

Education

- Ph.D. Learning Sciences, University of Washington, Seattle (2015)
Dissertation: *Active learning in large-enrollment STEM learning environments*
Committee: Phil Bell, Scott Freeman, Megan Bang, Kenneth Zeichner
- M.S. Molecular and Cellular Biology (2006)
Thesis: *Molecular Evolution of Drosophila Cdc6*
Fred Hutchinson Cancer Research Center, Seattle
- B.S. Honors Biochemistry (2003)
Thesis: *Variable rates of helicase activity due to ssDNA binding proteins*
University of Oregon

Relevant Professional Positions

- 2014-current Manager of Instruction at UW Biology (Seattle, WA)
Managing, planning, and supervising 13 staff/faculty on the teaching side of a large department (1,200 majors and ~3,000 Intro students per year)
- 2007-13 Course Coordinator
All levels of administration for an every-quarter 300+ student lab course

College Teaching Experience

- 2010-2019 Bio200 Introductory Molecular, Cellular, and Developmental Biology
750+ intended STEM majors at UW-Seattle taught in a highly active style,
Managed a teaching team of 25 TAs, junior faculty, staff, and undergrads,
Nominated for UW Distinguished Teaching Award,
Named 'Most Inspirational Faculty' of 2014 (UW Panhellenic Council)
- 2016-present Bio313 Civilizational Biology
20-55 Biology majors in a lab course with explicit Individual & Society credit,
Developed and taught course on biological underpinnings of human society
- 2017-present MCB508 and MCB509 Teaching College Science ([funded by the NSF](#))
Training program in teaching for cohorts of advanced STEM PhD students,
Mentored graduate students through their own Instructor of Record courses

Peer-Reviewed Journal Publications

Wiggins, B., Sefi-Cyr, H., Lily, L., Dahlberg, C. (2020) Repetition is important to students and their understanding during laboratory courses that include research. *Journal of Microbiology and Biology Education* [submitted].

Crowther, G., Wiggins, B., & Jenkins, L. (2020) Testing in the Age of Active Learning: Test Question Templates Help to Align Activities and Assessments. *Journal of the Human Anatomy and Physiology Society*, 24 (1).

Wiggins, B., Jordt, H., & Wingert, K. (accepted). Less text, more learning: An instructional strategy supporting language-minoritized biology students. *Journal of College Science Teaching*.

Dahlberg, C. L., Wiggins, B. L., Lee, S. R., Leaf, D. S., Lily, L. S., Jordt, H., & Johnson, T. J. (2019). A Short, Course-Based Research Module Provides Metacognitive Benefits in the Form of More Sophisticated Problem Solving. *Journal of College Science Teaching*, 48(4).

Lee, S.R., Dahlberg, C.L., and Wiggins, B.L., 2019. A short laboratory module to help infuse metacognition during an introductory course-based research experience. CourseSource.

Theobald, E. J., Eddy, S. L., Grunspan, D. Z., Wiggins, B. L., & Crowe, A. J. (2017). Student perception of group dynamics predicts individual performance: Comfort and equity matter. *PloS one*, 12(7), e0181336.

Wiggins, B. L., Eddy, S. L., Wener-Fligner, L., Freisem, K., Grunspan, D. Z., Theobald, E. J., ... & Crowe, A. J. (2017). ASPECT: A survey to assess student perspective of engagement in an active-learning classroom. *CBE—Life Sciences Education*, 16(2), ar32.

Wiggins, B. L., Eddy, S. L., Grunspan, D. Z., & Crowe, A. J. (2017). The ICAP active learning framework predicts the learning gains observed in intensely active classroom experiences. *AERA Open*, 3(2), 2332858417708567.

Grunspan, D. Z., Eddy, S. L., Brownell, S. E., Wiggins, B. L., Crowe, A. J., & Goodreau, S. M. (2016). Males under-estimate academic performance of their female peers in undergraduate biology classrooms. *PloS one*, 11(2), e0148405.

