



# Brady Nichols

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## EDUCATION

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### University of California, Davis

PhD, Animal Behavior; **GPA: 4.00**

*Advisor:* Stacey Combes

*Planned thesis topic:* Insect flight biomechanics and behavior

Davis, California

Sep 2024 – 2029 (*Expected*)

### Bowdoin College

B.A.; Physics (Highest Honors) & Math, Biology Minor; **GPA: 3.88**

*Senior Thesis:* “Drivers of synchrony in the sea star crawl-bounce gait transition”

*Activities:* Ultimate Frisbee, Concert Band (Clarinet)

Brunswick, Maine

Sep 2020 – May 2024

### Marine Academy of Technology and Environmental Science

High School Diploma

*Activities:* Birding Club, Envirothon, Shore Bowl, Project Terrapin

Manahawkin, New Jersey

Sep 2016 – Jun 2020

## RESEARCH

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### Bowdoin College – Johnson Lab

*Summer Research Fellowship + Honors Project*

- Summer team research project developed into independent honors thesis which achieved highest honors in the physics department. Analyzed kinematic data of a sea star gait transition and detailed various modeling approaches. Paper in preparation. Link: <https://digitalcommons.bowdoin.edu/honorsprojects/542/>

Brunswick and Harpswell, Maine

Jun 2023 – May 2024

### Bowdoin College – Rogalski Lab

*Research Assistant*

- Ecotoxicology research investigating the response of water fleas (*Daphnia ambigua*) from different ponds in Maine to various levels of salinity to understand how populations are adapting to pollution. Co-author on two papers, one published and the other submitted (see below).

Brunswick, Maine

Sep 2021 – Dec 2023

### Middle Tennessee State University – Computational Sciences

*NSF REU Participant*

- NSF REU in mathematical biology modeling the transmission of West Nile Virus between birds and mosquitoes. Project title: “An early-season model of West Nile Virus in birds of Rutherford County, TN.”

Murfreesboro, Tennessee

Summer 2022

## COURSES & ADDITIONAL TRAINING

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### SICB Student Journalism Internship

*Society for Integrative and Comparative Biology, Charlotte Mangum Student Support*

Conducted an interview and published a popular science article on the SICB website (see below).

Atlanta, Georgia

Winter 2025

### UW Friday Harbor Labs, Ecological Biomechanics

*with Emily Carrington and Mark Denny*

Class research project: “Longitudinal variation and anisotropy of fracture mechanics in three kelps”

Friday Harbor, Washington

Summer 2024

**Selected courses:** *Biology:* Control Theory (Topics in Theoretical Neuroscience), Arachnid

Ecology/Evolution, Animal Behavior, Population Genomics, Ecology, Biomechanics; *Mathematics:*

Multivariate Calculus, Linear Algebra, Statistics, Advanced Topics in Dynamical Systems, Optimal

Control, Numerical Methods, Combinatorics and Graph Theory; *Physics:* Methods of Computational

Physics, Methods of Theoretical Physics, Electromagnetism, Advanced Mechanics

**Misc. Technologies:**  $\text{\LaTeX}$ , Python, Julia, R, MATLAB, Mathematica

## PUBLICATIONS

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Rogalski, M. A., Baker, E. S., Benadon, C. M., Tatgenhorst, C., & **Nichols, B. R.** “Lake water chemistry and local adaptation shape NaCl toxicity in *Daphnia ambigua*” (2024). *Evolutionary Applications*, 17(3), e13668. <https://doi.org/10.1111/eva.13668>

Chambers, O. M., Burchell, S. P., **Nichols, B. R.**, Kulzy, K. A., & Rogalski, M. A. “Rapid evolutionary response to salinity fluctuations in a coastal *Daphnia* population” (2025). *The American Naturalist* (Accepted). <https://www.journals.uchicago.edu/doi/10.1086/737753>

## PRESENTATIONS

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**Nichols, B.**, Ellers, O., Zeeman, M. L., Syphers, D., Johnson, A. “Froude number determines mechanical coupling of synchronizing podia in the sea star gait transition” (January 4, 2025). Society for Integrative and Comparative Biology 2025 Meeting. Poster presentation.

**Nichols, B.**, Johnson, A. S., Syphers, D., Ellers, O., Zeeman, M. L. “Fall forward, spring back: Drivers of synchrony in the sea star crawl-bounce gait transition” (May 3, 2024). Bowdoin College Physics Honors Final Presentations. Talk.

**Nichols, B.**, Lucas, G., Marriott, H., Ellers, O., Zeeman, M. L., Syphers, D., Johnson, A. “Fall forward, spring back: Mechanical drivers of the sea star bouncing gait” (January 5, 2024). Society for Integrative and Comparative Biology 2024 Meeting. Poster presentation.

**Nichols, B.**, Wnek, J. “Mathematical modeling of road-to-plastron heat transfer and its effect on internal temperatures of *Malaclemys terrapin terrapin*” (August 20, 2021). 2021 Mid-Atlantic Diamondback Terrapin Working Group Meeting. Talk.

## TEACHING

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### University of California, Davis

Teaching Assistant

Davis, California

Winter 2025 - Present

Courses taught:

- BIS 002B (Lab): Principles of Ecology & Evolution (Winter 2025)
- NPB 101D (Discussion): Systemic Physiology (Spring 2025)

### Marine Academy of Technology and Environmental Science

Teaching Assistant, Summer Experience

Manahawkin, New Jersey

Summers 2018, 2019, 2021, 2024

- Day program for 7th-9th graders. Taught students about pine barrens, marsh ecology, and general scientific reasoning and observation via seining, birding, kayaking, water quality testing, and more.

### Bowdoin College

Teaching Assistant, BIOL 3554: Biomechanics

Brunswick, Maine

Spring 2024

## SCIENCE WRITING

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**Nichols, B.** “Doing the “righting” thing: How leaping water striders achieve a perfect landing” (2025). *Society for Integrative and Comparative Biology*.

<https://sicb.org/sicb-news/doing-the-righting-thing-how-leaping-water-striders-achieve-a-perfect-landing/>

**Nichols, B.** “Creature Feature: Aggregating Anemone” (September 17, 2024). *The Ethogram*.

<https://theethogram.com/2024/09/17/creature-feature-aggregating-anemone/>

### The Ethogram

Editor, “Field Frame Fridays”

Davis, California

Fall 2024 - Present

- Editor of the Field Frame Fridays column in the Official Blog of the UC Davis Animal Behavior Graduate Group. Solicit and edit posts from ABGG students and guests, and occasionally write captions.

## GRANTS & AWARDS

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UC Davis Animal Behavior Graduate Group Fellowship, Fall 2024; \$25,000

Highest Honors (for honors project), Bowdoin College Physics, Spring 2024;

FHL Scholarship, Summer 2024; \$4,500

Henry L. and Grace Doherty Coastal Studies Research Fellowship, Summer 2023; \$4980