Adventure learning @ Greenland. *American Geophysical Union Fall Meeting*, San Francisco, 3 - 6 December 2012.
- Hougham, R. J., Saul, M., & Miller, B. G. (2012). Endangered futures voices for change: Global and local student inquiry of our changing world through adventure learning. *National Geographic Society Education Conference*. San Marcos, TX.
- Miller, B. G., Hougham, R. J., & Eitel, K. B. (2012, March). AL@UI: Connecting people to places for meaningful learning. *Society for Information Technology & Teacher Education (SITE) Annual International Conference*, Austin, TX.

- Veletsianos, G., Miller, B. G., Bradley Eitel, K., Eitel, J.U.H. & Hougham, R.J. (2012). Localizing Adventure Learning: Teachers and Students as Expedition Leaders and Members. *Society for Information Technology & Teacher Education (SITE) Annual International Conference*, Austin, TX.
- Miller, B. G., Roehrig, G., & Doering, A. (2012, January). Snow snakes through adventure learning: How using a hybrid online environment supports the development of science agency. *Association for Science Teacher Education (ASTE) Annual International Conference*, Clearwater Beach, FL.
- Saul, M., Hougham, R. J., & Miller, B. G. (2011, August). Mapping a meal: Community gardens as sites for geo-literacy. *National Council for Geographic Education (NCGE) Annual National Meeting*, Portland, OR.
- Miller, B. G., & Hougham, R. J. (2011, August). Expanding the theoretical framework of AL 2.0. *National Council for Geographic Education (NCGE) Annual National Meeting*, Portland, OR.
- Hougham, R. J., & Miller, B. G. (2011, August). Climate science education through geographic literacy. *National Council for Geographic Education (NCGE) Annual National Meeting*, Portland, OR.
- Miller, B. G., & Roehrig, G. (2011, April). Snow snakes and science agency: Empowering American Indian students through a culturally-based science, technology, engineering, and mathematics (STEM) curriculum. *American Education Research Association (AERA) Annual Meeting*, New Orleans, LA.
- Donna, J. D., Scharber, C., Doering, A., & Miller, B. G. (2011, April). Using cloud-computing applications to support collaborative scientific inquiry: Examining pre-service teachers' perceived barriers toward integration. *American Education Research Association (AERA) Annual Meeting*, New Orleans, LA.
- Miller, B. G., & Roehrig, G. (2011, April). Employing a culturally-based context as a means to science agency: Snow snakes and STEM. *National Association for Research in Science Teaching (NARST) Annual International Conference*, Orlando, FL.
- Miller, B. G., Donna, J. D., & Doering, A. (2011, March). STEM through culturally based contexts using a hybrid online environment. *National Science Teachers Association (NSTA) National Conference*, San Francisco, CA.
- Donna, J. D., & Miller, B. G., (2011, March). Science in the 'clouds': Exploring the integration of cloud-computing tools within inquiry-based science instruction and professional development settings. *National Science Teachers Association (NSTA) National Conference*, San Francisco, CA.
- Roehrig, G. H., Moore, T. J., Carlson, S., Miller B. G, Guzey, S., & Donna, J. D. (2009, April). Reach for the sky: Improving STEM learning for Anishinaabe students. *National Association for Research in Science Teaching (NARST) International Conference*, Garden Grove, CA.

- Miller, B. G., Donna, J. D., Roehrig, G. H., Moore, T. J., & Carlson, S. (2009, March). Reaching for the sky: STEM outreach and indigenous knowledge. *National Science Teachers Association (NSTA) National Conference*, New Orleans, LA.
- Miller, B. G. (2009, January). Science goes south: The results of a research experience for teachers (RET) program in Chile. *Association of Science Teacher Education (ASTE) International Conference*, Hartford, CT.
- Roehrig G. H., Moore, T. J., Carlson, S., Guzey, S., Miller B. G, & Donna, J. D. (2009, January). Reach for the sky. *Association of Science Teacher Educators (ASTE) International Conference*, Hartford, CT.
- Miller, B. G. (2008, January). RET site: Inspiring educators in rural America through research. *Association of Science Teacher Education (ASTE) International Conference*, St. Louis, MO.
- Miller, B. G., & Winter, R. M. (2006, November). RET site: Inspiring educators in rural America through research. *American Institute of Chemical Engineers (AIChE) Annual Meeting*, San Francisco, CA.
- Miller, B. G., & Burns, A. (2004, March). GPS technology in the classroom. *National Science Teachers Association (NSTA) National Conference*, Atlanta, GA.

