

Casey Self, Ph.D.
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Education

University of Washington, Seattle: Ph.D., Biology 2015
Dissertation: Tooth Roots and the Periodontal Ligament: Morphology,
Modeling and Behavior
Advisor: Professor Susan Herring

University of Florida, Gainesville: M.A., Anthropology 2007
Thesis: Role of the Periodontal Ligament in Occlusal Load Transfer:
Implications for Finite Element Models
Advisor: Professor David Daegling

University of California, Davis: B.S., Anthropology 2003

Teaching Interests and Positions

I am trained as an anatomist and teach beginning and advanced undergraduates, those new to science, those majoring in the biological sciences, and those aiming for professional health careers. I strive for student-centered classrooms and rely on evidence-based teaching practices.

Associate Teaching Professor – University of Washington, Biology Department 2019-
Survey of Human Anatomy (Biol 310) 5 credit lab AUT/SPR, 48 students per quarter
Introduction to Human Physiology (Biol 118) 5 credit large lecture WIN, 345 students per quarter
Peer Facilitating in Biology (Biol 396) variable credit AUT/WIN//SPR, ~10 students per quarter
Head and Neck Anatomy (Dentfn 501)

Lecturer, full time – University of Washington, Biology Department 2016-2019
Survey of Human Anatomy (Biol 310)
Comparative Morphology Vertebrates (Biol 453)
Peer Facilitating in Biology (Biol 396)
Elementary Physiology Laboratory (Biol 119)
Introduction to Human Physiology (Biol 118)

Teaching Associate – University of Washington, Biology Department 2015-2016
Elementary Physiology Laboratory (Biol 119, 3 quarters)
Peer Facilitating in Biology (Biol 396, 3 quarters)

Teaching Associate - University of Washington, School of Dentistry 2015-2017
Head and Neck Anatomy (Dentfn 500, 2 quarters)

Predoctoral Teaching Associate - University of Washington, Biology Department 2007-2014
Introductory Biology (Biol 220, 4 quarters)
Foundations in Physiology (Biol 350, 2 quarters)
Advanced Animal Physiology Lab (Biol 463, 2 quarters)
Comparative Morphology Vertebrates (Biol 453, 2 quarters)
Vertebrate Biology (Biol 452, 1 quarter)

Predoctoral Teaching Assistant - University of Florida, Biology Department 2006-2007
Integrated Principles of Biology (BSC 2010L, 2 semesters)

Awards and Recognition

Finalist, UW Distinguished Teaching Award	2023
UW Center for Teaching and Learning Poster Award	2021
Sigma Kappa Professor Recognition	2020
Nominee, UW Distinguished Teaching Award	2018
Sigma Kappa Professor Recognition	2016
Zeta Tau Alpha Professor Recognition	2015
Outstanding UW Woman	2015
Oral Health Training Grant T32 DE07132, NIH NIDCR	2008-2011
UC Davis McNair Scholars Undergraduate Research Grant	2003

Service

Co-Chair of UW Provost's Working Group on "Future of Teaching"	2022-2023
UW STEP-UP Advisory Board Member (NSF-funded)	2022-
Development Committee for CourseSource A&P framework	2022-2023
UW Faculty Senate Senator	2021-
UW Faculty Council for Teaching and Learning	2021-
UW Health Sciences Education Building Anatomy Space Design Committee	2019-2022
UW Biology Department Undergraduate Program Committee member	2020-2021
UW Biology Department Diversity and Equity Committee Member	2020-2021
UW Biology Department Tenure-Track DBER Search Committee Member	2019-2020
UW Biology Department Undergraduate Program Committee Member	2016-2019
UW Biology 220 Mentored Teaching Opportunity Search Committee Member	2018
UW Biology 119 Teaching Associate Search Committee Member	2016

Outreach

Workshop: Assessing Critical Thinking in Anatomy Education. APTLC meeting.	2022
UW in the High School Coordinator	2022-
UW in the High School Liaison	2015- 2022
Workshop: Learning in the time of COVID: Craniofacial Research Group	2020
UW School of Dentistry, Organizer	
UW College Assistance Migrant Program, Mentor	2019-2020
Workshop: Classroom Engagement Techniques. UW Bothell Business	2019
School Lecturer on-boarding summer program, Organizer	
Workshop: Navigating Bias in Teaching Evaluations. Craniofacial Research Group	2018
UW School of Dentistry, Organizer	
UW Dream Project, (Invited Speaker)	2018
NW Partnership for Undergraduate Life Sciences Education Fellow (NSF Funded)	2017
Workshop: Mitigating Achievement Gaps in Undergraduate Education.	2017
Craniofacial Research Group, UW School of Dentistry, Organizer	
McNair Alumni Panel, UW Ronald E. McNair Conference	2016
UW School of Medicine Biomedical Research Integrity Program, Discussion Leader	2016
Reviewer of Journal Articles for <i>Mammalian Biology</i> , <i>Journal of Mammalogy</i> , <i>Journal of Biogeography</i>	2015-2017
Workshop: Integrating Active Learning into a Lecture-Based Course	2014
for Health Students. Craniofacial Research Group, UW School of Dentistry, Organizer	
UW Burke Museum, Exhibit and Special Events Presenter, Summer Education Courses	2012-2018
"Meet the Mammals", "Girls in Science" (6 th – 9 th grade), "Little Explorers" (K – 1 st grade)	
Alderleaf Wilderness College, Animal Tracking Course, Guest Speaker	2010-2012

