

Joseph T. Dauer

Assistant Professor of Life Science Education

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University of Nebraska-Lincoln
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Professional Preparation (Education)

- Ph. D. Ecology, The Pennsylvania State University, University Park, PA 2007
Dissertation: From emergence to impact: the role of the environment in facilitating dispersal of *Conyza canadensis*
Advisor: Dr. David Mortensen
- M.S. Ecology, The Pennsylvania State University, University Park, PA 2004
Thesis: Long-distance dispersal of horseweed, *Conyza canadensis*, seed
Advisor: Dr. David Mortensen
- B.S. Biology/Mathematics, Western Washington University, Bellingham, WA 2001
Advisors: Dr. Merrill Peterson and Dr. Sebastian Schreiber

Appointments

- Assistant Professor, Life Sciences Education 2013-present
University of Nebraska-Lincoln, Lincoln, NE
- Research Associate 2010-2013
Principal Investigator: Dr. Tammy Long
Michigan State University, East Lansing, MI
- Postdoctoral Researcher 2007-10
Principal Investigators: Dr. Carol Mallory-Smith and Dr. Andrew Hulting
Oregon State University, Corvallis, OR
- Postdoctoral Researcher 2007
Principal Investigator: Dr. Peter McEvoy
Oregon State University, Corvallis, OR
- Research Associate, 2001 - 02
Advisors: Dr. Antonio DiTommaso and Dr. Charles Mohler
Cornell University, Ithaca, NY
- Math and Science Tutor, Western Washington University, Bellingham, WA 1999 - 2001
- Ecology Teaching Assistant, Western Washington University, Bellingham, WA 2001
- Research Experience for Undergraduates (REU), *Advisor:* Fabián Menalled 2000
Michigan State University, Kellogg Biological Station, Hickory Corners, MI

Publications

- Crowther A., H. Bergan-Roller, N. Galt, L. Appleby, J. Dauer, and T. Helikar. *In Review*. Discovering Prokaryotic Gene Regulation by Building and Investigating the *lac* Operon. *CourseSource*.
- Crowther A., L. Appleby, N. Galt, J. Dauer, and T. Helikar. *In Review*. Discovering Cell Cycle Regulation Using Computational Modeling and Simulations. *CourseSource*.
- Dahlquist KD, Aikens ML, Dauer JT, Donovan SS, Eaton CD, Highlander HC, Jenkins KP, Jungck JR, LaMar MD, Ledder G, Mayes RL, Schugart RC. An invitation to modeling: building a community with shared explicit practices. *CBE- Life Sciences Education*. *Revise and Resubmit*.
- Bergan-Roller, H., N. J. Galt, C. Chizinski, T. Helikar, and J.T. Dauer. Simulated Computational Model Lesson Improves Systems Thinking Biology Students. *BioScience*. *Accepted*.
- Bergan-Roller, H., N. Galt, T. Helikar, and J. Dauer. Content and organization of student knowledge of cellular respiration in undergraduates. *Journal of Biological Education*. *Accepted with Revisions*.
- Dauer, J.T., A. Hulting, D. Carlson, J. Harden, L. Mankin, and C. Mallory-Smith. 2018. Gene flow from single and stacked herbicide-resistant rice: modeling occurrence of multiple herbicide-resistant red rice. *Pest Management Science*. 74:348-355.
- Crowther A., H. Bergan-Roller, N. Galt, J. Dauer, and T. Helikar. 2017. Discovering Prokaryotic Gene Regulation with Simulations of the *trp* Operon. *CourseSource*. *In Press*.
- Sabel, J. L., J. Dauer, C. Forbes. 2017. Introductory Biology Students' Use of Rubrics and Reflection Questions to Engage in Metacognition and Enhance Understanding. *CBE- Life Sciences Education*. 16(3):ar40.
- Bergan-Roller, H., N. Galt, J. Dauer, and T. Helikar. 2017. Discovering Cellular Respiration with Computational Modeling and Simulation. *CourseSource*. <https://doi.org/10.24918/cs.2017.10>
- Dauer, J.T. and J.M. Dauer. 2016. A framework for understanding the characteristics of complexity in biology. *International Journal of STEM Education*. 3:13.
- Kowal, B., T.R. Schreier, J. Dauer, and T. Helikar. 2015. Programmatic Access to Cell Collective models via a REST API. *BioSystems*. 139: 12-16.
- Dauer, J.T. and T.M. Long. 2015. Long-term conceptual retrieval by college biology majors following model-based instruction. *Journal of Research in Science Teaching*. 52(8):1188-1206.
- Jongejans, E., O. Skarpaas, M. Ferrari, E. Long, J. Dauer, C. Schwarz, E. Rauschert, R. Jabbour, D. Mortensen, S. Isard, D. Lieb, Z. Sezen, A. Hulting, K. Shea. 2014. A Unifying gravity framework for dispersal. *Theoretical Ecology*. 8(2):207-223.
- Long, T.M., J. Dauer, K.M. Kostelnik, J.L. Momsen, S.A. Wyse, and D. Ebert-May. 2014. Designing Instruction to Foster Ecoliteracy Skills in Undergraduate Biology Education. *Frontiers in Ecology and the Environment*. 12(2): 138-139.
- Dauer, J.T., Momsen, J.L., Bray-Speth, E., Makohon-Moore, S., and T.M. Long. 2013. Analysis of Student-Constructed Models of Complex Biological Systems. *Journal of Research in Science Teaching*. 50(6):639-659.

