SARAH B. WISE

CURRICULUM VITAE

Linked In Profile
sarah.wise@colorado.edu

Education

2007 **Ph.D.** Department of Ecology and Evolutionary Biology, University of Colorado, Boulder, CO
2002 **M.A.** School of Education, San Francisco State University, San Francisco, CA
1997 **Teaching Certified** Secondary Biology, Swarthmore College, Swarthmore, PA
1996 **B.A. with Distinction in Biology** Swarthmore College, Swarthmore, PA

Education Experience

Instruction

2025- **Assistant Teaching Professor**, Learning Assistant Program, U. of Colorado Boulder

Supporting 75-90 new Learning Assistants per semester with a "flipped" practice-meets-theory course, providing on-the-job training, mentoring by trained peers, reflective authentic assessment with frequent individual feedback, and opportunities for goal-oriented professional growth.

2009-2012 **Instructor**, Communication Strategies for Sustainability, Sustainable Practices Program, U. of Colorado Boulder
2009 **Instructor**, Biology; Front Range Community College, Westminster
2002, 2009 **Teacher**, Botany, Physiology, Evolution; Shining Mountain Waldorf School, Boulder
2001-2002 **Graduate Teaching Assistant**, General Biology, Microbiology; U. of Colorado Boulder
2001 **Teaching Assistant**, Geology for Preservice Teachers, Florida State University.
2000 **Education Intern**, The Exploratorium, San Francisco
1998-2001 **Teacher**, Biology and Physics; Lick-Wilmerding High School, San Francisco
1997-1998 **Teacher**, Biology and Physics; Sacred Heart Preparatory School, Atherton, CA
1996-1997 **Resident Tutor**, A Better Chance Residential Program for Boys, Swarthmore, PA
1996 **Teacher**, Summerbridge After School Program, Germantown, PA
1993-1995 **Writing Assistant,** Swarthmore College

Professional Development, Curriculum Development, Facilitation

2025 **Consultant,** Horizons K-8 School. *Mentored parent and staff facilitators during Horizons Council meetings.*
2022-2024 **PI and workshop leader**, "Exploring Change in Two Year Colleges".
2018-2022 **Workshop and webinar leader**, "Facilitating Change Through the Departmental Action Team (DAT) Model", presented at MSU PERL, ASCN and AAPT-sponsored events.
2017-2020 **STEM Departmental Change Agent**, Academic Technology Design Team (ATDT), U. of Colorado Boulder.

Facilitated collaborative Departmental Action Teams in seven different departments, supporting each in making sustainable change in culture, climate, pedagogy, and/or curricula. Co-wrote six articles and the book "Facilitating Change in Higher Education".

2015-2017 **Education Researcher,** Arts and Sciences Support of Education Through Technology (ASSETT), U. of Colorado Boulder

Developed and coordinated the Visualizing Instructional Practices (VIP) program, which provided pedagogical consultations based on teaching observation data, for A&S faculty.

2009-2015 **Science Teaching Fellow**, Science Education Initiative, Department of Molecular, Cellular, and Developmental Biology; Department of Ecology and Evolutionary Biology, U. of Colorado Boulder, CO

Supported 23 biology faculty in implementing cutting-edge pedagogical practices along with supportive curricula, in 11 courses.

2007-2009 **Science Educator**, Biological Sciences Curriculum Study, Colorado Springs
2007-2009 **Science Educator**, CIRES Education and Outreach, U. of Colorado Boulder
2005-2006 **NSF GK-12 Graduate Fellow**, U. of Colorado at Boulder, Aspen Creek K-8
2002-2006 **Workshop Presenter and Lead Graduate Teacher,** Graduate Teacher Program, U. of Colorado Boulder

Presentations

Selected Conference Talks

Wise, S. B., Ngai, C., and J. Corbo. Departmental Action Teams can catalyze sustained first- and second-order change at individual, group, and institutional levels. *AACU Transforming STEM*, November 7, 2024.

Wise, S. B., Ngai, C., and J. Corbo. Workshop: Catalyzing Department-Level Change at Your Institution. *Professional and Organizational Development*, October 20, 2021.

Wise, S. B., Furtak, E., and J. Knight. Instructional cues and modeling positively impact small group discussions. *Society for the Advancement of Biology Education Research,* July 18, 2014.

Wise, S. B., Southard, K., Pritchard, B., and J. Knight. What are they actually talking about? Analyzing student discussions of clicker questions. *Society for the Advancement of Biology Education Research,* July 30, 2011.

