

CURRICULUM VITAE
LAUREL M. HARTLEY
January 2015

ACADEMIC ADDRESS

Department of Integrative Biology
University of Colorado Denver
P. O. Box 171
Denver, CO 80217-3364
Phone: 303-556-6251
Fax: 303-556-4352
E-mail: laurel.hartley@ucdenver.edu

HOME ADDRESS

5026 Fox Hill Drive
Longmont, CO 80504
Phone: 970-227-5983

EDUCATION

1996	Southwestern University	B.Sc.	Biology
1999	Colorado State University	M.S.	Biology (Zoology)
2006	Colorado State University	Ph.D.	Ecology

PROFESSIONAL EXPERIENCE

2008-Present Assistant Professor, Department of Integrative Biology, University of Colorado Denver

2006-2008 Postdoctoral Researcher/NSF GK-12 Project Manager, Kellogg Biological Station, Michigan State University

2005 Content Researcher, "Dig It! The Secrets of Soil" Exhibit, MFM Design and Smithsonian National Museum of Natural History, Washington, DC

2004-2006 Graduate Teaching Assistant, Department of Biology, Colorado State University

2002 Writer, Spark Publishing Biology Study Guides, New York, NY

2001-2003 NSF GK-12 Fellow, Colorado State University

1999-2002 Research Associate/Education and Outreach Coordinator, NSF Shortgrass Steppe Long Term Ecological Research program, Colorado State University

1996-1999 Graduate Teaching Assistant, Department of Biology, Colorado State University

1995 Intern in Zoology, The Natural History Museum, London, England

1995 NSF Research Experiences for Undergraduates Student, Avila College, Kansas City, MO

REFEREED PUBLICATIONS (* indicates graduate or undergraduate student author, ^ indicates post-doctoral student author)

1. Talbot, R.M., L. Hartley, K. Marzetta*, and B. Wee. Transforming Undergraduate Science Education with Learning Assistants: Student Satisfaction in Large Enrollment Courses. *Journal of College Science Teaching*. In Press.
2. Ellwein, A.L., L.M. Hartley, I. Billick, and S. Donovan. 2014. Using rich context and data exploration to improve climate and data literacy: bringing a field station into the classroom. *Journal of Geoscience Education - Special Volume: Outcomes from Climate Literacy Efforts*. 62(4): 578-586.
3. Beals, S.C.*, L.M. Hartley, J.S. Prevey*, and T.R. Seastedt. 2014. The effects of black-tailed prairie dogs on plant communities within a complex urban landscape: an ecological surprise? *Ecology* 95:1349-1359.
4. Harris, C., A. Berkowitz, J. Doherty^, and L. Hartley. 2013. Exploring biodiversity's big ideas in your schoolyard. *Science Scope* 036: 20-27.
5. Hartley, L.M., J. Momsen, A. Maskiewicz, and C. D'Avanzo. 2012. Energy and Matter: Differences in discourse can be confusing for introductory biology students. *BioScience* 62:488-496.
6. D'Avanzo, C., C.W. Anderson, L. M. Hartley, and N. Paleaz. 2012. A faculty development model for transforming introductory biology and ecology courses. *BioScience* 62:416-427.
7. Hartley, L.M., B.J. Wilke^, J.W. Schramm^, C.A. Anderson, and C. D'Avanzo. 2011. College Students' Understanding of the Carbon Cycle: Contrasting Principle-Based and Informal Reasoning. *BioScience* 61:65-75.
8. Savage, L.T., R. Reich, L.M. Hartley, P. Stapp, and M.F. Antolin. 2011. Climate, soils, and connectivity predict plague epizootics in black-tailed prairie dogs (*Cynomys ludovicianus*). *Ecological Applications* 21:2933-2943.
9. Doherty, J.^, C. Harris, and L. Hartley. 2011. Using stream leaf packs to explore community assembly. *Teaching Issues and Experiments in Ecology*.

<http://tiee.esa.org/vol/v7/experiments/doherty/abstract.html>

10. Lehmer, E.M, L. Hartley, J. Lanci*, and C. Kolb*. 2010. Evaluating the impacts of black-tailed prairie dogs in traditional and non-traditional habitats. *The Prairie Naturalist* 42:67-70.
11. Hartley, L. M., J. K. Detling, and L.T. Savage. 2009. Introduced plague lessens the effects of an herbivorous rodent on grassland plant communities. *Journal of Applied Ecology* 46:861-869.
12. Rahm, J, H., C. Miller, L. M. Hartley, and J. C. Moore. 2003. The value of an emergent notion of authenticity: examples from two student/teacher partnership programs. *Journal of Research in Science Teaching* 40(8):737-756.
13. Hartley, L. M., M. J. Packard, and G. C. Packard. 2000. Accumulation of lactate by supercooled hatchlings of the painted turtle (*Chrysemys picta*): implications for overwinter survival. *Journal of Comparative Physiology B* 170:45-50.
14. Hartley, L. M., R. E. Glor, A. L. Sproston, R. Powell, and J. S. Parmerlee. 2000. Germination rates of seeds consumed by endangered rock iguanas (*Cyclura* sp.) on Hispaniola. *Caribbean Journal of Science* 36:149-151.
15. Sproston, A. L., R. E. Glor, L. M. Hartley, E. J. Censky, R. Powell, and J. S. Parmerlee. 1999. Niche differences among three sympatric species of *Ameiva* (Reptilia: Teiidae) on Hispaniola. *Journal of Herpetology* 33: 131-136.
16. Hartley, L. M., R. Powell, and J. S. Parmerlee. 1998. Species description: *Ameiva lineolata* (Reptilia: Teiidae). *Catalogue of American Amphibians and Reptiles* 654:1-4.