- Dauer, J.T. and E. Jongejans. 2013. Elucidating the population dynamics of Japanese knotweed using integral projection models. *PLoS ONE* 8 (9):e75181.
- Hulting, A., Dauer, J., Hinds-Cook, B. Curtis, D., Koepke-Hill, R., Mallory-Smith, C. 2012. Management of Italian Ryegrass (*Lolium perenne ssp. multiflorum*) in Western Oregon with preemergence applications of pyroxasulfone in winter wheat. *Weed Technology* 26(2): 230-235.
- Dauer, J.T., McEvoy, P.B., and Van Sickle, J. 2012 Controlling an invasive plant species by targeted disruption of its life cycle. *Journal of Applied Ecology* 49:322-330.
- Felix, J., Dauer, J., Hulting, A., and Mallory-Smith, C. 2012. Yellow nutsedge growth and tuber production in response to increasing glyphosate rates and selected adjuvants. *Weed Technology* 26: 95-101.
- Rauschert, E. S. J., J. Dauer, J. L. Momsen, and A. Sutton-Grier. 2011. Primary literature across the undergraduate curriculum: teaching science process skills and content. *Bulletin of the Ecological Society of America* 92:396–405.
- Dauer, J.T., Luschei, E.C, and Mortensen, D.A. 2009. Effects of glyphosate-resistant crop adoption on the connectivity of a landscape: an herbicide-resistant weed perspective. *Landscape Ecology* 24(6): 735-747.
- Dauer, J.T., Mortensen, D.A., Luschei, E.C., Isard, S., Shields, E., and VanGessel, M.J. 2009. *Conyza canadensis* seed ascent in the lower atmosphere. *Agricultural and Forest Meteorology*. 149: 526-534.
- DiTommaso, A., Clements, D.R., Darbyshire, S.J., and Dauer, J.T. 2009. The Biology of Canadian Weeds 143. *Apocynum cannabinum* L.. *Canadian Journal of Plant Science*. 89:977-992.
- Dauer, J.T., Mortensen, D.A., and VanGessel, M.J. 2007. Temporal and spatial dynamics of long-distance *Conyza canadensis* seed dispersal. *Journal of Applied Ecology* 44(1): 105-114.
- Menalled, F.D., R.G. Smith, J. T. Dauer, and Fox, T. 2007. Impact of agricultural management systems on carabid beetle communities and invertebrate weed seed predation. *Agriculture, Ecosystems and Environment* 118: 49-54.
- Shields, E.J., Dauer, J.T., VanGessel, M.J., and Neumann, G. 2006. Horseweed (*Conyza canadensis*) seed collected in the planetary boundary layer. *Weed Science* 54: 1063-1067.
- Dauer, J.T., Mortensen, D.A., and Humston, R. 2006. Controlled environment experiments to predict dispersal distances of horseweed (*Conyza canadensis*) seed. *Weed Science* 54: 484-489.

