
SEHOYA COTNER-PUBLICATIONS

Academic Rank

- Associate Professor, Department of Biology Teaching and Learning, College of Biological Sciences, University of Minnesota-Twin Cities
- Graduate Faculty, Department of Curriculum and Instruction, College of Education and Human Development, University of Minnesota-Twin Cities

Education

B.S.	North Carolina State University Raleigh, NC Biological Sciences	1992
Ph.D.	University of Minnesota St Paul, MN 55108 Conservation Biology	1999

Positions/Employment

University of Minnesota-Twin Cities Associate Professor (with tenure)	2019-current
University of Minnesota-Twin Cities Associate Professor	2015-current
University of Bergen (Norway) Adjunct Professor II	2016-current
University of Minnesota-Twin Cities Teaching Assistant/Associate Professor	2002-2015
The Pennsylvania State University-University Park Instructional Faculty	1999-2002

University of St Thomas (St Paul, MN) Adjunct Faculty	1999
Hamline University (St Paul, MN) Center for Global Environmental Education Education Specialist	1998-1999

Current Membership in Professional Organizations

- National Association of Biology Teachers (NABT)
- Society for the Study of Evolution (SSE)
- Course-based undergraduate research experience network (CUREnet)
- National Association for Research in Science Teaching (NARST)
- Society for the Advancement of Biology Education Research (SABER)

HONORS AND AWARDS

University of Minnesota

- Morse Undergraduate Teaching Award, 2014.
- GLBTA (Gay, Lesbian, Bisexual, Transgender Ally Community, University of Minnesota) Breaking the Silence Award, 2014.
- President's Distinguished Faculty Mentoring Program, University of Minnesota, 2010-current.
- GLBTA (Gay, Lesbian, Bisexual, Transgender Ally Community, University of Minnesota) Faculty Leadership Award, 2012.
- Office of Information Technology (University of Minnesota) Faculty Fellow, 2010-2011.
- Dagley-Kirkwood Undergraduate Education Award, College of Biological Sciences, University of Minnesota, 2009.

External Sources

- National Association of Biology Teachers (NABT) University Biology Teaching Award, 2016.
- 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.

- 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.

RESEARCH, SCHOLARSHIP, AND CREATIVE WORK

Grants and Contracts

External Sources

Received at the University of Minnesota:

- PI, NSF-RCN, "Equity and Diversity in Undergraduate STEM," 2019-2023, \$497,543.00.
- Work Package Lead [akin to Co-PI], (Vigdis Vandvik, PI), Norwegian Research Council, "Research and Education Partnership in Climate Change Impacts on Terrestrial Ecosystems," 2018-2020, ~\$700,000.00 in USD.
- PI, (Julie Brown, Co-PI), NSF-IUSE, "Building Excellence in Scientific Teaching," 2017-2020, \$291,481.00.
- PI, (Cissy Ballen, Co-PI), NSF-RCN, "Equity and Diversity in Undergraduate STEM," 2017-2018, \$49,100.00.
- Senior Personnel (Adam Gordon, PI), NSF-SBIR, "Collaborative game approach to support classroom instruction of difficult-to-teach science concepts," 2017-2019, \$728,284.00.
- Co-PI, (Gillian Roehrig, PI), NSF-DUE, "A Study on Promoting Reflective and Equitable Practice through Science Teacher Induction," 2015-2018, \$800,000.
- PI, UTNAM (Norway), "Mobility grant: From Practice to Publication: Sharing BioCEED Excellence Through Discipline-Based Educational Research," 2016-2017, 142296 NOK (~\$17,000.00).
- PI, CURE.net grant, "Course-based Undergraduate Research Experiences for Non-majors," workshop to be convened June 2016 in Minneapolis, \$11,380.

- PI, NSF-IUSE: “Integrated Science Education for Discovery in Introductory Biology,” 2014-2019, \$1,892,788.
- Co-PI (James Cotner, PI), NSF-REU: “Global Change Ecology at the Headwaters of the Mississippi River,” 2008-2010, \$223,923.

University Sources

- PI (with Deena Wassenberg), UMN Libraries Affordable Content mini-grant (round II), “The Evolution and Biology of Sex On-line Textbook Initiative,” January 2019, \$1500
- PI, Institute on the Environment mini-grant, “Developing a course-based undergraduate research experience (CURE) using high-resolution data from Itasca State Park,” May 2018, \$3000.
- PI (with Deena Wassenberg), UMN Libraries Affordable Content mini-grant, “The Evolution and Biology of Sex On-line Textbook Initiative,” May 2018, \$1500
- Co-PI (with George Heimpel, PI, and Julia Ponder), Institute on the Environment mini-grant, “Invasive species in the Galapagos Islands - Challenges and Solutions,” June 2015, \$3000.
- PI, North Star STEM Alliance grant, “Bridge to Research Experiences for Undergraduates,” February-June 2008, \$15,000.
- Co-PI (with JD Walker, CEI) 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.
- Team member (and grant recipient) on the Archibald Bush Foundation Project: “Promoting Student Learning in Large Classes,” 2004-2007, \$10,000.

Publications

Books

- Cotner, S. and Moore, R. 2018. Evolution Education in Galápagos, *in* Hasan Deniz and Lisa Borgerding, eds, and Evolution Education around the Globe, Springer: New York, NY.
- Cotner, S. Evolution and Biology of Sex, 7th edition (lab manual). 2019. bluedoor: Minnesota.
- Moore, R. and Cotner, S. 2013. Understanding Galápagos—What You’ll See and What It Means, McGraw-Hill: New York, NY.