REFEREED BOOKS AND BOOK CHAPTERS

1. Seastedt, T.R., L.M. Hartley, and J. Nippert. 2013. Case Study: Ecosystem transformations along the Colorado Front Range: prairie dog interactions with multiple components of global environmental change. Pp. 142-149 In *Novel Ecosystems: Intervening in the New Ecological World Order*, First Edition, (e.d. R. J. Hobbs, E. S. Higgs, and C. M. Hall). John Wiley & Sons.

NON-REFEREED PUBLICATIONS AND GALLERIES

1. Smithsonian National Museum of Natural History, 2006-2009 (Exhibit is currently

touring and is at The California Museum in Sacramento, CA). Dig It! Secrets of Soils Exhibition, P. Megonigal-Curator, Barbara Stauffer-Exhibit Developer, Laurel Hartley-Content Researcher, Sue Voss-Writer, MFM Designs-Design and Fabrication. <http://forces.si.edu/soils/>

2. Hartley, L. 2007. GK-12 graduate student fellowships at Kellogg Biological Station. *The LTER Network Newsletter*. Vol. 20. No. 1.
3. Hartley, L. M. 2006. Plague and the Black-tailed Prairie Dog: An Introduced Disease Mediates the Effects of an Herbivore on Ecosystem Structure and Function. Doctoral Dissertation. Colorado State University, Fort Collins, CO
4. Hartley, L. (Editor) 2003. 5 More Practice Tests for the SAT II Biology. Spark Publishing 265 pp. ISBN1-58663-872-6
5. Ortega, S. and L. Hartley 2003. Integrating LTER research and education through graduate students. *The LTER Network Newsletter*. Vol. 16. No. 2
6. Hartley, L. 2001. The black-tailed prairie dog - a small mammal with a large influence in Colorado. *The LTER Network Newsletter*. Vol. 14. No. 1
7. Hartley, L. M. 1999. Accumulation of Lactate by Supercooled Hatchlings of the Painted Turtle (*Chrysemys picta*): Implications for Overwinter Survival. Master of Science Thesis. Colorado State University, Fort Collins, CO

NON-REFEREED BOOKS

1. Lindbo, D. L. and others. 2008. Soils: Get the Inside Scoop. American Society of Agronomy. 36 pp. ISBN 13: 978-089118848 (Book about soils for children)

PUBLICATIONS/CREATIVE WORKS IN PREPARATION OR SUBMITTED (* indicates graduate or undergraduate student author, ^ indicates post-doctoral student author)

1. Hartley, L.M., J.H. Doherty^, C. Harris, A. Berkowitz, J.C. Moore, and C. Anderson. A Learning Progression for Grade 6-12 Student Understanding of Community Ecology. *In preparation*
2. Hartley, L. M., C. Alba-Lynn, S. Beals*, A. Merten*, and T.R. Seastedt. Effects prairie dogs and global change factors on plant invasion in the wildland-urban interface of the Colorado Front Range. *In preparation*

3. Doherty J.H.^, L.M. Hartley, C. Harris, A. Berkowitz, J.C. Moore, and C. Anderson. A Learning Progression for Grade 6-12 Student Understanding of Evolution in Complex Ecological Contexts. *In preparation*
4. Kennicutt, E.*, L.M. Hartley, J. Doherty^, C. Harris, and C. Anderson. Changes in student recognition of biodiversity after implementation of a field-based teaching unit. *In preparation*
5. Visel, M.*, T.R. Seastedt, and L.M. Hartley. Effects of plague extirpation on vegetation on prairie dog colonies in urban and suburban Boulder, Colorado. *In preparation*
6. Talbot, R.M, L.M. Hartley, K. Marzetta*, and B. Wee. Characterizing student interaction in large enrollment science courses: The classroom as a social network. *In preparation*
7. Hartley, L.M. and R. Talbot. Changes in college science faculty teaching practices and teaching philosophies after the implementation of a Learning Assistant program. *In preparation*
8. Batzli, J., E. Desy, J. Knight, L.M. Hartley, A. Maskiewicz (alphabetical order). Threshold concepts for biology. *In preparation*

REFEREED PRESENTATIONS AT MEETINGS

1. Talbot, R.M., L. Hartley, and L. Liddick. 2014. Characterizing student engagement in a Learning Assistant supported biology course: The classroom as a social network. Integrating Cognitive Science with Innovative Teaching in STEM Disciplines, St. Louis, MO.
2. Hartley, L.M., J.H. Doherty, C. Harris, J.C. Moore, A.R. Berkowitz, and C.W. Anderson. 2014. A learning progression for community ecology: how students develop systems thinking. Ecological Society of America Annual Meeting, Sacramento, CA.
3. Visel, M., L. Hartley, T. Seastedt. 2014. Effects of plague-extirpation on vegetation in prairie dog (*Cynomys ludovicianus*) colonies in Boulder, Colorado. Ecological Society of America Annual Meeting, Sacramento, CA.
4. Hartley, L.M., J.H. Doherty, C. Harris, J.C. Moore, A.R. Berkowitz, and C.W. Anderson. 2014. A learning progression for community ecology: how students develop

