Julia G. McDonough

University of Massachusetts Lowell
Kennedy College of Sciences, Department of Biology
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Education

September 2023 - Present — **Ph.D. in Applied Biology**, Kennedy College of Sciences, University of Massachusetts Lowell, Lowell, MA
Cumulative GPA: 4.0 out of 4.0
Advisor: Dr. Sarah Gignoux-Wolfsohn

August 2018 - May 2022 — **B.Sc., Ecology & Evolutionary Biology**, University of Rochester, Rochester, NY
Cumulative GPA: 3.69 out of 4.0
Clustered in Bioethics and Society & Sustainability

Research Experience

Sept 2023 - present — **Graduate Research Assistant**, Gignoux-Wolfsohn Lab,
Department of Biology, University of Massachusetts Lowell, Lowell, MA.
Investigating the molecular mechanisms of climate change stressor-induced carryover effects in eastern oysters (*Crassostrea virginica*) using DNA methylation and gene expression. Work includes maintaining a large scale experiment, RNA and DNA extractions, library preparations, sequence analysis.

Sept 2022 - Aug 2023 — **Laboratory Technician III**, Brisson Lab, Biology Department, University of Rochester, Rochester, NY.
Assisted graduate students on various developmental evolution and genetics projects in pea aphids (*Acyrthosiphon pisum*), as well as general lab maintenance, organization, and training new members.

June 2022 - July 2022 — **Research Intern,** The Reef Institute, West Palm Beach, FL.
Advanced the institute's mission of coral conservation through research, restoration, and education in the West Palm area, specifically targeting Stony Coral Tissue Loss Disease; other work included aquarium husbandry, coral health monitoring, micro-fragging, marine field work and surveying, public engagement.

Feb 2021-May 2022 — **Undergraduate Research Volunteer**, Brisson Lab, Biology Department, University of Rochester, Rochester, NY.

Jan 2022-May 2022 — Conducted an independent research project exploring differential gene expression of two genes in pea aphids (*A. pisum*) integral to wing plasticity. Designed primers and optimized for qRT-PCR analysis. Conducted phylogenetic analysis of

	a suspected horizontal gene transfer.
Feb 2021-Dec 2022	Assisted a graduate student with a QTL mapping project on wing plasticity in pea aphids (*A. pisum*). Conducted crowding experiments, DNA extractions, PCR, restriction digests, and controlled crosses.
Aug 2020-Aug 2021	**Remote Research Volunteer**, Madin Lab, Hawaii Institute of Marine Biology, Honolulu, HI. Assisted with a fish behavior project in Hanauma Bay; analyzed and recorded data on fish behavior, conducted Pacific fish identification.
Fall 2020	**Technical Assistant**, Minckley Lab, Biology Department, University of Rochester, Rochester, NY. Organized bee specimens into the Specify database. Prepped bee collections for museum curation.

Publications

03. **Julia G. McDonough**, Teresa W. Lee, Thomas J. Miller, Sarah C. Donelan, Sarah A. Gignoux-Wolfsohn. "Prior exposure to hypoxia alters DNA methylation patterns in the eastern oyster." (in progress)
02. Lauren E. Gregory, Santiago O. Bouzas, **Julia G. McDonough**, Jennifer A. Brisson. "Inducing wing development in the pea aphid to study the genetic basis of phenotypic plasticity." (in review, *Proceedings of the Royal Society B*)
01. Rose M. H. Driscoll, Xiaomi Liu, **Julia G. McDonough**, James S. Schmidt, Jennifer A. Brisson. "Pea aphid wing plasticity variation has a multigenic basis." *The Journal of Heredity*, February 4, 2025.

