

Loma Pendergraft, PhD

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Professional Summary

Possesses a wide skill set stemming from first-hand experience in a variety of academic fields, including wildlife science, animal behavior, and neuroethology. More than eight years of research experience, nine years of teaching experience, and ten years of intermittent public speaking experience. Earned a PhD in Environmental and Forest Sciences by studying the intelligence and behavior of American crows.

Key Skills

- Research (experimental design, data collection, statistical analysis)
- Writing (first author of 4 publications, master's thesis, and doctoral dissertation)
- Animal care (IACUC certified to manage songbirds and rodents)
- Pedagogy (course development, student engagement and assessment, incorporating technology in classroom, learning management systems)
 - Subject specialties: animal behavior, wildlife science, psychology, research design
- Remote instruction (Zoom)
- Video content creation (OBS, Panopto)
- Microsoft Office (Word, Excel, PowerPoint)
- Public speaking (both remote and in-person)
- Elementary fluency in Spanish

Work History Summary

- *Lecturer – University of Washington (2019-2026)*
 - Taught courses on human psychology, animal behavior, wildlife science, experimental design, and undergraduate mentoring
- *Graduate student – University of Washington (2014-2021)*
 - Earned MS and PhD conducting research on American crow behavior, intelligence, and brain functionality
 - Concurrently trained in pedagogical techniques via dedicated classes and as a teacher's assistant
- *Science teacher – Tulsa Public Schools (2012-2014)*
 - Taught chemistry (10th grade) and physical science (8th grade)
- *Lab manager – Oklahoma State University (2011-2012)*
 - Managed a colony of prairie voles used in neuroethological research

- The following pages contain more comprehensive details of above summary -

Education

Doctor of Philosophy

- **University of Washington** School of Environmental and Forest Science (2017-2021)
- Advisor: Dr. John Marzluff
- Dissertation: *Thought for food; brain activity and task performance of American crows (Corvus brachyrhynchos) in pursuit of food*

Master of Science

- **University of Washington** School of Environmental and Forest Science (2014-2017)
- Advisor: Dr. John Marzluff
- Thesis: *Food amount affects the vocalizations around and possibly recruitment to a food source by American crows*

Bachelor of Science (*magna cum laude*)

- **Oklahoma State University** School of Agriculture (2007-2011)
- Major: Wildlife Ecology and Management. Minor: Zoology
- Advisor: Dr. Tim O'Connell
- Honors Thesis: *Attrition of Scissor-tailed flycatchers from an Autumnal roost*

Professional Development

Science Teaching Experience Program for Upcoming PhDs (STEP-UP) (2021-2022)

- **University of Washington MCB 508** (taught by Dr. Ben Wiggins)
- *Multi-quarter program. Trainees work with an experienced educator to learn teaching strategies, practice teaching skills, and develop course materials during the Autumn, then prepare a 6-session set of classes over the Winter, which they then teach to UW undergraduates in the Spring.*

Teaching & Learning in Higher Education: Frameworks & Practices (2020)

- **University of Washington GRDSCH 515** (taught by Dr. Wei Zuo)
- *Trainees learn frameworks and models of learning, specific practices for implementing said frameworks, and the research that supports them.*

Hybrid Pedagogies: Using Technology in Teaching

- **University of Washington GRDSCH 540** (taught by Dr. Robyn Foshée & Milan Vidaković)
- *Trainees are taught how to use technological resources within the classroom, their pedagogical applications, and how to evaluate their effectiveness for learning goals.*

Teaching Experience

University of Washington (UW) Department of Psychology (2019-2026)

