

# Arianna Krinos Quinn

Department of Earth, Environmental, and Planetary Sciences ◊ Brown University ◊ Providence, RI 02912

## PROFESSIONAL EXPERIENCE

<b>Brown University</b> , Postdoctoral Research Fellow	November 2024 - present
• NSF Center for Chemical Currencies of a Microbial Planet (C-CoMP) Fellow	
• Department of Earth, Environmental, and Planetary Sciences, hosted by Dr. Mara Freilich	
<b>Brown University</b> , Term Lecturer	Fall 2025
• Co-Instructor of Record for EEPS 1400, Climate Modeling	
<b>Woods Hole Oceanographic Institution</b> , Guest Investigator	July 2024 - present
<b>Massachusetts Institute of Technology</b> , Postdoctoral Research Associate	July 2024 - November 2024
• Follows Group, Department of Earth, Atmospheric, and Planetary Sciences	

## EDUCATION

Ph.D. in Biological Oceanography, <b>MIT-WHOI</b> Joint Program	June 2019 - July 2024
• <b>Thesis Supervisors:</b> Dr. Harriet Alexander & Dr. Mick Follows	
• <b>Dissertation Title:</b> <i>Decoding divergence in marine protistan communities: from strain diversity to basin biogeography</i>	
B.S. in Computer Science, <b>Virginia Tech</b> , overall GPA: 3.96, Minor: Mathematics, <i>summa cum laude</i>	2015-2019
B.S. in Biological Sciences, <b>Virginia Tech</b> , in-major GPA: 4.00	2015-2019
B.S. in Computational Modeling and Data Analytics, <b>Virginia Tech</b>	2015-2019

## PUBLICATIONS, \*authors contributed equally, #mentored student

### Peer-Reviewed Publications

20. Krinos, A.I., S.K. Shapiro, W. Li#, S. Haley, S. Dyhrman, S. Dutkiewicz, M.J. Follows, and H. Alexander (2025). Intraspecific differences in thermal acclimation impact the ecological niche of coccolithophores. *Ecology Letters*, 28(1), e70055. <https://doi.org/10.1111/ele.70055>
19. Di Leo, D., E. Nilsson, A.I. Krinos, J. Pinhassi, D. Lundin (2025). The Nextflow pipeline `nf-core/metadenovo` for reproducible annotation of metatranscriptomes and more. *PeerJ*, 13, p.e20328. <https://doi.org/10.7717/peerj.20328>
18. Mars Brisbin, M., M. Acord, R. Davitt, S. Bent, B.A.S. Van Mooy, E. Flaum, A. Norlin, J. Turner, A.I. Krinos, H. Alexander, and M. Saito (2025). Exploring the Phaeosphere: characterizing the microbiomes of *Phaeocystis antarctica* colonies from the coastal Southern Ocean and laboratory culture. *Journal of Phycology*.
17. Krinos, A.I., R.M. Bowers, R.R. Rohwer, K.D. McMahon, T. Woyke, and F. Schulz (2024). Time-series metagenomics reveals changing protistan ecology of a temperate dimictic lake. *Microbiome* 12 (133). <https://doi.org/10.1186/s40168-024-01831-y>
16. Krinos, A.I., M. Mars Brisbin, S.K. Hu, N.R. Cohen, T. Rynearson, M.J. Follows, F. Schulz, and H. Alexander (2024). Missing microbial eukaryotes and misleading meta-omic conclusions. *Nature Communications* 15 (9873).
15. Cohen, N.R., A.I. Krinos, H. Alexander, R.M. Kellogg, R. Chmiel, D.M. Moran, M.R. McIlvin, P. Lopez, J.A. Breier, M.V. Jakuba, R. Johnson, and M.A. Saito (2024). Protistan ecophysiology across geochemical gradients of the western North Atlantic Ocean revealed with an autonomous underwater vehicle. *Nature Communications*.
14. Krinos, A. I., N.R. Cohen, M.J. Follows, & H. Alexander (2023). Reverse engineering environmental metatranscriptomes clarifies best practices for eukaryotic assembly. *BMC Bioinformatics*.
13. Mars Brisbin, M. A. Schofield, M. McIlvin, A.I. Krinos, H. Alexander, and M.A. Saito (2023). Vitamin B12 conveys a protective advantage to phycosphere-associated bacteria at high temperatures. *ISME Communications*.
12. Alexander, H., S.K. Hu, A.I. Krinos, M. Pachiadaki, B.J. Tully, and T. Reiter (2023). Eukaryotic genomes from a global metagenomic dataset illuminate trophic modes and biogeography of ocean plankton. *mBio*.
11. Gleich, S.J., S.K. Hu, A.I. Krinos, and D.A. Caron (2023). Protistan community composition and metabolism in the North Pacific Subtropical Gyre: Interactions of mesoscale eddies and depth. *Environmental Microbiology*.