Outstanding Paper in Weed Science (Weed Science Society of America)

- Menalled, F., J. Dauer, T. Fox, and Renner, K. 2001. Managing your farm to increase weed-seed predation. Extension Bulletin E-2740, Michigan State University. February 2001.

Funded Research Projects

- J. Dauer, C. Clark, and T. Helikar “Describing the Neural Effects of Modeling-Based Instruction” 2018 University of Nebraska-Lincoln, \$5,000

- T. Helikar and J. Dauer, "Computational Modeling of Biological Systems" 2014
National Science Foundation, EHR Improving Undergraduate Stem Education
NSF-DUE 1432001, \$2,321,012
- J. Dauer and B. Couch, "From atoms to ecosystems: Investigating undergraduate student reasoning across biological scales" 2014
Proposal Revision Award
UNL Office of Research and Economic Development, \$28,855
- J. Dauer (PI), "Quantifying Management Success of Japanese Knotweed" 2009
U.S. Department of Agriculture – Food and Agricultural Science Enhancement Post-Doctoral Fellowship, \$125,000
- J. Dauer (PI), C. Mallory-Smith, and A. Hulting: "Modeling gene flow between herbicide resistant crops and weeds" 2009
BASF Corporation, \$32,000
- D. Heggenstaller (PI) with sponsors A. Hulting and J. Dauer: "*Polygonum cuspidatum* seed and fragment retention time in water and effects on seedling establishment rate" 2005
Weed Science Society of America – Undergraduate Research Grants, \$1,000
- J. Dauer (PI) "Weed Seed Dispersal into the Planetary Boundary Layer" 2005
Penn State College of Agricultural Sciences – Competitive Grants Program, \$2,000
- D.A. Mortensen (PI), W. Curran, M. VanGessel, E. Shields, E. Luschei, and J. Dauer: "A Landscape Approach to Managing the Spread of a Herbicide Resistant Weed." 2004
U.S. Department of Agriculture – National Research Initiative, \$428,000

Pending Proposals

- T. Helikar, J. Dauer, W. Smith, "Innovating life sciences education through computational modeling and simulations" 2017
National Science Foundation, EHR Core Research, Total Requested \$3,000,000
- J. Dauer and R. Mayes (Georgia Southern Univ), "Collaborative Research: Assessment of Quantitative Modeling by Biology Undergraduate Students (QMBUGS)" 2017
National Science Foundation, EHR Core Research. Total Requested \$252,000

Teaching Experience

Courses instructed:

- Fundamentals of Biology II, Instructor 2014-2018
University of Nebraska-Lincoln, Lincoln, NE
- Teaching Undergraduate Science 2018
University of Nebraska, Lincoln, NE
- Principles of Ecology 2017

University of Nebraska, Lincoln, NE

Biological Science – Organisms and Populations, Co-Instructor Michigan State University, East Lansing, MI	2012
Introduction to Weed Management, Lecture and Laboratory Instructor Oregon State University, Corvallis, OR	2008, 2009
Toxic Plants in Pacific Northwest Pastures, Co-developer and Co-instructor (online only) Oregon State University, Corvallis, OR	2009
Population Dynamics, Laboratory Instructor The Pennsylvania State University, University Park, PA	2005
Principles in Weed Management, Laboratory Instructor The Pennsylvania State University, University Park, PA	2003, 2004

