

Madison Rittinger – Curriculum Vitae

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Ph.D. Candidate · Arthropod Behavior Lab

Department of Biological Sciences · University of Wisconsin - Milwaukee

Education

- 2021-Present Ph.D., Biology
Department of Biological Sciences, University of Wisconsin-Milwaukee (UWM)
Dissertation: The effects of miniaturization on the behavioral and cognitive processes of spiders. Thesis Adviser: Dr. Rafael Rodríguez-Sevilla.
- 2018-2021 M.S., Biology
School of Biological Sciences, Illinois State University (ISU)
Thesis: Sex-specific effects of hatching order on nestling baseline corticosterone in a wild songbird. Thesis Advisers: Dr. Charles F. Thompson and Dr. Scott K. Sakaluk.
- 2013-2017 B.S., Biopsychology, graduated summa cum laude with honors
Ohio Dominican University (ODU)
Honors Thesis: The effects of domestication on aggression in fish. Thesis Adviser: Dr. Blake Mathys.

Publications

Published

- Feagles, O.S., A.A. Sweet, K.D. Stratman, **M.A. Rittinger**, A.M.E. Mish, L. Nicol, and G. Höbel (2026). Where did she go? Changes in social context alter calling strategies of Eastern Gray Treefrogs. *Behavioral Ecology and Sociobiology* (80), 1-12.
- Rittinger, M.A.** & R.L. Rodríguez (2025). Instinct to insight: a variation-based framework to test hypotheses about how animals solve problems. *Biology Letters* (21), 1-7.
- Rittinger, M.A.**, I. Escalante, R.L. Rodríguez (2024). Heuristic test reveals little effect of learning and maturation on early prey capture experiences in a web-building spider. *Scientific Reports* (14), 1-8.
- Rittinger, M.A.**, R.M. Bowden, L.A. Sauers, R.T. Paitz, C.J. Poppe, C.F. Thompson, and S.K. Sakaluk (2022). Sex-specific effects of hatching order on nestling baseline corticosterone in a wild songbird. *General and Comparative Endocrinology* (319), 1-9.

In review

- Rittinger, M.A.**, A. Mueller, R.L. Rodríguez (in review). Insightful spiders? Spiders solve a prey capture problem differently across repeated trials. *Behavioral Ecology and Sociobiology*.

In preparation

- Sakaluk, S., R.A. DiSciullo, P.A. Duncan, C.J. Poppe, **M.A. Rittinger**, E.K. Bowers, C.F. Thompson, R.M. Bowden (in prep). Sex-specific transgenerational effects of experimentally increased maternal corticosterone on stress reactivity of nestling house wrens.

Ritinger, M.A., M. Dasek, L. Goodrum, A.M.E. Mish, and R.L. Rodríguez (in prep). The role of memory in web navigation of *Frontinella communis* (Araneae: Linyphiidae).

Ritinger, M.A., R. Khandge, S.A. DeLong, E. Wheeler, H.A. Owen, and R.L. Rodríguez (in prep). The association between prey capture efficiency and relative brain size in *Pholcus phalangioides* spiders (Araneae: Pholcidae).

Research Experience

2021-Present **Research Assistant**, Arthropod Behavior Lab, UWM. Designed and executed behavioral experiments with spiders, analyzed statistics in R, analyzed images with ImageJ, operated a MicroCT Scanner, conducted 3D image analysis using Dragonfly, and aided in the husbandry of treehoppers and their host plant (Nannyberry).

2018-2021 **Research Assistant**, Wren Lab, ISU. Responsible for executing experiments, banding and catching birds, collecting blood samples, and taking general morphometric measures of birds. Gained experience extracting DNA, running PCR (polymerase chain reactions), and running statistical analyses in SAS.

Summer of 2017 **Research Volunteer**, Southwestern Research Station (SWRS). Helped researchers handle and collect live animals ranging from kangaroo rats, lizards, hummingbirds, and tiger moths.

Presentations

* Denotes an award (see Awards section)

Oral

2026 Ritinger, M.A. & R.L. Rodríguez. The ontogeny of predatory behaviors in a web building spider.
The Graduate Organization for the Biological Sciences Research Symposium at UWM*

2025 Ritinger, M.A. & R.L. Rodríguez. The association between prey capture efficiency and relative brain size in *Pholcus phalangioides* spiders (Araneae: Pholcidae).
Riveredge Nature Center's Student Research Symposium
Ritinger, M.A., A. Mueller, R.L. Rodríguez. Insightful spiders? Spiders solve a prey capture problem differently across repeated trials.
Animal Behavior Society Conference

2024 Ritinger, M.A. & R.L. Rodríguez. How *Pholcus phalangioides* cellar spiders (Araneae: Pholcidae) solve prey capture problems.
The Graduate Organization for the Biological Sciences Research Symposium at UWM*