- Reviewed in NCSE Reports by Kenneth Saladin, November-December 2014.
- Reviewed by Swen Lorenz, Director of the Charles Darwin Foundation: <http://www.galapagos.org/blog/understanding-galapagos/>
- Cotner, S., *Kempnich, M. and *Kleinschmidt, J. 2012, Video Podcasts Add Life to General Zoology, *in* Duin, Nater, and Anklesauria, eds, Cultivating Change in the Academy-- 50+ Stories from the Digital Frontlines, University of Minnesota, open-source ebook.
- Cotner, S. and Moore, R. 2011. Arguing for evolution: an encyclopedia for understanding science. Greenwood Press: Westport, CT.
- Moore, R., Decker, M.D. and Cotner, S. 2009. No prospect of an end: a chronology of the evolution-creationism controversy. Greenwood Press: Westport, CT.
 - Recipient of the Outstanding Reference Source Award, given by the Reference User Services Association (a division of the American Library Association)

Refereed Journal Articles

***indicates undergraduate co-authors**

Note: I detail my involvement for each article since 2015.

2020

- Salehi, S., Cotner, S., and Ballen, C. "Variation in incoming academic preparation: consequences for minority and first-generation students." In review.
 - I funded the postdoc (Ballen) during this work, and wrote ~20% of the final submission.
- Patrick, L., Barron, H., Brown, J., and Cotner, S. "Building Excellence in Scientific Teaching: What is the BEST Way to Train Teaching Assistants?" In revision.
 - I funded this work (graduate student and postdoc), consulted on conception of the manuscript, and wrote ~5% of the final submission.

- Barron, H., Brown, J., and Cotner, S. "The Culturally Responsive Science Teaching Practices of Undergraduate Biology Teaching Assistants." In review.
 - I funded this graduate-student thesis work, consulted on conception of the manuscript, and wrote ~5% of the final submission.
- Gonsar, N., Patrick, L., and Cotner, S. Active Learning Experiences and Perceptions—Do Graduate Students Differ from Undergraduates? In review.
 - I helped conceive of this work, develop the surveys and obtain necessary permissions, and funded the postdoc and graduate student co-authors. I wrote ~30% of the final submission.
- Cotner, S., Walker, J.D., Jørgensen, C., Jenö, L., and Vandvik, V. Gender gaps in the performance of Norwegian biology students: The roles of test anxiety & science confidence. In revision.
 - I helped conceive of this work, develop the surveys, and write the manuscript. I wrote ~30% of the final submission.
- Cotner, S. (2020). Using *C. elegans* to Test the Adaptive Significance of Sexual Outcrossing, 41, 1-10.
- Aguillon, S. M., Siegmund, G., & Petipas, R. H. (2020). Gender Differences in Student Participation in an Active-Learning Classroom, 1-10. <https://doi.org/10.1187/cbe.19-03-0048>
 - I helped conceive of this work, funded the postdoc who trained the TAs, and funded the TA observations. I wrote ~5% of the final submission.
- *Yonas, A., *Sleeth, M., & Cotner, S. (2020). In a "Scientist Spotlight" Intervention, Diverse Student Identities Matter †. *Journal of Microbiology & Biology Education*, 21(1).
 - This work arose from my participation on an HHMI-sponsored Faculty Fellows program. Azariah Yonas and Maggie Sleeth are undergraduate students in my lab; they did the data grooming and qualitative coding for the study. I wrote ~75% of this manuscript.
- Patrick, L., Thompson, S., Halbritter, A. H., Enquist, B. J., Vandvik, V., Cotner, S., & Biology, E. (2020). Adding Value to a Field-Based Course with a Science Communication Module on Local

Perceptions of Climate Change. *The Bulletin of the Ecological Society of America*, 00(0), 1-13. <https://doi.org/10.1002/bes2.1680>

- I am co-PI on the grant that funded this work, and responsible for the development of the science-communication module described in the manuscript. I wrote ~50% of the final submission.
- Seth K. Thompson, Julie Brown, Sehoia Cotner, Jonathan Andicoechea, FangFang Zhao, G. R. (2020). Design Features of an Effective and Theoretically Grounded Training Program for Undergraduate Teaching Assistants in the Life Sciences. *International Journal of Designs for Learning*, 11(1), 59-74.
 - I initiated the TA training program that is detailed in this manuscript, and collaborated on assessment of the pilot effort. I wrote ~10% of the final submission.

2019

- Barron, H., Patrick, L., Brown, J., and Cotner, S. What's troubling you? Examining how teaching assistants talk about pedagogical concerns. In review.
 - I am PI on the grant that funded this work, and oversee the development of the culturally responsive aspects of the TA training program. I wrote ~5% of this manuscript.
- Cotner, S. Engaging Non-scientists with the Evolution and Biology of Sex. In review.
 - This paper, written in essay format, frames the development of Biology 1003 in the current dialogue about science literacy, and how best to teach non-STEM majors the basic elements of biology. I am reporting on a course I developed and have been teaching and assessing for over 10 years, thus all work is mine.
- Hebert, S., Blum, J., Wassenberg, D., Marks, D., Barry, K., and Cotner, S. Open-inquiry vs. broadly relevant short-term research experiences for non-biology majors. In review.
 - I am the PI on the grant that funded this work. I helped conceive of the project, and wrote ~20% of the final submission.