Guest Lectures:

Experiments in Plant Biology, Michigan State University	2012, 2013
Biology of Plants, Michigan State University	2010, 2011
Biological Science - Organisms and Populations, Michigan State University	2010
Experimental Design, Oregon State University	2010
Human Ecology, Oregon State University	2008, 2009

Curriculum Development and Training:

Rwandan Institute for Conservation Agriculture	2018
Quantitative Undergraduate Biology Education and Synthesis (https://qubeshub.org)	2015-2017
National Academies Summer Institute (http://www.academiessummerinstitute.org)	2014
Introductory Biology Project (http://ibp.ou.edu)	2013
Faculty Institutes for Reforming Scientific Teaching (http://www.firstiv.org) Co-developed an introductory biology course that is learner-centered and integrative	2009-10
Teaching certificate program, The Pennsylvania State University Graduate School	2007

Non-credit courses and workshops:

Weed ecology Workshop University of West Indies, Kingston, Jamaica	2004
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Graduate Student Mentoring

Sarah Spier, University of Nebraska-Lincoln Studying effects of sounds in woodlots on songbird calls and how students learn about sexual selection.	2016-present
Nathan Niosco, University of Nebraska-Lincoln Studying introductory biology students' understanding of quantitative relationships and hidden dimensions of food web dynamics.	2014-2015

Undergraduate Student Mentoring

- Taylor Uhlir, University of Nebraska-Lincoln 2018
Student understanding of creating and transferring recombinant DNA.
Findings presented at UNL Undergraduate Research Fair and incorporated into upcoming publication.
- McKenzie Kjose, University of Nebraska-Lincoln 2016
Studying student knowledge of the *lac* operon system of gene regulation in prokaryotes.
Findings presented at UNL Undergraduate Research Fair and incorporated into upcoming publication.
- Sinan Akkoseoglu, University of Nebraska-Lincoln 2015
Studying alignment between introductory biology instructors' verbal description of biological processes and inclusion of the processes in student-constructed conceptual models. Findings presented at UNL Undergraduate Research Fair.
- Jai Mediratta, University of Nebraska-Lincoln 2015
Developing computational models of positive and negative feedback loops using the Cell Collective platform. Models can be deployed to improve student learning of these concepts.
Findings presented at UNL Undergraduate Research Fair.
- Etiowo Usoro, Michigan State University
Usoro, E. 2013. How do students change their usage of relationships between two biological concepts over time in an Introductory Biology Course? Findings presented at Michigan State University Undergraduate Research & Arts Forum
- Patrycja Zdziarska, Michigan State University
Zdziarska, P. and Wagley, N. 2012. Model-based learning: investigating students' understanding of biological systems. Findings presented at Michigan State University Undergraduate Research & Arts Forum
- Neelima Wagley, Michigan State University
Zdziarska, P. and Wagley, N. 2012. Model-based learning: investigating students' understanding of biological systems. Findings presented at Michigan State University Undergraduate Research & Arts Forum
- Sasha Makohon-Moore, Michigan State University
Makohon-Moore, S. 2012. Student trends in critical understanding of a multimedia model. Findings presented at Michigan State University Undergraduate Research & Arts Forum
Makohon-Moore, S. 2011. Does major influence structural complexity in students' conceptual models? Findings presented at Michigan State University Undergraduate Research & Arts Forum
- Andy George, Michigan State University
George, A. 2012. Does point value affects students effort and achievement. Findings presented at Michigan State University Undergraduate Research & Arts Forum.

George, A. 2011. What's really important? Identification of important concepts by major and non-major life science students. Findings presented at Michigan State University Undergraduate Research & Arts Forum.

Megan Gustafson, Michigan State University

Gustafson, M. 2011. Context-based responses regarding origin of variation. Findings presented at Michigan State University Undergraduate Research & Arts Forum.