#### Regional and State

- Miller, B. G., Jennewein, J., & Engels, M. (2016, March). The Confluence Project: Connecting Northern Idaho high school students with place-based water and climate science. *Idaho Environmental Education Association Conference*, Boise, ID.
- Vierling, L.A., Penney, S., Eitel, K., Benner, S., Busche, C., Green, C., Hernandez, J., Lindquist, E., Makings, D., Miller, B., Smith, R., and Solomon, M. 2014. ONEIdaho: How Idaho's Experimental Program to Stimulate Competitive Research (EPSCoR) is Bridging the Gap Between the Classroom and STEM Careers. Idaho Conference on STEM Education Challenges and Innovative Solutions: Overcoming STEM Education Barriers in Rural States, Boise, ID, 28 May 2014 (*invited*).
- Miller, B. G. (2014, April). Adventure Learning @ Fernan Lake. *Idaho EPSCoR Annual Meeting*, Coeur d'Alene, ID.
- Saul, M. Miller, B. G., & Adams, A. E. (2013, May). Reimagining teacher education: Place-based pedagogy, culturally responsive teaching, and curriculum integration. *Northwest Association of Teacher Educators (NWATE) Annual Conference*, Pullman, WA.
- Miller, B. G., Cox, C., Hougham, R. J., & Walden, V. P. (2012, June). Tying Adventure Learning to the classroom: Greenland and atmospheric science. *Northwest Climate Education Resources Workshop*, Moscow, ID.

- Hougham, R. J., & Miller, B. G. (2012, June). Teaching place-based science through Adventure Learning. *Northwest Climate Education Resources Workshop*, Moscow, ID.
- White, T., Ames, D., Eitel, K., Miller, B. G., Hougham, R. J., & Torgrimson, J. (2012, April). Development of cyberlearning materials to support field science programs and environmental education. Poster presented at 4<sup>th</sup> *Annual EPSCoR Western Consortium Tri-State Meeting*, Sun Valley, ID.
- Donna, J. D., Hick, S., Miller, B.G., Hosack, B., & Carmichael, L. (2010, November). Building curricular engineers: Exploring the role of technology in supporting pre-service and beginning science teacher curriculum development. Paper presented to the *North Central Association of Science Teacher Educators*, Minneapolis, MN.
- Miller, B. G. (2010, February). Making sense of STEM through snow snakes. *South Dakota Science Teachers Association (SDSTA) Conference*, Huron, SD.
- Miller, B. G., & Roehrig, G. H. (2009, October). Empowering critical science, technology, engineering and mathematics (STEM) agency through snow snakes (Roundtable session). *North Central Association of Science Teacher Education Conference*, Dubuque, IA.
- Miller, B. G., & Roehrig, G. H. (2009, April). Science goes south: The results of a research experience for teachers (RET) program in Chile. *Graduate Student Research Day, Department of Curriculum and Instruction, University of Minnesota*, Minneapolis, MN.
- Miller, B. G., & Donna, J. D. (2009, February). Reaching for the sky: STEM outreach and indigenous knowledge. *South Dakota Science Teachers Association (SDSTA) Conference*, Huron, SD.
- Miller, B. G., & Donna, J. D. (2008, October). Reach for the sky: Lessons learned and curriculum sharing from a summer on the reservation. *Minnesota Science Teachers Association (MnSTA) Fall Conference*, Lakeville, MN.
- Donna, J. D., & Miller, B. G. (2008, October). YouTube and STEM education. *Minnesota Independent School Forum STEM Conference*, Minneapolis, MN.
- Donna, J. D., & Miller, B. G. (2008, October). Web-based resources for science education. *Minnesota Independent School Forum STEM Conference*, Minneapolis, MN.
- Miller, B. G., & Moore, T. J. (2008, April). Impacts of an engineering research experience for teachers on classroom integrations of STEM concepts in grade 6-12 science. *Graduate Student Research Day, Department of Curriculum and Instruction, University of Minnesota*, Minneapolis, MN.
- Miller, B. G., & Burns, A. (2003). GPS technology in the classroom. *Technology Innovations in Education (TIE) Conference*, Rapid City, SD.
- Miller, B. G., & Burns, A. (2002). GPS technology in the classroom. *Midwest Regional Middle Level Conference*, Sioux Falls, SD.