- systems thinking. Society for the Advancement of Biology Education Research Annual Meeting, Minneapolis, MN.
5. Doherty, J.H., L. Hartley, C. Harris, and C.W. Anderson. 2014. Developing understanding of evolution in complex contexts. Society for the Advancement of Biology Education Research Annual Meeting, Minneapolis, MN.
 6. Hartley, L. J.H. Doherty, C. Harris, J.C. Moore, A.R. Berkowitz, and C.W. Anderson. 2014. Learning progression framework and assessments for community ecology. National Association for Research in Science Teaching, Pittsburgh, PA.
 7. Doherty, J.H., L. Hartley, C. Harris, and C.W. Anderson. 2014. Developing understanding of evolution in complex contexts. National Association for Research in Science Teaching, Pittsburgh, PA.
 8. Moore, J.C., L. Hartley, J. H. Doherty, C. Harris, A.R. Berkowitz, and C.W. Anderson. 2014. Ecological systems and learning progressions: applications of basic principles across multiple scales of organization. National Association for Research in Science Teaching, Pittsburgh, PA.
 9. Hartley, L and K. Regier. 2013. Implementing Vision and Change ideas in the Department of Biology at the University of Colorado Denver. Vision and Change in Biology Undergraduate Education: Chronicling Change, Inspiring the Future, Washington, DC.
 10. Talbot, RM, L. Hartley, and B. Wee. 2013. Defining and measuring student engagement in undergraduate science courses. School Science and Mathematics Association Annual Conference, San Antonio, TX.
 11. Doherty, J.H., L.M. Hartley, C. Harris, C.W. Anderson, A.R. Berkowitz, and J.C. Moore. 2013. Using learning progressions to describe how students develop increasingly sophisticated understandings of biodiversity. Ecological Society of America Meeting, Minneapolis, MN.
 12. Harris, C., A. Berkowitz, J. Doherty, and L. Hartley. 2013. Teaching biodiversity using a learning progression framework and leaf packs. North American Association for Environmental Education, Baltimore, MD.
 13. Hartley, L., J. Doherty, C. Harris, C.W. Anderson, A. Berkowitz, and J. Moore. 2013. Using scenario-based assessments to build a learning progression framework for

- reasoning about ecosystems. National Association for Research in Science Teaching Annual Meeting, Puerto Rico.
14. Hartley, L.M., C. D'Avanzo, J.L. Momsen, and A. Maskiewicz. 2012. Diagnostic question clusters: differences in discourse in physical and life sciences can be confusing for students. Ecological Society of America Meeting, Portland, OR.
 15. McMahon, S., L.M. Hartley, and B.J. Wilke. 2011. Student understanding of processes and principles related to species diversity in communities. Ecological Society of America Meeting, Austin, TX.
 16. Long, T., J.Z. Barlow, J. Dauer, L.M. Hartley, K.M. Kostelnik, J. Momsen, and S.R. Thomas. 2011. Analyzing visual representations of the carbon cycle: A picture worth a thousand misconceptions. Ecological Society of America Meeting, Austin, TX.
 17. D'Avanzo, C., C.W. Anderson, L.M. Hartley, and N.J. Palaez. 2011. A faculty development model for transforming introductory ecology and biology courses. Ecological Society of America Meeting, Austin, TX.
 18. Hartley, L.M., C.W. Anderson, A. Berkowitz, J.C. Moore, J. Schramm, and S. Simon. 2011. Development of a grades 6-12 learning progression for biodiversity: an overview of the approach, framework, and key findings. National Association for Research in Science Teaching Annual Meeting, Orlando, FL.
 19. Hartley, L.M., B. J. Wilke, J.H. Doherty, S. McMahon. 2010. Pathways to Environmental Literacy: Developing a Learning Progression for Biodiversity. Ecological Society of America Meeting, Pittsburgh, PA.
 20. Anderson C.W., C. D'Avanzo, L. M. Hartley, B. Wilke, J. H. Doherty. 2010. Comparing student understanding of carbon-transforming processes across colleges and universities: Why do misunderstandings persist? Ecological Society of America Meeting, Pittsburgh, PA.
 21. D'Avanzo, C. and others. 2010. Faculty use of Diagnostic Question Clusters (DQCs) and active teaching in biology and ecology courses. Ecological Society of America Meeting, Pittsburgh, PA.
 22. Johansen, L. K., L. Hartley, and T. Duncan. 2010. Blog, blog, blog. How to get the most from a course blog. American Society for Microbiology Conference for Undergraduate Educators, San Diego, CA.