Presentations

January 2026	**Julia G. McDonough,** T. J. Miller, Teresa W. Lee, Sarah C. Donelan, Sarah Gignoux-Wolfsohn. "Lasting DNA Methylation from Early Life Hypoxia in *Crassostrea virginica*". Northeast Aquaculture Conference and Exposition. (Talk).
November 2025	**Julia G. McDonough,** T. J. Miller, Teresa W. Lee, Sarah C. Donelan, Sarah Gignoux-Wolfsohn. "DNA methylation in response to hypoxic stress in eastern oysters". UML Department of Biological Sciences Retreat. (Poster).
July 2025	**Julia G. McDonough**, Sarah C. Donelan, Sarah Gignoux-Wolfsohn. "DNA methylation in response to hypoxic stress in eastern oysters". Gordon Research Seminar and Conference in Ecological and Evolutionary Genomics. (Poster).
April 2025	**Julia G. McDonough**, Sarah C. Donelan, T.J. Miller, Sarah Gignoux-Wolfsohn. "DNA methylation in response to hypoxic stress in eastern oysters". UML Biological Sciences Steven Williams Competition. (Talk). **Runner-up.**
April 2025	**Julia G. McDonough**, Sarah C. Donelan, T.J. Miller, Sarah Gignoux-Wolfsohn. "DNA methylation in response to hypoxic stress in eastern oysters". UML 2025 Student Research & Community Engagement Symposium. (Poster).

March 2025	**Julia G. McDonough**, Sarah C. Donelan, T.J. Miller, Sarah Gignoux-Wolfsohn. "DNA methylation in response to hypoxic stress in eastern oysters". Aquaculture 2025. (Talk).
October 2024	**Julia G. McDonough,** Sarah C. Donelan, T. J. Miller, Sarah Gignoux-Wolfsohn. "DNA methylation as a mechanism of carryover effects in response to climate change stressors in eastern oysters". UML Department of Biological Sciences Retreat. (Poster).
April 2024	**Julia G. McDonough,** Sarah C. Donelan, T. J. Miller, Sarah Gignoux-Wolfsohn. "DNA methylation as a mechanism of carryover effects in response to climate change stressors in eastern oysters". UML 2024 Student Research & Community Engagement Symposium. (Poster). **Best Graduate Poster.**
March 2024	**Julia G. McDonough,** Sarah C. Donelan, T. J. Miller, Sarah Gignoux-Wolfsohn. "DNA methylation and microbiome patterns in response to climate change stressors in eastern oysters". 2024 UMass Intercampus Marine Science Research Symposium. (Poster and Talk). **Best Lightning Talk.**
March 2024	**Julia G. McDonough,** Sarah C. Donelan, T. J. Miller, Sarah Gignoux-Wolfsohn. "Interacting climate change stressors & carryover effects in oysters". National Shellfisheries Association Annual Meeting. (Talk).
April 2022	**Julia G. McDonough**, Rose M. H. Driscoll, J. A. Brisson. "Inducing wing development in the pea aphid to study the genetic basis of phenotypic plasticity". University of Rochester Undergraduate Research Expo. (Poster).

Honors & Awards

April 2025	NSF Graduate Research Fellowship Program Honorable Mention	
April 2024	SWIMMER Fellowship Award	*$36,000*
April 2024	Graduate Poster Winner for the Kennedy College of Science at the UML Student Research & Community Engagement Symposium.	
March 2024	Best Lightning Talk, 2024 UMass Intercampus Marine Science Research Symposium.	
March 2024	Student Travel Award, National Shellfisheries Association 116th Annual Meeting	*$400*
May 2022	Grace McCormack Fund for Biology Prize	*$350*
Summer 2021	University of Rochester Discover Grant	*$1,250*
Fall 2019-2022	All-Academic Liberty League Selection.	
Fall 2020-2022	National Field Hockey Coaches Association Division III National Academic Squad.	
Fall 2018-2022	Dean's Scholarship	*$48,000*
Fall 2018, Spring 2019	University of Rochester Dean's List.	

