Sara E. Brownell

Assistant Professor, School of Life Sciences, Arizona State University
Lab website: http://sebbers.wix.com/biology-ed-lab

Education:

- **Stanford University, Stanford CA, 2007-2011**
  - Ph.D. in Biological Sciences, August 2011
    - Concentration: Neuroimmunology
    - Advisor: Dr. Lawrence Steinman
  - M.A. in Education, March 2011
    - Concentration: Undergraduate biology education
    - Advisor: Dr. Rich Shavelson
- **The Scripps Research Institute, La Jolla CA, 2004-2007**
  - M.S. in Biology, September 2007
    - Concentration: Molecular and Integrative Neuroscience
    - Advisor: Dr. Tamas Bartfai
- **Cornell University, Ithaca NY, 2000-2004**
  - B.S. in Biological Sciences, May 2004
    - Concentration: Neurobiology and Behavior
    - Magna Cum Laude

Appointments:

- **Assistant Professor in the School of Life Sciences**
  - Arizona State University, Tempe AZ, January 2014- current
    - Research focus: Undergraduate biology education
    - Affiliated faculty: Center for Biology and Society, Center for Evolution and Medicine
- **Postdoctoral Scholar in Biology Education**
  - University of Washington, Seattle WA, 2013
    - Concentration: Undergraduate biology education
    - Advisors: Dr. Scott Freeman and Dr. Alison Crowe
- **Postdoctoral Scholar in Science Education**
  - San Francisco State University, San Francisco CA, 2012
    - Concentration: Undergraduate biology education
    - Advisor: Dr. Kimberly Tanner
- **Lecturer in Biology**
  - Stanford University, Stanford CA, 2011- 2012

Honors and Awards:

- Awarded ASU's highest college-level teaching award, Zebulon Pearce teaching award, 2017
- Awarded ASU's School of Life Sciences Excellence in Teaching award, 2017
- Awarded ASU's Faculty Women's Association Award for Outstanding Faculty Mentor, 2017
- Selected by students based on teaching as an honorary member of Golden Key Honor Society, 2015
- Awarded ASU's Centennial Teaching Award, university-wide pre-tenure teaching award, 2015
- Fellow for Arizona State University's Lincoln Center for Applied Ethics, 2015
- Awarded "Most Influential Faculty" by a Student-Athlete, Sai Tummala, 2015
- Finalist for Maryellen Weimer Scholarly Work on Teaching and Learning Award, 2014
- Awarded Stanford Biology Student Services Award, Departmental Service Award, 2012
- Alzheimer's Drug Discovery Foundation Outstanding Young Investigator Award, 2011
- Awarded Walter J. Gores Teaching Award, Stanford University's highest teaching award, 2010
- Awarded Stanford School of Medicine Award for Outstanding Teaching Assistant, 2009

- Awarded Excellence in Teaching Award, Stanford Department of Biology, 2008
- Stanford Graduate Fellowship, 2008-2011
- National Science Foundation Graduate Fellowship, 2005-2008
- Scripps Research Institution Bagel Fellowship, 2004-2005

Research Experience:

- **Faculty Research, Arizona State University, 2014-present**
  Research interests focus on improving undergraduate biology education, specifically course-based undergraduate research experiences, programmatic assessment, and issues related to equity and access for women, religious students, LGBTQIA students, and transfer students.
- **Postdoctoral Research, University of Washington, 2013**
  Worked under the direction of Dr. Scott Freeman and Dr. Alison Crowe on two projects: (1) to establish departmental learning goals and articulate the core concepts of Vision and Change for a general biology major and (2) explore student conceptions of experimental design.
- **Postdoctoral Research, San Francisco State University, 2012**
  Worked in Dr. Kimberly Tanner's SEPAL lab on the role of faculty professional identity in faculty pedagogical change.
- **Ph.D. Thesis Research, Stanford University, 2007-2011**
  Worked in a translational molecular and cellular neuroimmunology laboratory focused on the therapeutic potential of small heat shock proteins in mouse models of multiple sclerosis and stroke.
- **M.A. Thesis Research, School of Education, Stanford University, 2008-2011**
  Evaluated the comparison of traditional biology lab courses to a set of newly designed course-based undergraduate research experiences embedded into introductory biology lab courses.
- **M.S. Thesis Research, The Scripps Research Institute, 2005-2007**
  Worked in a molecular neuroscience laboratory focused on cytokines, temperature regulation, and obesity.

Fellowships and Grants:

Funded national awards

- **National Science Foundation (NSF) Improving Undergraduate STEM Education (IUSE) Award**
  Establishing evidence-based curricula for evolutionary medicine. $298,034 total funded September 2017 as a PI (Co-PIs: Nesse R, Grunspan D). Recognition: 50%
- **National Science Foundation (NSF) Research Coordination Network Undergraduate Biology Education (RCN UBE)**
  Course-based Undergraduate Research Network 2. $499,925 total funded August 2017 as a Co-PI (PI: Dolan E at University of Georgia). Recognition: 100% for ASU's portion of $31,169.
- **National Science Foundation (NSF) Scholarships in Science, Technology, Engineering, and Math (S-STEM) Award**
  Making the LEAP from transfer student to research scientist. Collaborative grant exploring transfer student success in undergraduate research in science. $999,965 total funded January 2017 as a PI (Co-PIs: Zaniewski A, Harnett H). Recognition: 60%.
- **National Science Foundation (NSF) Improving Undergraduate STEM Education (IUSE) Award**
  Learning from Dialog versus Monolog Videos. Collaborative grant exploring the benefit of students watching videos outside of class with either an instructor alone or watching videos of other students talking with an instructor. $249,995 total funded September 2015 as a Co-PI (PI: Chi M). Recognition: 20%

- **National Science Foundation (NSF) Transforming Undergraduate Education in STEM (TUES) II Award**
  Navigating from Vision to Change with BioMaps. Collaborative grant on the development of programmatic assessments aligned with Vision and Change. $528,452 total funded September 2013 as a Co-PI (PI: Smith M, Knight J, Crowe A); $110,810 as subcontract to ASU as a PI. Recognition at ASU: 100%
- **CUREnet national grant for working groups**
  Collaborative mini-grant funded through a NSF RCN-UBE grant to explore faculty involvement and interest in course-based research experiences. $3,900 total funded December 2013 as a PI. Recognition: 100%
- **National Science Foundation (NSF) Graduate Research Fellowship**, 2005-2008
  Awarded $90,000 total stipend, plus tuition support.

Funded internal institutional awards

- **School of Life Sciences Bottom-Up Seminar Series Funding**
  Funded by the School of Life Sciences to continue the Evidence-based Teaching in STEM seminar series. $5700. Funded May 2016.
- **Center for Evolution and Medicine Research Grant**
  Funded by the Center for Evolution and Medicine to research undergraduate biology students' conceptions of acceptance of evolution. $1600. Funded April 2016.
- **Lincoln Center for Applied Ethics Proposal Funding**
  Funded by the Lincoln Center to explore ethics surrounding undergraduate research experiences. $7,000. Funded July 2015.
- **School of Life Sciences Bottom-Up Seminar Series Funding**
  Funded by the School of Life Sciences to develop an Evidence-based Teaching in STEM seminar series. $6,300. Funded May 2015.
- **Centennial Teaching Award Funding for Teaching**
  Project stipend to improve the quality of instruction at ASU specifically in active learning classrooms. $5,000. Funded April 2015.
- **Stanford Graduate Fellowship in Science and Engineering**, 2008-2011
  Most prestigious internal fellowship at Stanford. $96,600 total stipend, plus tuition support.
- **Stanford University Vice Provost of Undergrad Education Curriculum Development Grant**
  Authored grant to assess the Department of Biology Honors Program. $3,500. Funded Nov 2011.
- **Stanford University Center for Teaching and Learning TA training Grant**
  Authored grant to support Biology Laboratory TA Training program. $2,500. Funded June 2011.
- **Stanford University Vice Provost of Undergrad Education Curriculum Development Grant**
  Authored grant to support the course Imm185 "Brain and Immune System." $3,000. Funded Nov 2008.
- **Stanford University Center for Teaching and Learning TA training Grant**
  Authored grant to support Biology Advisors TA Training program. $2,500. Funded June 2008.
- **The Scripps Research Institute's Bagel Fellowship**, 2004-2005
  Awarded $24,000 total stipend, plus tuition support.

Submitted and pending national award

- Training biology education researchers. Submitted 1/2017 as a PI to the National Science Foundation Research Coordination Network- Undergraduate Biology Education (RCN-UBE) program. Requested amount: $497.370. Recognition: 50%

- Exploring bias in undergraduate biology exams. Submitted 11/2016 as a Co-PI to the National Science Foundation (NSF) Improving Undergraduate STEM Education (IUSE) program. Requested amount: $241,036. Recognition: 50%

Peer Reviewed Journal Articles

*The standards of the biology education research field are that the senior lead author is the last author of the publication and the first author is the trainee or person who conducted the majority of the research. Trainees are underlined: # denotes graduate student, ^ denotes undergraduate student, and + denotes postdoctoral scholar. Italics indicate when I am corresponding author and * indicates co-first author. I have had 30 peer-reviewed journal publications since arriving at ASU, including 16 total publications with a trainee as a first author (14 total graduate student authorships, 4 total undergraduate authorships, and 4 total postdoctoral authorships). My h-index is 21, i10 index is 27, and I have 1441 total citations.*

In press/accepted

50. Barnes ME#, ***Brownell SE***. Teaching evolution at a Christian University: Experiences and practices of Christian evolution instructors that can inform Religious Culturally Competent Evolution Education (ReCCEE). Science Education. In press.

49. Barnes ME#, ***Brownell SE***. A call to use cultural competence when teaching evolution to religious undergraduate students: Introducing Religious Cultural Competence in Evolution Education (ReCCEE). CBE Life Sciences Education. In press.

48. Ashley M^*, Cooper KM#*, Cala JM#, ***Brownell SE***. Building better bridges into STEM: A synthesis of 25 years of literature on STEM summer bridge programs. CBE Life Sciences Education. In press. (*these authors contributed equally).

47. Barnes ME#, Evans EM, Hazel A, **Brownell SE**, Nesse RM. College Students with High and Low Acceptance of Evolution Demonstrate Equal Learning Gains in a Course on Evolution and Medicine. Evolution Education and Outreach. Accepted for publication with minor revisions.