**Patents:** (provide title/description, patent number and date)

**Grants and Contracts Awarded:** (provide principal and co investigators, title, sponsor, funding dates, amount)

Grant Title	Status	Role	Sponsor/Dates	Amount
<i>Cultivating Relationships: Partnering Teachers, Tribes, and Landscapes for Sustaining STEM Education</i>	Recommended	Co-Principal Investigator	NSF DRK-12	\$2,999,235
<i>Racial Equity in STEM learning: Wolf Teachings, Coyote Methods, &amp; Muskrat Theory-building</i>	Pending	Co-Principal Investigator	NSF RE STEM	\$ 4,473,931
<i>Remote Survey of Galápagos Endemic Naesiotus Land Snails</i>	Current	Co-Principal Investigator	Galapagos Conservancy 2022-2023	\$57,640
<i>Sciences for citizenship in vocational technical education: design of teaching and learning sequences based on models with immersive technologies</i>	Current	Co-Principal International Investigator	ANID Fondecyt 1211092 2021-2024	\$157,000
<i>Inside the shell: using augmented reality as a window into biodiversity</i>	Current	Co-Principal International Investigator	Pontifical Catholic University of Valparaiso (PUCV) 2021-2022	\$14,742
<i>Engaging Ecuadorian Educators in Evolutionary Emblematic Ecosystems</i>	Completed	Co-Principal Investigator	NSF BEACON, 2019	\$28,500
<i>Design, Validation and Evaluation of Teaching-Learning Sequences with Augmented Reality to Promote Visualization in University Teaching Under a STEM Approach</i>	Completed	International Co-Principal Investigator	FONDECYT (i.e. Chilean NSF) 2018-2020	\$105,752
<i>From the River to the Sky: Two-Eyed Seeing River Experience for Native American Youth &amp; Sky Exploration with Aerial Vehicles for Rural Idaho Students</i>	Completed	Co-Principal Investigator	NASA NESSP 2019	\$68,000
<i>Palouse Prairie Charter School Canoe Project</i>	Completed	Co-Principal Investigator	Nez Perce Tribe Education Fund	\$9,475

			Program	
<i>Indigenous Program for STEM Research and a Regional Native Network of Graduate Education: A National Research and Educational Model</i>	Completed	Co-Principal Investigator	NSF EPSCoR RII Track-3 Program, 2014-2019	\$749,755
<i>EPSCoR RII Track 1: Managing Idaho's landscapes for ecosystem services</i>	Completed	Senior Personnel	EPSCoR RII Track 1 Program 2013-2018	\$20,000,000
<i>IGERT: Adaptation to change in water resources: science to inform decision-making across disciplines, cultures and scales</i>	Completed	Faculty Participant	The NSF Integrative Graduate Education and Research Traineeship (IGERT) Program, 2012-2016	\$3,499,161
<i>Idaho Water Resources Research Institute – Stakeholder Engagement, Outreach and Education</i>	Completed	Co-Principal Investigator	USGS Water Resource Research Act Program. 2016-2017	\$50,462
<i>The Confluence Project</i>	Completed	Principal Investigator	EPA Environmental Education Grant program. 2015-2016	\$91,000
<i>Creating a NASA-based Research Environment in a High School Classroom: Mission to Mars</i>	Completed	Co-Principal Investigator	NASA EPSCoR ISGC Special Project Grant 2014-2015 (submitted 11.19.14)	\$7,265
<i>Development of Comprehensive Project-Based Watershed Science Curriculum</i>	Completed	Co-Principal Investigator	Idaho State Department of Education Science Education Grant Program (submitted 11.21.14)	\$5,000
<i>Technology Enhanced Performance Tasks (TEPTs) for developing Science and Digital Literacy within 1:1 Middle School Science</i>	Completed	Principal Investigator	Doceo Center for Innovation & Learning through the J.A. & Kathryn	\$12,437