2023 Ritinger, M.A. & R.L. Rodríguez. How *Pholcus phalangioides* cellar spiders (Araneae: Pholcidae) solve prey capture problems.
Society for Integrative and Comparative Biology, Riveredge Nature Center's Student Research Symposium*

2021 Ritinger, M.A., C.F. Thompson, S.K. Sakaluk. Sex-specific effects of hatching order on nestling baseline corticosterone in house wrens.
Animal Behavior Conference of Indiana University and Phi-Sigma: Beta Lambda Chapter Research Symposium

- 2020 Rittinger, M.A., C.F. Thompson, S.K. Sakaluk. Sex-specific effects of hatching order on nestling baseline corticosterone in house wrens.
Animal Behavior Society Conference (virtual)

Posters

- 2019 Rittinger, M.A., Thompson, C.F. & Sakaluk S.K. Sex-specific effects of hatching order on nestling baseline corticosterone in house wrens.
Illinois State University Symposium, Phi-Sigma: Beta Lambda Chapter Research Symposium, and Animal Behavior Conference of Indiana University

Teaching Experience

* Denotes instructor of record

- Animal Behavior***, Department of Natural Sciences, Milwaukee Institute of Art and Design (MIAD). Summer 2026. This goal of this course is to give students a solid understanding of topics in animal behavior and have them apply those principles in an independent research project.
- Patterns in Nature***, Department of Natural Sciences, Milwaukee Institute of Art and Design (MIAD). Fall 2025-Present. This goal of this course is to give students hands on experience with the scientific method, problem solving, and critical thinking.
- General Ecology Lab**, Department of Biological Sciences, UWM. Spring 2022-Present. I was a teaching assistant (TA) and head TA (Fall 2023-Present) for the lab. I also co-authored new laboratory exercises focusing on survivorship in humans and stream ecology.
- Guest Lecturer**, Department of Biological Sciences, UWM. For Ecology (Spring 2024, Fall 2024, Fall 2025) and Behavioral Ecology (Spring 2023). Topics covered ecological succession, evolution, and the role of hormones in behavior.
- Human Anatomy and Physiology Lab**, Department of Biological Sciences, UWM. Fall 2021. I created my own lab materials and practicals for this lab on the anatomy and physiology of humans.
- Invertebrate Zoology Lab**, School of Biological Sciences, ISU. Spring 2020 and 2021. I was the head TA for both semesters and instructed students on the diversity of invertebrates using preserved specimens.
- General Ecology Lab**, School of Biological Sciences, ISU. Spring and fall 2019. I instructed students on general principles in ecology.
- Biostatistics Lab**, School of Biological Sciences, ISU. Fall 2020. I was the head TA and was in charge of helping graduate students trouble-shoot problems with analyzing statistics in SAS.
- Introduction to Biology Lab**, School of Biological Sciences, ISU. Fall 2018. I instructed students on general principles in biology for non-majors.
- Statistics Tutor**, ODU. 2014. I wrote a manual for using a TI-84 graphing calculator for statistics and tutored students in statistical analysis as well as algebraic and geometric principles

Professional Development

- Teaching Fellow Award**, Center for Excellence in Teaching and Learning, UWM. 2024.
Designed and executed a workshop on the importance of learner-centered teaching at the

university's New TA Orientation (see UWM's Teaching Fellow Award in the Awards section).

Certificate in Course Design, Center for Excellence in Teaching and Learning, UWM. 2023-2024. The certificate is a semester-long asynchronous course that helps you create a course that reinforces active learning. I learned effective strategies to implement active learning into course design. In this process I created a new Ecology curriculum along with lab exercises.

Seminar on Teaching Undergraduates, UWM. 2022. This seminar covers a variety of topics in higher education. I presented a discussion on universities that do not use grades to reinforce students learning. At the end of the seminar, we completed a course syllabus and teaching philosophy statement.

Certificate in Online and Blended Teaching, Center for Excellence in Teaching and Learning, UWM. 2022. Learned how to create engaging online content for students.

Active Learning Workshop, Center for Excellence in Teaching and Learning, UWM. 2022. I participated in a 1 on 1 workshop on ways to make courses encourage active rather than passive learning.

Future Professors Circle, ISU. 2020. This program was led by graduate students to discuss and prepare graduate students for working in academia.

Mentorship

Undergraduate Research Mentor, Arthropod Behavior Lab, UWM. 2021-Present. I mentored eight undergraduate researchers on animal husbandry, experimental design, and data collection. Two of these students I further mentored on data analysis and science communication.