Wise, S. B. Ambivalence in Teaching Publicly Controversial Science. *Society for the Advancement of Biology Education Research,* July 30, 2011, *Western Conference for Science Education,* July 7, 2011.

Wise, S. B. and S. Buhr. Teaching about Evolution and Global Warming in Colorado. *National Science Teachers' Association,* March 21, 2009.; *Colorado Science Educator's Network meeting*, February 26, 2009.

Wise, S. B. and S. Buhr. Making Climate Hot: Effectively Communicating Climate Change. *Colorado Alliance for Environmental Education meeting,* spring 2009*; American Geophysical Union Fall Meeting,* December 16, 2008.

Wise, S. B. Teaching about Climate Change: Lessons from Evolution Education. *American Geophysical Union Fall Meeting*, December 10, 2007.

Wise, S. B. The role of academia in evolution education. *Integrating Evolution, Development, and Genomics Conference*, May 31-June 2, 2006.

Wise, S. B. and D. W. Stock. Bone morphogenetic protein expression and regulation in teleost tooth development and evolution. *Developmental Basis of Evolutionary Change Conference*, October 20-23, 2005.

Selected Guest Lectures

2025	"Planning Program Interventions and Research" for Dr. J. Rivard's Grant Writing for Reforming Higher Education class, U. of Southern Mississippi
2012-2013	Guest case study lectures, "Flu Virus and Vaccines" and "Skin Color Evolution," for General Biology and Genetics classes, U. of Colorado Boulder
2011	Workshop, "Reading Darwin's Doodles," with Dr. A. Bair, for the Secular Students and Skeptics Society, Darwin Day, U. of Colorado Boulder
2010	Presentation, "The Unintelligent Design of Your Eye", with Dr. M. Young, for the Rocky Mountain Optics Society of America
2009	Presentations, "Climate Change Education in Colorado," for undergraduates in Dr. S. Strife's Geoscience Education class, U. of Colorado Boulder, and the Denver Climate Change Study Group
2009	Lecture, "Animal Development," for undergraduates in Dr. S. Hinners' General Biology class, U. of Colorado Boulder
2009	Presentations, "Evolution Education in Colorado," Evolution Workshop, Biological Science Initiative; Darwin Day, U. of Colorado Boulder
2008	Presentation, "Teaching Evolution: The State of the State of Colorado," Teaching Evolution: Narrowing Gaps in Understanding Evolution Workshops, U. of Colorado Boulder
2006	Workshop, "Teaching Macroevolution," Teaching Evolution: Meeting the Challenge Workshops, U. of Colorado Boulder
2006	Panelist, "Preparing for Challenges," Teaching Evolution: Meeting the Challenge Workshops, U. of Colorado Boulder
2005-2007	Lecture, "Evolution and Development," for Dr. P. Strode's AP Biology class, Boulder High School
2005	Workshop, "Teaching Evolution," for graduate students in Ecology and Evolutionary Biology, U. of Colorado Boulder
2005	Workshop, "Teaching Evolution," for the Colorado Science Educators Network, Denver Museum of Nature and Science
2005	Lecture and Discussion, "Challenges and Opportunities for Teaching Evolution," Teaching Evolution: Meeting the Challenge Symposium, U. of Colorado Boulder
2005-2006	Lectures, "Evolution and Development," for undergraduates in Dr. A. Martin's Evolution class, U. of Colorado Boulder

Selected Mentorship & Service

2025	Served on NSF IUSE Proposal Panel
2024-2025	Mentored 8 community college faculty in co-authoring a peer-reviewed article
2022-2025	Mentored Kyra Gallion, Jenny Valadez Fraire, & Diana Roque in education research
2018-2020	Mentored Alanna Pawlak and Clara Smith as Departmental Action Team facilitators
2010-2018	Mentored and/or trained 13 STEM undergraduates, 9 graduate students, and 6 postdoctoral peers in educational research design, data collection and/or analysis
2005-2007	Founded and led "Teaching Evolution: Meeting the Challenge," an annual K-12 teacher workshop led by EBIO graduate students, U. of Colorado at Boulder. This event was sustained for at least a decade.
2002-2006	Supervised research of undergraduates Jon Bachelor, David Lyons, and Mark Blaskovich, Ecology and Evolutionary Biology, U. of Colorado Boulder
2003-2005	Peer mentor to 13 graduate students / teaching assistants in Ecology and Evolutionary Biology, U. of Colorado Boulder