23. Schramm, J., B. Wilke, L. Hartley, C. Anderson. 2010. College student understanding of carbon transforming and cycling processes. National Association of Research in Science Teaching, Philadelphia, PA.
24. Hartley, L., B. Wilke, J. Schramm, and C.W. Anderson. 2009 College students' accounts of carbon transforming processes in socio-ecological systems. National Association of Research in Science Teaching, Garden Grove, CA.
25. Hartley, L.M., C. W. Anderson, B.J. Abraham, A. Arnett, A. Dickman, H. Griscom, A. Maskiewicz, C. Picone, J.W. Schramm, and B. Wilke. 2009. Student reasoning related to matter and energy flow through ecosystems: lessons from diagnostic question clusters. Ecological Society of America Meeting, Albuquerque, NM.
26. D'Avanzo, C., C.W. Anderson, B. Wilke, N. Stamp, K.S. Williams, A. Griffith, L. M. Hartley, and N. Palaez. 2009. Helping students reason about energy and matter from cells to ecosystems with diagnostic question clusters. Ecological Society of America Meeting, Albuquerque, NM.
27. Lindbo, D.L., L. Hartley, W. Greenberg, T. Loynachan, M. Mbila, B. Moebius-Clune, E. Stockman, and D. Osborne. 2008. "Dig It! The Secret Life of Soil" – SSSA General Interest Soils Book. Soil Science Society of America Meeting, Houston, TX.
28. Greenberg, W., L. Hartley, T. Loynachan, and S. Schultz. 2008. Maintaining and updating the SSSA K-12 Education Website. Soil Science Society of America Meeting, Houston, TX.
29. Hartley, L.M., C. W. Anderson, B. W. Wilke. 2008 Why do students have so much trouble tracing matter through ecological processes and systems? Ecological Society of America Meeting, Milwaukee, WI.
30. Alba-Lynn, C and L. M. Hartley. 2008. Effects of natural disturbance by black-tailed prairie dogs (*Cynomys ludovicianus*) on exotic plant invasion in urban and rural plant communities. Ecological Society of America Meeting, Milwaukee, WI.
31. Wilke, B.J., C. W. Anderson, L.M. Hartley. 2008. The missing link between structure and function in biodiversity education. Ecological Society of America Meeting, Milwaukee, WI.
32. Zesaguli, J., Tsurusaki, B. K., Wilke, B., Tan, E., Hartley, L., & Anderson, C. W. 2008. The Development of an Environmental Literacy Learning Progression: Biological

Diversity in Environmental Systems. National Association for Research in Science Teaching Meeting, Baltimore, MD.

33. Greenberg, W., L. Hartley, T. Loynachan, D. Lindbo, and M. Mbila. 2007. Soils sustain life: educational resources for teachers – the Soil Science Society of America k-12 education website. Soil Science Society of America Meeting, New Orleans, LA.
34. Savage, L, R. Reich, L. Hartley, P. Stapp, and M. Antolin. 2007. The influence of climate, soils, and the spatial configuration of prairie dogs towns on plague epizootics. Ecological Society of America Meeting, San Jose, CA.
35. Hartley, L. M. and J. K. Detling. 2006. Bubonic plague mediates the effects of prairie dogs on shortgrass steppe structure and function. Ecological Society of America Meeting, Memphis, TN.
36. Hartley, L., T. Creegan, T. Driskill, and C. Seemueller. 2006. The value of partnerships in providing authentic research experiences for K-12 students. Ecological Society of America Meeting, Memphis, TN.
37. Hartley, L.M. and J. K. Detling. 2005. Prairie Dogs, Plants, and Plague: A study of plant community and nutrient cycling on prairie dog colonies. Ecological Society of America Meeting, Montreal, Canada.
38. Hartley, L.M. and J. K. Detling. 2003. Effects of Black-tailed Prairie Dogs on Plant Community and Nutrient Cycling on the Shortgrass Steppe. Ecological Society of America Meeting, Savannah, GA.
39. Hartley, L.M. 1999. Lactate accumulation by hatchling painted turtles (*Chrysemys picta*) exposed to subzero temperatures. Society for Integrative and Comparative Biology Meeting, Denver, CO.

NON-REFEREED PRESENTATIONS AT MEETINGS

1. Talbot, R. and L. Hartley. 2014. Characterizing student engagement in a learning assistant supported biology course: the classroom as a social network. International Learning Assistant Alliance, 6th Annual Workshop, Boulder, CO.
2. Hartley, L. and R. Talbot. 2014. Learning Assistants contribute to student success in large lecture courses. International Learning Assistant Alliance, 6th Annual Workshop, Boulder, CO.

3. Hartley, L.M, J. Doherty, C. Harris, C.W, Anderson, A. Berkowitz, and J. Moore. 2012. Learning progressions for environmental literacy. University of Colorado Denver Math Science Learning and Education Symposium, Denver, CO.
4. Hartley, L.M., C. D'Avanzo, J.L. Momsen, and A. Maskiewicz. 2012. Differences in discourse in physical and life sciences can be confusing for biology students. University of Colorado Boulder 4th Annual Symposium on STEM Education, Boulder, CO.
5. Hartley, L.M., J. Doherty, A. Anderson, C. Harris, J Moore, A. Berkowitz, S Simon. 2012. Using a learning progression approach to describe how students develop increasingly sophisticated understandings of biodiversity over grades 6-12. University of Colorado Boulder 4th Annual Symposium on STEM Education, Boulder, CO.
6. D'Avanzo, C., J. Doherty, J. Dauer, L. Hartley, J. Momsen. 2012. Whole Course Transformation for Introductory Biology. IBP Summer Conference: Implementing Vision and Change at the Introductory Biology Level, Washington, D.C.
7. Long, T., J.Z. Barlow, J. Dauer, L.M. Hartley, K.M. Kostelnik, J. Momsen, and S.R. Thomas. 2012. Analyzing visual representations of the carbon cycle: A picture worth a thousand misconceptions. IBP Summer Conference: Implementing Vision and Change at the Introductory Biology Level, Washington, DC.
8. D'Avanzo, C., C.W. Anderson, L.M. Hartley, and N.J. Palaez. 2012. A faculty development model for transforming introductory ecology and biology courses. IBP Summer Conference: Implementing Vision and Change at the Introductory Biology Level, Washington, DC.
9. Balan, U., E. Gillitzer, A. Merten, J. Perischetti, L. Hartley. 2010. Describing patterns of exotic plant invasions on prairie dog colonies in Colorado. University of Colorado Denver Research and Creative Activities Symposium, Aurora, CO.
10. Hartley, L. M., B. Wilke, C. W. Anderson, E. Keeling, J. Schramm, R. Tinghitella, L. Ratashak, Y. Garcia, S. McMahon, C. Harris, M. Burke. 2009. Pathways to Ecological Literacy: developing a biodiversity learning progression. NSF-LTER All Scientists Meeting. Estes Park, CO.

