

# Emily V. Kerns

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Ph.D. Candidate	University of Wisconsin-Madison, Madison, WI Department of Integrative Biology, Minor in Genetics Advisor: Dr. Jesse N. Weber Proposed Thesis: <i>Investigating thermal plasticity, ecotype variation, and phenotypic effects of DNA methylation in threespine stickleback</i>	2021 – Present
B.S.	University of North Florida, Jacksonville, FL Biology, Concentration in Coastal and Marine Biology, Minor in Chemistry Advisor: Dr. Matthew R. Gilg Capstone: <i>Investigation of how selection is acting on a hybrid zone of Fundulus grandis and F. heteroclitus</i>	2015 – 2018

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## PUBLICATIONS

- Engel S.\*, **Kerns E.V.**, Conder P., Weber J.N. No evidence of density-dependent hatch rates in the cestode *Schistocephalus solidus*. *In prep.* \*Undergraduate mentee
  - Kerns E.V.**, Weber J.N. Variable performance of widely used bisulfite sequencing methods and read mapping software for DNA methylation. *In prep.*
  - Bolnick D.I., Barrett R.D.H., Choi E., Eckert L., Hendry A.P., **Kerns E.V.**, Lind Å. J., Milligan-McClellan K., Peichel C.L., Sasser K., Thornton A.R., Wolf C., Steinel N.C., Weber J.N. Destabilized host-parasite dynamics in newly founded populations. *BioRxiv*. Doi: <https://doi.org/10.1101/2024.06.24.600494>
  - Hardy A.L., Gaither M.R., Lotterhos K.E., Greaves S., Cipolla K.J., **Kerns E.V.**, Trujillo A.P., Gilg M.R. Asymmetrical hybridization and environmental factors influence the spatial genetic structure of a killifish hybrid zone. *Evolution*. (2024). Doi: <https://doi.org/10.1093/evolut/qpae160>
  - Gilg M.R., **Kerns E.V.**, Gutierrez-Bayona N.E., Kooyomjian C., Hinojosa N.A. Dynamic cohort analysis reveals fluctuating patterns of selection within a hybrid zone between the killifish *Fundulus heteroclitus* and *F. grandis*. *Evolutionary Biology* (2021) Doi: 10.1007/s11692-021-09553-x
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## PRESENTATIONS

### Oral Presentations

5. **Kerns E.V.**, Weber J.N. How do commonly used methods capture variation in DNA methylation of threespine stickleback (*Gasterosteus aculeatus*)? *Evolution*. July 2024: Montreal, Canada.
4. **Kerns E.V.**. Evolutionary Medicine. University of Wisconsin-Madison Evolutionary Biology 410, taught by Dr. Jesse N. Weber. *Guest Lecture*. May 2023: Madison, WI.
3. **Kerns E.V.**, Weber J.N. Does DNA methylation mediate flexible responses in threespine stickleback? *Alaska Stickleback Retreat*. April 2023: Montreal, Canada.
2. Sasser T., **Kerns E.V.**, Weber J.N. Fish in hot water: Thermal tolerance and interacting stressors. *The World's Greatest Eco-Evo Experiment*. February 2022: virtual. \*Co-first author presentation
1. Gilg M.R., **Kerns E.V.**, Gutierrez-Bayona N.E., Kooyomjian C., Hinojosa N.A. Dynamic cohort analysis reveals evidence of directional selection in a killifish hybrid zone. *Joint Meeting of Ichthyologists and Herpetologists*. July 2019: Snowbird, UT.

### Poster Presentations

4. **Kerns E.V.**, Sasser T., Weber J.N. How do DNA methylation and gene expression mediate plasticity of threespine stickleback (*Gasterosteus aculeatus*)? *Wisconsin Epigenetics Symposium*. October 2022: Madison, WI.
3. **Kerns E.V.**, Sasser T., Weber J.N. How do DNA methylation and gene expression mediate plasticity of threespine stickleback (*Gasterosteus aculeatus*)? *Evolution*. June 2022: Cleveland, OH.
2. **Kerns E.V.**, Cipolla K., Gonzalez D., Gilg M.R. Landscape genetics of a *Fundulus spp.* hybrid zone in northeast Florida. *Joint Meeting of Ichthyologists and Herpetologists*. July 2019: Snowbird, UT.
1. **Kerns E.V.**, Gilg M.R. Hybrid zone analysis of *Fundulus grandis* and *F. heteroclitus*. *Florida Undergraduate Research Conference*. February 2018: Cocoa, FL.

