

Sehoya H. Cotner, Ph.D. (harri054@umn.edu)

Education

University of Minnesota-Twin Cities, Conservation Biology, Ph.D., 1999

Thesis: "Anuran response to habitat degradation in the neotropics"

North Carolina State University, Biological Sciences, B.S., 1992

Professional Interests

- strategies for effective teaching of evolution
- science (especially biology) for the non-scientist
- inclusivity in the sciences
- in-class assessment techniques
- technology in the classroom

Most Recent Professional Appointments

2002-Current Teaching Associate Professor, Biology Program and Department of Ecology, Evolution & Behavior, College of Biological Sciences, University of Minnesota

1999-2001 Instructor, Department of Biology, The Pennsylvania State University (University Park)

Recent Teaching Experience

University of Minnesota

- Evolution in Galápagos: Then and Now (visiting scholar, hosted by the University of Brazil in Natal, Brazil): S'11.
- Issues in Global Change Ecology (summer research seminar series/S'08, S'09)
- Biology of the Galápagos (study abroad experience): Biology 4950 (S'08, S'09, S'10, S'11)
- Tropical Reef Ecology (study abroad experience): Biology 4950 (J-term '09, '11)
- Evolution and Biology of Sex (non-majors introductory biology): Biology 1001 (F'07, F'08, Sp'09, F'09, Sp'10, F'10, Sp'11)
- SEAM seminar (for individuals from underrepresented groups throughout the Life Sciences): Biology 1905—Science, Sex and Society: How do we know what we know about sex? (F'09, F'10)
- SEAM seminar (for individuals from underrepresented groups in the College of Biological Sciences): Biology 1905—Preparation for graduate programs in science and professional school (F'07)
- Evolutionary & Ecological Perspectives (mixed-majors introductory biology): Biology 1001 (F'02, Sp'03, F'03, Sp'04, F'04, Sp'05, F'05, F'06)
- General Zoology: Biology 2012 (Sp'02, Sp'03, Sp'04, Sp'05, Sp'06, Sp'07, Sp'11)
- Field Zoology: Biology 2812 (S'11)
- Biology, Society, and the Environment: Biology 1105 (Sp'04, F'04, Sp'05, F'05, Sp'06, F'06, Sp'07, Sp'08, Sp'09, Sp'10)
- Animal Diversity: Biology 2005 (Sp'03 through F'07, F'10)
- Teaching in the Biology Labs: Biology 4201 (F'05, F'06, F'07, F'10)
- Preparing Future Faculty: GRAD 8101 (Sp'07)
- Freshman seminar on Evolution of Sex: Biology 1905 (F'03, F'04)
- The Nature of Life (CBS Freshman Orientation): Biology 1805 (Summer 2003 through Summer 2009)

The Pennsylvania State University

- Introductory Biology (F'99, F'00, F'01)
- Aquatic Ecology (F'99, F'00, F'01)
- Ecotoxicology (Sp'00, Sp'01)
- Graduate seminar on Hormonally Active Agents in the Environment (F'01)
- Freshman seminar on "The Botany of Desire" (plants and people) (F'00)

Publications (*denote undergraduates)

Books

- Moore, R., Decker, M.D. and S. Cotner. 2009. No prospect of an end: a chronology of the evolution-creationism controversy. Greenwood Press: Westport, CT.
- Cotner, S. and R. Moore. 2011. Arguing for evolution: an encyclopedia for understanding science. Greenwood Press: Westport, CT.

Articles

- Harris [Cotner], S.E., D.M. Woodward, J.L. Fontaine and F.H. Barnwell. 1998. Visual and acoustic signaling in the musical fiddler crab (*Uca musica*) from western Mexico. *American Zoologist* 38(5).
- Cotner, S., P. Baepler and *A. Kellerman. 2008. Scratch This!: The IF-AT as a technique for stimulating group discussion and exposing misconceptions. *J Coll Sci Teaching* March/April 48-53.
- Cotner, S., B. Fall, S. Wick, J. Walker and P. Baepler. 2008. Instant Feedback Assessment Methods: Can we improve engagement, enjoyment, and preparation for exams in large-enrollment biology courses? *Journal of Science Education and Technology* 17: 437-443.
- Moore, R.M. and S. Cotner. 2008. Educational Malpractice: The Impact of Including Creationism in High School Biology Courses. *Evolution: Education and Outreach*.
- Cotner, S. and J.D. Walker. 2008. A delicate balance: Integrating active learning into a large lecture course. *CBE-Life Sciences Education*.
- Walker, J.D., Cotner, S.H., Baepler, P.M. & Decker, M.D., 2008, A delicate balance: integrating active learning into a large lecture course, *CBE—Life Sciences Education*, 7(4), p. 361.
- Cotner, S. and R.M. Moore. 2009 Rejecting Darwin: The Occurrence and Impact of Creationism in High School Biology Classrooms. *American Biology Teacher*.
- *Rodriguez, E.M., T. Gamble, V. Hirt and S. Cotner. 2009. Presence of chytrid fungus (*Batrachochytrium dendrobatidis*) at the headwaters of the Mississippi River, Itasca State Park, Minnesota. *Herpetological Review*.
- Wright, R., S. Cotner, and A. Winkel. 2009. Minimal impact of organic chemistry prerequisite on student performance in introductory biochemistry. *CBE-Life Sciences Education*.
- Cotner, S. and R.M. Moore. 2009. The Creationist down the Hall: Does it matter when teachers teach creationism? *BioScience* 59(5): 429-435.
- Moore, R., S. Cotner and *A. Bates. The Influence of Religion and High School Biology Courses on Students' Knowledge of Evolution When They Enter College. 2009. *Journal of Excellence in Teaching* (Special Issue on Evolution Education) 9: 3-11.
- Cotner, S., Brooks, D.C., and R. Moore. "Is the age of the earth one of our "sores" troubles"? Students' perceptions about deep time affect their acceptance of evolutionary theory. *Evolution* 64(3): 858-864.