- Hebert, S. And Cotner S. A comparison of majors' and non-majors' incoming science process skills. *American Biology Teacher* 81(8), 554-560.
 - I am the PI on the grant that enabled this work. I collaborated with S Hebert to plan the study, and I wrote ~30% of the final submission.
- Henning, J., Ballen, C., *Molina, S. and Cotner, S. Hidden identities shape student perceptions of active learning environments. *Frontiers in Education*, 4 (November). <https://doi.org/10.3389/feduc.2019.00129>
 - I secured the necessary permissions to conduct this work, helped write the survey instruments and manuscript, and identified the student population. I wrote ~25% of the final submission.
- Salehi, S., Cotner, S., Azarin, S. M., Carlson, E. E., Driessen, M., Ferry, V. E., ... Ballen, C. J. (2019). Gender performance gaps across different assessment methods and the underlying mechanisms: the case of incoming preparation and test anxiety. *Frontiers in Education*, 4, 107. <https://doi.org/10.3389/FEDUC.2019.00107>.
 - I initiated this multi-disciplinary collaboration, and wrote ~20% of the manuscript.
- Kirkpatrick, C., Schuchardt, A., Baltz, D., and Cotner, S. (2019) Computer-based and Bench-based Undergraduate Research Experiences Produce Similar Attitudinal Outcomes. *CBE–Life Sciences Education*. 2019 18:ar10 DOI:10.1187/cbe.18-07-0112
 - I am the PI on the grant that enabled this work. I was the corresponding author on three rounds of revisions, and wrote ~20% of the final submission.
- Dunk, R., Barnes, M.E., Reiss, M.J., Alters, B., Asghar, A., Carter, B.E., Cotner, S., Glaze, A.L., Hawley, P.H., Jensen, J.L., Mead, L.S., Nadelson, L.S., Nelson, C.E., Pobiner, B., Scott, E.C., Shtulman, A., Sinatra, G.M., Southerland, S.A., Walter, E.M., Brownell, S.E., and Wiles, J.R. (2019) Evolution education is a complex landscape. *Nature Ecology and Evolution* 3:327-329. <http://dx.doi.org/10.1038/s41559-019-0802-9>

- I was invited to contribute to this letter because of my background in evolution education. I reviewed several drafts of the manuscript.
- Ballen, C.J., Aguillon, S.M., Awwad, A., Bjune, A.E., Challou, D., Drake, A.G., Driessen, M., Ellozy, A., Ferry, V.E., Goldberg, E.E., Harcombe, Jensen, W.S., Jørgensen, C., *Koth, Z., McGaugh, S., Mitry, C., Mosher, B., Mostafa, H., Petipas, R.H., Soneral, P.A.G., Watters, S., Wassenberg, D., Weiss, S.L., *Yonas, A., Zamudio, K.R., Cotner, S. (2019) Smaller classes promote equitable student participation in STEM. *BioScience* 10.1093/biosci/biz082
 - I am the PI on the grant that enabled this work, and took a lead role in assembling the collaborative network involved. I also hired CJ Ballen, who took a lead role on writing the manuscript. I planned the study and data collection that led to the findings documented in the paper, and wrote ~10% of the final submission.

2018

- *Neill C, Cotner S, Driessen M, Ballen CJ. Structured Learning Environments are Required to Promote Equitable Participation. *Chem Educ Res Pract* [Internet]. Royal Society of Chemistry; 2018; Available from: <http://pubs.rsc.org/en/Content/ArticleLanding/2018/RP/C8RP00169C>
 - I was the faculty supervisor on the Directed-Research project that led to this manuscript. In addition to revising several drafts, I wrote ~10% of the final submission.
- *Mazur, C., *Galush, T., Moore, R., & Cotner, S. (2018). Primary motivations of tourists visiting Galápagos: do tourists visit the archipelago to learn about evolution?. *Evolution: Education and Outreach*, 11(1), 9.
 - I initiated this work, got the necessary permissions, wrote the survey, and organized the on-site survey collection. I also wrote >50% of the final manuscript.
- Ballen, C. J., Thompson, S. K., Blum, J. E., Newstrom, N. P., & Cotner, S. (2018). Discovery and Broad Relevance May Be Insignificant Components of Course-Based Undergraduate Research

Experiences (CUREs) for Non-Biology Majors. *Journal of microbiology & biology education*, 19(2).

- I am the PI on the grant that enabled this work. I also hired CJ Ballen, who took a lead role on writing the manuscript. I planned the study and data collection that led to the findings documented in the paper, and wrote ~10% of the final submission.
- Featured in Science Editor's Choice: http://science.sciencemag.org/content/360/6396/1417.6?utm_campaign=ec_sci_2018-06-28&et rid=33788969&et_cid=2143730
- Ballen, C. J., Aguilon, S. M., Brunelli, R., Drake, A. G., Wassenberg, D., Weiss, S. L., ... & Cotner, S. (2018). Do Small Classes in Higher Education Reduce Performance Gaps in STEM? *BioScience*, 68(8), 593-600.
 - I identified the collaborators in this multi-institutional study, organized the initial data collection, and helped craft the surveys. I also hired CJ Ballen, who took a lead role on writing the manuscript. I wrote ~10% of the final paper.
 - Featured in The University Network: <https://www.tun.com/blog/smaller-class-sizes-close-performance-gaps-in-science-courses/>
 - Featured in The Chronicle of Higher Education: <https://www.chronicle.com/article/What-Podcasts-Can-Teach-Us/243779>
 - Featured in Higher Education: https://www.insidehighered.com/quicktakes/2018/06/29/class-size-matters?utm_source=Inside+Higher+Ed&utm_campaign=884802b742-DNU_COPY_01&utm_medium=email&utm_term=0_1fcbc04421-884802b742-199688225&mc_cid=884802b742&mc_eid=13a121cdc5
- Sullivan, L. L., Ballen, C. J., & Cotner, S. (2018). Small group gender ratios impact biology class performance and peer evaluations. *PLoS One*, 13(4), e0195129.
 - I designed and implemented the study, collected the data, and wrote ~25% of the manuscript.