- PSYCH 101: Intro to Human Psychology
 - *Introduced undergraduates of all age groups to the basics of topics common in psychological research, such as consciousness, learning, memory, social psychology, etc. Remote and in-person*
- PSYCH 300: Animal Behavior
 - *Taught junior/senior level undergraduates core concepts of animal behavior theory. Primary lecture-based, students also gave presentations summarizing relevant publications.*
- PSYCH 330: Lab in Animal Behavior
 - *Taught junior/senior level undergraduates experimental design, field methodology, and presenting findings to an audience through the lens of animal behavior. Remote and in-person.*
- PSYCH 416: Animal Communication
 - *Taught senior-level undergraduates the general principles of animal communication alongside detailed examinations of specific model systems.*
- PSYCH 496: Undergraduate Teaching Experience
 - *Supervised and guided senior undergraduates as they gained teaching experience acting as peer mentors for Psych 101 and 300 (see above).*
- PSYCH 499: Undergraduate Research Experience
 - *Supervised and guided senior undergraduates as they gained research experience by helping me conduct a study into the neurobiology of American crows.*

Cornish College of the Arts (2023)

- HS 131: First-Year Liberal Arts Seminar
 - *Taught freshman undergraduates the dynamics of human/nature interactions within the city via lectures and group projects.*

UW School of Environmental and Forest Sciences (2022-2023)

- ESRM 350: Wildlife Biology and Conservation
 - *Taught junior/senior level undergraduates foundational knowledge of wildlife biology and ecology utilizing both lectures and group projects. Remote and in-person.*
- ESRM 351: Wildlife Research Techniques
 - *Taught junior/senior level undergraduates techniques to survey wildlife populations utilizing both lectures and field-based exercises. Remote and in-person.*

UW Department of Biology (2018)

- BIOL 180: Introductory Biology
 - *Acted as a fieldtrip leader. Co-led several morning field trips that taught songbird handling and mist-netting to undergraduates.*

Tulsa Public Schools (2012-2014)

- Science Teacher
 - *Alternatively certified by Oklahoma Commission for Teacher Preparation. Taught Chemistry to 10th graders during 2012-2013, Physical Science to 8th graders during 2013-2014.*

Service and Outreach

- Guest lecturer (2016-2026)
 - *Invited to present on the intelligence and capabilities of American crows to various interested organizations (such as Birds Connect Seattle, Bothel Crow Watch, Sound Waters University, Wesley Homes U, Methow Conservancy, University House, etc.)*
- Science Mentor (2025-2026)
 - *Acted as a volunteer consultant for students at Lakeside School (WA) and Manchester High School (CT) requesting professional assistance with research projects*
- Lab representative (May 2019)
 - *Spoke to visiting Paschal Indian School students about the college experience and my research.*
- Scientist of the Month (Nov 2017, Mar 2019)
 - *Spoke to 7th grade students at the Evergreen School in Shoreline as part of Kiki Contreras' scientist of the month program. Answered students' questions about crows, research, and animal behavior.*
- GO-MAP Graduate Speaker (Jan 2016)
 - *Presented current research in form of TED-style talk to UW undergrads. Afterwards, acted as a table captain and answered undergrads' questions about graduate school*
- Clear Sky Tutor (2016)
 - *Regularly tutored American Indian students in Seattle under the Clear Sky program at Nathan Hale High School.*
- National Lab Day participant (May 2012)
 - *Demonstrated to Oklahoma High School students some of the ethological techniques and concepts used by the Ophir Lab to study prairie vole behavior.*
- Speaker at EBCI Tribal Education and Training Seminar (Jun 2009).
 - *Eastern Band of Cherokee Indians (EBCI) seminar aimed to encourage and inspire tribal high school students to continue their education and attend college.*

Research

Research Interests:

Problem-solving capabilities of animals, Learning capabilities of animals, Ethology