<i>Classrooms</i>			Albertson Foundation, 2013-2014	
<i>The Role of Mobile Technologies in Supporting Place-Based STEM Education</i>	Completed	Principal Investigator	Doceo Center for Innovation & Learning through the J.A. & Kathryn Albertson Foundation, 2013-2014	\$16,690
<i>Assessing Idaho secondary in-service teacher's educational technology competence</i>	Completed	Co-Principal Investigator	College of Education Dean's Initiative: P-12 School Reform, University of Idaho. 2012-2013	\$6,198
<i>Collaborative Research: CI-TEAM Demo: Adventure Learning through Water and MOSS</i>	Completed	Principal Investigator	NSF OCI – CI-TEAM #1135577. 2012-2013	\$170,811
<i>Integrating Technology in Teaching: Redesign of Technology Tools for Teaching and Learning Course at the University of Idaho</i>	Completed	Principal Investigator	College of Education, University of Idaho. 2012-2013	\$9,700
<i>Adventure Learning to promote GreenSTEM education and physical activity in schools.</i>	Completed	Co-Principal Investigator	College of Education Research Grant, University of Idaho. 2012-2013	\$12,000
<i>Collaborative Development of a Climate Change Curriculum for Classrooms in the Intermountain West (ICE Net)</i>	Completed	Co-Principal Investigator	Funded by NASA, #NNX10AT77A. 2010-2013	\$547,727
<i>Adventure Learning @ Greenland</i>	Completed	Principal Investigator	Funded by the NSF OPP Arctic Education, NSF grant #1240700. 2012	\$58,392
<i>RET Site: Inspiring Educators in Rural America through Research</i>	Completed	Co-Principal Investigator	Funded by the NSF Research Experience for Teachers (RET) in Engineering Program, #0502310. 2005-	\$440,523

			2008	
<u>Supplement</u> – <i>RET Site: Inspiring Educators in Rural America through Research; International (Pontificia Universidad Catolica de Valparaiso, Chile) and Second Summer pilot.</i>	Completed	Co-Principal Investigator	Funded by the NSF Research Experience for Teachers (RET) in Engineering Program, #0502310. 2008	\$25,000
<i>Discovering Native South Dakota Flora and Formations through Flight</i>	Completed	Principal Investigator	Funded by Toyota Tapestry Grants for Science Teachers Program, Administered by the National Science Teachers Association (NSTA). 2006-2007	\$10,000

**Current**

Principal Investigator/ Co-Principal Investigator	\$229,382
Senior Personnel/Faculty Participant	\$0

**Pending**

Principal Investigator/ Co-Principal Investigator	\$7,473,166
Senior Personnel/Faculty Participant	\$0

**Completed**

Principal Investigator/ Co-Principal Investigator	\$2,431,952
Senior Personnel/Faculty Participant	\$23,499,161

Denied (\$31,186,973.50)

Co-Principal Investigator - *Science to Story: Developing the StoryTelling to support Analysis and Reasoning Skills (STARS) Approach to Teaching and Learning*. Submitted on 10/6/21 to DRK-12 program in NSF EHR. \$2,538,377.

Co-Principal Investigator - *Science to Story: Developing the StoryTelling to support Analysis and Reasoning Skills (STARS) Approach to Teaching and Learning*. Submitted on 09/30/20 to DRK-12 program in NSF EHR. \$1,621,531.

Co-Principal Investigator - *Cultivating Relationships: Partnering people and landscapes for effective STEM education*. Submitted on 10/06/20 to DRK-12 program in NSF EHR. \$2,999,822

Co-Principal Investigator - *Cultivating Relationships: Partnering people and landscapes for effective STEM education*. Submitted on 11/17/19 to DRK-12 program in NSF EHR. \$2,999,685.

Co-Principal Investigator - *Collaborative Research: Sediment and stability: Quantifying the effect of moraine building on Greenland tidewater glaciers*. Submitted on 8/29/19 to NSF Office of Polar Programs, Arctic Natural Science Program. \$1,256,674.

Principal Investigator - *Near-Peer Authentic Inquiry: Coupling Science Education Methods and Biological Science Coursework for Engaged Student Learning*. Submitted to NSF Division of Undergraduate Education – Improving Undergraduate STEM Education (IUSE). 2020-2023 (\$299,923).

Principal Investigator - *Listening to the socio-ecosystem: Initiating a community-based research project towards grounded 'Newtivity and Shoshone-Bannock axiological innovations*. Submitted to Spencer Foundation. 2020 (\$46,770.56).

Co-Principal Investigator - *Collaborative Research: Sediment and stability: Quantifying the effect of moraine building on Greenland tidewater glaciers*. Submitted to NSF. 2018-2021 (\$1,199,221).

Principal Investigator - *ITEST Strategies: Two Eyed Seeing: Culturally Connecting the DOTS*. Submitted to NSF ITEST. 2019-2022 (\$1,157,274).

Co-Principal Investigator - *Digital Observation Technology Skills (DOTS): Bridging informal science learning centers and K-12 classrooms through data literacy education*. Submitted to NSF AISL. 2018-2020 (\$80,849).