Dan Heggenstaller, The Pennsylvania State University

Current status: Received M.S. in Forestry (The Pennsylvania State University)

Professional Development

Quantitative Undergraduate Biology Education and Synthesis (QUBES) Teaching quantitative biology working group	2015-2017
University of Nebraska-Lincoln Alan Alda Center for Communicating Science Workshop	2016
University of Nebraska-Lincoln Adopting Research Based Instructional Strategies for Enhancing (ARISE) – Faculty Learning Community	2015

Academic Service

School of Natural Resources Undergraduate Curriculum Committee	2018
Consultation and Advisory Boards “Developing a Student-Centered Introduction to Organic Agriculture Curriculum” PI: Dr. Randa Jabbour (Univ. of Wyoming)	2015-2017
University of Nebraska-Lincoln Invited contributor to re-design of genetics courses	2015
Graduate school campus-wide workshops for graduate TA's. Workshop co-organizer: “Student Learning and Engagement in Large Lecture Classes”	2015
Teaching and Learning Symposium. Workshop co-organizer: “Student Learning and Engagement in Large Lecture Classes”	2015
Weed Science Society of America Workshop co-organizer: “Re-aligning your course to improve student learning”	2013
Ecological Society of America Workshop co-organizer: “Got Data? Visualizing and manipulating ecological data sets to support undergraduate learning ”	2013
Workshop co-organizer: “Formative Assessment: Just do it! Rapid Response to Undergraduate Feedback”	2012
Workshop co-organizer: “101 ways to effectively use journal articles as teaching tools”	2011
Workshop co-organizer: “In full Bloom: Using Bloom's taxonomy to align class learning objectives and assessments in introductory biology”	2010

Organized Oral Session co-organizer: "Theoretical Perspectives in Agroecology"	2008
Michigan Community College Biologists Workshop organizer: "101 ways to effectively use journal articles as teaching tools"	2011
Center for Research on College Science Teaching and Learning Michigan State University	2010-present
Northeast Ecology and Evolution Conference, Co-organizer	2005

Invited Talks

University of Memphis "Modeling to Learn Biology: Research on how students construct and interpret biological system models"	2017
South Dakota State University "Comparison of student learning while investigating versus building models of biological systems"	2017
UNL STEM Education Seminar Series "Building versus Investigating Models of Regulation of Gene Expression"	2016
North Dakota State University "Fix it or Forget it: Biology models to aide undergraduate student sense-making and knowledge retention."	2014
UNL STEM Education Seminar Series "Systems Thinking with Biology Models"	2014
Xi'an Jiaotong University Visiting (to UNL) Scholars seminar "Modeling as a way of knowing science"	2013
Ecological Society of America Annual Meeting Symposium "Using Education Theory: Learning From the Past to Shape the Future of Ecology Teaching"	2013
Kellogg Biological Station K12 Partnership "Going the distance: investigating dispersal across scales"	2012
Western Washington University "Comparing model-data feedback loops in ecological and education systems"	2010
Northeast Weed Science Society Annual Meeting "How the spatial scale of dispersal modeling has changed with glyphosate-resistant horseweed."	2007
North Central Extension Research Assoc - Committee on Migration and Dispersal of Biota "Trying to understand how seeds fly: the story of glyphosate-resistant horseweed."	2006

Presentations (Last 5 Years)

#Graduate Student ; *Undergraduate Researcher

Dauer, J., W. Schacht, and D. Wedin. 2017. Blowout! A Board Game about Plant Community Dynamics. Ecological Society of America, Annual Meeting.

Dauer, J., A. Alred, J. Dauer, and N. Niosco. 2017. Exploration of undergraduate students' knowledge of community dynamics. Ecological Society of America, Annual Meeting.