Published

2017

46. Jordt H, Eddy SL, Brazil R, Lau I, Mann C, **Brownell SE**, King K, Freeman S. Eliminating the achievement gap in an undergraduate biology class using a values affirmation intervention. CBE Life Sciences Education. September 2017. http://www.lifescied.org/content/16/3/ar41.full

45. Cooper KM#, Soneral P, ***Brownell SE*.** Design your goals before you develop your CURE. A call to use backward design in planning course-based undergraduate research experiences. Journal of Microbiology and Biology Education. August 2017. http://www.asmscience.org/content/journal/jmbe/10.1128/jmbe.v18i2.1287

44. Shortlidge EE+, Bangera G, ***Brownell SE***. To each their own CURE: Faculty perspectives on motivations, benefits, and recommendations for course-based undergraduate research experiences. Journal of Microbiology and Biology Education. August 2017.
http://www.asmscience.org/content/journal/jmbe/10.1128/jmbe.v18i2.1260

43. Cooper KM[#], Ashley M[^], ***Brownell SE*.** Using expectancy value theory as a framework to reduce student resistance to active learning: a proof of concept. Journal of Microbiology and Biology Education. August 2017. http://www.asmscience.org/content/journal/jmbe/10.1128/jmbe.v18i2.1289

42. Ballen CJ, Blum JE, **Brownell SE**, Hebert S, Hewlett J, Klein JR, McDonald EA, Monti DL, Nold SC, Slemmons K, Soneral P, Cotner S. A call to develop course-based undergraduate research experiences (CUREs) for nonmajor courses. CBE Life Sciences Education. June 2017. http://www.lifescied.org/content/16/2/mr2.full

41. Schinske J, Balke VL, Bangera G, Bonney KM, **Brownell SE**, Carter RS, Curran-Everett D, Dolan EL, Elliott SL, Fletcher L, Gonzalez B, Gorga JJ, Hewlett JA, Kiser SL, McFarland JL, Misra A, Nenortas A, Ngeve SM, Pape-Lindstrom PA, Seidel SB, Tuthill MC, Yin Y, Corwin LA. Broadening Participation in Biology Education Research (BER): Engaging Community College Students & Faculty. CBE Life Sciences Education. June 2017. http://www.lifescied.org/content/16/2/mr1.full

40. Cooper KM[#], Ashley M[^], ***Brownell SE***. A Bridge to Active Learning: A Summer Bridge Program Helps Students Maximize Their Active-Learning Experiences and the Active-Learning Experiences of Others. CBE Life Sciences Education. March 2017. http://www.lifescied.org/content/16/1/ar17.full

7th most read article in CBE Life Sciences Education in the second month it was published

39. Barnes ME[#], Truong J[^], ***Brownell SE***. Experiences of Judeo-Christian students in undergraduate biology. CBE Life Sciences Education. March 2017. http://www.lifescied.org/content/16/1/ar15.full

Commentary:
S. Leander (2017) Evolution and religion: Finding middle ground in the biology classroom. ASU Now

2nd most read article in CBE Life Sciences Education in the first month it was published

38. Cooper KM[#], Haney B[#], Krieg A[^], ***Brownell SE***. What's in a name? The importance of students perceiving an instructor knows their names in a high enrollment biology classroom. CBE Life Sciences Education. March 2017. http://www.lifescied.org/content/16/1/ar8.full

Commentary:

M. Weimer (2017) The Importance of Learning Students' Names. Faculty Focus blog

A. Krieg (2017) What's the Point of Using Student Names in Large Courses? ASU SOLS Teachtech blog

Highlighted in STEM PROF newsletter. I Got a Name: Why It Matters that Instructors Know Student Names

8th most read in CBE Life Sciences Education in the first month it was published

37. Barnes ME[#], Elser J, ***Brownell SE***. Impact of a Short Evolution Module on Students' Perceived Conflict between Religion and Evolution. American Biology Teacher. February 2017. http://abt.ucpress.edu/content/79/2/104

Commentary:
R. Lloyd (2017) Dissent with Modification: Soothing Evolution–Religion Tensions in the Classroom. Scientific American

R. Lloyd (2017) Scientists Work on Public Trust. Undark blog

M. Puniewska (2017) There's a Strategy to Persuade Climate Change Deniers. Tonic
S. Leander (2017) Evolution and religion: Finding middle ground in the biology classroom. ASU Now

J. Krell (2017) Resolving the conflict between evolution and religion. ASU Center for Evolution and Medicine news

Interviewed by BBC Science in Action about this article and by Phoenix NPR affiliate KJZZ about this article

Most read article in American Biology Teacher in the first month it was published

2016

36. Shortlidge EE[+], **Brownell SE**. How to assess your CURE: A practical guide for instructors of course-based undergraduate research experiences. Journal of Microbiology and Biology Education. December 2016. http://www.asmscience.org/content/journal/jmbe/10.1128/jmbe.v17i3.1103

Highlighted in the 2017 Spotlight issue of JMBE as an exemplary article

35. Hekmat-Scafe D, **Brownell S**, Chandler PS, Malladi S, Imam J, Singla V, Bradon N, Cyert M, Stearns T. Using yeast to determine the functional consequences of mutations in the human p53 tumor suppressor gene: An introductory course-based undergraduate research experience in molecular and cell biology. Biochemistry and Molecular Biology Education. November 2016. http://onlinelibrary.wiley.com/doi/10.1002/bmb.21024/full

34. Cooper KM[#], ***Brownell SE***. Coming out in class: The challenges and opportunities of active learning for LGBTQIA students in an undergraduate biology class. CBE Life Sciences Education as part of the Broadening Participation Special Issue. September 2016. http://www.lifescied.org/content/15/3/ar37.full

Commentary:
S. Leander (2016) 'Coming out' in the classroom, but not by choice. ASU Now news.

T. Pedersen (2016) Interactive Classrooms May Push LGBT Students to "Come Out" Before They Are Ready. PsychCentral

K. Cooper (2016) How Instructors Can Make Their Active Learning Classrooms More Inclusive to Members of the LGBTQIA Community. ASU SOLS Teachtech blog

3rd most read in CBE Life Sciences Education in the first month it was published

33. Hsu J, Wrona A, **Brownell SE**, Khalfan W. Exploration enhances education: single session research-based courses promote undergraduate research involvement and provide teaching opportunities for graduate students and postdocs. Journal of College Science Teaching. July/August 2016.
http://media.wix.com/ugd/98a1a0_e471e7e1ce9c4303800c788e3a82fd88.pdf

32. Eddy SL* and **Brownell SE***. Beneath the numbers: A review of gender disparities in undergraduate education across science, technology, engineering, and math disciplines. Physics Review: Special Topics Physics Education Research: Gender in Physics. August 2016. (*these authors contributed equally).
http://journals.aps.org/prper/abstract/10.1103/PhysRevPhysEducRes.12.020106#fulltext

Commentary:
R. Skibba (2016) Women in physics face big hurdles — still. Nature news

31. Wright CW[+], Eddy SE, Wenderoth MP, Abshire E, Blankenbiller M, ***Brownell SE***. Cognitive difficulty and format of exams predicts gender and socioeconomic gaps in exam performance of students in introductory biology courses. CBE Life Sciences Education. June 2016. http://www.lifescied.org/content/15/2/ar23.full

Highlighted as one of five featured articles from the June 2016 issue of CBE Life Sciences Education

Commentary:
S. Leander (2016) Gender gap discovered in science-exam performance. ASU Now news

M. Benz (2016) Women Underperformed Men in High Level Critical Thinking Examinations. MedicalResearch.com

News staff (2016) Gender gap discovered in science exam performance: test difficulty may be the cause. Science Daily.

J. Marczyk (2016) Sexism, Testing, And "Academic Ability." Psychology Today Pop Psychology blog

6th most read in CBE Life Sciences Education in the first month it was published

30. Barnes ME[#], ***Brownell SE***. Practices and Perspectives of College Instructors on Addressing Religious Beliefs When Teaching Evolution. CBE Life Sciences Education. June 2016.
http://www.lifescied.org/content/15/2/ar18.full

Commentary:
S. Leander (2016) Evolution and religion: New insight into instructor attitudes in Arizona. ASU Now

Phys.org, Science Daily, Creation Evolution Headlines, Science 2.0, Richard Dawkins Foundation for Reason and Science, and Lutheran Alliance for Faith, Science, and Technology

6th most read in CBE Life Sciences Education in the first month it was published

29. Grunspan DZ*, Eddy SL*, **Brownell SE**, Wiggins B, Crowe AJ, and Goodreau SM. Male millennials overestimate the ability of other males in introductory biology. PloS One. Feb 2016. (*these authors contributed equally). http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0148405

Selected by Science Magazine as an Editor's Choice for Education

Commentary:
The Atlantic, The Washington Post, University of Washington Today News, Inside Higher Education, US News, Huffington Post, Teen Vogue, Jezebel, Bustle, Revelist, Vox, Glamour, Yahoo news, Educational Advisory Board, Headline news, Oxygen, Identities.com, Wonkett, and The Onion.

Article in top 25% of cited articles in PloS One in 2016

~47,000 article views one year after it was published

28. Shortlidge EE[+], Bangera G, ***Brownell SE***. Faculty Perspectives on Developing and Teaching Course-based Undergraduate Research Experiences. BioScience. January 2016.
http://bioscience.oxfordjournals.org/content/early/2015/12/04/biosci.biv167.abstract

Commentary:
J. Krell (2016) ASU study shows lab courses benefit faculty, as well as students. ASU news.

2015

27. Eddy SL*, ***Brownell SE***, Thummaphan P, Lan M, Wenderoth MP. Caution, student experience may vary: Social identities impact a student's experience in peer discussions. CBE Life Sciences Education. December 2015. (*these authors contributed equally). http://www.lifescied.org/content/14/4/ar45.full

Highlighted as one of five featured articles from the December 2015 issue of CBE Life Sciences Education

Commentary:
C. Wright (2015) The Impact of Active Learning on Different Genders. ASU SOLS Teachtech blog

26. ***Brownell SE***, Hekmat-Scafe DS, Singla V, Seawell PC, Conklin-Imam JF, Eddy SL, Stearns T, and Cyert MS. A high enrollment course-based undergraduate research experience improves student conceptions of scientific thinking and ability to interpret data. CBE Life Sciences Education. June 2015. http://www.lifescied.org/content/14/2/ar21.full

Featured in the 2015 Highlights issue of CBE Life Sciences Education as an exemplar of life sciences education research

Highlighted in the journal Genetics as an Education Highlight

Highlighted on the CUREnet website, a national organization focused on course-based undergraduate research experiences

Highlighted on the University of Wisconsin Madison Educational Innovation website

25. ***Brownell SE**** and Kloser MJ*. Toward a conceptual framework for measuring the effectiveness of course-based undergraduate research experiences in undergraduate biology. Studies in Higher Education. March 2015. (*these authors contributed equally). http://www.tandfonline.com/doi/full/10.1080/03075079.2015.1004234

Highlighted on CUREnet website, a organization focused on course-based undergraduate research experiences

2014

24. Bangera G* and **Brownell SE*.** Course-based undergraduate research experiences can make scientific research more inclusive. CBE Life Sciences Education. December 2014. (*these authors contributed equally). http://www.lifescied.org/content/13/4/602.full

Highlighted in the journal Genetics as an Education Highlight

Highlighted on American Geophysical Union Blogosphere

Highlighted on PULSE community website. Highlighted on American Society for Cell Biology's Office Hours with EdComm. Highlighted on New Mexico Highlands University Achieving in Research, Math and Science (ARMAS) in Education Center website. Highlighted on Livingston College STEM Undergraduate Program to Promote Opportunities in Research and Training (SUPPORT) website.