Research Experience

2022-2025 **Senior Research Associate.** Center for STEM Learning and Ethnography & Evaluation Research, U. of Colorado Boulder
2020-2022 **Research Associate.** Center for STEM Learning and Ethnography & Evaluation Research, U. of Colorado Boulder
2015-2019 **Research Advisor**. Co-PI with Anne Gold and Lesley Smith for **NSF DRL-1513320** "Lens on Climate Change"
2015-2017 **Education Researcher,** Arts and Sciences Support of Education Through Technology (ASSETT), U. of Colorado Boulder
2009-2015 **Science Teaching Fellow**, Science Education Initiative, U. of Colorado Boulder
2007-2009 **CIRES Geoscience Education Visiting Fellow**, U. of Colorado Boulder
2001-2007 **NSF Graduate Research Fellow and Research Assistant**, Department of Ecology and Evolutionary Biology, U. of Colorado Boulder
1999-2001 **Master's Research**, School of Education, San Francisco State University
1995-1996 **Research Assistant**, Biology Department, Swarthmore College

Grants and Fellowships

2024-2025 **NSF DUE-2411641** Developing and Testing the Equity Departmental Action Team Model of Racial Equity Focused Departmental Change. Senior personnel, with PIs Laurel Hartley, Joel Corbo, Courtney Ngai, Amena Anderson, and Lisa Dilks and co-PIs Kasi Jackson and Christy Kunkle. Grant terminated 4/25; award to U. of Colorado **$686,631**; the five institution collaborative award was 2M.
2023-2026 **NSF DUE-2315406** Characterizing the emerging field of departmental change and empowering an inclusive network of practitioners, PI with Courtney Ngai and Jaclyn Rivard, and co-PI Joel Corbo. **$176,893**
2022-2025 **NSF DUE-2230271** Workshop: Exploring Academic Unit Change at Two-Year Colleges, PI with co-PIs Joel Corbo, Courtney Ngai, and Tara Jo Holmberg. **$211,261**
2020-2023 **NSF DUE-2021110**, Understanding the Impacts of Departmental Action Teams on Sustainable Departmental Culture Change and on Undergraduate Student Experiences, Success, and Outcomes. co-PI with PIs Joel Corbo and Courtney Ngai. $299,986
2015-20 **NSF DRL-1513320** "Engaging Secondary Students in Regionally Relevant Science Topics Through Videography", co-PI with Anne Gold and Lesley Smith. **$1,094,533**
2013 Chancellor's Award for Excellence in STEM Education, PI with co-PIs Barbara Demmig-Adams and William Adams. Center for STEM Learning, U. of Colorado, $10,000.
2012-2015 **NSF DUE-1140789,** "Investigating Instructional Influences on the Productivity of Clicker Discussions", co-PI with Jenny Knight and Erin Furtak, **$196,422**
2008 Visiting Fellowship research funding for "Factors Influencing the Teaching of Publicly Controversial Science". CIRES, U. of Colorado Boulder. $4,000
2006 Funding for undergraduate research with Mark Blaskovich. U. of Colorado Boulder, BURST Program, $2,500
2006 Event funding for "Teaching Evolution: Meeting the Challenge Workshops". United Government of Graduate Students, U. of Colorado Boulder, $750
2005 Funding for undergraduate research with David Lyons. URAP Program, U. of Colorado Boulder, $2,500
2005 Conference travel award to attend and present at "The Developmental Basis of Evolutionary Change". United Government of Graduate Students, U. of Colorado Boulder, $350

2004-2006 **NSF Dissertation Improvement Grant**, "Bone morphogenetic protein (Bmp) function in teleost dental evolution and development". $10,000

2004 Beverly Sears Graduate Student Research Grant. Graduate School, University of Colorado Boulder. $1,000

2004 Funding to support summer course participation. Department of Ecology and Evolutionary Biology, University of Colorado at Boulder, $1,500

2002-2005 **NSF Graduate Research Fellowship.** "Investigating genetic changes in the evolution of the teleost dentition," **$90,000**

Publications

Archie, T., **Wise, S. B.**, Valadez Fraire, J., Laursen, S. L., and T. J. Weston. **Accepted.** The Role of Syllabi in Measuring Teaching: Comparing Planned and Enacted Behavior. 28th Conference on Research in Undergraduate Mathematics Education. Alexandria, VA, upcoming: Feb. 26-28, 2026.

Wise, S. B., Ngai, C., and J. C. Corbo. **Accepted.** Impacts, supports and constraints on sustained departmental change catalyzed by Departmental Action Teams. *Physical Review Physics Education Research*. doi.org/10.1103/fwt3-zn1l

Wise, S. B., Archie, T., Robalino, J., Holmberg, T. J., Chmiel, M., Collins, P., Wellner, K., and R. Westphal. **In review.** Implementation of evidence-based instructional practices by community college biology instructors following a peer-designed professional development workshop. *Community College Journal of Research and Practice*.