Undergraduate Research Awards, Arthropod Behavior Lab, UWM. 2025. My undergraduate researcher was awarded Best Oral Presentation for presenting "Role of Memory in Web Navigation and Prey Capture in *Frontinella communis* (Araneae: Linyphiidae)" at the Milwaukee Area Undergraduate Research Conferences (MUBRC).

High School Research Mentor, Mentor Matching Engine, Virtual Platform. 2019-Present. I mentored seven different independent research projects totaling ten different students. I mentored students on the scientific process: starting with creating a unique and testable question and ending with interpreting their data.

Undergraduate Research Mentor, Wren Lab, ISU. 2019-2021. I mentored a total of twelve undergraduate researchers on the care and handling of wild animals as well as protocols for banding and taking morphometric measures of birds.

Grants & Fellowships

2026 Animal Behavior Society: Graduate Student Travel Award \$700, UWM: Distinguished Dissertator Fellowship \$15500

2025 Animal Behavior Society: Graduate Student Travel Award \$550, UWM: James & Dorothea Levenson Fellowship \$5000, UWM: Distinguished Graduate Student Fellowship \$15500

2024 UWM: Diane M. Cutaia Teaching Assistant Fellowship \$15000, UWM: Graduate Student Excellence Fellowship \$2500

2023 American Arachnological Society \$1,000

- 2020 ISU: Robert D. Weigel Fund \$966.81, American Ornithological Society: Hesse Award \$1240.06, Animal Behavior Society: Student Research Grant \$1240.05, Society of Integrative and Comparative Biology: GIAR \$897
- 2019 Sigma Xi: GIAR \$925, ISU: Robert D. Weigel Fund \$200, ISU: Rilett Travel Scholarship \$80

Awards

Best Oral Presentation, Presenting “The ontogeny of predatory behaviors in a web building spider” at The Graduate Organization for the Biological Sciences Research Symposium at UWM (2026). Presenting “How *Pholcus phalangioides* cellar spiders (Araneae: Pholcidae) solve prey capture problems” at Riveredge Nature Center’s Student Research Symposium (2023) and at The Graduate Organization for the Biological Sciences Research Symposium at UWM (2024).

Graduate Student Mentorship Award, UWM. 2025. This award recognizes an outstanding graduate student who has shown an exceptional ability to mentor undergraduate researchers. Mentors are nominated by their undergraduate researchers and the decision is made by the university’s Office of Undergraduate Research.

Teaching Fellow Award, UWM. 2024. This award is given to exceptional teaching assistants across the university. TAs must exhibit excellence in teaching, propose a peer-mentoring workshop, and run the workshop at the university-wide New TA Orientation.

Ruth I. Walker Memorial Scholarship or Award, Department of Biological Sciences, UWM. 2022-2026. This award is given to students for academic and scholarly achievements in biological sciences.

Outstanding M.S. Student Award, ISU. 2021. This award is based on coursework, scholarship, and service on behalf of the department.

Robert H. Gray Biology/Ecology Scholarship, ISU. 2020. This scholarship is to encourage and support students studying ecology, evolutionary biology, and ecological sciences.

Scholar Athlete Award, ODU. 2013-2017. To be given this award, students must have a 3.3 GPA or higher and participate in a college-sanctioned sport.

Dean’s List, ODU. 2013-2017. To be named to the Dean’s List students must have a 3.5 GPA or higher.

Service

Fall 2025- **Curatorial Assistant**, Department of Biological Sciences, UWM. I was in charge of cataloging and cleaning avian mounts and skins.

Fall 2024 - **Journal Club Organizer**, Department of Biological Sciences, UWM. I was in charge of scheduling, organizing, and moderating the journal club for the Ecology, Evolution, and Behavior subdivision. Journal Club is an informal weekly meeting for students and faculty to share research, journal articles, or get feedback on proposals.

2019- **Mentor Matching Engine**, Virtual Platform. This online program allows scientists to mentor high-school students working on independent research projects. It also hosts several professional development opportunities. I have mentored 8 independent projects and participated in a workshop on developing better mentoring practices

Science expert at various outreach events. Events included Darwin Day, Science

Bag Outreach Events, the ROSE (Resources and Opportunities in Science Education) project, and the Millennium Girls Event.

2021-2025 **Assistant Junior Varsity Basketball Coach**, Shorewood High School and Nicolet Union High School in Milwaukee, Wisconsin. I was responsible for creating drills to run during practice, instructing and mentoring players, and annotating film clips after games to teach players more about the sport.

2019-2024 **Secretary for University Student Organizations**. I was the secretary for GOBS (Graduate Organization for Biological Sciences at UWM), SACNAS (Society for Advancing Chicano's and Native Americans in Science at ISU) and Phi-Sigma (the biology graduate organization at ISU). As secretary I was responsible for recording meeting minutes, helping to organize the annual research symposia, and coordinating networking events for graduate students.