- Featured in the Minnesota Daily: <http://www.mndaily.com/article/2018/04/n-sitting-with-women-in-class-may-improve-your-gpa-and-confidence-umn-study-says>
- Ballen, C. J., *Lee, D., Rakner, L., & Cotner, S. (2018). Politics a “Chilly” Environment for Undergraduate Women in Norway. *PS: Political Science & Politics*, 1-6.
 - I initiated the international collaboration, designed the study, and wrote ~25% of the manuscript.

2017

- Cotner, S., & Ballen, C. J. (2017). Can mixed assessment methods make biology classes more equitable?. *PloS One*, 12(12), e0189610.
 - I designed much of the study, and wrote the majority (>50%) of this manuscript.
 - Featured in Nature Jobs blog: <http://blogs.nature.com/naturejobs/2018/07/02/lowering-the-stakes-on-exams-could-help-close-the-gender-gap-in-stem-classes/>
- Ballen, Cissy J., Shima Salehi, and Sehoya Cotner. "Exams disadvantage women in introductory biology." *PloS One* 12.10 (2017): e0186419.
 - I designed much of the study, collected the data, hired CJ Ballen, who took a lead role on writing the manuscript, and wrote ~25% of the paper.
 - Featured in Quartz: <https://qz.com/1109075/the-lack-of-women-in-science-is-down-to-test-taking-anxiety-in-girls/>
- Cotner, S., *Mazur, C., *Galush, T., & Moore, R. (2017). Teaching the tourists in Galápagos: what do Galápagos National Park guides know, think, and teach tourists about evolution?. *Evolution: Education and Outreach*, 10(1), 9.
 - I initiated this work, got the necessary permissions, wrote the survey, and organized the on-site survey collection. I also wrote much (>50%) of the final manuscript.
- Walker, J. D., Wassenberg, D., *Franta, G., & Cotner, S. (2017). What Determines Student Acceptance of Politically Controversial Scientific Conclusions?. *Journal of College Science Teaching*, 47(2), 46-56.

- I developed and administered the surveys used in this work. I also wrote ~25% of the final paper.
- *Neill, C., Cotner, S., & Wisenden, B. (2017). Solar-powered flow-through system for aquatic field studies. *Methods in Ecology and Evolution*, 8(12), 1703-1706.
 - I oversaw the undergraduate research project that led to the development of this system. I was involved with in situ troubleshooting, and wrote ~10% of the final paper.
- Cotner, S., Thompson, S., & Wright, R. (2017). Do Biology Majors Really Differ from Non-STEM Majors?. *CBE–Life Sciences Education*, 16(3), ar48.
 - I developed and administered the surveys used in this work. I analyzed the data, constructed many of the figures, and wrote ~75% of the paper.
- Ballen, C. J., Blum, J. E., Brownell, S., Hebert, S., Hewlett, J., Klein, J. R., ... Cotner, S. (2017). Course-based undergraduate research experiences for non-majors: a meeting report. *CBE–Life Sciences Education*, 16(2), mr2.
 - I wrote the successful grant proposal that funded the meeting from which this report arose. I assisted in collating participant input for the paper. I wrote ~10% of the final manuscript.
- *Galush, T., *Mazur, C., and Cotner, S. (2017). An interesting hermit crab-hydrozoan symbiosis to engage students in course-based research. *CourseSource* 8: 1-8.
 - I developed the course-based undergraduate research experience detailed in this work, and oversaw all aspects of manuscript development. I wrote ~25% of the final submission.
- Ballen, C. J., Danielsen, M., Jørgensen, C., Grytnes, J. A., & Cotner, S. (2017). Norway's gender gap: classroom participation in undergraduate introductory science. *Nordic Journal of STEM Education*, 1(1), 262-270.
 - I initiated the collaboration that led to the work detailed herein. I trained the students that conducted in-class observations. I also wrote and received the Mobility Grant

(from the Norwegian government) that funded CJ Ballen's work in Norway. I wrote ~10% of this paper.

- Cotner, S., Jenö, L.M., and Ballen, C. (2017). Strategies to document active learning practices in biology. *Nordic Journal of STEM Education* 1(1).
 - I initiated the collaboration that led to the work detailed herein. I also wrote and received the Mobility Grant (from the Norwegian government) that funded CJ Ballen's work in Norway. I wrote >75% of this paper.

2016

- Thompson, S., *Neill, C., *Wiederhoeft, E., and Cotner, S. (2016). A model for a course-based undergraduate research experience (CURE) in a field setting. *Journal of Microbiology and Biology Education* 17(3), 469-471.
 - I developed the course described in this work, and collaborated on manuscript developed. I wrote ~25% of the final paper.
- Cotner, S., *Graczyk, H., Rodriguez Garcia, J.L., and Moore, R. (2016). In Galápagos...and uncomfortable with evolution. *Journal of Biological Education* 50(2), 115-119.
 - I initiated this work, got the necessary permissions, wrote the survey, and organized the on-site survey collection. I also wrote much (~50%) of the final manuscript.
- *Pan, T., *Gladden, K., *Duncan, E., Cotner, S., Cotner, J., McEwan, D., and Wisenden, B. (2016). Bold, sedentary minnows have more parasites. *Zebrafish* 13(4), 248-255.
 - I oversaw, with B Wisenden, the undergraduate research projects that led to the findings described herein. I wrote ~10% of the final paper.
- Cotner, S., and Hebert, S. (2016). Bean beetles make biology sexy. *American Biology Teacher* 78 (3), 233-240.
 - I co-developed, with S Hebert, the course-based research experience described in this paper. I also wrote >50% of the paper.
 - ♣ Selected as an NABT BioClub selection.