11. Hartley, L., K. Hardwicke, C. Alba-Lynn, J. Detling. 2006. Habitat alteration by black-tailed prairie dogs influences associated insect species. NSF-LTER All Scientists Meeting, Estes Park, CO.
12. Hartley, L.M. and J. K. Detling. 2005. Prairie Dogs, Plants, and Plague: A study of plant community and nutrient cycling on prairie dog colonies. Great Plains Grassland Conservation Conference, Fort Collins, CO.
13. Stapp, P., M.D. Lindquist, N.E. Kaplan, and L.M. Hartley 2000. Arthropod Studies on the Shortgrass Steppe LTER: Past, Present, and Future. NSF-LTER All Scientists Meeting, Snowbird, UT.
14. Hartley, L.M. 1998. Lactacidosis: A possible cause of winter mortality in painted turtles. Physiological Ecology Meeting, White Mountain Research Station, University of California.

INVITED SEMINARS

1. Hartley, L.M. 2013. Developing and assessing principle-based reasoning in your students. American Society for Microbiology-Committee on Undergraduate Education, Annual Meeting, Denver, CO.
2. Hartley, L.M. 2013. Developing learning progressions for environmental literacy: how students move toward systems thinking. Department of Integrative Biology, University of Colorado Denver.
3. Hartley, L.M. 2010. Effects of disease and global change factors on role of prairie dogs (*Cynomys ludovicianus*) as ecosystem engineers in Colorado. Institute of Arctic and Alpine Research, University of Colorado Boulder.
4. Hartley, L.M. 2009. Learning progressions for environmental literacy. Natural Resource Ecology Laboratory, Colorado State University.

SEMINARS/WORKSHOPS PRESENTED

- 2014 Learning Assistant Alliance International Workshop, University of Colorado Boulder. workshop for 50 participants wanting to learn more about implementing the Learning Assistant model at their college or university, co-organizer and host.

- 2013 Best Practices for Introductory Biology, University of Colorado Denver, CO, Research Coordination Network workshop (2 days) for 30 faculty members from diverse institutions who teach and conduct research related to introductory college biology, supported by National Science Foundation, co-organizer and host.
- 2013 Climate Change and Biodiversity, Workshop (1 day) for K-12 Teachers at Colorado State University, Fort Collins, CO.
- 2012 How to use Teaching Issues and Experiments in Ecology (TIEE) in Your Teaching and Publish Ecology Research in TIEE, Workshop at the Ecological Society of America Annual Meeting, Portland, OR.
- 2012 Workshop (5 days) for high school teachers involved in the K-12 learning progression research I conduct as part of an NSF Math Science Partnership grant, Fort Collins, CO.
- 2012 Student understanding of soil-related processes. Workshop for participants of the Summer Soil Institute at Colorado State University, Fort Collins, CO.
- 2011 Workshop (5 days) for high school teachers involved in the K-12 learning progression research I conduct as part of an NSF Math Science Partnership grant, Fort Collins, CO.
- 2011 Student understanding of soil-related processes. Workshop for participants of the Summer Soil Institute at Colorado State University, Fort Collins, CO.
- 2010 Workshop (6 days) for high school teachers involved in the K-12 learning progression research I conduct as part of an NSF Math Science Partnership grant, Fort Collins, CO.
- 2010 Workshop (2 days) for discussing research and needs for Introductory Biology Teaching as part of NSF Research Coordination Network Grant, Dallas, TX.
- 2010 Workshop (2 days) for college introductory ecology faculty related to using diagnostic assessments in introductory biology courses. Pittsburgh, PA.
- 2010 Workshop (2 days) for college introductory biology faculty related to using diagnostic assessments in introductory biology courses. Detroit, MI.
- 2009 Workshop entitled, Writing assessments: how to align questions with your learning goals and reveal student understanding, co-presented with Lisa Johansen, University of Colorado Denver.

- 2009 Workshop (1 day) for faculty wishing to use diagnostic question clusters, Ecological Society of America Meeting, Albuquerque, NM.
- 2009 Workshop (1 day) for faculty wishing to use diagnostic question clusters, Detroit, MI.
- 2009 Workshop (6 days) for high school teachers involved in the K-12 learning progression research I conduct as part of an NSF Math Science Partnership grant, Fort Collins, CO.
- 2008 Lecture for High School teachers and guided tour of exhibit preparation rooms at Smithsonian Natural History Museum, Washington, D.C.
- 2008 Grant sources for K-12 Science. Frontiers in Science Workshop, Michigan State University.