Commentary:
Jenna Richter (2015) Course-based undergraduate research experiences can make scientific research more inclusive. Center for Teaching Development, UCSD.

23. Eddy SL*, **Brownell SE***, Wenderoth MP. Gender gaps in achievement and participation in multiple introductory biology classrooms. CBE Life Sciences Education. September 2014. (*these authors contributed equally) http://www.lifescied.org/content/13/3/478.full

Selected for Science Magazine as an Editor's Choice for Education

Highlighted in a NY Times OpEd on education "Is college lecturing biased?"

Highlighted on PULSE community website

Commentary:
S. Leander (2014) Study shows gender gaps remain in introductory science classrooms. ASU news.

C. Weller (2014) Gender gap in science continues, despite most biology majors being female. Medical Daily.

News staff (2014) How to get women to participate more in biology classes. Science 2.0

Interviewed by ASU Cronkite news about this article

22. ***Brownell SE***, Freeman S, Wenderoth MP, Crowe AJ. BioCore Guide: A tool for interpreting the core concepts of Vision and Change. CBE Life Sciences Education. June 2014.
http://www.lifescied.org/content/13/2/200.full

Highlighted as one of five featured articles for June 2014 issue of CBE Life Sciences Education

Most read in CBE Life Sciences Education in the first month it was published

Highlighted in the Vision and Change: Chronicling Change, Inspiring the Future Report

Highlighted on the websites for the National Science Foundation (NSF), American Institute for Biological Sciences (AIBS), PULSE community, Southeast Regional PULSE (SERP), and Oberlin College's Bio 100 syllabus.

Highlighted in Current Biology news story "Breathing fresh life into life science education"

Commentary:
S Leander (2014) ASU Researcher Leads National Effort to Transform Biology Education. ASU News

21. ***Brownell SE*****,** Wenderoth MP, Theobald R, Okoroafor N, Koval M, Freeman S, Walcher-Chevillet CL, and Crowe AJ. How students think about experimental design: novel conceptions revealed by in-class activities. BioScience. February 2014. http://bioscience.oxfordjournals.org/content/64/2/125.full

-------Arrived at ASU January 2014------

2013 and earlier

20. **Brownell SE**, Kloser MJ, Fukami T, and Shavelson R. Context matters: volunteer bias, small sample size, and the value of comparison groups in the assessment of research-based undergraduate introductory lab courses. Journal of Microbiology and Biology Education. December 2013.
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3867754/

Highlighted on Biology Scholars Research Residency website

19. **Brownell SE**, Price JV, and Steinman L. Science communication to the general public: Why we need to teach undergraduate and graduate students this skill as part of their formal scientific training. Journal of Undergraduate Neuroscience Education. October 2013.
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3852879/

Commentary:
S.H. Joo (2015) Communicating science to the general public. Student blog assignment for a course at Ryerson University

Forbes article "Study Re-Emphasizes: If You Want To Advance Science, Try Explaining It More Simply"

18. **Brownell SE,** Price JV, and Steinman L. A writing –intensive course improves biology undergraduates' perception and confidence of their abilities to read scientific literature and communicate science. Advances in Physiology Education. March 2013. http://advan.physiology.org/content/37/1/70

17. Kloser MJ*, **Brownell SE***, Shavelson R, Fukami T. Effects of a Research-based Ecology Lab Course: A study of nonvolunteer achievement, self-confidence, and perception of lab course purpose. Journal of College Science Teaching. January/February 2013. (*these authors contributed equally)
http://media.wix.com/ugd/98a1a0_595a17d8dbaa410a82c888227226b2f4.pdf

16. **Brownell SE**, Khalfan W, Bergmann D, Simoni R. Explorations: A research-based program that provides unique teaching opportunities for graduate students while introducing undergraduates to diverse research topics in biology. Journal of College Science Teaching. January/February 2013.
http://media.wix.com/ugd/98a1a0_33b6c7ebc40b440cbc7cea73ca1fb0f2.pdf
15. **Brownell SE**, Tanner KD. Barriers to Faculty Pedagogical Change: Lack of Training, Time, Incentives, and … Tensions with Professional Identity? Cell Biology Education- Life Sciences Education (CBE-LSE). December 2012. http://www.lifescied.org/content/11/4/339.full

5th most cited article in CBE Life Sciences Education out of all articles published since 2004

Finalist for Maryellen Weimer Scholarly Work on Teaching and Learning Award

Featured in 2013 Highlights issue of CBE LSE as an exemplar of life sciences education research

Highlighted as one of five featured articles in December 2012 issue

Highlighted in National Research Council report "Reaching Students"

Highlighted in Current Biology news story "Breathing fresh life into life science education"

Highlighted on PULSE community website and NSF's WIDER Program Solicitation

Commentary:
C.M. Buddle (2013) How "professional baggage" may be a key barrier in changing how we teach. Personal blog

L. Johnson (2013) Barriers to change? Australian Council of Deans of Science Teaching and Learning Centre

L.A. Moran (2015) Why can't we teach properly? Personal blog

Anonymous (2015) What is the relationship between teaching and learning? Personal blog

14. **Brownell SE***, Kloser MJ*, Fukami T, Shavelson RJ. Undergraduate biology lab courses: Comparing the impact of traditionally-based 'cookbook' and authentic research- based courses on student lab experiences. Journal of College Science Teaching. March/April 2012. (*these authors contributed equally)
http://media.wix.com/ugd/98a1a0_846ecd5fe8d44a30bd4fe77a34e8bd49.pdf

Commentary:
McClure M (2011) Ditch the cookbook: Stanford's biology pilot project shows benefits from nontraditional lab class. Stanford Report.

Passaelli J (2013) Out of the cookbook and into the field. Stanford Teaching Commons.

13. Kloser MJ*, **Brownell SE***, Chiariello NR, Fukami T. Integrating teaching and research in undergraduate biology laboratory education. PLoS Biology. November 2011. (*these authors contributed equally)
http://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.1001174

Scientific Publications

12. Steinman L, Axtell RC, Barbieri D, Bhat R, **Brownell SE**, de Jong B, Dunn SE, Grant JL, Han MH, Ho PP, Kuipers HF, Kurnellas MP, Ousman SS, Rothbard J. Piet Mondrian's trees and the evolution in understanding multiple sclerosis, Charcot Prize Lecture 2011. Multiple Sclerosis. 2013. Jan 9.

11. **Brownell SE***, Kurnellas MP*, Su L, Malkovskiy AV, Rajadas J, Dolganov G, Chopra S, Schoolnik GK, Sobel RA, Webster J, Ousman SS, Becker RA, Steinman L, Rothbard J. Chaperone activity of small heat shock proteins underlies therapeutic efficacy in experimental autoimmune encephalomyelitis. Journal of Biological Chemistry. 2012. Oct 19. (*these authors contributed equally)

10. Han MH, Lundgren DH, Jaiswal S, Chao M, Graham KL, Garris CS, Axtell RC, Ho PP, Lock CB, Woodard JI, **Brownell SE**, Zoudilova M, Hunt JF, Baranzini SE, Butcher EC, Raine CS, Sobel RA, Han DK, Weissman I, Steinman L. Janus-like opposing roles of CD47 in autoimmune brain inflammation in humans and mice. Journal of Experimental Medicine. 2012. June 25.

9. **Brownell SE**, Becker R, Steinman L. The protective and therapeutic function of small heat shock proteins in neurological diseases. Frontiers in Immunology Review. 2012. May 1.

8. Rothbard J*, Kurnellas M*, **Brownell SE**, Adams C, Su L, Axtell RC, Chen R, Fathman G, Robinson WH, Steinman L. Therapeutic effects of systemic administration of the chaperon alpha B crystallin associated with binding pro-inflammatory plasma proteins. Journal of Biological Chemistry. 2012. Feb 3. (*these authors contributed equally)

7. **Brownell SE***, Arac A*, Rothbard J, Chen C, Ko R, Pereira M, Albers G, Steinman L, Steinberg G. Systemic augmentation of αB crystallin provides therapeutic benefit twelve hours post-stroke onset via immune modulation. Proceeding of the National Academies of Science (PNAS). 2011. July 26. (*these authors contributed equally)

Commentary:
Collins N (2011) Stroke drug could reduce brain damage 12 hours later. The telegraph

Goldman B (2011) Scientists discover potential stroke treatment that may extend time to present brain damage. Inside Stanford Medicine.

6. **Brownell SE** and Conti B. Age and gender-specific changes of hypocretin immunopositive neurons in C57Bl/6 mice. Neuroscience Letters. 2010. Feb 1.

5. Osborn O, Sanchez-Alavez M, **Brownell SE**, Ross B, Klaus J, Dubins J, Beutler B, Conti B, and Bartfai T. Metabolic Characterization of a Mouse Deficient in All Known Leptin Receptor Isoforms. Cell Mol Neurobiol. 2009. Jul 7.

4. Osborn O, **Brownell SE**, Sanchez-Alavez M, Salomon D, Gram H, and Bartfai T. Treatment with an Interleukin 1 beta antibody improves glycemic control in obesity. Cytokine. 2008. Aug 22.

3. Conti B, Tabarean I, Sanchez-Alavez M, Davis C, **Brownell SE**, Behrens M, and Bartfai T. Cytokine receptors in the brain. Chapter in book: Cytokines and the Brain, Volume 6 (NeuroImmune Biology). 2008.

2. Sanchez-Alavez M, Klein I, **Brownell SE**, Tabarean I, Davis CN, Conti B, and Bartfai T. Night eating and obesity in the EP3R-deficient mouse. Proceedings of the National Academies of Science (PNAS). 2007. 104(8): p. 2009-14.

Commentary:
Schrope M (2007) Team discovers a chemical pathway that cuases mice to overeat and gain weight. The Scripps Research Institute News and Views.

1. Conti B, Sanchez-Alavez M, Winsky-Sommerer R, Morale MC, Lucero J, **Brownell S**, Fabre V, Huitron-Resendiz S, Henriksen S, Zorrilla EP, de Lecea L, Bartfai T. Transgenic mice with a reduced core body temperature have an increased life span. Science. 2006. Nov 3; 314 (5800): 825-8.

Commentary:
Pearson H (2006) Cool mice live longer. Nature News.

