

# Karen E. Bledsoe

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Department of Biology, Division of Natural Science  
345 Monmouth Ave.  
Western Oregon University  
Monmouth, OR 97361  
503-838-8036  
bledsoek@wou.edu

Home:  
4230 12th Street SE  
Salem, OR 97302-1870  
503-581-2795 (h)  
503-510-6537 (cell)

## Research interests

- Student concepts and conceptual change in science
- University outreach to K-12 schools: Developing and evaluating hybrid models of professional development.

## Current research:

- Oregon Science Teachers Partnership: Development of a hybrid model of professional development. Joint project between the Oregon Science Teachers Association, WOU, OSU, and Willamette University. Project approved by WOU IRB board June 2008, funded by a DOE-MSP grant through the Oregon Department of Education. In progress.
- Conceptions held by undergraduate non-science major students about biological molecules. Project approved by WOU IRB board July 2007. Data collected and analyzed, now being written.
- Does use of History of Science in an introductory biology course affect student understanding of the Nature of Science and key science concepts?" Project approved by WOU IRB board, October 2007. Data gathered, now being analyzed.

## Recent Honors

- The Fred Fox Distinguished Service to Science Education Award, Oregon Science Teachers Association, 2009.
- Instructor of the Year award, Math and Science Division, Linn-Benton Community College, 2006
- Outstanding Service Award, School Science and Mathematics Association, 2006.

## Recent Grants

- 2008 Oregon Mathematics and Science Partnerships Program (Oregon ESEA Title IIB MSP)
- 2007 Faculty Travel Award, Western Oregon University

## Academic Record

- Doctor of Philosophy, Science Education, 2007, Oregon State University. Corvallis, Oregon.
- Master of Science, Plant Systematics and Ecology, 1993, Oregon State University, Corvallis, Oregon
- Master of Arts in Teaching, 1991, Willamette University, Salem, Oregon
- Bachelor of Science, Biology, 1985, Willamette University, Salem, Oregon

## Professional Memberships

### Current

- Oregon Academy of Science (OAS)
- School Science and Mathematics Association (SSMA)
- Oregon Science Teachers Association (OSTA)
- National Science Teacher's Association (NSTA)
- National Association for Research in Science Teaching (NARST)

### Past

- Oregon Collaborative for the Excellence in the Preparation of Teachers (OCEPT)
- Association for Science Teacher Education (ASTE)

## Current Position

- Adjunct Assistant Professor      Division of Natural Science and Mathematics    tel. 503- 838-8206      9/06-present  
Western Oregon University    Monmouth, OR 97361  
Courses taught:  
General Biology 101, 102, 103

Biology for Elementary Schools  
 Honors Biology  
 Principles of Biology 213 lab

- Freelance Item Writer, Science Northwest Evaluation Association tel. 503- 624-1951 6/10-present  
 121 NW Everett St. Portland, OR 97209

**Experience, Education**

- Part-time Instructor Math and Science Division tel. 541-917-4741 04/04 - 08/06  
 Biology Linn-Benton Community College Albany, OR 97321  
 Subjects: Biology 100 series

- Graduate Assistant Department of Science and Mathematics Education tel. 541-737-4031 9/00 - 12/06  
 Oregon State University Corvallis, OR 97331

Assignments:

Managing Editor, School Science and Mathematics Journal (3 years)  
 Curriculum coordinator, GENETIC project, SMILE program (3 years)  
 Consultant to middle school science teacher, Grant Community School  
 Field supervision of pre-service teachers (2 years)

Program evaluator:

- Hydroville Curriculum Project
- OSU GK-12 project
- Hatfield Marine Science Center educational programs

Web page design and management

Writing textbook copy

Teaching pre-service teachers

- Pedagogy I and II (TA)
- Research Practicum (TA)
- Diagnosing and Addressing Science Misconceptions
- Life Science Activities for Elementary and Middle School Teachers

- Adjunct Instructor Division of Natural Science and Mathematics tel. 503- 838-8206 9/95 - 6/00  
 Western Oregon University Monmouth, OR 97361  
 Subjects: General Biology, Biology for Elementary Schools

- Substitute/Temporary Salem-Keizer School Dist. 24-J tel. 503-399-3061 9/91 - 6/92 and  
 Teacher: Science 1309 Ferry St. SE Salem, OR 97301 9/93 - 9/95  
 High School level Subjects: Physical Science, Biology,  
 Chemistry, Physics