10. Cohen, N.R., H. Alexander, A.I. Krinos, S.K. Hu, and R.H. Lampe (2022). Marine microeukaryote metatranscriptomics: sample processing and bioinformatic workflow recommendations for ecological applications. *Frontiers in Marine Science*.
9. Krinos, A.I., S.K. Hu, N.R. Cohen, and H. Alexander (2021). EUKulele: Taxonomic annotation of the unsung eukaryotic microbes. *Journal of Open Source Software*, 6(57), 2817, <https://doi.org/10.21105/joss.02817>
8. Tully, B. J., J. Buongiorno, A.B. Cohen, J.A. Cram, A.I. Garber, S.K. Hu, A.I. Krinos... & BVCN Instructor Consortium. (2021). The Bioinformatics Virtual Coordination Network: An Open-Source and Interactive Learning Environment. In *Frontiers in Education* (p. 394).
7. Walke, J.B., M.H. Becker, A.I. Krinos, E.A. Burzynski, C. Santiago, T.P. Umile, K.C. Minbiele, L.K. Belden (2020). Seasonal changes and the unexpected impact of environmental disturbance on skin bacteria of individual amphibians in a natural habitat. *FEMS Microbiology Ecology*.
6. Krinos, A.I.\*, Maurais, A.E.\* (2019). Parameter and Uncertainty Estimation for a Model of Atmospheric CO<sub>2</sub> Observations. *SIAM Undergraduate Research Online*, 12.
5. Farrell, K.J., N.K. Ward, A.I. Krinos, P.C. Hanson, V. Daneshmand, R.J. Figueiredo, and C.C. Carey (2020). Ecosystem-scale nutrient cycling responses to increasing air temperatures depend on lake trophic state. *Ecological Modelling*, 430, 109134. <https://doi.org/10.1016/j.ecolmodel.2020.109134>
4. Krinos, A.I.\* and Maurais, A.E.\* (2019). Nuggets of Wisdom from Destinations Doomed Due to Dragon Dominion. *UMAP Journal*.
3. Carey, C.C., N.K. Ward, K.J. Farrell, M.E. Lofton, A.I. Krinos, R.P. McClure, K.C. Subratie, R.J. Figueiredo, J.P. Doubek, P.C. Hanson, P. Papadopoulos, and P. Arzberger (2019). Enhancing collaboration between ecologists and computer scientists: lessons learned and paths forward. *Ecosphere* 10(5). <https://doi.org/10.1002/ecs2.2753>
2. Maurais, A.E.\* and Krinos, A.I.\* (2018). Better to Marry Renewables than to Burn Fossil Fuels in Border States. *UMAP Journal*.
1. Nagle, L., S. Brown, A.I. Krinos, and G.A. Ahearn (2018). Ocean acidification: effects of pH on <sup>45</sup>Ca uptake by lobster branchiostegites. *Journal of Comparative Physiology B*. <https://doi.org/10.1007/s00360-018-1173-2>

### Comments

1. Krinos, A.I., D. Muratore, M.J. Bittner, P. Akenga, L. Wallace Auerbach, M. Dills, E. Faure, E. Flores, N.M. Levine, T. Monteiro, C. Richon, and B.S. Twining (2025). A call for early-career teams in interdisciplinary microbiology research. *Nature Microbiology*, 1-3.

### Preprints and Publications in Review

7. Krinos, A.I., M. Mars Brisbin, A. Costa, S.K. Shapiro, M.J. Follows, M.A. Freilich, and H. Alexander. Nutrient response strategies drive coastal range shifts of phytoplankton taxa. *bioRxiv*, *submitted to Global Change Biology*. <https://doi.org/10.64898/2026.01.13.699386>
6. Kim, H.H., W.H. Wolfe, E. Lawrence, S.C. Doney, M.A. Moran, M.A. Freilich, A.I. Krinos, M.W. Yang, M.W. Covert, R. Braakman, H.G. Scott, D. Segrè, E. Litchman, E. Agmon (2026). From Genome to Climate: Multi-Scale Modeling of Bacterial Metabolism in Ocean Biogeochemistry, *in review at PNAS* as a Perspective.
5. Leles, S.G., L. Breithaupt, A.I. Krinos, H. Alexander, H.V. Moeller, L. Flanjak, C. Laufkotter, E. Litchman, M. Aranguren-Gassis, and N.M. Levine (2025). New niches for phytoplankton in a warming and more resource limited ocean. *bioRxiv*, *submitted to Nature Climate Change*.
4. Romero, M.F., A.I. Krinos, X. Maurer-Alcala, J. Burns, R. Stepanauskas, T. Woyke, and F. Schulz (2025). Census of the eukaryotic diversity at a global scale reveals diverse excavate lineages. *bioRxiv*, *submitted to Nature Microbiology*.
3. Ghosh, P., and 43 other authors including A.I. Krinos (2025). Contributions of the Petabyte Scale Sequence Search Codeathon Toward Efforts to Scale Sequence-Based Searches on the SRA, *arXiv* preprint arXiv:2505.06395.
2. Weissman, J. L., E.R.O. Dimbo, A.I. Krinos, C. Neely, Y. Yagues, D. Nolin, ... & J.A. Fuhrman (2021). Estimating the maximal growth rates of eukaryotic microbes from cultures and metagenomes via codon usage patterns. *bioRxiv*.
1. Krinos, A.I., K.J. Farrell, V. Daneshmand, K.C. Subratie, R.J. Figueiredo, and C.C. Carey (2019). Including variability in air temperature warming scenarios in a lake simulation model highlights uncertainty in predictions of cyanobacteria. *bioRxiv*, 734285.