Teaching Experience

Spring 2026	Metazoan Parasitology Laboratory Teaching Assistant, University of Massachusetts Lowell, Department of Biological Sciences
Fall 2025	Guest Lecturer for Invertebrate Zoology, University of Massachusetts Lowell, Department of Biological Sciences
Fall 2025	Invertebrate Zoology Laboratory Teaching Assistant, University of Massachusetts Lowell, Department of Biological Sciences (approximately 30 students in 2 sections)
Spring 2022	Introductory Biology Head Teaching Assistant, University of Rochester, Biology Department (12 students)
Spring 2021	Introductory Biology Teaching Assistant, University of Rochester, Biology Department (approximately 24 students in 2 sections)
Spring 2020	Introductory Biology Lab Instructor, University of Rochester, Biology Department (approximately 35 students in 2 sections)
Fall 2019	Introductory Chemistry Workshop Leader, University of Rochester Chemistry Department (approximately 20 students in 2 sections)

Mentorship

Fall 2025 - Present	Morgan Cairns, Undergraduate Researcher, University of Massachusetts Lowell
Spring 2025 - Present	Anthony Grossi, Undergraduate Researcher, University of Massachusetts Lowell
Fall 2024 - Spring 2025	Jenifer Khy, Undergraduate Researcher, University of Massachusetts Lowell
Spring 2024 - Summer 2024	Janelle Pia Beduya, Undergraduate, SWMS Mentorship Program
Spring 2024 - Summer 2024	Sophia Garcia, Undergraduate, SWMS Mentorship Program
Summer 2024	Bella McGuane, Undergraduate Researcher, University of Massachusetts Lowell
Fall 2023 - Summer 2024	Logan Laurent, Undergraduate Researcher, University of Massachusetts Lowell
Summer 2023	Ella Croyle, Undergraduate Researcher, University of Rochester
Summer 2023	James Schmidt, Undergraduate Researcher, University of Rochester
Spring 2023 - Summer 2023	Liv Schaubroeck, Undergraduate Researcher, University of Rochester
Fall 2022 - Spring 2023	Charlotte Irwin, Undergraduate Researcher, University of Rochester
Fall 2022	Abigail Seaton, Undergraduate Researcher, University of Rochester
Fall 2022	Sean Lee, Undergraduate Researcher, University of Rochester

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Outreach

November 2025	Graduate Student Panelist for UML Science, Technology, Engineering, and Mathematics Training and Excellence Program
Spring 2024 - Present	Weekly STEM educational activities with the Boys & Girls Club of Greater Lowell
Summer 2023	Mentored two high school students through the Upward Bound STEM-terns program and the Brisson Lab at the University of Rochester
Summer 2022	Educational activities through The Reef Institute (tabeling events, small group

education experiences for young children)

Service

October 2024 - Present	UML Department of Biological Sciences Retreat Planning Committee.

Society Membership

Spring 2026-Present	Society of Molecular Biology and Evolution, *Member*
Fall 2024-Present	UML Graduate Women in STEM, *Co-founder & Vice President*
Spring 2024-Present	UML SWIMMER Program, *Member*
Fall 2023-Fall 2025	National Shellfisheries Association, *Member*
Fall 2023-Present	Society of Women in Marine Science, *Member*
Fall 2023-Present	UML Biology Graduate Student Society, *Member*
Spring 2024-Spring 2025	Women in Ocean Science, *Member*
Fall 2023-Fall 2024	Graduate Women in Science, *Member*
Fall 2019-Spring 2022	Society of Undergraduate Biology Majors, *Member*

Certifications & Licenses

- AAUS Scientific Diver
- NAUI Diving First Aid
- NAUI Rescue Diver
- PADI Open Water SCUBA Certification
- New York State Boating License

Skills

- Genomic and molecular techniques (DNA and RNA extractions, PCR and qRT-PCR, DNA library preparation, restriction digests, gel electrophoresis)
- Bioinformatics (GitHub, advanced; R, advanced; python, intermediate; command line, intermediate)
- Aquarium husbandry (corals, oysters, and algae culturing)
- Pacific and Atlantic fish identification
- Image J