- Temporary Staff: Biology Willamette University tel. 503-370-6181 2/95 - 3/95  
 Department of Biology Salem, OR 97301  
 Subjects: Plant Systematics, General Biology

- Adjunct Professor, temporary Linfield College tel. 503-229-7056 3/94 - 5/94  
 Department of Continuing Education  
 McMinnville, OR 97128-6894  
 Subjects: Field Botany

- Teacher: High School Science South Salem High School tel. 503-399-3252 9/92 - 6/93  
 (Temporary position) 1912 Church St. SE Salem, OR 97302  
 Subjects: Biology, Physical Science

- Student teacher North Salem High School tel. 503-399-3241 9/90 - 6/91

via Willamette University MAT program  
School of Education, Willamette University  
Salem, OR 97301  
Subjects: Biology (1 full semester)

- Environmental Educator  
Youth Interpretive Program  
Outdoor School  
City of Salem tel. 503-588-6162  
Department of Parks and Recreation  
550 Liberty St. SE Salem, OR 97301  
Developed and taught environmental education programs for participants ages 8-12. 9/89 - 10/90
- Laboratory Teaching Assistant  
Willamette University tel. 503-370-6181  
Department of Biology Salem, OR 97301  
Subjects taught: General Biology lab 9/84 - 5/85

### Experience, Science

- Assistant to Herbarium Curator  
Oregon State University tel. 541-737-4106  
Department of Botany and Plant Pathology  
Corvallis, OR 97331 10/85 - 6/88
- Biological Technician  
USDA Forest Service tel. 503-666-0670  
Mt. Hood National Forest  
2955 NW Division St. Gresham, OR 97030 6/87 - 10/87
- Research Assistant  
Dr. Susan Kephart tel. 503-370-6181  
Willamette University  
Department of Biology Salem, OR 97301 6/84 - 9/84

### Professional Service

- Editorial Review Board, Electronic Journal of Science Education, 11/07 - present
- Reviewer, School Science and Mathematics Journal, 9/06 - present
- Reviewer, Journal of Research in Science Teaching, 09/06 - present
- Science Education Co-chair and Webmaster, Oregon Academy of Science, 9/98 - present
- Faculty Fellow, Oregon Collaborative for the Excellence in the Preparation of Teachers (OCEPT)

### Papers and publications

- Bledsoe, K. & Flick, L. (in press) Concept development and meaningful learning among electrical engineering students engaged in a problem-based laboratory experience. *Journal of Science Education and Technology*.
- Bledsoe, K. & Kellar, H. (2009). The OSTA Science Partnerships Grant: Lessons learned from the first year. *The Oregon Science Teacher*, 51(2), 6-12.
- Bledsoe, K. & Kellar, H. (2009). Designing a blended model of collaborative teacher professional development: The Oregon Science Teachers Association Science Partnership Grant. *The Oregon Science Teacher*, 50(5), 19-23.
- Bledsoe, K. (2009). Atkins or "Fadkins?" National Center for Case Study Teaching in Science, access [http://sciencecases.lib.buffalo.edu/cs/collection/detail.asp?case\\_id=21&id=214](http://sciencecases.lib.buffalo.edu/cs/collection/detail.asp?case_id=21&id=214)
- Bledsoe, K. (2007). *How do engineering students develop and reason with concepts of electricity in a project-based course?* Published dissertation, Oregon State University.
- Bledsoe, K., Shieh, R., Park, Y., & Gummer, E. (2004). Role perceptions and role dynamics between graduate scientists and K-12 teachers in a school-university outreach project: Understudied constructs. *Journal of Higher Education Outreach and Engagement*, 9(2), 107-122.
- Kephart, S., K. Sturgeon, J. Lum, K. Bledsoe, Varietal Relationships in *Silene douglasii* (Caryophyllaceae): Morphological Variability at the Population Level, *Systematic Botany*, 1999.
- Bledsoe, K. Morphology and Cytology of *Trillium albidum* Freeman (Liliaceae). 1993. Thesis.

### Unpublished reports

- Shieh, R., & Bledsoe, K.E. (2003). *Evaluation of the GK-12 Fellowships to Enhance Science Education in Oregon*. Prepared for the Oregon State University GK-12 Project and the National Science Foundation.