2014

- Cotner, S., Brooks, D., and Moore, R. (2014). Evolution and student voting patterns. Reports of the National Center for Science Education 34(6), 1-11.
- *Schauer, Cotner, and Moore, Teaching evolution to students with compromised backgrounds and confidence about evolution—is it possible? (2014). The American Biology Teacher 76(2), 93-98.
- Ratcliff, W., *Raney, A., *Westreich, S., and Cotner, S. (2014). A novel laboratory activity for teaching about the evolution of multicellularityThe American Biology Teacher 76(2), 81-87.

2013

- Cotner, *Loper, Walker and Brooks, D. (2013). It's Not You, It's the Room (or, Are the High-Tech, Active Learning Classrooms Worth It?), Journal of College Science Teaching 42(6), 82-88.
- Moore, R. and Cotner, S. (2013). Evolution and Creationism in America's Biology Classrooms, BioLogos Forum, at: <http://biologos.org/blog/teaching-evolution-and-creationism-in-americas-biology-classrooms?showfuture=true#notes>.

2011

- Cotner, S. & Gallup Jr, G.G. (2011). Introductory Biology Labs...They Just Aren't Sexy Enough! Bioscience Education, 18(1), 1-11.
- 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. 20(1), 97-111.
- 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), 222-6.
- Cotner, S., *Ballen, C., Brooks, D.C. and R. Moore. (2011). Instructor Gender and Student Confidence in the Sciences: A Need for More Role Models? Journal of College Science Teaching 40(5), 96-101.

2010

- *Uyehara, I.K., T. Gamble, and S. Cotner. (2010). The presence of ranavirus in anuran population at Itasca State Park, Minnesota, USA. Herpetological Review 41(2), 177-179.

- Cotner, S., Brooks, D.C., and R. Moore. (2010). "Is the age of the earth one of our "sorest troubles"? Students' perceptions about deep time affect their acceptance of evolutionary theory. *Evolution* 64(3), 858-864.

2009

- Moore, R., S. Cotner and *A. Bates. (2009). The Influence of Religion and High School Biology Courses on Students' Knowledge of Evolution When They Enter College. *Journal of Excellence in Teaching (Special Issue on Evolution Education)* 9, 3-11.
- Cotner, S. and R.M. Moore. (2009). The Creationist down the Hall: Does it matter when teachers teach creationism? *BioScience* 59(5), 429-435.
- Wright, R., S. Cotner, and A. Winkel. (2009). Minimal impact of organic chemistry prerequisite on student performance in introductory biochemistry. *CBE-Life Sciences Education* 8(1), 44-54.
- *Rodriquez, 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*.
- Cotner, S. and R.M. Moore. (2009). Rejecting Darwin: The Occurrence and Impact of Creationism in High School Biology Classrooms. *American Biology Teacher*.

2008

- 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), 361-367.
- 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., 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.
- 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.

Non-refereed

- 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.

Presentations**Invited Presentations**

- Scholarship of Teaching and Learning Symposium keynote speaker: "Envisioning more equitable STEM education," Davis, California, December 2019.
- Indiana University Bloomington teaching fellows seminar: "The Course-Deficit Model: Envisioning more equitable STEM education," Bloomington, IN, October 2019.
- International Forum on Active Learning Classrooms invited seminar: "Learning to love the active learning classrooms," Minneapolis, MN, July 2019.
- University of California Riverside evolution, ecology, and organismal biology department seminar: "Envisioning more equitable STEM Education," Riverside, California, May 2019.
- University of California Riverside graduate-student "lunch bunch" seminar: "Low risk, high reward strategies for making your classes more inclusive," Riverside, California, May 2019.
- University of Pennsylvania Active Learning Symposium keynote address: "Low risk, high reward strategies for making your classes more active," Philadelphia, Pennsylvania, May 2019.
- Workshop: "Low risk, high reward strategies for making your classes more inclusive," Oberlin College (Oberlin, Ohio), March 2019.
- Oberlin College biology department seminar: "Envisioning more equitable STEM Education," Oberlin, Ohio, March 2019.
- Workshop: "Building Excellence in Scientific Teaching," Bergen, Norway, October 2018.
- Workshop: "Learning to Love the Active Learning Classrooms," Bergen, Norway, October 2018.