- Appleby, L., H. Bergan-Roller, N. Galt, J. Dauer, and T. Helikar. 2017. Improving student tracing through metabolic systems through a computational model-based learning module. Society for the Advancement of Biology Education Research, Annual Meeting.
- Helikar, T., L. Appleby, H. Bergan-Roller, N. Galt, and J. Dauer. 2017. Assessing Students' Modeling Abilities using Computational Models of Biological Systems. Society for the Advancement of Biology Education Research, Annual Meeting.
- Bergan-Roller, H., N. Galt, L. Appleby, T. Helikar, and J. Dauer. 2017. Student Understanding of System Dynamics and Cycles. Society for the Advancement of Biology Education Research, Annual Meeting.
- Mayes, R. and J. Dauer. 2017. QUBES Quantitative Reasoning in Undergraduate Biology Assessment. HHMI Constellation Studio.
- Bergan-Roller, H.E., Galt, N., Helikar, T., Dauer, J.T. 2017. Simulated Computational Model Activity Improves Conceptual Understanding about Biological System. National Association for Research in Science Teaching, Annual Meeting.
- Bergan-Roller, H.E., Galt, N., Tichy, D., Kowal, B., Dauer, J.T., Helikar, T. 2016. Teaching about cellular processes using computational modeling and interactive simulations. Biennial Conference on Chemical Education.
- Bergan-Roller, H.E., Galt, N., Helikar, T., Dauer, J.T. 2016. Guided Investigation using Simulated Computational Models Improves Student Thinking about Cellular Respiration System. Society for the Advancement of Biology Education Research, Annual Meeting.
- Dauer, J.T., Bergan-Roller, H.E., Galt, N., Helikar, T. 2016. Effect of Model Building and Model Investigation on Student Learning of Gene Regulatory Networks. Society for the Advancement of Biology Education Research, Annual Meeting.
- Dauer, J., C. Mallory-Smith, A. Hulting, L. Mankin, J. Harden, and D. Carlson. 2016. Effects of Crop and Herbicide Rotation on Likelihood of Red Rice to Develop Herbicide Resistance. Weed Science Society of America, Annual Meeting.
- Galt, N., H. Bergan-Roller, C. Cutucache, J. Dauer, and T. Helikar. 2015. The use of interactive computational network modeling in life science courses to increase students' mechanistic reasoning about biological systems. International Conference on Systems Biology.
- Dauer, J. and T. Long. 2015. Model construction to reveal students' conceptual knowledge retrieval in college-level biology. National Association for Research in Science Teaching, Annual Meeting.
- Dauer, J., B. Couch, and M. Durham. 2015. Analysis of students' conceptual knowledge of stochasticity and homeostasis. Society for the Advancement of Biology Education Research, Annual Meeting.
- Bergan-Roller, H., N. Galt, J. Mediratta*, S. Akkoseoglu*, T. Helikar, and J. Dauer. 2015. Using modeling to assess concept connectedness in cellular respiration. Society for the Advancement of Biology Education Research, Annual Meeting.