Grunspan, D. Z., Wiggins, B. L., & Goodreau, S. M. (2014). Understanding classrooms through social network analysis: A primer for social network analysis in education research. *CBE—Life Sciences Education*, 13(2), 167-178.

Chapin, H. C., Wiggins, B. L., & Martin-Morris, L. E. (2014). Undergraduate science learners show comparable outcomes whether taught by undergraduate or graduate teaching assistants. *Journal of college science teaching*, 44(2), 90-99.

Wiggins, B. L., & Malik, H. (2007). Molecular evolution of *Drosophila* Cdc6, an essential DNA replication-licensing gene, suggests an adaptive choice of replication origins. *Fly*, 1(3), 155-163.

Other Published Work

Wiggins, B. (2021) *Active Learning in Large Classrooms*. Online course (24 videos) for professional development of faculty teaching online and/or in large courses. Commissioned for the Michael V Drake Institute for Teaching and Learning at Ohio State University.

Wiggins, B. (2019) [The Public Exam System](#). Invited article on CourseHero.com practitioner's subscription website.

Wiggins, B. (2011-2015) [RiseUp Ultimate Instructional Videos](#). Head Coach and Executive Editor for professional instructional series of more than 30 videos.

Wiggins, B. (2007-2010) The Huddle Online Magazine. Creator and Editor of Coaching Forum (sold in 2010).

Invited Presentations

Donovan, D., Crowther, G., and Wiggins, B. (2021, Jan 29th). [Convergent evolution of transparency in biology teaching and testing](#) (links to 3rd part of the workshop). Workshop for the NWPULSE regional group in Biology Education with >70 participants.

Wiggins, B. (2020, October 5th). [Second-generation active learning: Online teaching methods that build and use student societies](#). Departmental Seminar for Integrative Biology at Oregon State University. Delivered online with 83 attendees.

Dahlberg, C., and Wiggins, B. (2021, January 26th). Determining important elements of course-based research for undergraduate laboratory students. Seminar at the Protein Research Group at the University of Copenhagen.

Wiggins, B. (October 2020). 5 short talks as Speaker for the Spotlight Series on Teaching Skills at the online 2020 [Strengthening Student Success Conference](#). For community college faculty and staff across California.

Wiggins, B. (2020, October 5th). [Second-generation active learning: Online teaching methods that build and use student societies](#). Departmental Seminar for Integrative Biology at Oregon State University. Delivered online with 83 attendees.

Wiggins, B. (2020, September 15th). [Designing Effective Assessments that Go Beyond the Grade](#). Seminar for the National Institutes of Scientific Teaching Webinar Series. Delivered online with 210 registrants.

Wiggins, B. (2020, August 7th). Inclusive Assessment for Online Environments. Short talk for the Summer Institutes on Scientific Teaching Happy Hour Series. Delivered online with ~120 attendees.

Wiggins, B. (2020, June 24th). [Creative Assessments for Online Environments](#). Seminar for the BCBio community of ~80 professors and instructors from institutions in British Columbia. Delivered online.

Dahlberg, C., and Wiggins, B. (2020, March 6-7). Do-overs and teamwork: How repetition and collaboration shift student perceptions of research. 6th Annual Metacognition and Mindfulness Conference. Bellingham, WA.

Dahlberg, C., and Wiggins, B. (2020, March 1). [Cosmozoa: The Making of a Mind](#). Mixed-media science and music event on neuroscience and human experience. Columbia City Theater, Seattle, WA.

Wiggins, B. (2019, July 18-19). Using Contrasting Case Studies to Deepen Science Learning. Workshop and Keynote Facilitator at CourseHero Education Summit on best practices and innovations in postsecondary teaching and learning. Redwood City, CA.

Wiggins, B. (2018, Nov 6). [Framing Active Learning. Invited Speech to the Advances in Higher Education Seminar Series](#). Seattle, WA.

Wiggins, B. (2018, May 14-16). Active Learning Theory and Methods. Keynote Speech and Workshop Leader at the Colorado State University Institute for Learning and Teaching Conference. Ft Collins, CO.