Markey S (2006) "Cooler" mice live longer, study finds. National Geographic News.

Under peer review after revision

Summers MM, **Brownell SE**, Couch BA, Crowe A, Knight J, Semsar K, Wright CD[+], Smith MK. EcoEvo-MAPS: An ecology and evolution assessment for introductory and advanced undergraduates. Under re-review at CBE Life Sciences Education. (10%)

Barnes ME[#], Truong J[^], ***Brownell SE***. Can a 6-minute module decrease students' perceived conflict between religion and evolution? Under re-review at American Biology Teacher. (100%)

Submitted and under peer review

Cooper KM[#], Krieg A[^], ***Brownell SE***. Who perceives they're smarter? Exploring the influence of student characteristics on student academic self-concept in physiology. Under review at Advances in Physiology Education. (100%)

Grunspan D[+], Nesse R, Barnes ME[#], ***Brownell SE***. A consensus set of core principles for evolutionary medicine. Under review at Evolution, Medicine, and Public Health. (75%)

Cooper KM[#], Ashley M[^], ***Brownell, SE***. Breaking down barriers: A bridge program helps first year biology students become comfortable and make connections with faculty. Under review at the Journal of College Science Teaching. (100%)

Professional Leadership:

Biology Education Research is an applied field with an active group of people and funding agencies that are interested in promoting national transformation of undergraduate biology education. Discussions and decisions about undergraduate education are almost exclusively done at the national level since other countries have different educational systems. I have been an invited participant to 15 small invite-only working group meetings of national leaders in the field, six of which have resulted in meeting reports/books of the proceedings. These working groups are often establishing national standards and open questions for the field.

- Invited member for 10-person Advanced Placement (AP) Biology Development Committee (one of three higher education representatives) that decides the content of the AP Biology exam administered to ~240,000 high school students, 2016-present
- Invited reviewer for National Academies report "Undergraduate Research Experiences for STEM Students: Successes, Challenges, and Opportunities," 2016
- Invited Scholar-in-Residence at University of Texas at Austin, 2015
- Invited Discussion Leader for Gordon research meeting on Undergraduate Biology Education Research, 2015
- Advisory board member, NSF IUSE grant Longitudinal Study of Early Career Faculty (FIRST IV former postdocs), 2017-present
- Invited Panelist/committee member for 15 small invite-only national meetings/working groups:
    - 2017 Unpacking a Movement: Lessons Learned from Vision & Change meeting
    - 2017 NSF-funded EMBER (Environments and Metrics in Biology Education and Research) conference on promoting inclusion in undergraduate biology education
    - 2017 National Academies panel for report launch of "Undergraduate Research Experiences for STEM Students: Successes, Challenges, and Opportunities"
    - 2017 NSF-funded STEM Institute for Inclusive Teaching (SIIT) planning committee that planned the curriculum and assessment for a summer institute focused on promoting faculty inclusive teaching practices
    - 2016 HHMI Constellation Studio focused on course-based research experiences that resulted in a meeting report https://www.hhmi.org/sites/default/files/PPDF16_SummaryReport_030917_1.pdf
    - 2016 NSF-funded Cognitive Science-Discipline Based Education Research conference that resulted in a meeting report
    - 2016 NSF-funded Course-based undergraduate research experiences assessment
    - 2016 NSF-funded Course-based undergraduate research experiences for non-majors meeting that resulted in a peer-reviewed meeting report in CBE Life Sciences Education http://www.lifescied.org/content/16/2/mr2.full

- 2015 National Academies Convocation on Discovery-based Education that resulted in a National Report "Integrating Discovery-Based Research into the Undergraduate Curriculum: Report of a Convocation" https://www.nap.edu/catalog/21851/integrating-discovery-based-research-into-the-undergraduate-curriculum-report-of
- 2015 National Association of Biology Teachers (NABT) NSF-funded meeting on introductory biology
- 2015 NSF-funded Building capacity for community colleges in biology education research that resulted in a peer-reviewed meeting report in CBE Life Sciences Education http://www.lifescied.org/content/16/2/mr1.full
- 2014-2015 Gates Foundation-funded Social Science Research Council project on assessment in undergraduate biology that resulted in a book "Improving Quality in American Higher Education"
- 2014 HHMI course-based research experiences (CRE) assessment meeting
- 2014 NSF-funded Faculty Developers Network meeting
- 2014 NSF-funded Conceptual Assessments in Biology (CAB) meeting

Presentations:

150 total presentations (139 of these presentations have been since arriving at ASU). I have been invited to give 19 plenary-style talks at national conferences and meetings, 23 invited seminars at institutions, and 80 of these presentations are by postdoctoral trainees, graduate students, or undergraduates.

19 invited plenary-style invited talks at the following venues:

19. Gordon Conference on Undergraduate Biology Education, "Who gets to participate in undergraduate research and how course-based undergraduate research experiences can make scientific research more inclusive," Easton MA, July 2017.

18. POGIL (Process-oriented Guided Inquiry Learning) national meeting, "Hidden inequities in active learning classrooms: How groups of students are differentially impacted by active learning," St Louis MO, June 2017.

17. Society of Experimental Biology international meeting, "Opportunities associated with course-based undergraduate research experiences (CUREs)," Gothenburg Sweden, June 2017.

16. Biology Leadership Conference (BLC), "Opportunities associated with course-based undergraduate research experiences (CUREs)," Tucson AZ, February 2017.

15. Society for the Advancement of Biology Education Research (SABER) West coast regional meeting, "How to assess your course-based undergraduate research experience (CURE)," Irvine CA, January 2017.

14. Community College Undergraduate Research Initiative (CCURI) national meeting, "Assessment of course-based undergraduate research experiences," Glendale AZ, November 2016.

13. HHMI constellation studio on implementing course-based research experiences at scale, "Assessment of course-based undergraduate research experiences," Chevy Chase MD, November 2016.

12. American Society for Microbiology Conference on Undergraduate Education, "How to Assess your Course-based Undergraduate Research Experience," Bethesda MD, July 2016.

11. American Society for Microbiology Conference on Undergraduate Education, "Opportunities and Tension Points Associated with Integrating Teaching and Research in Undergraduate Biology Lab," Bethesda MD, July 2016.

10. American Society for Microbiology Conference on Undergraduate Education, "So You Transformed your Class to Active Learning – How do you assess the impact of active learning on students?," Bethesda MD, July 2016.

9. Society for the Advancement in Biology Education Research, "Opportunities and Tension Points Associated with Course-based Undergraduate Research Experiences," Minneapolis MN, July 2016.

8. Course-based Undergraduate Research Experience Summer Institute, "Course-based Undergraduate Research Experiences: What, why, and how?," Austin TX, June 2016.

7. American Society for Microbiology Microbe as part of a symposium Developing the Next Gen Scientist: The Role of Course Based Research in the Undergraduate Curriculum, "Faculty perspectives on course-based undergraduate research experiences," Boston MA, June 2016.

6. Course-based Undergraduate Research Experience Summer Institute, "Opportunities associated with course-based undergraduate research experiences," Austin TX, June 2015.

5. Midwest Great Plains PULSE regional meeting, "Navigating from Vision to Change: Tools to help biology departments align curriculum with the core concepts of biology," St. Louis MO, June 2015.

4. Botanical Society national meeting Vision and Change symposium, "Integrating teaching and research in undergraduate biology lab courses," Boise ID, July 2014.

3. Southeast Regional PULSE Institute, "Course-based Undergraduate Research Experiences (CUREs): Definition, Outcomes, and Assessment," Richmond VA, June 2014.

2. Southeast Regional PULSE Institute, "Professional Identity as a Barrier to Faculty Pedagogical Change," Richmond VA, June 2014.

1. Course-based Undergraduate Research Experiences Network (CUREnet) meeting, "Course-based Undergraduate Research Experiences (CURE) Assessment Methods," Cold Spring Harbor NY, April 2014.

23 invited seminars at the following departmental or teaching seminar series:

23. European Molecular Biology Laboratory Equality and Diversity Committee's Inspirational Seminar, "Building inclusive and fair classrooms: Spotting sources of bias in biology classrooms," July 2017.

22. University of Heidelberg Center for Organismal Studies seminar, "Hidden inequities in the classroom: Using data to uncover differential impacts on students in active learning classrooms," July 2017.

21. University of Tennessee Knoxville Department of Ecology and Evolutionary Biology seminar, "Hidden inequities in active learning classrooms: How groups of students are differentially impacted by active learning," March 2017.

20. University of Cincinnati STEM Education seminar, "Opportunities and Tension Points Associated with Course-based Undergraduate Research Experiences," March 2017.

19. University of Cincinnati STEM Education seminar, "Hidden inequities in active learning classrooms: How groups of students are differentially impacted by active learning," March 2017.

18. University of Georgia Genetics Department seminar, "Hidden inequities in active learning classrooms: How groups of students are differentially impacted by active learning," March 2017.

17. Rochester Institute of Technology (RIT) Science and Mathematics Education Research Collaborative seminar, "Hidden inequities in active learning classrooms: How groups of students are differentially impacted by active learning," March 2017.

16. San Francisco State University Department of Biology seminar, "Hidden inequities in active learning classrooms: How groups of students are differentially impacted by active learning," December 2016.

15. Stanford University Department of Biology and Center for Teaching and Learning seminar, "Hidden inequities in active learning classrooms: How groups of students are differentially impacted by active learning," December 2016.

14. Stanford University Department of Biology and Center for Teaching and Learning seminar, "Opportunities and Tension Points Associated with Course-based Undergraduate Research Experiences," December 2016.

13. ASU West School of Mathematical & Natural Sciences seminar, "Hidden inequities in active learning classrooms: How groups of students are differentially impacted by active learning," September 2016.

12. ASU Tempe Evidence-based teaching in STEM seminar, "Hidden inequities in active learning classrooms: How groups of students are differentially impacted by active learning," September 2016.

11. Maricopa Community College Institute for Learning Research seminar, "An overview of biology education research," April 2016.

10. Portland State University Department of Biology seminar, "Hidden inequities in active learning classrooms: How groups of students are differentially impacted by active learning," April 2016.

9. University of California San Diego Science of Teaching seminar, "Integrating teaching and research in undergraduate biology lab courses," December 2015.

8. University of Washington Department of Biology seminar, "Integrating teaching and research in undergraduate biology lab courses," November 2015.
7. University of Texas Austin Freshman Research Initiative (FRI) seminar, "Promoting equity in undergraduate biology lab courses," June 2015.

6. The Ohio State University Center for Life Science Education seminar, "Integrating teaching and research in undergraduate biology lab courses," March 2015.

5. The Ohio State University Center for Life Science Education seminar, "BioCore Guide: A tool to interpret the core concepts of Vision and Change for general biology majors," March 2015.