- NTNU seminar speaker: "Research and Teaching in the Active Learning Classrooms," Trondheim, Norway, October 2018.
- Academy of Distinguished Teachers (UMN) plenary talk: "Research and Teaching in the Active Learning Classrooms," September 2018.
- TechKnowfiles featured speaker: "Research and Teaching in the Active Learning Classrooms," Toronto, Canada, May 2018.
- Workshop: "Learning to Love the Active Learning Classrooms," Toronto, Canada, May 2018.
- SonicFoundry Webinar: "Demystifying Active Learning: One Professor's Journey," April 2018.
- College of St. Benedict/St. John's University, seminar speaker: "Course Deficit Model: Envisioning More Equitable Science, Technology, Engineering, and Math (STEM) Education," Collegeville, MN, February 2018.
- Concordia University, seminar speaker: "Getting Started in Discipline-based Educational Research (DBER)," St Paul, MN, February 2018.
- University of Stockholm, seminar speaker: "The Course-Deficit Model Empowers Faculty to Address Performance Gaps in STEM," Stockholm, Sweden, February 2018.
- *EDUCAUSE* Annual Meeting, panelist, "2017: The Year of the Active Classroom," Philadelphia, PA, November 2017.
- University of Bergen Student Center Feature Seminar, "Improving Gender Equity in Science," Bergen, Norway, March 2017 (featured in local news: <http://www.studvest.no/hvor-blir-det-av-kvinnene/>)
- University Center in Svalbard, student-organized seminar speaker: "Improving Gender Equity in Science," Longyearbyen, Svalbard, Norway, March 2017.
- University Center in Svalbard, seminar speaker: "Course-based research experiences turn all students into researchers," Longyearbyen, Svalbard, Norway, March 2017.
- University Center in Svalbard, seminar speaker: "The Teaching Landscape in Biology at UiB," Longyearbyen, Svalbard, Norway, March 2017.
- BioCEED, University of Bergen and the Polar Research Institute (Bergen and Svalbard, Norway) seminar speaker: "The Teaching Landscape in Biology at UiB," Bjornfiorden, Norway, December 2016.

- National Association of Biology Teachers Award Talk: “Barriers to Teaching and Learning Evolution: Getting Beyond the Obvious.” Denver, CO, November 2016.
- University of Puget Sound (WA): “Sex Sells: Using the Evolution and Biology of Sex to Teach the Nature of Science.” Tacoma, WA, November 2016.
- University of Bergen (Norway) Administrative Leaders seminar speaker (invited): “All faculty can become discipline-based educational researchers,” Osoyro, Norway, April 2016.
- Federal University of Rio Grande do Norte (UFRN) seminar speaker (invited) “The evidence for evidence-based teaching,” Natal, Brazil, March 2016.
- Cornell University EvoLearn seminar series (invited) “Getting beyond the obvious—overcoming barriers to teaching and learning evolution,” Ithaca, NY, Feb 2016.
- Institute on the Environment-sponsored workshop (Invasive species in the Galapagos Islands - Challenges and Solutions), June, 2015, St Paul, MN: “Pirates, Scientists, and Other Scoundrels...a history of human impact in Galápagos.”
- Department of Biology, University of Bergen (Norway) seminar speaker (invited): “The evidence for evidence-based teaching,” Bergen, Norway, December 2015.
- Active Learning Workshop: “Low-effort, high-impact strategies for making your class more active,” Bergen, Norway, December 2015.
- BioCEED, University of Bergen and the Polar Research Institute (Bergen and Svalbard, Norway) seminar speaker: “Course-based undergraduate research experiences turn all students into scientists,” Bjornfiorden, Norway, December 2015.
- Departments of Natural Sciences and Education (combined), St. Olaf College (MN), “Research in the Science Classroom (with Catherine Kirkpatrick and Stephen Ekkert),” October 2015.
- Active Learning Workshop (invited to co-lead, with Susan Wick): “Active-Learning Classrooms,” St Norbert College, WI, June 2014.
- Department of Biology, New Mexico State University seminar speaker: “Are the Active-Learning Classrooms Worth the Investment? March 2014.

- Minnesota Atheists Darwin Day seminar: "Are humans still evolving?" February 2014.
- Campus Atheists and Secular Humanists seminar: "Are Humans Still Evolving?" November 2013.
- College of Biological Sciences Bio-Diversity Brown-Bag Series: "What's Diversity Got to Do with Teaching Biology?," November 2013.
- Office of Equity and Diversity (U of Minnesota) Workshop leader: "Diversity in the Curriculum," Fall 2011 and Spring 2013
- Minnesota Atheists Darwin Day seminar: "Fun Myths about Evolution, Exposed," February 2013.
- College of Veterinary Medicine seminar: "Learning to Love the New Active-Learning Classrooms," November 2012.
- Simposio Universitario sobre Educacion Sexual (SUSEX)/University Symposium on Sex Education, University of Puerto Rico-Cayey, "Lo que los estudiantes les interesa y preguntan sobre el sexo," February 2011.
- Visiting Instructor (Evolution in Galápagos), Universidade Federal do Rio Grande do Norte, Natal, Brazil, Fall 2011.
- Pearson Strategies for Success Conference, Workshop: "The Slacker's Guide to Active Lecturing." April 2010.
- University of Puerto Rico-Cayey, Evolution Seminar Series: "Educational Malpractice: What Happens When We Ignore Evolution in Biology Education?" November 2009.
- Michigan State University, Biology Education Seminar Series: "The Creationist Down the Hall." April 2009.
- Technology Enhanced Learning seminar: "iTunes U and Beyond: Perspectives of Faculty." Panelist. November 2008.
- Evolution 2008 Workshop: "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: "A slacker's guide to in-class assessment," September 2007.
- Teaching Enrichment Series: "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."
- College of Veterinary Medicine seminar: "Notes from the front lines: Active lecturing versus traditional format in introductory biology," March 2007.