Klein, E. & Wiggins, B. (2018, February 24). Higher education STEM instructors can design and practice for more equitable student training. Invited speech at the [SCI-STEM Conference on Equity and Inclusion](#). Seattle, WA.

Wiggins, B. (2017, April 16-18). Engaging Learners in Biology and Agriculture Courses. Keynote at ISSAE Conference. Toulouse, France.

Wiggins, B. (2017-2019). Science Education in the Next Century. Invited annual speech to the Science Education Partnership at the Fred Hutchinson Cancer Research Center. Seattle, WA.

Wiggins, B. (2016, Dec 3). Education Research. Invited speech and panelist for discussion at Bastyr University. Seattle, WA.

Taranath, A. & Wiggins, B. (2016, September 9). Difficult Conversations. Invited workshop for 1st year faculty at the UW. Seattle, WA.

Wiggins, B. (2016-2017). Teaching from the Ground Up. Invited annual workshop for teachers in the MindsMatter Instructional Program. Seattle, WA.

Wiggins, B. (2015-2017). Science Education through Practice and Coaching. Invited annual speech to senior science students at Seattle Pacific University. Seattle, WA.

Wiggins, B. (2015, April 10). [Science Education through Practice and Coaching](#). Invited TED talk at the UW TEDx Show. Seattle, WA.

Freeman, S. & Wiggins, B. (2015, February 4). Professional Development for Instructors in the WWAMI-system School of Medicine. Invited research talk. Seattle, WA.

Wiggins, B. (2014, April 31 and May 3). Active Learning in Science Education. Research talks in at Normal University and Southwest University. Beijing and Chongching, China.

Klein, E. & Wiggins, B. (2014, January 4). Professional Development for Young Faculty Group in the UW Health Sciences. Workshop. Seattle, WA.

Wiggins, B. (2013, September 22). Professional Development for Faculty in the UW School of Pharmacy. Workshop at Departmental Retreat. Seattle, WA.

Wiggins, B. and Martin-Morris, L. (2013, August 15). Making the Big Class Feel Small. Large-course collegium workshop for faculty at UW. Seattle, WA.

Conference Activity

Wiggins, B., (2020, Nov 6-8). Creative Assessment Design. Conference Talk by request of sponsor at the 2020 National Association of Biology Teachers Conference. Given online.

Wiggins, B., (2020, Nov 6-8). Revamping Inherited Teaching Materials. Conference Talk by request of sponsor at the 2020 National Association of Biology Teachers Conference. Given online.

Wiggins, B., Price, R., Stromholt, S., Gardner, R., & Klein, E. (2020, Oct 26). Community, Direct Feedback, and Cheerleading: [Three practices identified by graduate trainees as especially useful in taking up inclusive teaching methods](#). Conference Talk at the 2020 Biology Teaching Assistant Project Conference. Given online with 56 attendees.

Wiggins, B., Price, R., Stromholt, S., Gardner, R., & Klein, E. (2020, November). Building inclusive excellence into STEM teaching by training graduate students. Conference Talk at the 45th Annual Professional and Organizational Development Conference. Given online.

Wiggins, B. (2020, July 31st). Revamping Inherited Teaching Materials. Seminar for the CourseHero Education Summit with 95 attendees. Delivered online.

Wiggins, B. (2020, July 30th). [Creative Assessment Design](#). Seminar for the CourseHero Education Summit with 195 attendees. Delivered online.

Crowe, A., Eddy, S. & Wiggins, B. (2015, Nov 13). Inclusive Active Learning: Designing Active STEM Class Sessions for All Students. Large Workshop at the AAC&U Transforming STEM Education Conference. Seattle, WA.

Crowe, A., Eddy, S. & Wiggins, B. (2015, Nov 13). Inclusive Active Learning: Designing Active STEM Class Sessions for All Students. Large Workshop at the AAC&U Transforming STEM Education Conference. Seattle, WA.

Wiggins, B. (2015, Oct 28). Coaching for Identity. Workshop at the UW Center for Leadership in Athletics Fall Summit Conference. Seattle, WA.