## Publications in Preparation

7. Krinos, A.I., A. Aguayo#, R. Dufresne#, E. Li#, other community partner authors, and M.A. Freilich. Phytoplankton dynamics in the Salton Sea, California's largest shrinking lake. *In preparation for Limnology and Oceanography*. Expected submission date: Spring 2026.
6. Krinos, A.I., M. Mars Brisbin, H. Alexander, and M.A. Freilich. Distilling diversity with metatranscriptome-informed models. *In preparation for PNAS*. Expected submission date: Spring 2026.
5. Krinos, A.I., S.K. Shapiro, S.T. Haley, R. Hamilton, S.T. Dyhrman, M.J. Follows, and H. Alexander. Lineages of the dominant marine calcifier *Gephyrocapsa huxleyi* leverage distinct genes for temperature response. *In preparation for Nature Ecology and Evolution*. Expected submission date: Summer 2026.
4. White, P.L., G. Lax, M. Mars Brisbin, A.I. Krinos, other authors, M.P. Bhatia, and E.M. Bertrand. Molecular evidence of domoic acid production in the High Arctic Qikiqtaaluk Region of Inuit Nunangat. *In preparation for Limnology and Oceanography Letters*. Expected submission date: January 2026.
3. Dilliplaine, K.B., A.I. Krinos, and G. Hennon. (Meta)transcriptomics reveals a shift from core metabolism to catabolic pathways in sea-ice diatoms after crude oil exposure, while flagellates exhibit greater resilience. *In preparation*. Expected submission date: February 2026.
2. Perneel, M., R. Lagaisse, A.v.L. Roson, J. Mortelmans, T. Gkritzalis, A.I. Krinos, H. Alexander, S. Maere, and P.I. Hablitzel. Functional Differentiation and Metabolic Plasticity in a Spatially Structured Diatom Community across a Coastal Eutrophication Gradient. *In preparation*. Expected submission date: March 2026.
1. Krinos, A.I., M.M. Brisbin, C.N. Palermo, H. Alexander, and M.J. Follows. Broadening the bounds of modeling in aquatic microbiology. *In preparation for Limnology and Oceanography Letters*.

## **SELECTED SIGNIFICANT TEACHING EXPERIENCES**

- 
- Brown University**, Instructor of Record, Climate Modeling (EEPS 1400) Fall 2025
- Led and developed course content in climate modeling, including physical and chemical foundations, computational constraints and considerations, and primary production and biology
  - Facilitated lab sections for two self-defined groups of students, “quantitative” students with more of a mathematical and computational emphasis, and “qualitative” students with an emphasis on interpretation and contextualization of climate science alongside technical content
  - Contributed to new assignment development, including coding exercises; graded student work
- Woods Hole Oceanographic Inst.**, Teaching Assistant & Guest Lecturer, Environmental Bioinformatics Fall 2023
- Led weekly coding hours and content reinforcement
  - Taught two lecture sections in pipeline and workflow development
  - Worked one-on-one with students on a daily basis [Course Evaluations Link]
- Woods Hole Oceanographic Inst.**, Teaching Assistant & Guest Lecturer, Biological Oceanography Spring 2022
- Taught weekly recitation sections
  - Developed and graded exam problems for midterm and final exam
  - Assisted students in the development and refinement of semesters projects [Course Evaluations Link]
- Massachusetts Institute of Technology**, Co-Instructor for Marine Phytoplankton Physiology and Ecology Fall 2021
- Designed course and developed course materials, including lecture content and selection of readings
  - Managed scheduling of weekly discussion leaders and facilitated class discussion

## **ADDITIONAL TEACHING EXPERIENCE**

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### *Instructor Positions, Short- and Semester-Term*