Contributed Papers

- Society for the Advancement of Biology Education Research (SABER), Minneapolis, MN, July 2019. Ballen, C., Salehi, S., and Cotner, S. Introductory STEM courses fail to address variation in incoming academic preparation: consequences for minority and first-generation students.
- Society for the Advancement of Biology Education Research (SABER), Minneapolis, MN, July 2019. Patrick, L., Barron, H., and Cotner, S. Testing the "cherry-on-top" hypothesis: How important is evidence in convincing TAs to use evidence-based teaching practices?
- Society for the Advancement of Biology Education Research (SABER), Minneapolis, MN, July 2019. Laffin, R., Edstrom, K., Jokinen, M., and Cotner, S. For broadening participation in introductory biology, tackle test anxiety.
- Association of Biology Laboratory Educators (ABLE), Ottawa, Ontario, June 2019. Engaging non-majors with the evolution and biology of sex
- International Society for the Scholarship of Teaching and Learning (ISSOTL), Bergen, Norway, October 2018. The "Course Deficit Model"—envisioning more equitable science, technology, engineering, and math (STEM) education.
- International Society for the Scholarship of Teaching and Learning (ISSOTL), Bergen, Norway, October 2018. Cotner, S., Halbritter, A., Patrick, L., Enquist, B., and Vandvik, V. A Culturally Relevant Course-Based Research Experience (CRE) for Graduate Students.
- International Society for the Scholarship of Teaching and Learning (ISSOTL), Bergen, Norway, October 2018. Cotner, S., Dahl, T.,

- Eidesen, P.B. Hebert, S., and Stübner, E.I. Course-based research experiences (CREs) at 78 degrees North.
- Society for the Advancement of Biology Education Research (SABER), Minneapolis, MN, July 2018. Ballen, C.J., and Cotner, S. Can mixed assessment methods make biology classes more equitable?
 - Society for the Advancement of Biology Education Research (SABER), Minneapolis, MN, July 2018. Ballen, C.J., and Cotner, S. Research Coordination Networks (RCN) as a model for globally distributed experiments in science equity research.
 - Gordon Research Conference on Undergraduate Biology Education, Easton, MA, July 2017. Cotner, S. and Ballen, C.J. Do exams disadvantage women? The case for mixed methods of assessment and active learning.
 - Gordon Research Conference on Undergraduate Biology Education, Easton, MA, July 2017. Ballen, C.J., Salehi, S., and Cotner, S. Exams disadvantage women in introductory biology.
 - Society for the Advancement of Biology Education Research (SABER), Minneapolis, MN, July 2017. Hebert, S. and Cotner, S. Are non-majors less skilled in their capacity to do science than majors?
 - Society for the Advancement of Biology Education Research (SABER), Minneapolis, MN, July 2017. Schuchardt, A., Kirkpatrick, C., Baltz, D., Cotner, S., Wright, R. Computational URE's versus Wet Bench URE's: Design Features and Comparison of Student Experiences.
 - National Association for Research in Science Teaching (NARST) annual meeting, co-hosted a symposium: "Biology Education Research at NARST—opportunities for all," San Antonio, TX, April 2017.
 - MNT Conference: "Documenting the Teaching Landscape in Biology at UiB," Oslo, Norway, March 2017.
 - ASLO Annual Meeting: "Reef Check Eco-divers Make Course-Based Research Broadly Relevant," Honolulu, HI, February 2017.
 - AAU STEM Network Conference: "STEM Initiatives at the University of Minnesota," October 2015.
 - National Association of Biology Teachers Annual Meeting: "Using Sex and Live Organisms to Engage Non-Majors Biology Students," November 2013.
 - University of Minnesota's Academy of Distinguished Teachers Fall Meeting: "Active Learning Classrooms," October 2013.

- National Forum on Improving Undergraduate Education Through Active Learning Spaces: "Learning to Love the New Active-Learning Classrooms," August 2013.
 - National Association of Biology Teachers Annual Meeting: "Teaching Evolution and the Nature of Science Using the Primary Literature," November 2012.
 - National Association of Biology Teachers Annual Meeting: "Why Do College Students Know About Sex? Does It Matter?," November 2012.
 - 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.
 - National Association of Biology Teachers Annual Meeting: "Creationism in the High School Biology Classroom: Does It Have an Impact?" with Randy Moore. October 2008.
 - Academy of Distinguished Teachers Conference, University of Minnesota, April 2007. Co-presented: "Changing Minds: Identifying, Challenging and Correcting Misconceptions."
 - 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 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?"
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TEACHING AND CURRICULUM DEVELOPMENT

***Indicates courses I developed**

University of Minnesota

- *Biology of the Galápagos (study abroad experience): Biology 4950 (S'08-S'18)
- *Foundations of Biology Field Course: Biology 3004 (S'15)
- *Tropical Reef Ecology (study abroad experience): Biology 4950 (J-term - 2007-current)
- *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)
- *Evolution and Biology of Sex (non-majors introductory biology): Biology 1003 (F'07-current)
- *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'12)
- *Field Zoology: Biology 2812 (S'11)
- *Biology, Society, and the Environment: Biology 1105 (Sp'04-Sp'10)
- Animal Diversity: Biology 2005 (Sp'03-F'10)
- *Teaching in the Biology Labs: Biology 4201 (F'05- 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 - current)

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)