Wiggins, B. (2014, July 21). Research Perspectives on Sociocultural Learning. Society for the Advancement of Biology Education Research Conference. Minneapolis, MN.

Schivell, A. & Wiggins, B. (2012, April 11). Using Process-Oriented Guided Inquiry Learning in Biology Courses. Workshop for instructors at NWBIO conference. Everett, WA.

Posters Presented

University of Washington Science of Teaching and Learning Conference:

- Wiggins, B., Gardner, R., Price, R. (2020) STEP-UP: Mentoring great teachers and improving through design research
- Wiggins, B., Dahlberg, L., Lee, S., Lily, L., Sefi-Cyr, H., Rose, J., (2020) Student perceptions of iteration and collaboration in research during laboratory courses
- Jordt, H.J., Groat-Carmona, A., Johnson, T., Leaf D. (2018) Course-based laboratory education throughout a curriculum in small, efficient modules.
- Wiggins, B., Dahlberg, C.L., Lee, S., Lily' ., Jordt, H.J., Groat-Carmona, A., Johnson, T., Leaf D. (2018) Course-based laboratory education throughout a curriculum in small, efficient modules.
- Wiggins, B., Grunspan, D.Z., Eddy, S.L. (2014) Investigating a Gender Gap in Peer Perception
- Wiggins, B., and Grunspan, D. (2013) Analyzing social learning structures in large lecture environments
- Wiggins, B., and Chapin, H. (2012) Undergraduate Peer Teaching Assistants are Effective Independent Instructors in Introductory Science Laboratories

Grunspan, D.Z., and Wiggins, B.L. Social network analysis of study partnerships. Poster presented at: Transforming Research in Undergraduate STEM Education; 2019; Purdue University.

Service and Other Professional Experience

National Institute for Science Teaching: Instructor in Active Learning Methods

Board of Directors, approved grant team for IUSE 2021-2024 at Western Washington University titled “An Interdisciplinary Exploration of Student Engagement in Scientific Practices in Undergraduate Biology, Chemistry, and Physics Laboratory Courses”:

Education Advisory Board, CourseHero (2020)

Board of Directors, University of Washington Husky Union Building (2017-2019)

Color Commentator, Paid on-air talent for CSTV Broadcasting (2004, 2006)

UW Parent, Transfer, and 1st-Year Orientation Programs Speaker (2015-2019)

Emerald City Classic International Tournament Director (2003-2009)

Flight Test Panel Member for USA Ultimate (2003-2017)

Reviewer for scientific journals:

- CBE-Life Sciences Education
- Int Journal STEM Ed,
- AERA Open,
- J Ed Assessment,
- Canadian J Higher Ed,
- Applied Phys Nutr Metabolism
- J Continuing Engineering Education

Grant Funding:

- NSF Innovations in Graduate Education Program (Lead PI, 2019-2022, \$330K total). Developing, researching and mentoring in the new UW STEP-UP program to train advanced graduate students to teach inclusively and rigorously.
- NSF Improving Undergraduate STEM Education Level 1 (co-PI, 2016-2019, \$300K total). Qualitative research, survey research and curriculum development on CURE-like experiences at Western Washington University with the Dahlberg group.
- NSF Transforming Undergraduate Education in Science Level 1 (co-PI, 2012-2015, \$188K total). Experimentally testing different active learning methods in a large-classroom STEM-teaching environment.
- University of Washington President's Dissertation Fellowship (Fellow, 2015, \$20K)
- MSU Fellowship for Global Understanding to visit and study the Chinese educational system Shanghai, Chongqing and Beijing (Fellow, May 2014)

Other Awards

UW Lab Safety Innovations Initiative Award (February 2019)

Highlighted in UW "Innovators Among Us" series (2016)

Named 'Most Inspirational Faculty' of 2014 (UW Panhellenic Council)

Recognized for highest student evaluations at UW Arts and Sciences (2012)

Biochemistry Achievement Award at the University of Washington (2003)

Player of the Year (The Callahan Award in Ultimate Frisbee, 2003)