### **Presentations**

- Oregon Academy of Science 2011 Annual Meeting, Portland, OR, February 26. "OSTA Science Partnerships: Developing a Blended Model of Professional Development." With Heidi Kellar.
- School Science and Mathematics Association Annual Convention, Fort Myers, FL, November 4-6, 2010. "Oregon Science Teachers Partnership." With Heidi Kellar and Edith Gummer.
- Department of Education Mathematics and Science Partnership Program Regional Meeting, New Orleans, March, 2010. "OSTP: A Blended Model of Professional Development." With Heidi Kellar.
- National Science Teachers Association annual meeting, Philadelphia, March, 2010. "Developing a Hybrid Model of Professional Development." With Heidi Kellar and Edith Gummer.
- Oregon Academy of Science annual meeting, February 2009. "OSTA Science Partnerships: Developing a Hybrid Model of Professional Development." With Heidi Kellar.
- National Association for Research in Science Teaching annual conference, April 15-18, 2007. "How do electrical engineering students develop and reason with concepts of electricity in a project-based course?"
- Oregon Academy of Science annual meeting, February 2007. "Models of circuits held by first-year electrical engineering students in a task-based laboratory course."
- Association for Science Teacher Education international conference, January 3-6, 2007. "How do engineering students without a strong knowledge base reason and form ideas about electricity within a task-based learning context?"
- National Writing Project annual meeting, November 17-19, 2005. "The Digital Fotonovela: Collaborative Writing Using Technology." With Glen Bledsoe.
- National Association for Research in Science Teaching annual conference, April 4-7, 2005. "Role perceptions within a school-university outreach project: Under-researched constructs." With Ruey Shieh, Young-Shin Park, Edith Gummer.
- Oregon Academy of Science annual meeting, February 2005. "Strategies for educational engagement: A model for professional development for teachers of minority students and academic enrichment in an after school program." With SueAnn Bottoms.
- National Writing Project annual meeting, November 18-20, 2004. "Technology Media in Elementary Classrooms." With Glen Bledsoe.
- Oregon Science Teacher's Association annual meeting, October 8, 2004. "Writing-to-Learn in Science."
- 12th Annual Graduate Student Conference, Oregon State University, May 5, 2004. "Role perception and role dynamics within a GK-12 outreach project." With Ruey Shieh, Young-Shin Park, Dr. Edith Gummer.
- Oregon Academy of Science annual meeting, February 2004. "Role perception and role dynamics within a GK-12 outreach project." With Ruey Shieh, Young-Shin Park, Dr. Edith Gummer.
- Oregon Academy of Science annual meeting, February 2004. "The 'guest scientist': Outcomes of a program to place graduate science and mathematics students in K-12 classrooms." With Ruey Shieh, Young-Shin Park, Dr. Edith Gummer.
- 11th Annual Graduate Research Conference, Oregon State University, May 8, 2003. "Evaluation of a K-12 outreach program to support inquiry-based learning in math and science: An interim report." With Ruey Shieh.
- Center for Learning and Teaching in the West Research Forum II. April 3-4, 2003. "Project-based learning in math and science education doctoral research seminars." With Dr. Edith Gummer, Jung-mi Ha.
- Oregon Academy of Science annual meeting, February 2003. "Curriculum development through assessment: Measuring problem solving skills in Hydroville curriculum participants." Co-presented with Molly Bloomfield and Angie Ruzicka.
- Oregon Academy of Science annual meeting, February 2003. "But what I really meant was...": The limitations of written instruments to assess student conceptions around natural selection.
- Oregon Academy of Science annual meeting, February 2000. "Beyond Methods and Science 101: Developing science classes for elementary education majors."
- Willamette University Biology Department, February 1989, March 1991, and February 1994. "Cytological technique in *Trillium albidum*." Workshop.
- Thesis defense, Oregon State University, March 1993. "Morphology and cytology of *Trillium albidum* Freeman (Liliaceae)."
- Willamette University Biology Department, April 1985. "The effects of flower position and flowering time on seed set."
- Oregon Academy of Science, April 1985. "The effects of population density on fruit set in Onagraceae."
- Willamette University Biology Department, December 1984. "The effects of population density on fruit set in Onagraceae."