ADVISING AND MENTORING

Undergraduate Student Activities

- Samantha Brandt, Summer 2019, Hidden identities impact perceptions of active-learning pedagogies.
- Ryan Laffin, Spring 2019, Student perceptions of test-anxiety interventions.
- Azariah Yonas, Spring 2019, Using the power of story to impact students’ stereotypes about who does science.
- Neelam Chandirami, Spring 2019, Teaching assistant’s challenges with international students in the classroom.
- Lauren Nguyen, Fall 2018, Barriers students with disabilities face in STEM laboratory settings.
- Zoe Koth, Fall 2018, Gender-biased evaluations of teaching assistants.
- Kirstin Lawstuen, Summer 2018, Impact of the “Biology Saves the World” program on student identity.
- Sergio Molina, Spring 2018, Impact of the “Biology Saves the World” program on student identity.
- Christine Lian, Spring 2018, The influence of TA gender on student impressions
- McKenna Adler, Fall 2017, Developing and assessing an online teaching module for Reef Check’s Ecodiver program
- Jake Peterson, Fall 2017, The role of allowing re-take exams in minimizing test anxiety and performance gaps in introduction biology
- Connor Neill, Fall 2017, Gender-biased participation in chemistry laboratory courses
- Morgan Burkhardt, Spring 2017, Faculty perceptions of majors versus non-majors students
- Mai Vang, Fall 2016, Biased participation, as a function of group sex-ratio, in Biology Courses
- Olivia Trudeau, Fall 2016, Biased participation in Biology courses
- Clay Mazur, Fall 2015, Knowledge and perceptions of evolution in Galápagos
- Alyssa Axelrod, Fall 2015. Bean beetles, sex ratios, and sexual orientation

- Tiffany Galush, Spring 2015. The hydrozoan *Hydractinia* as a model organism for marine-biology course-based undergraduate research
- Nicholas Vang, Fall 2014, Utility of the traveling marine touch-tank in engaging K-12 students in the process of science
- Paul Leingang, Fall 2014, Impact of elevated CO₂ concentrations on *Aurelia aurita* scyphistoma.
- Erika Senyk, Fall 2013, A novel laboratory for investigating the impacts of climate change on coral growth
- Hawi Teizazu, Spring 2013, Using bean beetles to investigate evolution (in the high-school biology laboratory)
- Allison Raney and Samuel Westreich, Spring 2012, Development of a novel teaching laboratory investigating the evolution of multicellularity
- Michael Kempnich, Spring 2012, Student-generated vodcasts in General Zoology
- 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

Graduate Student Activities

Master's Student Advisees

- Marcus Gabrawy, 2012/2013, Master's of Biological Sciences (*C. elegans* as a model for investigating Red Queen predictions in the introductory-biology laboratory)
- Cathy Hoffman, 2012/2013, Master's of Biological Sciences (investigating different strategies for teaching in novel learning spaces)

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- Michael Jarcho, 2014, Master's of Biological Sciences (impacts of a video tutorial on student performance in Biology 2004)

Doctoral Students Advised

- Ngawang Gonsar, current, PhD candidate in Curriculum and Instruction (CEHD)
- Jonathan Andicoechea, current, PhD candidate in Curriculum and Instruction (CEHD)
- Hillary Barron, PhD in Curriculum and Instruction (CEHD)
- Seth Thompson, PhD in Water Resources Science (CFANS)

Post-doctoral fellows supervised

- Seth Thompson, current (starting July 2019)
- Cissy Ballen, 2016-2018, currently an Assistant Professor at Auburn University (Alabama)
- Lorelei Patrick, 2017-2019, currently an Assistant Professor at Fort Hays State University (Kansas)
- Sadie Hebert, 2012-2014, HHMI post-doctoral fellow (bean beetles in the introductory-biology laboratory), currently a Research Scientist in the Department of Biology Teaching and Learning, UMN

Other Mentoring Activities

- Faculty supervisor, Headwaters Ecology Club, current
- Faculty supervisor, Marine Biology Club, current

SERVICE AND PUBLIC OUTREACH**Service To The Discipline****Associate Editor**

- *Ecology and Evolution*

Reviewer Experience

- Science
- Studies in Higher Education
- American Biology Teacher
- Journal of Biological Education
- Cell Biology Education-Life Sciences Education
- PLoS ONE

- PLoS Biology
- Evolution Education and Outreach
- Journal of College Science Teaching
- Nordic Journal of STEM Education
- International Journal of STEM Education

Committee memberships

- Professional Development Committee Member, National Association of Biology Teachers, 2015-2018.
- ISSOTL proposal reviewer, current.

Service To The University/College/Department**University-wide**

- Classroom Advisory Subcommittee, 2020-current.
- Biology, Society and the Environment Program Advisory Board Member, 2017-current.
- Academy of Distinguished Teachers outreach committee, 2019-current.
- Morse teaching award selection committee, 2016-2020.
- Faculty representative, eContent Committee, University of Minnesota, 2012-2013.
- Junior member, University Senate, Fall 2007-Fall 2008.

Collegiate

- Chair, Learning Technologies Committee, College of Biological Sciences, 2012.
- College of Biological Sciences TA Award Selection Committee, 2003-2009.
- [General] Biology Advisory Board, 2002-2005.
- College of Biological Sciences Alumni Society Board member, 2010-2012.

Department

- Advisory board, Marine Biology Minor, 2015-current.
- Director, Marine Biology Minor, 2013-2015.
- College of Biological Sciences Curriculum Task Force, 2005-2006.

Public And Other Service

- Science Museum of Minnesota, "Age of the Earth" activity for Darwin Day (invited)
- Science Museum of Minnesota, "Traveling Touch Tank" invited visits
- Collaborative work with students and faculty at Great River Montessori Charter School in St Paul, ongoing.
- Collaborative work with students and faculty at New Millenium Charter School in Minneapolis, ongoing.
- Collaborative work with students and faculty at Adams Spanish Immersion Public School in St Paul, ongoing.
- Board Member, Mundo Nuevo Bilingual Childcare Center, current.
- Como Woodland Advisory Board member, 2008-1010.
- 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