- *Uyehara, I.K., T. Gamble, and S. Cotner. "The presence of ranavirus in anuran population at Itasca State Park, Minnesota, USA." *Herpetological Review* 41(2): 177-179.
- Cotner, S., *Ballen, C., Brooks, D.C. and R. Moore. "Instructor Gender and Student Confidence in the Sciences: A Need for More Role Models?" In press at *Journal of College Science Teaching*.
- Moore, R., Brooks, D.C. & Cotner, S., 2011, The Relation of High School Biology Courses & Students' Religious Beliefs to College Students' Knowledge of Evolution, *The American Biology Teacher*, 73(4), pp. 222-6.
- Walker, J.D., Cotner, S., *Beermann, N. & Walker, J.D., 2011. Vodcasts and Captures: Using Multimedia to Improve Student Learning in Introductory Biology, *Journal of Media and Hypermedia*.

Miscellaneous publications

Fall, B., S. Cotner, N. Otto, M. Mikhaelian and others. 2010. "Lab Manual for Biology 1003: The Evolution and Biology of Sex."

Cotner, S. 2007. "Preparing not to lecture: Does active learning really work?" *Transform* (a publication of the U of M's Center for Teaching and Learning/Academy of Distinguished Teachers) 2(1) 1, 7-8.

Cotner, S. 2007. "A Tribute to Gregor Mendel." Exhibit review for Genetics, the newsletter of the Genetics Society of America 4(1): 2-3.

Teaching Development and Mentoring

- Co-director of the Global Change Ecology NSF-REU program through the College of Biological Science's Life Science Summer Undergraduate Research Program (LSSURP)—nine undergraduate research projects per summer, three-plus papers from Summer 2008 are published, in review and in preparation.
- Co-PI (with J.D. Walker, Digital Media Center) on vodcast development project, which involves creating 12 audiovisual supplements for Evolution and Biology of Sex course. Future work will evaluate these vodcasts (student perceptions and demonstrated utility) in comparison with screen-capture podcasts and traditional supplements (on-line and otherwise).
- Mentor of several undergraduate research projects:
 - Alexander Schauer, Fall 2011, Evolution education
 - Joseph Kleinschmidt, Spring 2011, Student-generated vodcasts in General Zoology
 - Nick Beermann, Fall 2009, Vodcast assessment project
 - Dana Olson, Fall 2009, Transgender issues in the college curriculum
 - Cissy Ballen, Spring 2009, evaluating student use of electronic texts vs hard copies
 - Liza Fife '06, Student perceptions of GMO's and risks
 - Sara Fiskum '07, Designing an interactive HIV lab for Biology 1001
 - Justyna Schuler '07, Developing a lesson plan for alternative energy (grades 8-12)
 - Lydia Habte '08, College professors and their impressions of their students' backgrounds in evolution
- Co-PI (with Randy Moore, Biology Program) of survey-based investigation to determine student backgrounds in, and perceptions of, evolution. Several papers and

presentations have resulted from this work, and five-plus undergraduates have been involved as research assistants.

- Assessment coordinator for Biology 1805: Nature of Life, 2003-2009.
- Part of a multi-year, Mellon-Foundation-supported project to study the use of technology in introductory biology; wrote several web-based “modules” for student use; investigated various aspects of this treatment (e.g. factors that may govern student success in a technology-enhanced course, student traits that may make some people more successful in a given class environment, and student perceptions of the on-line learning process)
- Mentor of several undergraduate research projects in animal behavior (Penn State).
- Mentor of undergraduate research projects in animal behavior (U of MN)

Committee work & Community Outreach

- Board Member, Mundo Nuevo Bilingual Childcare Center, current.
- Junior member, University Senate, Fall 2007-Fall 2008.
- Faculty advisor, Headwaters Ecology Club, current.
- College of Biological Sciences Curriculum Task Force, 2005-2006.
- College of Biological Sciences TA Award Selection Committee, 2003-2009.
- [General] Biology Advisory Board, 2002-present.
- Como Woodland Advisory Board member, current.
- College of Biological Sciences Alumni Society Board member, current.
- District 10 (City of St. Paul) elected representative, 2007-2009.
- Friends of Como Park member.
- Dozens of “thinking like a scientist” presentations/discussions in area K-12 schools