Co-Proposer – *Kayaks for Community and Cultural Resilience*. Submitted to Arctic Inspiration Prize competition. 2018-2019 (\$500,000).

Principal Investigator - *VIP Grant: River to Sea to Home*. Submitted to University of Idaho Vandal Ideas Project. 2016-2017 (\$75,332).

Principal Investigator - *Adventure Learning @ The Confluence*. Submitted to NSF DRL – Discovery Research K-12, #1621526. 2016-2020 (\$2,957,234).

Co-Proposer - *Modeling through an Integrated Statistics and Science Eco-Adventure (MISSEA)*. The Icelandic Research Fund 2015, RANNIS #152463-051. 2015-2018 (\$263,067)

Principal Investigator - *Adventure Learning @ Greenland: the Joint Science Education Project*. Submitted to the NSF PLR #1508809. 2015-2017 (\$381,308).

Co-Principal Investigator - *Exploration of the Survival Potential of Earth Microbes in Space*. Submitted to the NASA EPSCoR Program, (\$761,235).

Principal Investigator – CAREER: Project Synergy: How People Learn in Technologically Enabled Environments Connected to Place and the World Beyond. Submitted to the NSF Faculty Early Career Development (CAREER) Program, 2014-2018 (\$702,442).

Co-Principal Investigator – *Collaborative Research: CIRCLES in Places: Developing STEM Identity through Collaborative Integrative Research and Community Leadership Experiences with geoSpatial technologies*. Submitted to the NSF EPSCoR RII Track-3 Program. 2014-2017 (\$475,626).

Principal Investigator – *Adventure Learning @ Greenland*. Proposal submitted to the NSF OPP Arctic Education, NSF proposal #1329403. 2013-2015 (\$205,136).

Co-Principal Investigator – *PIRE: International Strategies for Quantifying, Valuing, and Scaling Ecosystem Services*. Funded by the NSF Partnerships for International Research and Education (PIRE) program. 2013-2017 (\$4,254,933).

Principal Investigator - *Adventure Learning and Arctic Climate Science Education: Engaging K-12 audiences and Arctic communities for sustainable futures*. Canadian Studies Research Grant Program. 2012 (\$15,000).

Co-Principal Investigator – *Teaching and Learning: Career, Science, Technology, Engineering, Mathematics, and Community through, in, and for the Environment in Rural Idaho*. DRL - Discovery Research K-12, NSF proposal #1119615. 2012-2014 (\$424,647).

Co-Principal Investigator - *Exploring and developing place-based STEM education in rural Idaho communities*. DRL - Research & Evaluation on Education in Science Engineering, NSF proposal #1109954. 2012-2014 (\$1,465,864).

Principal Investigator - *Science Agency through the McCall Outdoor Science School (MOSS)*. University of Idaho internal. 2011 (\$12,000).

Co-Principal Investigator – *Meridian Math Science Partnership Project*. Idaho Department of Education. 2011-2013 (\$491,202).

Co-Principal Investigator - Sustainable Idaho Greening the Curriculum Grant: EDCI 404/504/503: The Science Methods of Place, in conjunction with CSS 563: Place-based Education. University of Idaho internal. 2011 (\$5,000).

Co-Principal Investigator – *RET Site: SDSM&T-CBE Teacher Research in Authentic Contexts (TRAC)*. The NSF Research Experience for Teacher (RET) in Engineering Program, #0909089. 2009-2012 (\$497,660).

### **Honors and Awards:**

Sanford Science Education Center Education and Outreach Think-Tank: Distinguished Outside Expert. Black Hills, South Dakota, September 24-26, 2014.

The Graduate School's Best Dissertation Award Nomination – Department of Curriculum and Instruction, College of Education and Human Development, University of Minnesota (2012).

Fellow - Doctoral Dissertation Fellowship. Funding for one year to complete data analysis and writing of dissertation. Funded by the Graduate School of the University of Minnesota. 2010-2011 (\$22,500).

Fellow - 3M Science, Technology, Engineering and Mathematics (STEM) Education Fellowship. Primarily responsible for supporting STEM instruction and curriculum

development for the North St. Paul, Maplewood, Oakdale school district, ISD #622. Funded by the 3M Corporation. 2008-2009.

Award – Thesis Research Grant. Funded by the Graduate School of the University of Minnesota. 2009-2010 (\$2,500).

Award - Thesis Research Grant. Funded by the Department of Curriculum and Instruction, University of Minnesota. 2009-2010 (\$1,000).