Wise, S. B., Wise, S. B., Christopher, A., Zimbler-DeLorenzo, H., Rodriguez Rivera, M., Patrum, C., Bohn, A., Ngai, C., Corbo, J. C., and T. J. Holmberg. 2025. Collaboratively exploring STEM Departmental Change in Community Colleges. *Community College Journal of Research and Practice, 50(1)*. doi.org/10.1080/10668926.2025.2540792

Valadez Fraire, J., Archie, T., Laursen, S., **Wise, S.**, & Gallion, K. 2025. Implementation supports and outcomes of online professional development workshops. In Cook, S.; Katz, B. P.; & Melhuish, K. (eds.), *27th Conference on Research in Undergraduate Mathematics Education*, Alexandria, VA, Feb. 27-Mar. 1 (pp. 1517-1518).

Wise, S., Gallion, K., & Laursen, S. 2024. Exploration of TAMI-OP as a professional development tool for mathematics instructors. In Cook S., Katz, B., & Moore-Russo, D. (Eds.). *Proceedings of the 26th Annual Conference on Research in Undergraduate Mathematics Education*. Omaha, NE. Feb. 22-24 (pp.572-580).

Ngai, C., Pilgrim, M. E., Reinholz, D. L., Falkenberg, K., Geanious, C., Corbo, J. C., **Wise, S. B.**, Smith, C. and Stone-Johnstone, A. 2023. Guiding principles for change in undergraduate education: An analysis of a departmental team's change effort. *Physical Review Physics Education Research*, *19*(2), 020107.

Wise, S. B., Ngai, C., Corbo, J. C., Gammon, M. A., Rivard, J. K., and C. E. Smith. 2022. Toward institutionalizing successful innovations in the academy. *To Improve the Academy. 41*(1). doi.org/10.3998/tia.481

Wise, S. B., Archie, T., and S. Laursen. 2022. Exploring two-year college biology instructors' preferences around teaching strategies and professional development. *CBE—Life Sciences Education*, *21*(2), ar39.

Ngai, C., Corbo, J. C., Falkenberg, K., Wise, S., Falkenberg, K., Geanious, C., Pawlak, A., Pilgrim, M. E., Quan, G. M., Reinholz, D., Smith, C., and **S. B. Wise**. 2020. *Facilitating change in higher education: The Departmental Action Team model.* Glitter Cannon Press.

Ngai, C., Corbo, J. C., Quan, G. M., Falkenberg, K., Geanious, C., Pawlak, A., ... and **S. B. Wise**. (2020). Developing the DAT theory of change. *Transforming institutions: Accelerating systemic change in higher education*, 71-85.

Quan, G. M., Corbo, J.C., Finkelstein, N. D., Pawlak, A., Falkenberg, K., Geanious, C., Ngai, C., Smith, C., **Wise, S.**, Pilgrim, M. E., and D. L. Reinholz. 2019. Designing for institutional transformation: Six principles for department-level interventions. *Physical Review Physics Education Research* 15, 010114.

Littrell, M., Okochi, C., Gold, A., Tayne, K., Leckey, E., Lynds, S., Williams, V., and **S. B. Wise**. 2019. Exploring students' engagement with place-based environmental challenges through filmmaking: A case study from the Lens on Climate Change program. *Journal of Geoscience Education. 68*(1): 80-93.

Reinholz, D. L., Pilgrim, M. E., Falkenberg, K., Ngai, C., Quan, G. M., **Wise, S.**, Geanious, C., Corbo, J. C., and N. Finkelstein. 2018. Departmental Action Teams: A five-year update on a model for sustainable change. *Reinvention Collaborative Biennial National Conference digital volume*.

Corbo, J. C., Quan, G. M., Falkenberg, K., Geanious, C., Ngai, C., Pilgrim, M. E., Reinholz, D. L., and **Wise, S**. 2018. Externalizing the Core Principles of the Departmental Action Team (DAT) Model. PERC Proceedings. *Physics Education Research Conference*.

Knight, J. K., **Wise, S. B.**, and S. Sieke. 2016. Group Random Call Can Positively Affect Student In-Class Clicker Discussions. *CBE-Life Sciences Education*. 15:ar56, 1-11.

Knight, J. K., **Wise, S. B.**, Rentch, J., and E. M. Furtak. 2015. Cues Matter: Learning Assistants Influence Introductory Biology Interactions during Clicker-Question Discussions. *CBE-Life Sciences Education*.14: 1-14.