COURSES TAUGHT

Advanced Ecology (BIOL 4052/5052), University of Colorado Denver (2009)
Biology Skill Sets – Pedagogy (BIOL 6002), University of Colorado Denver (2011-present)
Disease Ecology (BIOL 4053/5053), University of Colorado Denver (2008-present)
Ecology Laboratory (BIOL 3413), University of Colorado Denver (2009-2011)
General Biology II (BIOL 2061), University of Colorado Denver (2009-present)
General Biology II Honors (BIOL 2061), University of Colorado Denver (2011, 2013)

SERVICE

Department

2011-present Chair of Teaching Effectiveness Committee
2010-2011 Assistant Graduate Advisor for Integrative Biology MS Program
2009-2012 Member of Integrative Biology Curriculum Committee
2008-2010 Organized Department of Integrative Biology Stemapalooza Exhibit

College

2014 Director of Math and Science Learning and Education Signature Area
2012-present Co-Director of the Learning Assistant Program

- 2012 Member of Organizing Committee for first Math Science Learning and Education Symposium
- 2012-2014 Reviewer for CLAS internal grants and awards
- 2010 Member of Science Educator search committee for School of Education and Human Development
- 2008-2013 Faculty Member in Sustainability Signature Area
- 2008-present Faculty Member in Math and Science Education and Learning Signature Area

University

- 2014-2017 Member of Faculty Assembly Learning, Educational Technology, Teaching and Scholarship Committee (starting Fall 2014)
- 2009-2012 Member of Undergraduate Council

Professional Discipline

Reviewer for Journals

BioScience, CBE-Life Sciences Education, Conservation Biology, Journal of Geoscience Education, Journal of Mammalogy, PLOS-ONE, Restoration Ecology, Vector-borne and Zoonotic Diseases, Western North American Naturalist

Reviewer for Meeting Presentations

2014 - National Association for Research in Science Teaching Annual Meeting
2014 - Society for Biology Education Research Annual Meeting

Reviewer for Agencies

2014 - National Science Foundation

Leadership at National Level

2014-present Regional Coordinator for National Learning Assistant Program
2006-2009 Committee Member, Soil Science Society of America K-12 General Committee, Website Subcommittee, Smithsonian Soils Book Subcommittee.

Other

- 2014-present Consultant and participant in NSF National Institute for Mathematical and Biological Synthesis working group - *Expanding Data Nuggets*, Melissa Kjelvik and Elizabeth Schultheis, PI
- 2012-present Advisory board for University of Colorado Boulder NSF grant - *Investigating Instructional Influences on the Productivity of Clicker Discussions*, Jennifer Knight, PI
- 2008, 2009 Consultant for Boston Productions on a Greenhouse Gas Calculator interactive for Smithsonian National Museum of Natural History
- 2007,2008 Reviewer of Assessment Items, Project 2061, American Association for the Advancement of Science
- 2007-2008 Reviewer of Exhibit Curriculum, Smithsonian National Museum of Natural History
- 2007 Partner for Polar Discovery Program, Woods Hole Oceanographic Institution
- 2007 Consultant for Innovations in Education Project, Cantho University (Cantho, Vietnam) and Michigan State University

Community

- 2011 Volunteer for Project Greenleaf (inner city youth gardening), Denver, CO
- 2010 Workshop for K-12 Teachers on Soils, Poudre Learning Center, Greeley, CO
- 2009 El Espejo Science Camp for Girls, Poudre Learning Center, Greeley, CO

PROFESSIONAL ORGANIZATIONS

American Association for the Advancement of Science

American Institute of Biological Sciences

Ecological Society of America

National Science Teachers Association

National Association for Research in Science Teaching

Society for the Advancement of Biology Education Research

Soil Science Society of America

RECOGNITION AND HONORS

2014 University of Colorado Denver, College of Liberal Arts and Sciences,
Excellence in Research Award, (\$500)

2013 University of Colorado Denver, College of Liberal Arts and Sciences,
Excellence in Teaching Award, (\$500)

FUNDING

2012 University of Colorado Denver Faculty Development Grant – The Effect of a
Learning Assistant Program on Undergraduate Science Teaching and
Learning and Science Teacher Recruitment (\$9670), Co-PI with Robert
Talbot (PI) and Bryan Wee

2011 National Science Foundation (Robert Noyce Teacher Scholarship Program,
#1136122) – Promoting Undergraduate Licensure in Science Education,
(\$1,119,996), Co-PI with Doris Kimbrough (PI), Leo Bruederle, Robert Talbot,
and Bryan Wee

2011 National Science Foundation (Ecosystem Science, #1120390) – Ecosystem
transformations along the Colorado Front Range: Prairie dog interactions
with multiple components of global environmental change (\$851,704 total,
\$110,280 subcontract to CU Denver), Co-PI with Timothy Seastedt (PI) and
Jessie Nippert.