Award – Graduate Students of the College of Education and Human Development (GradSEHD) Research Grant. Funding to support thesis research efforts. 2009-2010 (\$250).

## SERVICE:

**Major Committee Assignments:** (National, State, District, County, University, College, Departmental and dates)

2022	Search Committee – Elementary Mathematics Education Faculty
2020	Chair, Dr. Vanessa Anthony-Stevens Promotion and Tenure Committee
2020	Dr. Philip Stevens Promotion and Tenure Committee
2018-Present	ENVS Core Faculty
2018-2019	Chair, Scientific Misconduct Committee [University level]
2018-Present	Water Resource (WR) faculty
2018	Chair, 3 <sup>rd</sup> Year Review Committee
2017-2020	Scientific Misconduct Committee [University level]
2017	Search Committee – Learning Science/Science Education/Learning Technologies Faculty
2016	Dr. Dan Campbell Promotion Committee
2016-2018	Workforce Development/External Engagement Lead Faculty, Idaho NSF Experimental Program to Stimulate Competitive Research (EPSCoR)
2016	Fernan STEM Academy Advisory Board
2016	Search Committee – Vice President for Research @ the University of Idaho
2016	Search Committee – Doceo Center Director
2015	Cassidy Hall 3 <sup>rd</sup> Year Review committee
2015-Present	Water Resources Task Force
2015	Search Committee – Lecturer for EDCI 433 Secondary Science Methods
2015	Search Committee – Lecturer to Instruct Learning Technologies and Doceo Center Manager
2014	Periodic Review Committee for Dean Cori Mantle-Bromley [College level]
2014	Dr. Anne Adams Promotion and Tenure Department Committee [Department level]
2014-2016	Certification Plus Masters standing committee (chair) [Department level]
2014-2016	College of Education Technology Committee [College Level]
2014	Faculty participant – Advisory Group for Information Technology (AGIT) [University level]
2014-2015	Chair, Information Technology Committee – 1640.55 [University level]
2014	Search Committee – Assistant Research Professor of Science Communication at the McCall Outdoor Science School
2014	Search Committee – Social Science/Cultural Studies Education Faculty – Open Rank

- 2014 Collaborating Mentor for Mr. Andrew Weakley for a USDA-NIFA fellowship. AFRI's (Agricultural Research and Food Initiative) Competitive Grants Program (AFRI-004368)
- 2013 COEd Formal Mentor for Ms. Cassidy Hall [Department level]
- 2013 Search Committee - EDCI 328 Elementary Social Studies Education course instructor
- 2013 Faculty participant – University of Idaho Technology Security Review [University level]
- 2013 Northwest Climate Science Center – Climate Boot Camp Program Committee [Region level]
- 2013-Present University of Idaho Faculty Experts Group [University level]
- 2013 Search Committee (chair) – Professor of Learning Technologies tenure track faculty position
- 2013 Search Committee - Technology Integration Specialist clinical faculty position
- 2013 Search Committee (co-chair) – Social Science Education clinical faculty position
- 2012 Classroom Innovation Initiative Committee [University level]
- 2012-2014 Information Technology Committee [University level]
- 2012 Search Committee – Director of Teacher Education
- 2011-Present Environmental Science (EnvS) Faculty – Social Science
- 2011-2014 Chair, College of Education Technology Committee [College level]
- 2011-Present Advanced Studies Committee [Department level]
- 2011-Present Elementary Education Program Committee [Department level]
- 2011 Wright Fellows Selection Committee [Department level]
- 2011-2012 Research Planning Advisory Committee – University of Idaho McCall Outdoor Science School (MOSS)
- 2011 Advisory Committee – Idaho Environmental Literacy Plan [State level]
- 2011 Search Committee – Agriculture and Extension Education tenure track faculty position
- 2008-2010 Curriculum Committee - Department of Curriculum and Instruction, University of Minnesota [Department level]

**Professional and Scholarly Organizations** (including memberships, committee assignments, editorial services, offices held and dates)

#### Advisory Boards

Upham Woods Research and Innovation Advisory Committee. 2020-2021.

Indigenous Knowledge for Effective Education Program (IKEEP) Advisory Board. 2017-Present.

CLEARING Magazine Advisory Council. 2017-2021.

Sanford Science Education Center Education and Outreach Think-Tank: Distinguished Outside Expert. Black Hills, South Dakota, September 24-26, 2014.

University of Idaho Doceo Center (UIDC) Advisory Board. 2013-2015.