Grants and Awards

- Office of Information Technology (University of Minnesota) Faculty Fellow, 2010-2011.
- Dagley-Kirkwood Undergraduate Education Award, College of Biological Sciences, University of Minnesota, 2009.
- Neighborhood Honor Roll recipient, November 2007, awarded by the City of St. Paul for work on the Como Woodland Advisory Board and Como Woodland Outdoor Classroom, District 10, St. Paul, MN.
- IDEA grant recipient, University of Minnesota Office of Equity and Diversity. 2010-2011.
- PI on NSF-LSAMP grant, “Bridge to Research Experiences for Undergraduates,” February-June 2008, \$15,000.
- Co-PI on one-year grant extension to develop media supplements for “Evolution and Biology of Sex” course, Archibald Bush Foundation, January 2008-January 2009, \$10,000.
- Co-PI on NSF-REU Site Grant: “Global Change Ecology at the Headwaters of the Mississippi,” selected for summers 2008-2010, \$223,923. DBI 0648931.
- Team member (and grant recipient) on the Archibald Bush Foundation Project: “Promoting Student Learning in Large Classes,” 2004-2007.
- Part of a team (with Robin Wright, Mark Borrello, and Cathy Kipper) selected to attend an NSF-sponsored SENCER workshop, Santa Clara (CA), August 2006.
- Selected (along with Mark Decker) to participate in the USDA-sponsored “Bioethics Institute” at Iowa State University May 23-May 27.
- Co-recipient of PSU’s Fund for Excellence in Learning and Teaching (FELT), 2000.

Workshops, Meetings, Presentations

- National Association of Biology Teachers Annual Meeting: “Introductory Biology: It’s Just Not Sexy Enough,” October 2011.
- National Association of Biology Teachers Annual Meeting: “Instructor Gender and Student Confidence in Biology,” October 2011.
- Pearson Strategies for Success Conference, Workshop (invited): “The Slacker’s Guide to Active Lecturing.” April 2010.
- University of Puerto Rico-Cayey, Evolution Seminar Series (invited): “Educational Malpractice: What Happens When We Ignore Evolution in Biology Education?” November 2009.
- Michigan State University, Biology Education Seminar Series (invited): “The Creationist Down the Hall.” April 2009.
- Technology Enhanced Learning seminar (invited): “iTunes U and Beyond: Perspectives of Faculty.” Panelist. November 2008.
- National Association of Biology Teachers Annual Meeting: “Creationism in the High School Biology Classroom: Does It Have an Impact?” with Randy Moore. October 2008.
- Evolution 2008 Workshop (invited). “Preparing Students for College Biology.” With Mark Decker and Randy Moore. June 2008.
- Friday noon seminar (EEB, CBS, U of MN): “Sex sells, but can it teach?” February 2008.
- College of Veterinary Medicine seminar (invited): “A slacker’s guide to in-class assessment,” September 2007.
- Teaching Enrichment Series (invited/workshop): “A slacker’s guide to in-class assessment,” August 2007.
- Enriching the Academic Experience of College Science Students, May 2007 (Ann Arbor, MI), presented: “Student-Faculty interactions: from the field to the classroom and college community.”
- Best Practices Institute plenary (invited talk for the University of Minnesota’s Allied Health Sciences Education meeting, May 2007): “What *are* they thinking? A slacker’s guide to in-class assessment.”
- Academy of Distinguished Teachers Conference, University of Minnesota, April 2007. Co-presented: “Changing Minds: Identifying, Challenging and Correcting Misconceptions.”
- College of Veterinary Medicine seminar (invited): “Notes from the front lines: Active lecturing versus traditional format in introductory biology,” March 2007.
- Focusing on the First Year, Fall 2006 (Minneapolis, MN), Co-presented: “The Nature of Life: A Freshman Orientation Course That Builds Community, Teaches Strategies for Success in College, and Introduces the Disciplines of Biology.”
- Science Education for New Civic Engagements and Responsibilities (SENCER) Summer Institute, August 2006 (Santa Clara, CA), presented: “Biology, Society & the Environment: A Course for Developing Science Literacy in Liberal Arts Majors.”
- Enriching the Academic Experience of College Science Students, May 2006 (Ann Arbor, MI), Co-presented: “The Nature of Life: A Freshman Orientation Course That Builds Community, Teaches Strategies for Success in College, and Introduces the Disciplines of Biology.”
- National Association for Research in Science Teaching (NARST), April 2002 (New Orleans), presented: “The Penn State Biology Project: Student Perceptions in Lecture and Interactive Computer Tutorials.”

- National Association for Research in Science Teaching (NARST), April 2002 (New Orleans), presented: “The Penn State Biology Project: Student Engagement in Lecture and Interactive Computer Tutorials.”
- Society for Integrative and Comparative Biology, January 2002 (Anaheim, CA), presented: “Getting beyond the large-class problem: Can we better tailor education to the individual student?”