4. University of Minnesota College of Biological Sciences seminar, "From traditional lectures to active learning: Persistent gender differences in large introductory biology classrooms," November 2014.

3. ASU Active Learning Symposium invited talk, "From traditional lectures to active learning: Persistent gender differences in large introductory biology classrooms," March 2014.

2. Willamette University iScience conference invited talk, "Navigating from Vision to Change: Development of a framework for core concepts in biology for graduating biology majors," November 2013.

1. Stanford Graduate School of Education Science Education Group invited talk, "Barriers to faculty pedagogical change," March 2013.

28 peer-reviewed invited presentations at the following venues where I was primary presenter:

28. Society for the Advancement of Biology Education Research (poster), "Who perceives they're smarter? Exploring the influence of gender, transfer student status, and native English speaking on student academic self-concept in physiology," Minneapolis MN, July 2017.

27. Higher Education Teaching and Learning (HETL) Conference on Creating Inclusion and Diversity in Higher Education (talk), "Hidden inequities in active learning classrooms: How groups of students are differentially impacted by active learning," Paisley Scotland, June 2017.

26. National Association for Research in Science Teaching (NARST) (talk), "Instructional Practices of Evolution Instructors at Christian Universities," San Antonio TX, April 2017.

25. National Association for Research in Science Teaching (NARST) (interactive poster symposium Biology Education Research (BER) at NARST), "Coming out in Life (Sciences): LGBTQIA faculty experiences in Biology," San Antonio TX, April 2017.

24. American Association for the Advancement in Science (AAAS) (talk), "How can we teach evolution to religious students who may be resistant?" Boston MA, February 2017.

23. Biology Leadership Conference (BLC) (poster), "What's in a name? The importance of student perceptions of an instructor knowing their names in a high enrollment biology course," Tucson AZ, February 2017.

22. Society for the Advancement of Biology Education Research (SABER) West coast regional meeting (talk), "BioCore Guide: A tool to interpret the core concepts of Vision and Change for general biology majors," Irvine CA, January 2017.

21. Society for the Advancement of Biology Education Research (SABER) West coast regional meeting (workshop), "Building inclusive and fair classrooms: Spotting sources of bias in biology classrooms," Irvine CA, January 2017.

20. American Society for Cell Biology (poster), "Coming out in class: The challenges and opportunities of active learning for LGBTQIA students in an undergraduate biology class," San Francisco CA, December 2016.

19. American Society for Microbiology Conference on Undergraduate Education (poster), "A bridge to active learning: A summer bridge program helps students to maximize active learning experiences and the active learning experiences of others," Bethesda MA, July 2016.

18. Experimental Biology (poster), "Navigating from Vision to Change: Tools to Help Biology Departments Align Curriculum with the Core Concepts of Biology," San Diego CA, April 2016.

17. American Society for Cell Biology national meeting (talk), "The development and validation of tools to help biology departments navigate from Vision to Change," San Diego CA, December 2015.

16. Association for American Colleges and Universities national STEM Education meeting (talk), "Align Your Curriculum to Vision and Change Using the BioCore Guide and BioMaps Programmatic Assessment," Seattle WA, November 2015.

15. Gordon Research Conference: Undergraduate Biology Education Research (poster), "A high enrollment course-based undergraduate research experience improves student conceptions of scientific thinking," Lewiston ME, July 2015.

14. Life Discovery Science Meeting (talk), "BioCore Guide: A Tool for Interpreting the Core Concepts of Vision and Change," San Jose CA, October 2014.

13. Society for the Advancement in Biology Education Research (SABER) national meeting (talk), "BioCore Guide: A tool to interpret the core concepts of Vision and Change for general biology majors," Minneapolis MN, July 2014.

12. Experimental Biology national meeting (talk), "Building a learning progression of undergraduate students' conceptions of two important aspects of experimental design: sample size and repetition of experiments," San Diego CA, April 2014.

11. Experimental Biology national meeting (poster), "BioCore Guide: an interpretation of the core concepts of vision and change for general biology majors San Diego CA," April 2014.

10. Course-based Undergraduate Research Experiences Network (CUREnet) national meeting (workshop), "Faculty perspectives on developing course-based undergraduate research experiences," Cold Spring Harbor Labs NY, April 2014.

2013 and earlier (prior to coming to ASU)

9. Vision and Change: Chronicling Change Meeting (poster), "Navigating from Vision to Change: Curriculum assessment in University of Washington's Department of Biology," Washington DC, August 2013.

8. American Society for Biochemistry and Molecular Biology: Student-centered Education in the Molecular Life Sciences Meeting (poster), "Navigating from Vision to Change: Curriculum assessment in University of Washington's Department of Biology," Seattle WA, July 2013.

7. Society for the Advancement of Biology Education Research (SABER) Meeting (talk), "In-class activities on experimental design reveal undergraduate students' conceptions of sample size and repetition of experiments," Minneapolis MN, July 2013.

6. Society for the Advancement of Biology Education Research (SABER) Meeting (poster), "Navigating from Vision to Change: Curriculum assessment in University of Washington's Department of Biology," Minneapolis MN, July 2013.

5. American Society for Cell Biology (ASCB) Meeting (poster), "Integrating teaching and research in a research-based introductory biology laboratory curriculum: results of a three-year comparison evaluation," San Francisco CA, December 2012.

4. Society for the Advancement of Biology Education Research (SABER) Meeting (poster), "The impact of a writing-intensive course on developing undergraduate science students' abilities to read primary scientific papers and communicate science," Minneapolis MN, July 2012.

3. American Society for Microbiology Conference for Undergraduate Educators Meeting (poster), "Integrating teaching and research in a research-based introductory biology laboratory curriculum: results of a three-year comparison evaluation," San Mateo CA, June 2012.

2. Society for the Advancement of Biology Education Research (SABER) Meeting (poster), "Integrating teaching and research in an inquiry-based curriculum positively impacts student attitudes towards research," Minneapolis MN, July 2011.

1. National Science Teacher's Association (NSTA) Meeting (talk), "Exploring the impact of cookbook and authentic research-based undergraduate biology lab courses," San Francisco CA, March 2011.

80 peer-reviewed invited presentations with an ASU trainee as a primary presenter at the following venues (including 61 at national venues):

80. International Society for Evolution, Medicine, & Public Health meeting (poster), "A call to use cultural competence when teaching evolution to religious undergraduate students: Introducing Religious Cultural Competence in Evolution Education (ReCCEE)," Liz Barnes, Groningen Netherlands, August 2017.

79. International Society for Evolution, Medicine, & Public Health meeting (talk), "Identifying Evolutionary Medicine Core Principles," Dan Grunspan, Groningen Netherlands, August 2017.

78. Society for the Advancement of Biology Education Research (talk), "Towards more inclusive evolution education: a call to use cultural competence when teaching evolution," Liz Barnes, Minneapolis MN, July 2017.

77. Society for the Advancement of Biology Education Research (talk), "GenBio-MAPS: A programmatic assessment designed to measure student's conceptual understanding of core biology concepts across a curriculum," Christian Wright, Minneapolis MN, July 2017.

76. Society for the Advancement of Biology Education Research (poster), "Exploring instructor rationale for designing classroom assessments," Christian Wright, Minneapolis MN, July 2017.

75. Society for the Advancement of Biology Education Research (poster), "Can a five-minute introduction to an evolution module reduce students' level of perceived conflict between evolution and religion?," Jasmine Truong, Minneapolis MN, July 2017.

74. Society for the Advancement of Biology Education Research (poster), "The survey matters: instructors using different surveys to measure acceptance of evolution may be reaching different conclusions about their students," Liz Barnes and Hayley Dunlop, Minneapolis MN, July 2017.

73. Society for the Advancement of Biology Education Research (poster), "Identifying the unwritten rules of obtaining undergraduate research experiences," Jacquie Cala, Minneapolis MN, July 2017.

72. Society for the Advancement of Biology Education Research (poster), "To be funny or not to be funny: Student perceptions of instructor use of humor in college science classrooms," Katey Cooper and Taija Hendrix, Minneapolis MN, July 2017.

71. Undergraduate Biology Education Research Gordon conference (poster), "Learning anxiously: The opportunities and challenges of science active learning classrooms for college students with anxiety," Katey Cooper, Eaton MA, July 2017.

70. Undergraduate Biology Education Research Gordon conference (poster), "Who perceives they're smarter? Exploring the influence of student characteristics on student academic self- concept in physiology," Katey Cooper, Eaton MA, July 2017.

69. National Association for Research in Science Teaching (NARST) national meeting (poster), "Capital gains: A bridge program influences social, cultural, and human capital," Katelyn Cooper, San Antonio TX, April 2017.

68. American Educational Research Association (AERA) national meeting (talk), "A need for culturally sensitive evolution education: perspectives from college biology instructors and students," Liz Barnes, San Antonio TX, April 2017.

67. American Educational Research Association (AERA) national meeting (poster), "Explaining the dearth of African Americans in evolutionary biology as a function of religiosity," Liz Barnes, San Antonio TX, April 2017.

66. ASU School of Life Sciences Septennial Review Student Poster Session (poster), "How identity, biology content, and instructional practices impact religious students' sense of belonging in the biology classroom," Jasmine Truong, Tempe AZ, April 2017.

65. ASU Undergraduate Research Symposium (poster), "The survey matters: instructors using different surveys to measure acceptance of evolution may be reaching different conclusions about their students," Hayley Dunlop, Tempe AZ, March 2017.

64. ASU Undergraduate Research Symposium (poster), "Do Christian biology students experience stereotype threat?," Taija Hendrix, Tempe AZ, March 2017.

63. ASU Undergraduate Research Symposium (poster), "Will this be on the test? Depends on the instructor! Exploring differences in instructor exam decisions in introductory biology," Austin Huang, Tempe AZ, March 2017.

62. ASU Undergraduate Research Symposium (poster), "What's in a name? The importance of student perceptions of an instructor knowing their names in a high enrollment biology course," Anna Krieg, Tempe AZ, March 2017.

61. ASU Undergraduate Research Symposium (poster), "How identity, biology content, and instructional practices impact religious students' sense of belonging in the biology classroom," Jasmine Truong, Tempe AZ, March 2017.

60. ASU School of Human Evolution and Social Change Departmental Meeting (workshop), "Building inclusive and fair classrooms: Spotting sources of bias in biology classrooms," Katelyn Cooper, Tempe AZ, March 2016.

59. American Association for the Advancement in Science (AAAS) national meeting (talk), "How to teach evolution to religious students who may be resistant," Liz Barnes, Boston MA, February 2017.

58. American Association for the Advancement in Science (AAAS) national meeting (poster), "The impact of a short evolution module on students' perceived conflict with evolution," Liz Barnes, Boston MA, February 2017.