2011 University of Colorado Denver College of Liberal Arts and Sciences –
Advancing Curricula and Teaching Grant: Developing a Learning Assistant
Program to Promote Learning in Large Introductory Science Courses
(\$3500), PI with Robert Talbot and Bryan Wee

2010 Catalytic Mini grant, through National Science Foundation Research
Coordination Network grant to American Institute for Biological Sciences and
University of Oklahoma- Identifying differences in discourse and teaching
about matter and energy in biology, chemistry, and physics courses, and the
challenges this poses for learners of biology (\$2000), PI with Charlene
D’Avanzo, April Maskiewicz, and Jennifer Momsen

2010 Catalytic Mini grant, through National Science Foundation Research
Coordination Network grant to American Institute for Biological Sciences and

- University of Oklahoma - Do you see what I see? How standard representations used in introductory biology instruction communicate biological information (\$2000), Co-PI with Tammy Long (PI), Zane Barlow, and Jennifer Momsen
- 2010 CU Denver, College of Liberal Arts and Science Dissemination Grant (\$1000)
- 2009 CU Denver, College of Liberal Arts and Science Dissemination Grant (\$1000)
- 2009 National Science Foundation (Course, Curriculum and Laboratory Improvement, #0941875) - Bringing a Field Station to the Classroom (\$249,271 total, \$15,530 subcontract to CU Denver), Co-PI with Ian Billick (PI), Diana Cosand, Samuel Donovan, and Chris Floyd.
- 2009 National Science Foundation (Course, Curriculum and Laboratory Improvement, #0920186 and #0919992) - Collaborative Research: Improving General Biology Teaching with Diagnostic Question Clusters and active Teaching (\$293,169 total, \$15,000 to Hartley), Personnel, PIs Charlene D'Avanzo and Charles Anderson
- 2008 National Science Foundation (Math Science Partnership, #0832173) - Targeted Partnership: Culturally relevant ecology, learning progressions and environmental literacy (\$12,768,898 total, \$90,629 in subcontracts to CU Denver) – assisted with proposal preparation as a post-doc, currently funded as the leader of one of three research strands with UC Denver subcontract, PI John Moore with Charles Anderson, Alan Berkowitz, Allison Whitmer, Ray Tschillard
- 2006 National Science Foundation Shortgrass Steppe Long Term Ecological Research Graduate Fellowship (\$5000)
- 2001-2003 National Science Foundation GK-12 Fellowship (\$27,000/year)
- 2003 Colorado State University Travel Grant (\$500)
- 2003 Sigma Xi Research Grant – Effects of Prairie Dogs on Soil Nutrient Cycling (\$1000)
- 2003 Breniman Scholarship for Grassland Research (\$1500)
- 1997 Colorado State University Graduate Student Fellowship (\$6000)

OTHER SUBMITTED GRANT PROPOSALS

- 2015 National Science Foundation, Collaborative Proposal: Beyond Active Learning: Learning Assistant Supported Pedagogies in Large Lecture Science Courses, co-PI with Robert Talbot (PI) (\$1,198,919), *submitted January 2015*
- 2015 National Science Foundation - Peers Enhancing Education and Retention in STEM (PEER-STEM), co-PI with Michael Ferrara (PI), Ellen Gethner, Ronald Rorrer and Robert Talbot (\$1,712,279), *submitted January 2015*
- 2014 National Science Foundation, Collaborative Proposal: Studying Undergraduate STEM Transformation And Institutional Networking (SUSTAIN), co-PI with Robert Talbot (\$19,338), *submitted October 2015*
- 2014 National Science Foundation, Promoting Faculty Development and Student Success through the Adoption of the Learning Assistant Model, PI with Robert Talbot (co-PI), (\$249,975), *submitted October 2014*
- 2014 National Science Foundation, Developing and Approach for Improving Instructional Practices through Formative Assessment (co-PI), with Heidi Iverson Krug and Maria Ruiz-Primo (PI) (\$249,992), *submitted October 2014*
- 2014 National Science Foundation - Peers Enhancing Education and Retention in STEM (PEER-STEM), co-PI with Michael Ferrara (PI), Ellen Gethner, Ronald Rorrer and Robert Talbot (\$2,238,071), *not funded*
- 2013 National Science Foundation – Collaborative Research: Learning Progression Based Tools to Support Ecological Systems Thinking, PI, with co-PIs Charles Anderson, Alan Berkowitz, Jennifer Doherty, Cornelia Harris, and John Moore (\$2,994,596), *not funded*
- 2012 National Science Foundation – Collaborative Research: Learning Progression Based Teaching and Professional Development Tools to Link Evolution and Ecology, PI, with co-PIs Charles Anderson, Alan Berkowitz, Jennifer Doherty, John Moore, and Mark Wilson (\$2,060,533), *not funded*
- 2012 National Science Foundation – Collaborative Research: Transforming Introductory Biology Courses: Models for Faculty Development and Reformed Courses (\$402,136), Co-PI with Charlene D’Avanzo, Charles Anderson, Heather Griscom, and April Maskiewicz, *not funded*