Research Experience

- PhD Research (2017-2021)
 - *Conducted neurological and behavioral research on captive wild-caught American crows.*
 - Key skills: daily animal care, animal training (bird), animal capture (bird), experimental design, volunteer management, animal prep for PET imaging, model selection, statistical analysis, R programming
- Master of Science Research (2014-2017)
 - *Conducted behavioral research on wild American crows.*
 - Key skills: behavioral sampling, vocal playback, experimental design, audio analysis (Raven), statistical analysis, R programming
- Field Assistant (2012)
 - *Gathered behavioral data from wild capuchin monkeys. Volunteered for Dr. Susan Perry's Lomas Barbudal Monkey Project (associated with UCLA).*
 - Key skills: behavioral sampling, jungle navigation
- Laboratory Research Assistant (2011-2012)
 - *Primary caretaker of captive-bred prairie voles. Worked for Dr. Alex Ophir's Neuroethology Lab at Oklahoma State University.*
 - Key skills: daily animal care, animal training (rodent), experimental design, behavioral sampling and scoring
- Undergraduate Honor's Thesis (2010-2011)
 - *Tracked seasonal change in local population of scissor-tailed flycatchers. Supervised by Dr. Tim O'Connell at Oklahoma State University.*
 - Key skills: population sampling
- Undergraduate Research Assistant (2010)
 - *Examined feature positive and feature negative learning in European honeybees. Supervised by Dr. John Barthell as part of a Research Experiences for Undergraduates program at University of Central Oklahoma.*
 - Key skills: animal training (insect), experimental design

Publications:

Pendergraft, L. T., Marzluff, J. M., Cross, D. J., Shimizu, T., & Templeton, C. N. (2023). American crows that excel at tool use activate neural circuits distinct from less talented individuals. *Nature Communications*, 14(1), 6539.

Pendergraft, L. T., Marzluff, J. M., Cross, D. J., Shimizu, T., & Templeton, C. N. (2021). American crow brain activity in response to conspecific vocalizations changes when food is present. *Frontiers in Physiology*, 12, 766345-766345.

Pendergraft, L. T., Lehnert, A. L., & Marzluff, J. M. (2020). Individual and social factors affecting the ability of American crows to solve and master a string pulling task. *Ethology*, 126(2), 229-245.

Pendergraft, L. T., & Marzluff, J. M. (2019). Fussing over food: factors affecting the vocalizations American crows utter around food. *Animal Behaviour*, 150, 39-57.

Conference Presentations:

Pendergraft L, Marzluff J, Cross D, Shimizu T, Templeton C (2022) American crows that excel at tool use activate neural circuits distinct from less talented individuals. Research University Alliance (RUA) Professional Conference. Sep 12-13. Pasadena, CA.

Pendergraft LT (2019) Big birds in PET. Speaker. Ruhr University's Comparative Imaging Workshop. May 27-29. Bochum, Germany

Pendergraft LT, Marzluff JM (2018) Fussing over food: factors affecting the vocalizations American crows utter around food. Speaker. American Ornithological Society (AOS) Annual Meeting. Apr 11-14. Tuscon, AZ.

Pendergraft L (2016) The influence of human feeders on American crow calls. Poster Presentation. British Ornithologists' Union (BOU) Annual Meeting. Apr 5-7, 2016. Leicester, UK.

Rice M, Dolman R, Franks M, **Pendergraft L,** Ophir AG (2012) Pups reared without fathers show more social curiosity but reduced boldness. Animal Behavior Society (ABS). June 10-14, 2012. Albuquerque, New Mexico.

Pendergraft L, Bates-Albers L, Duell M, Zuniga E, Abramson CI, Cakmak I, Barthell JF, Hranitz JM, Wells H (2011) Feature positive and feature negative learning in honeybees. Poster Presentation. Society for Integrative and Comparative Biology (SICB) Annual Meeting. Jan 3-7, 2011. Salt Lake City, Utah.

Duell M, Apted T, Hall N, Bates-Albers L, **Pendergraft L,** Zuniga E, Sorucu A, Abramson CI, Aydin L, Barthell JF, Cakmak I, Oruc HH, Wells H, Hranitz JM, Ikizoglu D, Selova S (2011). Lethal and sublethal effects of flumethrin (VAROS-TOP®) on the Anatolian honey bee in the Republic of Turkey. Society for Integrative and Comparative Biology (SICB) Annual Meeting. Jan 3-7, 2011. Salt Lake City, Utah.

Pendergraft L, Bates-Albers L, Duell M, Zuniga E, Abramson CI, Cakmak I, Barthell JF, Hranitz JM, Wells H (2010). Feature positive and feature negative learning in honey bees. Poster Presentation. Cameron University's Oklahoma Research Day. Nov 12, 2010. Lawton, OK.