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## RESEARCH EXPERIENCE

University of Wisconsin-Madison, Advisor: Dr. Jesse N. Weber <i>Ph.D. Candidate</i> , Madison, WI	2021 – Present
United States Forest Service <i>Biological Science Technician (Aquatic Systems)</i> , St. Regis, MT PacFish/InFish Biological Opinion Monitoring Program	2020
US Forest Service, AmeriCorps, Student Conservation Association (SCA) <i>Crew Leader / Biological Science Technician</i> , Tongass National Forest, AK	2019

Tongass-Wide Young Growth Study	
National Park Service, AmeriCorps, SCA	2019
<i>Biological Science Technician (Vegetation)</i> , Redwood National Park, CA	
University of North Florida, Advisor: Dr. Matthew R. Gilg	2016 – 2018
<i>Ecological Genetics Research Assistant</i> , Jacksonville, FL	

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## HONORS AND AWARDS

UW-Madison Integrative Biology John Jefferson Davis Travel Award, \$800	2024
William C. Burns & Lemuel F. Fraser Teaching Enrichment Scholarship, \$1,000	2023
NIH R01 Administrative Supplement under Climate Change and Health Notice of Special Interest. PI: Dr. Daniel Bolnick. Co-author and Supporting Personnel: Dr. Benjamin Flanagan, <b>Emily V. Kerns</b> . \$382,330. <i>Declined</i> .	2023
National Science Foundation Graduate Research Fellowship Program, <i>Honorable Mention</i>	2022
Rita and Kenneth Hoots Graduate Student Scholarship, \$2,000	2022
UW-Madison Integrative Biology Graduate Summer Research Award, \$7,520	2022
AmeriCorps Education Award, \$1,600	2019, 2019
UNF Presidential Diamond Scholarship, \$24,000	2015 – 2018
Florida Bright Futures, \$14,400	2015 – 2018
UNF Undergraduate Research Grant Recipient. <i>Hybrid Zone Analysis of Fundulus grandis and F. heteroclitus</i> , \$1,300	2017
Tennessee Valley Interstellar Workshop Scholarship, \$2,500	2017

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## TEACHING EXPERIENCE

<b>University of Wisconsin-Madison</b>	<b>Madison, WI</b>
<i>Teaching Assistant</i>	
Animal Biology Laboratory   Bio/Zoo 102   Lab	2024
Evolutionary Biology   Zoo/Bot/Anthro 410   Discussion	2023, 2025
Introductory Biology 2   Bio/Bot/Zoo 152   Lab	2021
<i>Delta Teaching Program Courses Completed</i>	
Expeditions in Evidence-Based Teaching and Learning	2024
Teaching in Science and Engineering: The College Classroom	2023
Research Mentor Training	2022
<b>University of North Florida</b>	<b>Jacksonville, FL</b>
<i>Supplemental Instructor</i>	
General Biology 2   BSC1011C   Discussion	2018

**Varsity Tutors**  
*Tutor*

**Jacksonville, FL**  
2016 – 2018

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## **VOLUNTEER POSITIONS**

### **University of Wisconsin-Madison**

**Madison, WI**

#### *Wisconsin Evolution*

Evolution Coordinating Committee 2024 – Present

Evolution Seminar Series Committee 2024 – 2025

#### *Department of Integrative Biology*

Graduate Student Organization Outreach Coordinator 2024 – 2025

#### Research Mentor

Guided four undergraduate students (November 2024 – Present, June – September 2024, 2022 – 2023, 2022) through research projects.

#### *Badger Buddies, Biological Interactions Summer Research Program (WISCIENCE)*

Professional Development Mentor 2022

### **Alaska Stickleback Project**

**Virtual**

#### *Graduate Student and Postdoctoral Presentations Co-Organizer*

2023 – 2024

### **PubNavigator: Science Communication Platform**

**Virtual**

#### *Associate Editor*

2020 – 2022

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## **PROFESSIONAL AFFILIATIONS**

American Association for the Advancement of Science

2024 – Present

American Society of Naturalists

2024 – Present

Society for the Study of Evolution

2022 – Present

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## **WORKSHOPS AND CERTIFICATIONS**

Introduction to Equity-Minded Mentorship. *Equity in Graduate Education*

2024

#### *Resource Center*

A Practical Approach to Project Management Workshop. *UW-Madison Graduate*

2023

#### *School Office of Professional Development*

Implicit Bias Workshop. *Fair Play Graduate Student and Postdoc Workshop*

2022

Wilderness First Aid. *Wilderness Medical Associates International*

2019

Shoreline Survival Training. *US Forest Service*

2019

Boating Safety Course for the State of Florida Lifetime Certification. *BoatU.S Foundation*

2018