Basey, J. M., Maines, A. P, Francis, C. D., Melbourne, B., **Wise, S. B.**, Safran, R. J., and P. T. J. Johnson. 2014. Impact of pre-lab learning activities, a post-lab written report, and content reduction on evolution-based learning in an undergraduate plant biodiversity lab. *Evolution Education and Outreach*. 7:10.

Knight, J. K., **Wise, S. B.**, and K. M. Southard. 2013. Understanding Clicker Discussions: Student Reasoning and the Impact of Instructional Cues. *CBE-Life Sciences Education*. 12: 645-654.

Beardsley, P. M., Bloom, M. V., and **S. B. Wise**. 2012. Challenges and Opportunities for Teaching and Designing Effective K-12 Evolution Curricula. In: *Evolution Challenges: Integrating research and practice in teaching and learning about evolution*. Rosengren, Brem, Evans, and Sinatra, Eds. Oxford University Press, Oxford, UK.

Wise, S. B. 2010. Climate Change in the Classroom: Patterns, Motivations, and Barriers to Instruction Among Colorado Science Teachers. *Journal of Geoscience Education*. 58(4): 213-225.

Wise, S. B. and D. W. Stock. 2010. *bmp2b* and *bmp4* are dispensable for zebrafish tooth development. *Developmental Dynamics*. 239(10): 2534-2546.

Biological Sciences Curriculum Study (member of revision team). 2010. *Biology: A Human Approach*, 4th Edition. Kendall Hunt Publishing.

Biological Sciences Curriculum Study (member of revision team). 2009. *The Biology Teacher's Handbook*, 4th Edition. NSTA Press.

Wise, S. B. and D. W. Stock. 2006. Conservation and divergence of Bmp2a, Bmp2b, and Bmp4 expression patterns within and between dentitions of teleost fishes. *Evolution and Development*. 8:511-523.

Wise, S., Davis, N. T., Tyndale, E., Noveral, J., Folwell, M. G., Bedian, V., Emery, I. F., and Siwicki, K. K. 2002. Neuroanatomical studies of period gene expression in the hawkmoth, *Manduca sexta*. *Journal of Comparative Neurology*. 447:366-380.

Selected Poster Presentations

Quan, G. M., Corbo, J. C., Wise, S., Pilgrim, M.E., Reinholz, D., Ngai, C., Falkenberg, K., Geanious, C., and G. Gorzelsky. Departmental Action Team (DAT) Model. Reinvention Collaborative, 2018.

Littrell-Baez, M., Clark, J., Leckey, E., Gold, A., Wise, S., and S. Lynds. Case Study on Science and Storytelling through Film: American Indian Students in the Lens on Climate Change (LOCC) Summer Workshop. AISES Conference, 2017.

Wise, S. B., Zimmermann, S., and J. Knight. Student-Student Questioning In Biology Clicker Discussions. *Society for the Advancement of Biology Education Research,* July 18, 2014.

Wise, S. B., Southard, K., Pritchard, B., and J. Knight. What are they actually talking about? Analyzing student discussions of clicker questions. *Science Education Initiative End of Year Event*, July 30, 2011.

Wise, S. B., Hoskinson, A.-M., and A. Martin. SITAR: The Student Interaction and Teaching Activity Report. *Science Education Initiative End of Year Event*, May 4, 2010

Wise, S. B. Climate Change: Colorado Teachers' Views and Experiences. *U. of Colorado Energy Initiative Symposium*, November 17; *American Geophysical Union Conference*, December 15-19; *U. of Colorado CIRES Rendezvous*, April 1, 2009.

Wise, S. B. Presenting a summer symposium on teaching evolution. Society for Integrative and Comparative Biology Conference, January 4-8; Meeting of the National Science Foundation Board at the University of Colorado, February 10.

Wise, S. B. and D.W. Stock. 2003. Oral expression of Bmp orthologs in dentally divergent fishes. *Society for Developmental Biology 62nd Annual Meeting,* July 30-August 3.

Honors

2006 K. Patricia Cross/AACU Future Leaders Award. *Recognizes graduate students who are committed to developing academic and civic responsibility in themselves and others, and who show exemplary promise as future leaders of higher education.*

1996 Phi Beta Kappa, Swarthmore College chapter, Swarthmore, PA

1995 HHMI Summer Research Fellow, Swarthmore College, Swarthmore, PA

1991 NSF Young Scholars program participant, Florida State University, Tallahassee, FL