- #Niosco, N., and J. Dauer. 2015. To bound or not to bound? Testing the effects of framing on ecosystem reasoning. Society for the Advancement of Biology Education Research, Annual Meeting.
- Galt, N., H. Bergan-Roller, C. Cutucache, J. Dauer, and T. Helikar. 2015. Learning about complex system biology with cell collective: an interactive, collaborative simulation platform. Society for the Advancement of Biology Education Research, Annual Meeting.
- Galt, N., H. Bergan-Roller, J. Dauer, and T. Helikar. 2015. Evaluation of students' mechanistic reasoning through dynamic simulations of cellular respiration. Society for the Advancement of Biology Education Research, Annual Meeting.
- Dauer, J., and S. Thomas. 2014. What does the fox eat? Testing biological abstraction effects on ecosystem reasoning. Society for the Advancement of Biology Education Research, Annual Meeting.
- Dauer, J., Thomas, S., and Long, T. 2013. Predicting ecosystem outcomes from concrete and abstract models. Society for the Advancement of Biology Education Research, Annual Meeting.
- Dauer, J. and E. Jongejans. 2013. Modeling the growth of new Japanese knotweed infestations. Weed Science Society of America, Annual Meeting.
- Dauer, J., Long, T., Kostelnik, K., *Zdziarska, P., and *Wagley, N. 2012. Long-term skill retention in undergraduate biology students. Ecological Society of America, Annual Meeting.
- Dauer, J., Kostelnik, K., *Zdziarska, P., *Wagley, N., and Long, T. 2012. What can interviews reveal about how students create and decipher models? Society for the Advancement of Biology Education Research, Annual Meeting.
- Long, TM, S Wyse, JL Momsen, E Bray-Speth, D Ebert-May, JT Dauer, K Kostelnik. 2012. Designing and Evaluating Introductory Biology Reform: A multidimensional approach. Introductory Biology Project, Washington, DC. June 28 - July 1.
- Dauer, J., Long, T., Momsen, J., Bray-Speth, E., Makohon-Moore, S., Kostelnik, K., Zdziarska, P., and Wagley, N. 2012. Change in correctness and complexity of student-constructed models during a course. National Association for Research on Science Teaching, Annual Meeting.
- Dauer, J., and E. Jongejans. 2012. Attack of the Japanese knotweed rhizomes: How many, how far, how fast? Weed Science Society of America Annual Meeting.
- Kostelnik, K., Long, T., Morrison, E., Dauer, J., and Schramm, J. 2011. Last undergrad in the woods? Students' prior experiences and regional environmental literacy. Ecological Society of America Annual Meeting.
- Long, T., Barlow, Z., Dauer, J., Hartley, L., Kostelnik, K., Momsen, J., and Thomas, S. 2011. A picture is worth a thousand misconceptions. Ecological Society of America Annual Meeting.
- Long, T.M., K.M. Kostelnik, J. Dauer, S.A. Wyse, J.L. Momsen, and D. Ebert-May, and E. Bray Speth. 2011. Detecting difference downstream: Incorporating longitudinal impacts in the evaluation of reform efficacy. Ecological Society of America Annual Meeting

Extension Activities

4 th /5 th Grade Class, Kazoo School, Kalamazoo, MI	2010-2013
Students developed and implemented a research project on an invasive weed and presented the results at a public weed information day in May 2011.	
Co-instructed workshops on identifying, understanding, and managing noxious and invasive weeds including:	
Michigan Department of Natural Resources Master Naturalist Program – 100 participants	2012
Oregon Master Gardener Program – 135 participants	2009, 2010
Oregon Watershed Enhancement Board – 60 participants	2009

Honors and Awards

First Place Graduate Exhibition (Penn State Graduate School)	2006
J. Brian Horton Award (Penn State Ecology Program)	2005
Global Travel Award (Penn State College of Agricultural Science - International Programs)	2004
Carl Shaffer Travel Fund for Students (Penn State Dept. of Crop and Soil Science)	2004
Graduate Research and Service Assistantship (Penn State Ecology Program)	2003
Research Experience for Undergraduates (REU) program (National Science Foundation)	2000

Reviewer

Review Panel, National Science Foundation (Core Research)
Review Panel, National Science Foundation (TUES)
Reviewed journal manuscripts – Journal of Research on Science Teaching, Cell Biology Education – Life Science Education, BioScience, Oikos, Frontiers in Ecology and the Environment, Journal of Applied Ecology, Weed Research, Invasive Plant Science and Management, Journal of Vegetation Science, International Plant Science and Management, Weed Technology, Diversity and Distributions, Biological Control

Professional Membership

Society for Advancement of Biology Education Research	2011-present
National Association for Research in Science Teaching	2012-present
North American Colleges and Teachers of Agriculture	2014-present
Ecological Society of America	2005-present