Faculty Development

UW Biology Junior Faculty Mentor Program (Mentor)	2021-
UW Biology Learning and Teaching Community, Member & Presenter	2014-
National Anatomy and Physiology Teaching and Learning Group, Founding Member	2021-
Webinar Series Attendee	
Online with Life Science Education Journal: On Inclusive Teaching, May 7	2021
UW IT: Empathy, Engagement, and Organization: Findings on UW Students' Experiences of Remote Instruction, Mar 4,	2020
Howard Hughes Medical Institute Special Event: Addressing Inequities in Higher Education Post-COVID Nov 13	2020
Association of American Universities: Undergraduate STEM Education Initiative, May 1	2020
Online with Life Science Education Journal Transitioning to online instruction, Apr 3	2020
STEMM Equity Advancement Change Institute Series: Talking about Leaving Revisited 5 webinar series	2020-2021
Society for the Advancement of Biology Education Research: Striving Towards Inclusion in Academic Biology, 10 webinar series	2020-2021
Consortium for the Advancement of University STEM Education (CAUSE) Fellow	2018-2019
UW Center for Teaching and Learning Faculty Fellows Program	2016-2017
Attended quarterly meetings of the UW CAUSE	2016-2017
Member, UW Biology Education Research Group (BERG)	2014-

Publications

2021 Price, R. M., Self, C. J., Young, W. C., Klein, E. R., Al-Noori, S., Ma, E. Y., & DeMarais, A. Brief Training and Intensive Mentoring Guide Postdoctoral Scholars to Student-Centered Instruction. *CBE—Life Sciences Education*. 20(4)

2019 Moorleghen, D.M.; Oli, N.; Crowe, A.J.; Liepkalns, J.S.; Self, C.J.; Doherty, J.H. Impact of automated response systems on in-class cell phone use. *Biochemistry and Molecular Biology Education*. 47(5):538-546.

2015 Self, CJ. Dental root size in bats with different dietary consistency. *Journal of Morphology*. 276(9):1065-1074.

2015 Self, CJ. Cricetid rodents: Is molar root morphology an indicator of diet? *Zoomorphology*. 134(2):309-316

2008 Daegling, DJ; Warren, MW; Hotzman, JL; Self, CJ. Structural analysis of human rib fracture and implications for forensic interpretation. *Journal of Forensic Science*. 53(6):1301-1307.

Presentations

2023 Self, CJ. Re-training Professionalism in the Context of Anatomy Instruction. *American Association for Anatomy* (poster).

2021 Self, CJ. Engagement and Professional Skills Training in a STEM Course. *UW Teaching & Learning Symposium* (poster).

2019 Self, CJ. Training Students to Ask Better Questions. *UW Teaching & Learning Symposium* (poster).

2019 Self, CJ; Petersen, K. Exam Reflections Are a Beneficial Intervention in a Large STEM Lecture. *UW Teaching & Learning Symposium* (poster).

2018 Moorleghen, D; Oli, N; Crowe, A; Leipkalns, J; Self, CJ; Doherty, J. Cellphones as a Classroom tool: Swipe Right or Left? *UW Teaching & Learning Symposium* (Poster)

2017 Self, CJ. Individual and Group Quizzing Using IF-AT Forms to Encourage Peer Learning. *UW Teaching and Learning Symposium* (Poster)

2017 Self, CJ; Petersen, K. Peer Instruction: A Win-Win-Win Scenario. *UW Teaching and Learning Symposium* (Poster)

2013 Self, CJ; Herring, SW. Effect of Botox treatment of the masseter on PDL morphology. *Journal of Dental Research*. 92(A): 171480. (Poster)

2013 Self, CJ; Herring, SW. Morphology of the rabbit periodontal ligament and the effect of reduced bite force. *Integrative and Comparative Biology*. 53(Suppl 1): 12.5. (Oral Presentation)

2011 Self, CJ; Payne, AA. Root surface area in relation to diet in rodents: A CT method for evaluating tooth surface area. *Integrative and Comparative Biology*. 51(Suppl 1) 33.4 (Oral Presentation)

2011 Self, CJ. Tooth root morphology and loading history: An evolutionary perspective. *Journal of Dental Research*. 90(A) (Oral Presentation)

2010 Self, CJ; Herring, SW. Tooth root surface area as an indicator for diet. *Integrative and Comparative Biology*. 2010 Jul; 50(Suppl 1): 90.11. (Oral Presentation)