57. American Association for the Advancement in Science (AAAS) national meeting (poster), "What's in a name? The importance of student perceptions of an instructor knowing their names in a high enrollment biology course," Anna Krieg, Boston MA, February 2017.

56. American Association for the Advancement in Science (AAAS) national meeting (poster), "How identity, biology content, and instructional practices impact religious students' sense of belonging in the biology classroom," Jasmine Truong, Boston MA, February 2017.

55. Biology Leadership Conference (BLC) (poster), "A summer bridge program helps students to maximize active learning experiences and the active learning experiences of others," Katelyn Cooper, Tucson AZ, February 2017.

54. Society for the Advancement of Biology Education Research West coast regional meeting (talk), "Coming out in class: The influence of covert identities on student experiences in active learning classrooms," Katelyn Cooper, Irvine CA, January 2017.

53. Society for the Advancement of Biology Education Research West coast regional meeting (talk), "Reducing students' perceived conflict between religion and evolution," Liz Barnes, Irvine CA, January 2017.

52. Society for the Advancement of Biology Education Research West coast regional meeting (poster), "Learning Anxiously: The challenges and benefits of active learning for students with anxiety," Virginia Downing, Irvine CA, January 2017.

51. Society for the Advancement of Biology Education Research West coast regional meeting (poster), "How identity, biology content, and instructional practices impact religious students' sense of belonging in the biology classroom," Jasmine Truong, Irvine CA, January 2017.

50. Society for the Advancement of Biology Education Research West coast regional meeting (poster), "Defining Core Principles in Evolutionary Medicine: A Delphi Study," Dan Grunspan, Irvine CA, January 2017.

49. Society for the Advancement of Biology Education Research West coast regional meeting (poster), "Capital Gains: The influence of a summer bridge program on first year students' social capital," Michael Ashley, Irvine CA, January 2017.

48. Society for the Advancement of Biology Education Research West coast regional meeting (poster), "What's in a name? The importance of student perceptions of an instructor knowing their names in a high enrollment biology course," Anna Krieg, Irvine CA, January 2017.

47. Society for the Advancement of Biology Education Research West coast regional meeting (poster), "The survey matters: instructors using different surveys to measure acceptance of evolution may be reaching different conclusions about their students," Hayley Dunlop, Irvine CA, January 2017.

46. Society for the Advancement of Biology Education Research West coast regional meeting (poster), "Do Christian biology students experience stereotype threat?," Taija Hendrix, Irvine CA, January 2017.

45. Society for the Advancement of Biology Education Research West coast regional meeting (poster), "Pedagogies of Professors Teaching evolution at secular versus Christian colleges," Liz Barnes, Irvine CA, January 2017.

44. Society for the Advancement of Biology Education Research West coast regional meeting (poster), "Who perceives they're smarter? Males have a higher academic self-concept in a large-enrollment physiology course," Katelyn Cooper, Irvine CA, January 2017.

43. ASU ISTL Learning Innovation Showcase (poster), "The impact of a short evolution module on students' perceived conflict with evolution," Liz Barnes, Tempe AZ, January 2017.

42. ASU ISTL Learning Innovation Showcase (poster), "Capital Gains: The influence of a summer bridge program on first year students' social capital," Michael Ashley, Tempe AZ, January 2017.

41. ASU ISTL Learning Innovation Showcase (poster), "How identity, biology content, and instructional practices impact religious students' sense of belonging in the biology classroom," Jasmine Truong, Tempe AZ, January 2017.

40. ASU ISTL Learning Innovation Showcase (poster), "What's in a name? The importance of student perceptions of an instructor knowing their names in a high enrollment biology course," Anna Krieg, Tempe AZ, January 2017.

39. American Society of Cell Biology (ASCB) (talk), "A summer bridge program helps students to maximize active learning experiences and the active learning experiences of others," Katelyn Cooper, San Francisco CA, December 2016.

38. American Society of Cell Biology (ASCB) (poster), "What's in a name? The importance of student perceptions of an instructor knowing their names in a high enrollment biology course," Katelyn Cooper, San Francisco CA, December 2016.

37. ASU School of Life Sciences Honors Event (poster), "What's in a name? The importance of student perceptions of an instructor knowing their names in a high enrollment biology course," Anna Krieg, Tempe AZ, December 2016.

36. ASU's Diversity and Inclusion Education Conference (workshop), "Building inclusive and fair classrooms: Spotting sources of bias in biology classrooms," Katelyn Cooper, Tempe AZ, November 2016.

35. National Association of Biology Teaching (NABT) national meeting (talk), "Reducing students' perceived conflict between religion and evolution," Liz Barnes, Denver CO, October 2016.

34. National Association of Biology Teaching (NABT) national meeting (poster), "The survey matters: instructors using different surveys to measure acceptance of evolution may be reaching different conclusions about their students," Liz Barnes, Denver CO, October 2016.

33. Ecology Society of America national meeting (talk), "Why you should teach course-based undergraduate research experiences," Erin Shortlidge, Fort Lauderdale FL, July 2016.

32. Society for the Advancement of Biology Education Research national meeting (poster), "Exploring instructor rationale for designing classroom assessment," Austin Huang, Minneapolis MN, July 2016.

31. Society for the Advancement of Biology Education Research national meeting (poster), "How identity, biology content, and instructional practices impact religious students' sense of belonging in the biology classroom," Jasmine Truong, Minneapolis MN, July 2016.

30. Society for the Advancement of Biology Education Research national meeting (poster), "GenBio-MAPS: A programmatic assessment to measure student understanding of core biology concepts across a general biology curriculum," Christian Wright, Minneapolis MN, July 2016.

29. Society for the Advancement of Biology Education Research national meeting (poster), "Using a lens of Expectancy Value Theory to explore student resistance to active learning," Michael Ashley, Minneapolis MN, July 2016.

28. Society for the Advancement of Biology Education Research national meeting (poster), "Reducing students' perceived conflict between religion and evolution," Liz Barnes, Minneapolis MN, July 2016.

27. Society for the Advancement of Biology Education Research national meeting (talk), "What's in a name? The importance of student perceptions of an instructor knowing their names in a high enrollment biology course," Katelyn Cooper, Minneapolis MN, July 2016.

26. Society for the Advancement of Biology Education Research national meeting (talk), “A bridge to active learning: A summer bridge program helps students to maximize active learning experiences and the active learning experiences of others,” Katelyn Cooper, Minneapolis MN, July 2016.

25. Human Behavior and Evolution national meeting (poster), “Reducing students' perceived conflict between religion and evolution,” Liz Barnes, Vancouver BC Canada, June 2016.

24. Evolution national meeting (poster), “Addressing potential conflict between students’ religious beliefs and evolution: instructor attitudes, practices, and barriers,” Liz Barnes, Austin TX, June 2016.

23. Evolution national meeting (talk), “Reducing students' perceived conflict between religion and evolution,” Liz Barnes, Austin TX, June 2016.

22. Council for Undergraduate Research (CUR) meeting (poster), “An exploratory interview study of what factors impact student participation in undergraduate research,” Katelyn Cooper, Tampa FL, May 2016.

21. Council for Undergraduate Research (CUR) meeting (poster), “A high enrollment course-based undergraduate research experience improves student conceptions of scientific thinking,” Katelyn Cooper, Tampa FL, May 2016.

20. ASU SOLS Undergraduate Research Symposium (poster), “A bridge to active learning: A summer bridge program helps students to maximize their active learning experiences and think about equity in groupwork,” Michael Ashley, Tempe AZ, April 2016.

19. ASU SOLS Undergraduate Research Symposium (poster), “How identity, biology content, and instructional practices impact religious students’ sense of belonging in the biology classroom,” Jasmine Truong, Tempe AZ, April 2016.

18. ASU LGBT Showcase (talk), “Coming out in class: The challenges and opportunities of active learning for LGBTQIA students in an undergraduate biology class,” Katelyn Cooper, Tempe AZ, April 2016.

17. Experimental Biology meeting (poster), “Design elements of a high enrollment course based undergraduate research experience may lead to inaccurate student conceptions about scientific research,” Katelyn Cooper, San Diego CA, April 2016.

16. Freshman Research Initiative (FRI) Biennial Conference (poster), “Design elements of a high enrollment course-based undergraduate research experience may lead to inaccurate student conceptions about scientific research,” Katelyn Cooper, Austin, TX, March 2016.

15. Biology Leadership Community (poster), “Cognitive difficulty and format of exams predicts gender and socioeconomic gaps in exam performance of students in introductory biology courses,” Christian Wright, New Orleans LA, February 2016.

14. ASU ISTL Learning Innovation Showcase (poster), “A two-week intensely active learning biology program has a positive impact on incoming first year students,” Katelyn Cooper and Michael Ashley, Tempe AZ, January 2016.

13. ASU ISTL Learning Innovation Showcase (poster), “Cognitive difficulty and format of exams predicts gender and socioeconomic gaps in exam performance of students in introductory biology courses,” Christian Wright, Tempe AZ, January 2016.

12. ASU Jumpstarting STEM Careers conference (poster), "A high enrollment course-based undergraduate research experience improves student conceptions of scientific thinking," Katelyn Cooper, Tempe AZ, January 2016.

11. American Society for Cell Biology national meeting (poster), "A high enrollment course-based undergraduate research experience improves student conceptions of scientific thinking," Katelyn Cooper, San Diego CA, December 2015.

10. Association for American Colleges and Universities national STEM Education meeting (poster), "Faculty perspectives on course-based undergraduate research experiences," Erin Shortlidge, Seattle WA, November 2015.

9. Society for the Advancement in Biology Education Research (SABER) national meeting (poster), GenBio-MAPS: A programmatic assessment to measure students understanding of core biology concepts across a general biology curriculum, Christian Wright, Minneapolis MN, July 2015.

8. Society for the Advancement in Biology Education Research (SABER) national meeting (poster), "Pedagogies of Professors Teaching Evolution at Secular versus Christian Colleges," Liz Barnes, Minneapolis MN, July 2015.

7. Society for the Advancement in Biology Education Research (SABER) national meeting (poster), "A high enrollment course-based undergraduate research experience improves student conceptions of scientific thinking and ability to interpret data," Katelyn Cooper, Minneapolis MN, July 2015.

6. Society for the Advancement in Biology Education Research (SABER) national meeting (talk), "Faculty perceptions on course-based undergraduate research experiences," Erin Shortlidge, Minneapolis MN, July 2015.

5. Society for the Advancement in Biology Education Research (SABER) national meeting (talk), "Exam characteristics exacerbate performance gaps between male and female students," Christian Wright, Minneapolis MN, July 2015.

4. BioLogos: Evolution and Christian Faith national meeting (poster), "Pedagogies of Professors Teaching Evolution at Secular versus Christian Colleges," Liz Barnes, Grand Rapids MI, May 2015.