<http://tinyurl.com/bz6vbdd>

Project Engage Advisory Board, University of Texas, Austin. 2011-2014.

<http://www.cs.utexas.edu/~engage/>

Project Engage seeks to address the shortage of high school computer science students by developing a dual credit high school course that engaged diverse populations with authentic computer science content and student-centered instruction. This approach aims to engage students across all demographics, and stress the relevance of computing to their lives, personal interests, and futures.

#### Journal Reviewing

Editorial Review Board member – Journal of Science Teacher Education, 2018-2021

Cultural Studies in Science Education, 2017-Present

Journal of Environmental Studies and Science, 2016-Present

Environment & Behavior, 2015-Present

Tech Trends, 2013-Present

Eos, Spring 2014-Present

Journal of College Science Teaching, Summer 2015-Present

#### Conference Proposal Reviewing

2014 Conference Proposal Assessor – National Association for Research in Science Teaching (NARST)

#### Proposal Reviewing

UI Seed Grant Program, 2017

National Science Foundation (NSF) Directorate for Education & Human Resources, 2013

National Science Foundation (NSF) Directorate for Engineering, 2013

National Science Foundation (NSF) Directorate for Engineering, 2012

National Science Foundation (NSF) Directorate for Engineering, 2010

National Science Foundation (NSF) Directorate for Engineering, 2005

#### Offices Held in Professional Organizations/Service

Treasurer, *South Dakota Science Teachers Association*, 2006 – 2010

Regional Ambassador, *Digital Library for Earth Systems Education (DLESE)*, 2004 – 2007

#### Professional Memberships

American Geophysical Union (AGU)

American Education Research Association (AERA)

National Association for Research in Science Teaching (NARST)

National Science Teachers Association (NSTA)

Association for Science Teacher Education (ASTE)

#### Misc. Service

College of Education, Doceo Center presentation to prospective undergraduate students. Envision Idaho event (11.8.14). UI Doceo Center, SUB.

New Faculty Orientation Faculty Panel (8.14.14). UI SUB Vandal Ballroom

Commencement Marshaling for College of Education, Fall 2012-Present (except Spring 2014)

MOSS Graduate Student Application Review Committee, 2013

Professor Dinner, Fall 2012, Kappa Alpha Theta

Professor Dinner, Fall 2013, Alpha Phi

Professor Dinner, Spring 2016, Alpha Phi

Professor Dinner, Fall 2017, Delta Delta Delta

**Outreach Service:** (Including popular press, interview articles, newspaper articles, workshops-seminars-tours organized, Extension impact statements)

#### **Mentoring:**

Collaborating Outreach Mentor for Ms. Alissa Tenuto for a NASA Earth and Space Science Fellowship (NESSF) Program (2014/2015).

#### **Hosting:**

College of Western Idaho (CWI) Moscow campus visit (2012, September 28<sup>th</sup>). Faculty from CWI visited the University of Idaho Moscow campus to become familiar with programming, resources, and potential directions for advising CWI graduates. I hosted two faculty for approximately 3 hours (1 hour preparation).

#### **Guest Lectures:**

Miller, B. G. (2012, November 30<sup>th</sup>). Newton's Laws and the Bicycle. Guest Lecture – Palouse Prairie School of Expeditionary Learning, Ms. Brenan's 3<sup>rd</sup> grade class. Moscow, Idaho.

#### **Grant Conceptualization and Writing:**

Ongoing – It has become common for faculty in the sciences and engineering to reach out to me to assist in conceptualizing their education plan for the NSF CAREER program. This has resulted in one funded project (PI – Parent), one proposal under review (PI – Rezki), and one proposal deferred until the 2019 competition (PI – Vasdekis).

Spring 2017 – Served as a ghost writer on a grant submitted by Palouse Prairie Charter School to the Nez Perce Tribe Education Fund. The grant would support the development of curriculum and the building of a David Thompson style canoe with 4<sup>th</sup> grade students. The grant was funded for \$9,475.00

Fall 2013 – Writing Idaho National Laboratory (INL) 2014 Extreme Classroom Makeover grant on behalf of Palouse Prairie School of Expeditionary Learning (PPSEL). The grant proposal was titled:

A STEM Learning Lab for Expeditionary Learning – Extreme Classroom Makeover Category, and if successful will provide funds to remodel a classroom space at PPSEL into a STEM learning lab.