2008 Self, CJ; Daegling, DJ. Effect of periodontal ligament in alveolar bone response to loading. *Journal of Dental Research*. 87(B). (Poster)

2002 Self, CJ. Effect of larval rearing media on blowfly oviposition behavior. UC Davis Fourteenth Annual Undergraduate Research Conference. (Oral Presentation)

Student Mentoring and Research Interests

As a first-generation college student, I have a strong commitment to undergraduate mentoring, both formal and informal. My informal mentoring mostly falls under the category of letter writing. **I write on average 40 letters a year** for graduate, medical, dental, nursing, physical therapy, occupational therapy, and many other programs including scholarships and awards. This letter writing involves 1-2 meetings with each student to discuss applications, goals, strategies for re-application, exam prep, and the myriad other hoops to jump through to reach a graduate or professional program. All students deserve guidance and support during this sometimes-confusing transition to their future. I am proud to be part of that support network. My student research mentoring is generally student-generated research projects. These are wide-ranging and very student focused.

Sophia Marr. Growth mindset intervention in non-majors physiology 2022-2023
 This project arose out of a growth mindset intervention I implemented in a large non-majors class that was struggling with the return to in person work. Sophia took it upon herself to visualize the data and then we embarked on a more comprehensive review of outcomes. The manuscript is in preparation for submission to *The American Biology Teacher*.

Abdullah Burghari and Rhonda Osman. Anatomy for Change 2022-
 Anatomy for Change is an outreach program for underrepresented pre-health students which provides hands-on workshops within a cadaver lab. Each event features a teaching team of anatomy course faculty, medical school students, and peer facilitators. The workshop utilizes medical case studies to encourage a problem solving mindset in students. We have had several successful events and have submitted a grant proposal to the UW Office of Minority Affairs Division Seed Grant program.

Rebekah Moore. Creating game simulations for Biol 119 2021-2023
 The urinalysis lab simulator gamifies real laboratory tasks from BIOL118 into virtual quests, aiming to improve performance for in-person labs, reduce waste, increase STEM career retention, and provide instructors with valuable data to monitor pain-points. resulting in a UW Undergraduate Research Symposium Oral Presentation in 2023.

Shelby Hall, Austin Hardin. Metacognition and exam performance in Biol 118 undergrads 2019
 This was an internal instructional improvement project for the non-majors physiology course. We developed an exam reflection intervention, iterated over two quarters, to identify question structures that resulted in consistently deep and productive reflections on exam preparation. They used qualitative methods to code student responses to categorize depth of reflection and correlated it to improved student outcomes over five exams. This is an intervention still used in the course to great effect.

Heather Norris, Jacob Wallace. Measuring undergraduate metacognition. 2015-2017
 After implementation of a scratch-off instant feedback assessment technique in the non-majors physiology lab, we wanted to know if it was having an effect. They found a 10%

improvement in exam scores on the concepts covered by the instant feedback quiz. This project resulted in a poster presentation at the UW Center for Teaching and Learning Symposium in 2017

Rebecca Andersen. Computer modeling chewing loads. 2013

In support of developing a functional CT-based finite element model of teeth Rebecca did the initial project design and CAD modeling of a tooth and periodontal ligament environment. Her work was presented at the UW Undergraduate Research Symposium in 2014.

Sophie Bluvstein. Histology of rabbit dentition. 2012

This project involved a histological investigation into the normal morphology of the rabbit periodontium. Her work was incorporated into a presentation at the *International Association for Dental Research* meetings in 2013.

Abby Payne. Tooth root morphology in rodents. 2010

This project involved a computed tomography investigation into the normal morphology of the rabbit periodontium. Abby was a part of the University of Washington Louis Stokes Alliance for Minority Participation (UW LSAMP) program and her work was presented at the *Integrative and Comparative Biology* meetings in 2011.

In addition to small student-centered research projects, I have been part of larger, multi-institution, efforts to broaden our understanding of how students learn physiology, including three submitted but so far unfunded NSF projects. These efforts are ongoing.

National Science Foundation – IUSE – (submitted July 19, 2021) Collaborative Research: Exploring inventing as a means of enhancing students' ability to transfer principle-based reasoning across complex biological systems. PI: Jennifer Doherty, Co-PI: CJ Self, K Hurme

National Science Foundation – ECR DBER DCL – (submitted Sept 30, 2019) Exploring inventing as a means of enhancing students' epistemic agency and ability to transfer principle-based reasoning across complex biological systems. PI: Jennifer Doherty, Co-PI: CJ Self, MP Wenderoth, J McFarland, S Brahmia

National Science Foundation – IUSE – (submitted Nov 8, 2016) Teaching Principle-based Reasoning in Physiology. PI: Jennifer Doherty, Co-PI: CJ Self, MP Wenderoth, J McFarland

Prepared 06/01/2023