3. International Society for Evolution, Medicine, and Public Health national meeting (poster), "Pedagogies of Professors Teaching Evolution at Secular versus Christian Colleges," Liz Barnes, Tempe AZ, March 2015.

2. American Association for the Advancement of Science (AAAS) national meeting (poster), "Pedagogies of Professors Teaching Evolution at Secular versus Christian Colleges," Liz Barnes, San Francisco CA, February 2015.

1. Society for the Advancement in Biology Education Research (SABER) national meeting (poster), "Examining introductory and advanced undergraduates' understanding of systems biology concepts using the BioCore Guide," Christian Wright, Minneapolis MN, July 2014.

Teaching Experience:

- **Instructor, School of Life Sciences, Arizona State University, 2014- current**
  - Developed and taught an active learning undergraduate animal physiology course to ~250 students
    - BIO 360 Animal Physiology, Fall 2014, Fall 2015, Fall 2016, Fall 2017

- Developed and taught a journal club focused on recent papers in discipline-based education research to ~10-15 students
    - BIO 591 Papers in Discipline-based Education Research, Fall 2014, Spring 2015, Fall 2015, Spring 2016, Fall 2016, Spring 2017
- Developed and taught a college success course to freshman biology majors to ~20 students
    - BIO 189 Big Topics in Biology, Fall 2014
    - BIO 189 Extension of Summer Bridge Program, Fall 2015, Fall 2016
- Developed and taught a biology education research course to graduate students to ~10 students
    - BIO 598 Biology Education Research, Spring 2014, Spring 2015, Spring 2017
- Developed and coordinated a seminar course on improving teaching for undergraduates and graduate students to ~15 students
    - BIO 494/598 Evidence-based Teaching in STEM, Fall 2015, Spring 2016, Fall 2016, Spring 2017
- Mentored undergraduates in biology education research
    - BIO 495 Undergraduate Research, Fall 2014, Spr 2015, Fall 2015, Spr 2016, Fall 2016, Spring 2017, Fall 2017

- **Lecturer, Department of Biology, Stanford University, 2011-2012**
    - Developed and taught two upper-level writing-intensive courses to ~15 students in each course
        - BIO 199W Senior Honors Thesis: How to communicate scientific research, Fall 2011, Fall 2012
        - BIO 197WB Communicating neuroscience to non-scientists, Spring 2012
    - Developed and taught an introductory course-based undergraduate research experience to 250 students as part of a collaborative four person instructional team
        - BIO 44X Core Molecular Biology Laboratory: Investigating p53 mutants, Winter 2012, Fall 2012
- **Graduate Student Course Developer and Instructor, Stanford University, 2009-2011**
    - Brain and Immune System, Winter 2009, Winter 2010, Winter 2011
        - Co-developed and co-taught an upper-level undergraduate and graduate student neuroimmunology course that emphasized science communication to a layperson audience. Course was offered for three consecutive years to ~20 students per year.
- **Graduate Teaching Assistant, Stanford University, 2007-2008**
    - Human Behavioral Biology, Spring 2008
        - TA for this 500-student course. Lectured once to the whole class, led weekly discussion sections for two sections of ~20 students each, held review sessions, and wrote/graded exams.
    - Cell Biology and Animal Physiology, Winter 2008
        - TA for this 250-student course. Led weekly discussion sessions for two sections of ~20 students each, held office hours, held review sessions, and wrote/graded exams.
    - Neural Systems and Behavior, Fall 2007
        - TA for this 100-student course. Led weekly discussion sections for two sections of ~12 students each and wrote/graded exams.
- **Undergraduate Teaching Assistant, Cornell University, 2003-2004**
    - Principles of Biochemistry, Spring 2003, Fall 2003, Spring 2004
        - Tutored students, graded written exams, and administered oral exams.

Trainees Mentored in Individual Apprenticeships:

- **Postdoctoral scholars in biology education research, Arizona State University**
    - Dan Grunspan, August 2016- present (co-advised with Randy Nesse)
    - Christian Wright, June 2014- June 2015
        - Current position: Instructional Professional, School of Life Sciences, ASU

- Erin Shortlidge, September 2014- September 2015
  - Current position: Assistant Professor in Biology Education, Portland State University

- **Graduate students in biology education research, Arizona State University**
  - M. Elizabeth Barnes, M.S. student in Biology and Society, 2013-2014 (advisor), Ph.D. student in Biology and Society and NSF Graduate Fellow in STEM Education, 2014-present (advisor)
  - Katelyn Cooper, Ph.D. student in Biology, 2015-present (advisor)
  - Jacqueline Cala, Ph.D. student in Biology, 2017- present (advisor)
  - Logan Gin, Ph.D. student in Biology and Society and NSF Graduate Fellow in STEM Education, 2017-present (advisor)
  - Evan Brus, Ph.D. student in Biology, 2014- present (advisor on education project)
  - Virginia Downing, Academic advisor, 2016-present (advisor on education project)
  - Brian Haney, Ph.D. student in Animal Behavior, 2015- 2016 (advisor on education project)
  - Nevada Wagoner, M.S. student in Biology and Society, 2014-2015 (advisor)
  - Katie Fenton, M.A. student in Science Teaching at Northern Arizona Univ, 2014-2015 (co-advisor)
- **Undergraduate students in biology education research, Arizona State University**
  - Jasmine Truong, ASU undergraduate and SOLUR researcher and fellow, 2015- present (advisor)
  - Hayley Dunlop, ASU undergraduate and SOLUR researcher, 2016-present (advisor)
  - Taija Hendrix, ASU undergraduate, 2016-present (advisor)
  - Michelle Stephens, ASU undergraduate, 2017- present (advisor)
  - Kali Mahrer, ASU undergraduate, 2017- present (advisor)
  - Austin Huang, ASU undergraduate and SOLUR researcher, 2014-2017 (advisor)
  - Michael Ashley, ASU undergraduate and then research assistant, 2015- 2017 (advisor)
  - Anna Krieg, ASU undergraduate and Honors thesis student, 2016- 2017 (advisor)
  - Kayla Campbell, ASU undergraduate, 2016- 2017 (advisor)
  - Dalia Aguilar, ASU undergraduate, 2016- 2017(advisor)
  - Cyril Wassef, ASU undergraduate, SRE researcher, and Honors thesis student, 2015-2016 (advisor)
  - Aditya Ponnapalli, ASU undergraduate, 2016 (advisor)
  - Samantha Belcher, ASU undergraduate, 2015 (advisor)
  - Monro Obenauer, ASU undergraduate, 2015 (advisor)
  - Kate Bergovoy, ASU undergraduate, 2015 (advisor)
  - Sailesh Tummala, ASU Honors thesis student, 2014-2015 (co-advisor)
  - Anika Larson, ASU Honors thesis student, 2014-2015 (thesis committee member)
  - Bethany Vu, ASU Honors thesis student, 2013-2014 (co-advisor)
- **Committee member for theses, Arizona State University**
  - Nicholas Massimo, Ph.D. student in Biology, 2017-present (committee member)
  - Evan Brus, Ph.D. student in Biology, 2014- present (committee member)
  - Lishan Zheng, Ph.D. student in Computer Science, 2015 (committee member)
  - Anika Larson, ASU Honors thesis student, 2014-2015 (thesis committee member)
- **Undergraduate students in neuroimmunology research, Stanford University, 2008-2011**
  - Rachel Becker, Stanford undergraduate, awarded the Shuer Award for Excellence in Neuroscience Research award for her honors thesis, and was awarded a NSF Pre-doctoral Graduate Fellowship.
  - Aleena Syed, Stanford undergraduate who went on to medical school at Texas A&M
  - Ryan Medlock, high school student who went on to be a Vanderbilt undergraduate
  - David Praharaj, high school student who went on to be a Stanford undergraduate
  - Sriya Subramani, University of Iowa undergraduate who went on to medical school at Univ of Iowa

- Kyle Duff, Stanford undergraduate who went on to medical school at University of Pittsburgh
- Juliet Idiga, Stanford undergraduate who went on to medical school at Columbia University
- Tyler Berbert, high school student who went on to be a Stanford undergraduate

Awards for trainees:

2017

Inclusive Environments and Metrics for Biology Education Research (iEMBER) lightning talk award, Katey Cooper
National Science Foundation (NSF) Graduate Fellowship, Logan Gin
ASU College of Liberal Arts and Sciences (CLAS) Graduate Excellence Award, Liz Barnes
ASU GSPA Mentorship Award, Liz Barnes
AAAS 2nd place student poster competition, Liz Barnes
ASU SOLUR Researcher, Hayley Dunlop
ASU SOLUR Researcher, Taija Hendrix
ASU SOLUR Fellow, Jasmine Truong
ASU School of Life Sciences Undergraduate Programs Travel Stipend, $500, Katey Cooper
ASU Graduate & Professional Student Association (GPSA) Travel Grant, $950, Katey Cooper
ASU School of Life Sciences (SOLS) Graduate Student Travel Award, $400, Katey Cooper
ASU Graduate College Travel Award, $500, Katey Cooper
Environment and Metrics in Biology Education and Research (EMBER) Grant, $500, Katey Cooper
Undergraduate Biology Education Gordon Research Conference Travel Award, $500, Katey Cooper
SOLUR Program Travel Grant, $300, Taija Hendrix
ASU Graduate & Professional Student Association (GPSA) Travel Grant, $950, Liz Barnes
ASU Graduate College Travel Award, $450, Liz Barnes

2016

ASU College of Liberal Arts and Sciences (CLAS) Graduate Excellence Award, Katelyn Cooper
ASU SOLUR Researcher, Jasmine Truong
ASU CLAS Undergraduate Summer Enrichment Scholarship, Jasmine Truong
ASU SOLS Student of the Year for Genetics, Cell, and Developmental Biology, Michael Ashley
American Society for Biochemistry and Molecular Biology Graduate Travel Award, Katelyn Cooper, $1000
ASU School of Life Sciences (SOLS) Graduate Student Travel Award, Katelyn Cooper, $400
ASU Graduate & Professional Student Association (GPSA) Travel Grant, Katelyn Cooper, $450
ASU School of Life Sciences Graduate Student Travel Grant, Liz Barnes, $400
ASU School of Life Sciences Graduate Student Travel Grant, Liz Barnes, $400
ASU Graduate Education Travel Grant, Liz Barnes, $500
ASU SOLS travel funds, Austin Huang, $250
Nominated for ASU Faculty Women's Association Graduate Student Award, Liz Barnes and Katelyn Cooper

