Megan E. Bishop

Education

Emory University   Atlanta, GA
Neuroscience Ph.D. Student   Aug. 2023-Present
Advisor: Dr. Gordon Berman

University of North Carolina at Chapel Hill   Chapel Hill, NC
B.S. Neuroscience; B.A. English and Comparative Literature, Chemistry Minor   May 2023
Honors Graduate with Highest Distinction | Creative Nonfiction Scholar
Thesis: *Modeling the evolution of fear acquisition strategies in predator-prey dynamics*
Advisor: Dr. Maria Servedio

Research Positions

Berman Lab   Atlanta, GA
Graduate Student   Nov. 2023 – Present
Advisors: Dr. Gordon Berman
- Analyzes the biophysics of female sensory environments during male courtship vocalizations using population genomic models to make predictions about female Drosophila peripheral circuitry

Weissman Lab   Atlanta, GA
Graduate Student Affiliate   Feb. 2024 – Present
Advisor: Dr. Daniel Weissman
- Encoded a new learning mechanism into a game-theoretic evolution of altruism model and analyzes the evolution of intergroup donations and altruistic frequencies
- Built a neural network of Fitz-Hugh Nagumo model neurons and studies critical slowing down in response to internetwork noise

Singer Lab   Atlanta, GA
Graduate Rotation Student   Sept. – Nov. 2023
Advisor: Dr. Annabelle Singer
- Collects and analyzes electrophysiology data from interneurons in CA1 in wildtype mice to understand non-local coding patterns during a spatial memory task

Servedio Lab   Chapel Hill, NC
Undergraduate Thesis Candidate   Jan. 2021 – May 2023
Advisors: Dr. Maria Servedio and Brian A. Lerch
- Simulated game-theoretic, agent-based and population-genetic models to study the evolution of language, learning, and cooperation.

Arnold Psycholinguistics Lab   Chapel Hill, NC
Undergraduate Research Assistant   Aug. 2021 – May 2022
Advisor: Dr. Jennifer Arnold
- Analyzed pronoun referential patterns in children's literature and spoken interviews using corpus analysis

Publications

1. **Bishop, M.E.** and Lerch, B.A., *The influence of language on the evolution of cooperation*. Evolution and Human Behavior. Volume 44, Issue 4, July 2023.

Under Revision

1. **Bishop, M.E.**, Servedio M.R., and Lerch, B.A., *The evolution of fear-acquisition strategies under predation.* Under minor revision for Journal of Theoretical Biology as of July 16, 2024.

Presentations

Talks

2. **Bishop, M.E**. 5 April 2023. *Modeling the evolution of fear acquisition strategies in predator-prey dynamics.* Undergraduate honors thesis defense.
1. **Bishop M.E**. 24 June 2022. *The influence of language on the evolution of cooperation*. Human Behavior and Evolution Society. Virtual, contributed talk.

Posters

3. **Bishop, M.E**. 2 May 2023. *Modeling the evolution of fear acquisition strategies in predator-prey dynamics.* UNC-Chapel Hill Psychology and Neuroscience Honors Poster Session.
2. **Bishop, M.E**. 27 April 2023. *Modeling the evolution of fear acquisition strategies in predator-prey dynamics.* UNC-Chapel Hill Celebration of Undergraduate Research.
1. **Bishop, M.E**, Mann, M.E, Rooselet, N.T, Aimiuwu, O., Patel, T., Bremmer, M., and Penton, R.E., 25 April 2022. *Differences in 'On' and 'Off' Receptive Field Area between Primary and Lateral Areas of Visual Cortex Responding to Locally Sparse Noise Stimuli.* Neurophysiology in Data Science Poster Session.

Science Communication

Publications

2. **Bishop, M.E**. and Lerch, B.A, "Language and Cooperation: It's Complicated", Feature for *Human Behavior and Evolution Society* newsletter, August 2023
1. **Bishop, M.E**., "Environmental Crises Reveal the Key to Long-term Sustainability", *Carolina Scientific* Magazine, Volume 13, Issue 2, Spring 2021

Editorial Roles

Central Sulcus	Atlanta, GA
Editor-in-Chief	May 2024 - Present

- Staff writer and editor for the Emory Neuroscience Graduate Program's semiannual mixed-media publication

Carolina Scientific	Chapel Hill, NC
Editor-in-Chief	May 2022- May 2023

- Led scientific writing workshops for 50+ staff writers
- Lead editor of 80+ articles for two publications

Esurgi Biotech	Remote
Scientific Writing Team Lead	Dec 2020-July 2021

- Trained team of staff writers to write about relevant biomedical research for lay audiences

Honors and Awards

Senior Honors in Psychology and Neuroscience	2023
Summer Undergraduate Research Fellowship ($4000)	2022
First Place Panhellenic Excellence Award ($1500)	2021

Computational Skills

Programming languages: Python, Mathematica, C++, Matlab, Julia

Formal Training:

- *Deep Learning*, NeuroMatch Academy, Summer 2024, P
- IBS 534, *Computational Neuroscience,* Emory University, Spring 2024, A
- BIOL 450, *Introduction to Computational Neuroscience*, Spring 2022, A

Teaching

Introduction to Neuroethics	Fall 2024
Teaching Assistant	Emory University
CYCLEBAR	Nov. 2021-Present
Instructor	West Cary, Chapel Hill, Buckhead, and Dunwoody

Leadership and Outreach

Graduates in Neuroscience	Atlanta, GA
Peer Liaison	May 2024 - Present

- NS student resource for Title IX, DEI, and additional policies created to ensure student safety

Atlanta Brain Bee	Atlanta, GA
Competition Co-Chair	Sept. 2023 - Present

- Writes, organizes, and proctors both oral and written exams for mock bee and competition

Letters to a Pre-Scientist	Atlanta, GA
Pen Pal	Sept. 2023 - Present

- Writes 5 handwritten letters per academic year to underrepresented middle school students to broaden student awareness of diversity in STEM and inspire students to pursue a future in STEM

Carolina Scientific	Chapel Hill, NC
President	May 2022 - May 2023

- Led executive board and staff writing teams
- Acquired $10,000 in external funding

Alpha Chi Omega	Chapel Hill, NC
Vice President of Membership Programming	Dec. 2020-Dec. 2021

- Planned all intrachapter social activities for 200+ members

Affiliations and Memberships

Human Behavior and Evolution Society, Association of Science Communicators, *Scicommers*, Emory Women in Neuroscience (EWiN), Emory Graduates in Neuroscience (GIN), Emory Center for Mind, Brain, and Culture

References

Dr. Gordon Berman, Principal Investigator
Primary Graduate Research Advisor
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Dr. Robert Liu, Principal Investigator
Director of Neuroscience Graduate Program
Department of Biology, Emory University
O. Wayne Rollins Research Center 2131
1510 Clifton Road, NE, Atlanta, GA 30322.
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Dr. Maria Servedio, Principal Investigator
Primary Undergraduate Research Advisor
Department of Biology, UNC Chapel Hill
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Secondary Undergraduate Research Advisor
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