- 2012 National Science Foundation – Collaborative Research: Whole-Course Transformation for Introductory Biology. (\$149,653), Co-PI with Charlene D’Avanzo and Charles Anderson, *not funded*
- 2012 National Science Foundation - Leveraging Learning Progressions to Advance Science Learning in Urban Garden Programs (\$1,199,583), Co-PI with Rene Galindo and Geeta Verma, *not funded*
- 2012 National Science Foundation – Learning Progression Based Teaching Tools for Reasoning about Change Over Time in Ecosystems: Linking Evolution and Community Ecology (\$140,444 – Collaborative Proposal), PI, with co-PIs Charles Anderson, Alan Berkowitz, Jennifer Doherty, and John Moore *not funded*
- 2011 National Science Foundation (Informal Science Education) – Testing Short Form Media and Social Networking as a Means to Communicate and Build Audiences (\$149,964), Co-PI with Ian Billick (PI) and Amy Ellwein *not funded*
- 2010 National Science Foundation (Ecosystem Science) - Ecosystem transformations along the Colorado Front Range: Prairie dog interactions with multiple components of global environmental change (\$814,000), Co-PI with Timothy Seastedt (PI) and Jessie Nippert, *not funded*
- 2009 Howard Hughes Medical Institute - Undergraduate Science Education Program (\$2,829,652), Co-PI, *not funded*
- 2009 National Science Foundation (Math Science Partnership) - Strategic Knowledge Investigations Teams (SKI-Teams)” (\$12,438,147), Key Personnel, with Doris Kimbrough (PI) and others, *not funded*
- 2009 National Science Foundation (Innovation through Institutional Integration) - CU Denver’s STEM Teaching and Learning Laboratory (STEMTeLL) Project (\$576,922), Key Personnel, with Doris Kimbrough (PI) and others, *not funded*
- 2009 Dynamics of social and ecological systems in a sprawling megapolitan region. National Science Foundation ULTRA-EX, submitted through UC Boulder INSTAAR, Key Personnel, *not funded*

- 2009 Describing patterns and mechanisms of exotic plant invasions on prairie dog (*Cynomys ludovicianus*) colonies to develop a predictive model for managers, Boulder County Parks and Open Space, (\$10,000), PI, *not funded*
- 2009 Learning progressions for the living environment, National Science Foundation DRK12 (1,800,000), Co-PI, with Janet Ross (PI), Kristen Gunckel and Rebecca Monhardt, *not funded*

GRADUATE, UNDERGRADUATE, AND HIGH SCHOOL STUDENTS MENTORED IN RESEARCH AND TEACHING

Graduate Students

Primary Advisor for: Paul Le (present), Mark Visel (present), Trent Smith (completed MS, 2012) Lannie Phijalic (completed MS, 2010)

Committee Member for: Adrienne D'Agostino, Usha Balan, Stower Beals, Chelsea Beebe, Rebecca Bryan, Nathan Frank, Kelly Keena, Kim McTaggart, Marika Majack, Jill Pyatt, Jennifer Scott, Erin Steiner, Sydney vanderWal, Pengsue Yang (students since 2009)

Internship Mentor for: Lannie Phijalic (2010)

NSF GK-12 Mentor for: Katrina Button, Lauren Kinsman, Justin Kunkle, Katherine Lander, Todd Robinson, Jay Sobel, Edythe Sonntag, Sigrid Smith, Sara Syswerda, Brook Wilke, Michigan State University (2006-2008)

Research Project Mentor for: Usha Balan, University of Colorado Denver, Effects of Prairie Dogs on Invasive Plants in Urban Colorado (2009)

Undergraduate Students

Mark Andersen-Nissen, Lauren Anderson, Teresa Davis, Dana Hall, Vuong Hung, Laura Jaffe, Susan Staggs, and Nemanja Vukovic (2014), Yulia Hartenbower, Jeanette Lanier-Hall, Joe McGirr, Roshal Patel, and Kevin Simpson (2013), Habab Badri, Beth Kennicutt, Linda McQuade, Roshan Patel, and Kim Sung (2012), Course transformation and student learning of introductory biology: all students completed independent projects as part of their role as Learning Assistants in my course

Beth Kennicutt (2013, 2014), University of Colorado Denver, K12 Student Recognition of Biodiversity

Sara Wells, University of Colorado Denver, Effects of Prairie Dogs on Soil Erodibility Factors in Urban Colorado (2010, 2011)

Angela Merten, Taryn Breit, Emily Hammad, and Jason Perischetti, University of Colorado Denver, Effects of Prairie Dogs on Invasive Plants in Urban Colorado (2009)

Ryan Young, Michigan State University – Development of Nature Trail and Ecology Unit (2007)

Benjamin Noon, Colorado State University - Prairie Dog Ecology (2003)

Jennifer Kaiser, Colorado State University - Prairie Dog Ecology (2001)

High School Students

Tyler Benton, Akron High School – Soil Organic Matter in Conservation Reserve Program Land (1999)

Brock Benson, Akron High School – Prairie Dog Ecology (1999)

Amber Henry, Akron High School – Forensic Science (1999)

COLLABORATORS

Charles W. Anderson, Michigan State University

Charlene D'Avanzo, Hampshire College

Ian Billick, Rocky Mountain Biological Laboratory

Alan Berkowitz, Cary Institute for Ecosystem Studies

Leo Bruederle, University of Colorado Denver

Doris Kimbrough, University of Colorado Denver

John Moore, Colorado State University

Jesse Nippert, Kansas State University

Timothy Seastedt, University of Colorado Boulder

Robert Talbot, University of Colorado Denver

Bryan Wee, University of Colorado Denver

Alison Whitmer, Georgetown University

GRADUATE / POST-GRADUATE ADVISERS

Ingrid C. Burke, Colorado State University (Ph.D. Committee Member)

James K. Detling, Colorado State University (Ph.D. Major Advisor)

Daniel Milchunas, Colorado State University (Ph.D. Committee Member)

Gary Packard, Colorado State University (M.S. Major Advisor)

G. Philip Robertson, Michigan State University (Postdoctoral Supervisor)

David Steingraeber, Colorado State University (Ph.D. Committee Member)