2015

National Science Foundation (NSF) Graduate Fellowship, Liz Barnes
ASU SOLS SOLUR Researcher, Austin Huang
ASU SOLS SOLUR Summer Research Experience program, Cyril Wassef
ASU SOLS Joyce Foster Larson Scholarship, Samantha Belcher
ASU Graduate & Professional Student Association (GPSA) Travel Grant, Katelyn Cooper, $632
ASU SOLS Graduate Student Travel Award, Katelyn Cooper, $400
BioLogos Travel grant, Liz Barnes, $500
ASU College of Liberal Arts and Sciences (CLAS) Graduate Excellence Award, Liz Barnes

2014
National Academies Summer Institute on Scientific Teaching Fellow, Christian Wright
ASU Biology and Society Travel Grant, Liz Barnes, $1600

General press about the research lab:

ASU SOLS news Student Spotlight- featured undergraduate Taija Hendrix. https://sols.asu.edu/student-spotlight/taija-hendrix

Center for Biology and Society Website "The Biology Education Research Lab's Eye on Equity" – featured the lab research https://cbs.asu.edu/news/biology-education-research-lab%E2%80%99s-eye-equity

Center for Biology and Society Website "Liz Barnes, CBS PhD Student is Making Her Mark" – featured Ph.D. student Liz Barnes https://cbs.asu.edu/news/liz-barnes-cbs-phd-student-making-her-mark

ASU SOLS news. "Finding a community within School of Life Sciences" – featured undergraduate Michael Ashley https://sols.asu.edu/news-events/news/finding-community-within-school-life-sciences

ASU SOLS news. "BioBridge program gives ASU freshmen the tools to succeed" – featured the bridge program co-directed by myself https://asunow.asu.edu/content/biobridge-program-gives-asu-freshmen-tools-succeed

NY Times OpEd ""Are college lectures unfair?"! – featured lab research on gender gaps http://anniemurphypaul.com/2015/09/are-college-lectures-unfair/

Center for Biology and Society website "Sara Brownell blazes her way through her first semesters at ASU" https://cbs.asu.edu/news/sara-brownell-blazes-her-way-through-her-first-semesters-asu

ASU's College of Liberal Arts and Sciences magazine, Spring 2015 issue, featured Ph.D. student Liz Barnes

Current Biology "Breathing fresh life into life science education" – featured lab research on professional identity and the BioCore Guide
http://www.sciencedirect.com.ezproxy1.lib.asu.edu/science/article/pii/S0960982214015528

ASU Cronkite news "Education gender gaps" –featured lab research on gender gaps
https://www.youtube.com/watch?v=PjWPxqUncgo&list=UUO8tHWm0LQy3QWFcnZeV4CQ

Program-level Mentoring, Curriculum Development, and Informal Teaching Experience:

- **Undergraduate Biology Honors Program Director, Stanford University, 2011-2012**
  Mentored students, coordinated logistics, and provided extensive writing feedback on student honors proposals and drafts of honors theses for 65 Biology majors.
- **Bing Honors College Faculty Mentor, Human Biology, Stanford University, 2011-2012**
  Mentored ~12 senior human biology majors as the natural sciences faculty mentor in an undergraduate honors thesis bootcamp. Led workshops and gave presentations on skills and tools necessary to write a good honors thesis, as well as individual mentoring.
- **Explorations Program Founder and Director, Stanford University, 2008-2012**
  Founded and directed a program in the introductory Biology curriculum where grad students and postdocs taught single session hands-on, interactive specialized classes on topics in biology that undergraduate students would not have gotten exposure to in intro biology. Over 100 graduate students and postdocs participated and over 600 undergraduates attended classes during these years and the program is ongoing.

- **Center for Teaching and Learning (CTL) Consultant, Stanford University, 2010-2011**
  Served as a teaching consultant for university-wide departments. Led videotaped microteaching sessions, small group evaluations, and TA training.
- **Biology Department TA Orientation Founder and Coordinator, Stanford University, 2010-2012**
  Initiated the first-ever Biology department-specific TA orientation for incoming graduate students. Orientation focused on departmental TA mentoring opportunities and support services, teaching goals, and small group discussions about the challenges faced by different types of TA-ships.
- **Mentors in Teaching (MinT) Fellow, Stanford University, 2009-2011**
  Selected as a fellow for a university-wide TA mentorship program that worked with multiple departments to improve graduate student teaching through workshops, videotaped teaching sessions, and the development of new mentoring programs.
- **Biocore Advisors Founder and Director, Stanford University, 2008-2011**
  Founded and directed a TA training program for teaching assistants in the introductory Biology core classes that paired new TAs with previously successful TAs that have taught the same course. 18 mentors worked with over 54 TAs while I directed the program and program is now a mandatory part of TA training for graduate students in Biology.
- **HHMI EXROP Summer Research Coordinator, Stanford University, 2011**
  Coordinated a 10-week HHMI-funded summer undergraduate research program to six first generation students doing biological research. Designed weekly activities to help students succeed in their research.
- **High School Outreach Program Coordinator and Instructor, Scripps Research, 2004-2007**
  Program coordinator for 2006-2007; taught high school students and teachers specialized topics in biology and chemistry and organized the summer research internship and mentoring program.
- **Scientific Volunteer, Ruben H. Fleet Science Museum, San Diego, 2005**
  Performed hands-on demonstrations in an informal science education setting.
- **Biology Student Advisor, Cornell University, 2003-2004**
  Mentored freshman biology majors, helped plan freshman schedules, held advising office hours, and tutored introductory biology and chemistry.

Professional Service:

Institution-level service at ASU:

- Faculty co-director for Seminar Series Evidence-based Teaching in STEM, 2015 – present
  Served as a co-director for seminar series that focuses on evidence-based teaching in college STEM and aims to create a learning community of faculty, staff, and students interested in teaching. We have hosted 8 outside speakers over the past 2 years.
- Faculty co-director for Early Start BioBridge Program, 2014-present
  Co-led two week intensive early start program for ~30 incoming freshmen majoring in biology. Focus of the program was on helping students do well in their first year courses and building community.
- Faculty participant in Camp Ignite, 2014-2016
  Attended 2-day summer program for all incoming biology majors that was aimed at building community
- Active Learning Steering Committee, 2016
  Served on committee dedicated to exploring technological and structural needs of classroom spaces for active learning
- College of Liberal Arts and Sciences Inclusion Campus Climate Committee, 2016- present
  Served on a college-level committee focused on diversity and inclusion
- Guest lecturer/presenter, 2014- present
  DCI 791: Transdisciplinary Seminar II, Spring 2017
  ELS 501 Grand Challenges in Environmental Life Sciences, Fall 2016, Fall 2017

Biology and Society Lab, Spring 2016
IGERT Alliance for Person Centered Accessible Technologies, Spring 2016
School of Life Sciences Graduate Student Orientation, Fall 2014

- Workshop facilitator, Global Health & Human Biology SOLS/SHESC Workshop, 2016
  Facilitated a half-day discussion on competencies and curriculum for ~40 faculty members who teach classes or do research related to global health.
- Faculty co-director for Graduate Certificate in Scientific Teaching in Higher Education, 2014-2015
  Helped design program of study and get institutional approval. Program is intended to provide interested graduate students with a suite of courses, mentored teaching opportunities, and the opportunity to engage in biology education research.
- First Year Forward Committee, 2014 - 2015
  Served on committee dedicated to addressing how *all* students experience their first year at college.
- School of Life Sciences Director Search Committee, ASU, 2014- 2015
  Served on departmental committee to conduct a target hire for high level Director position.
- School of Life Sciences Instructional Professional Search Committee, ASU, 2014- 2015
  Served on departmental committee to hire two active learning specialists in biology.
- Institution-wide STEM Education Group, 2014
  Served on committee dedicated to STEM education across the ASU campus that participated in STEM education discussions and collaborative grant writing.
- Curriculum Reform Committee, School of Life Sciences, 2014
  Served on departmental committee to help biology instructors improve their courses by engaging in more student-centered instruction.

National-level:

- Organizer for professional development sessions at national SABER meeting and Gordon meeting on "Is there the need for interdisciplinary graduate training programs in biology education," 2015
- Invited to participate in the Partnership for Undergraduate Life Sciences Education (PULSE) community as a Northwest PULSE Workshop facilitator and Southwest PULSE Circle member, 2014-2016
- Ad hoc reviewer for CBE-Life Sciences Education, Science Advances, BioScience, Journal of Engineering Education, Physics Review, Science and Education, Learning and Instruction, Journal of Accounting Education, F1000 Research, FEMS Microbiology Letters, International Journal of STEM Education, and National Science Foundation TUES grants, 2013-present
- Conference Abstract reviewer for Society for Biology Education Research (SABER) national meeting and AAAS national meeting, 2014-present
- Panel organizer for national SABER meeting for "Getting your first job as a Science Faculty with Education Specialty" and "Getting tenure as a Discipline-based education researcher", 2014

Public and community outreach:

- **Teach Tech Blog posts from members of the lab**
  1. Who are you teaching to? http://asutechwebs.blogspot.com/2014/11/who-are-you-teaching-to.html
  2. Understanding CUREs: Course-based Undergraduate Research Experiences http://asutechwebs.blogspot.com/2015/04/understanding-cures-course-based.html
  3. Transforming undergraduate biology education: What resources are available to faculty and departments? http://asutechwebs.blogspot.com/2015/04/transforming-undergraduate-biology.html
  4. The Hidden Economic Costs of Active Learning http://asutechwebs.blogspot.com/2015/09/the-hidden-economic-costs-of-active.html
  5. The Impact of Active Learning on Different Genders http://asutechwebs.blogspot.com/2015/12/the-impact-of-active-learning-on.html

6. Beyond "Teaching the Facts": How to Teach Evolution to Religious Students Who Don't "Believe" http://asutechwebs.blogspot.com/2016/05/beyond-teaching-facts-how-to-teach.html
7. How Instructors Can Make Their Active Learning Classrooms More Inclusive to Members of the LGBTQIA Community http://asutechwebs.blogspot.com/2016/09/how-instructors-can-make-their-active.html
8. What's the Point of Using Student Names in Large Courses? http://asutechwebs.blogspot.com/2017/02/whats-point-of-using-student-names-in.html

- **Workshops**
  Building inclusive classrooms: Spotting hidden inequities in exam questions, ASU, September 2016, November 2016, and March 2017.

Professional Development:

- **Membership in Professional Societies**
  Society for the Advancement of Biology Education Research (SABER)
  National Science Teacher's Association (NSTA)
  American Society for Cell Biology (ASCB)
- **Attended Teaching-related Classes/Workshops/Learning Communities**
  Science Course Design, Speaking about Science, Professional and Leadership Development, Intro to Teaching, Directed Reading on Undergraduate Biology Labs, The Science Curriculum, Assessment and Accountability in Higher Education, Research in Science Education: Assessment and Evaluation, Mentors in Teaching (MinT) training, Community College Biology Faculty Enhancement through Scientific Teaching (CCB FEST), University of Washington Biology Education Research Group (BERG), ASU Science Education Research Group