Fall 2012 - Writing Students Come First: Integrating Technology in Teaching: Faculty Innovation Grants program proposal per Dean Cori Mantle-Bromley's request. PI: Brant G. Miller; Co-PI: Julie Amador. This grant was awarded and then unfunded due to the election outcome. Principal Investigator - *Integrating Technology in Teaching: Redesign of Technology Tools for Teaching and Learning Course at the University of Idaho*. Students Come First: Integrating Technology in Teaching: Faculty Innovation Grants program. 2012-2013 (\$10,000).

Co-Principal Investigator - *The Idaho Program for Research and Outreach using Media-Integrated Science Education: (IdahoPROMISE)*. NSF EPSCoR Concept Paper for University of Idaho competition.

### **Popular Press:**

Miller, B. G. (2014, Spring). *Adventure Learning*. The Researcher, Idaho NSF EPSCoR, p. 10.

Miller, B. G. (2011, Summer). *Brant Miller: STEM and adventure learning go hand-in-hand*. Envision, College of Education, University of Idaho, p. 17.

### **Technology:**

University of Idaho, College of Education support for new laptops. Tasks include professional development with fellow faculty along with troubleshooting problems with ITS, and edTPA video editing support. 2012-present

### **Workshops/Continuing Education Courses:**

EDCI 505: Field Based Science Education: The Confluence Project, Fall 2014 – Spring 2015

EDCI 505: NASA Balloon Workshop. (Summer 2012). Coordination of professional development credits for local science teachers.

### **Community Service:** (non-academic unrelated to employment)

Spring 2011 and 2012 – Community Led Learning (CLL) at Palouse Prairie School of Expeditionary Learning (PPSEL). *Guerrilla Gardening: Garden where no student has gardened before!*

### **Misc.**

*Teaching is Rocket Science*. Middle school outreach to visiting students from Kooskia, Idaho and the Clearwater Valley. For an hour and a half, students built straw rockets, collected data based on their rocket's performance, graphed data, and used the predictive ability of their graphs to land their rocket in a box at a specified distance (labeled Mars). November 6<sup>th</sup>, 2018.

November 19<sup>th</sup>, 2015 – UI press regarding TCP: <http://www.uidaho.edu/news/news-articles/news-releases/2015-november/111915-epagrant>

Youth Water Summit Judge – 2014 & 2015

Jury member – Common Core Standards Debate, Wright Fellows program, University of Idaho (7.2.14)

Alzar School, Cascade Idaho (2014-Present) – Program development for teaching fellows including masters plus certification and student teaching coordination.

Grants Coordinator - Palouse Prairie School of Expeditionary Learning. 2013.

Grant support through letter for Palouse Prairie School of Expeditionary Learning. The grant was to The North Face Explore Fund for program development (May 1<sup>st</sup>, 2013).

Spring 2012 & Fall 2012 – Students teaching students: Moscow Gifted and Talented students visit EDCI 329 for a reciprocal learning environment.

The provision of academic journal articles and scientific equipment to local science teachers (e.g. Matt and Jen Pollard, Vernier probes and access to hard to find journal articles via interlibrary loan).

The provision of science education learning instruments (e.g. Kestrel weather meters and thermal imagers) to local schools and fellow faculty at the University of Idaho:

- Jason George, Caldwell High School
- Dano Romano, Driggs High School
- Eric McDonald, Kendrick High School
- Robert Wolcott, Lakeside High School
- Jamie Esler, Lake City High School
- Rusti Krieder, St. Maries High School
- Cindy Rust, Post Falls High School
- Paul Collins, Moscow Charter School
- Greg Pierce, PPSEL
- Matt Pollard, Paradise Creek Regional Alternative High School
- Jeneille Branen, PPSEL
- Jessica Dahlin, PPSEL
- Jacob Ellsworth, PPSEL
- John Abatzoglou, Geography Dept.
- Jen Pollard, Moscow High School
- Andrika Kuhle, PPSEL

**Honors and Awards:**

**PROFESSIONAL DEVELOPMENT:** (workshops and seminars attended)

**Teaching:**

**Scholarship:**

**Outreach:**

**Administration/Management:**

Swiftwater Rescue Training (SRT-I) through the Swiftwater Safety Institute (April 5-7, 2019. Moscow, ID and the Potlatch River). Certification through April 7, 2022.

Wilderness First Aid Course through the NOLS Wilderness Medicine Institute (August 22-24, 2014. McCall, ID). Certified in Wilderness First Aid, adult/child CPR, AED and airway management.