- **Instructor**, MIT-WHOI Summer Math Review: *R Programming* August 2023
- **Contributing Instructor**, WHOI Blue Economy January Course (Undergraduate Level) January 2023
- **Contributing Instructor**, WHOI Blue Economy January Course (Undergraduate Level) January 2022
- **Instructor**, Software Carpentries course in R October 2021
- **Instructor**, MIT-WHOI Summer Math Review: *Data Analysis* August 2021
- **Instructor**, Falmouth Summer Academy: *Mathematical Ecology, “Counting Critters”* August 2021

- **Instructor**, MIT HSSP (Educational Studies Program): *Population Models and Demography* July-Aug 2021
- **Instructor**, Software Carpentries course in Python and the shell June 2021
- **Instructor**, Software Carpentries course in R and the shell November 2020
- **Instructor**, MIT HSSP (Educational Studies Program): *Bayesian Pattern Analysis in Biology*, 6 weeks Summer 2020
- **Instructor**, MIT-WHOI Summer Math Review: *Probability and Statistics* July 2020
- **Instructor**, Rainstorm: *Emiliania huxleyi and their viruses* June 2020
- **Peer Educator and Semester Course Instructor**, Honors Reading Seminar, Virginia Tech Spring 2017
- **Peer Educator and Semester Course Instructor**, Honors First-Year Seminar, Virginia Tech Fall 2016
- **Instructor**, Bioinformatics Virtual Coordination Network Summer 2020

#### *Teaching Assistantships*

- **Teaching Assistant**, Software Carpentries course in R and the shell June 2023
- **Teaching Assistant**, Marine Biological Laboratory Summer Course *Physiology and Transcriptomics* June 2021
- **Teaching Assistant**, Software Carpentries course in Python and the shell June 2020
- **Teaching Assistant**, Biology Orientation Seminar Fall 2017

#### *Guest Lecturing*

- **Guest Lecturer**, Math and Climate: Nutrient-Phytoplankton-Zooplankton and Other Climate-Relevant Biological Models, Brown University February 2025  
*included homework problem & lecture design*
- **Guest Lecturer**, 7.470 Biological Oceanography, MIT-WHOI Joint Program: Phytoplankton blooms, Sverdrup and current discourse February 2022
- **Guest Lecturer**, 12.715 Environmental Bioinformatics, MIT-WHOI Joint Program: Workflow development, *Snakemake*, and reproducibility November/December 2021

## SELECTED AWARDS

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#### *Collaborative Research Grants*

- **Co-PI**, Community Science Program New Investigator Award, Joint Genome Institute, U.S. Dept. of Energy “From River to Remedy: Capturing Microbial Transformations of Organic Matter at the Terrestrial-Aquatic Interface.”, covers multi-omic and geochemical data collection December 2025

#### *Distinctions and Honors*

- **George P. Panteleyev Award**, Woods Hole Oceanographic Institution May 2025  
“The George “Gera” Pavlovich Panteleyev Award is conferred annually on the student in the graduating class for that academic year who best exemplifies the commitment to improving the graduate education experience and graduate student life at the Woods Hole Oceanographic Institution.”  
– From award committee: “Arianna was particularly recognized for leadership in teaching and mentoring. She is recognized as an exceptional teach[er]...and worked to provide pedagogical opportunities for all students.”
- **Howes Scholar Award in Computational Science**, Department of Energy and Krell Institute April 2025  
Awarded to two recent PhDs from the Computational Science Graduate Fellowship annually  
Press Release: [https://www.krellinst.org/csgf/about-doe-csgf/news/2025-06/howes25\\_kellison-krinos](https://www.krellinst.org/csgf/about-doe-csgf/news/2025-06/howes25_kellison-krinos)
- **Tom Cavalier-Smith Early Career Prize**, International Society of Evolutionary Protistologists January 2023  
Two awarded annually across society
- **Senior Undergraduate Research Award**, Virginia Tech College of Science April 2019  
One award granted annually within Virginia Tech’s College of Science to a graduating senior with exemplary undergraduate research

- **Outstanding Senior**, Virginia Tech Department of Computer Science February 2019  
One awarded annually in department
- **Senior Excellence Award**, Virginia Tech Division of Computational Modeling and Data Analytics March 2019  
One awarded annually in department
- **Phi Sigma Biological Sciences Honor Society** inductee May 2018
- **Phi Beta Kappa Honor Society** inductee May 2019

#### *Research Fellowships*

- **Grants-in-Aid-of-Research**, Phycological Society of America \$2,118, 2025  
Leveraging novel -omics and modeling approaches to track algal ecotones following Hurricane Milton
- **Postdoctoral Research Fellowship** \$180,000, 2024-2026  
NSF Center for Chemical Currencies of a Microbial Planet (C-CoMP)
- **Postdoctoral Research Fellowship** \$167,800, *declined for C-CoMP Postdoctoral Fellowship*  
NSF Division of Ocean Sciences
- **Postdoctoral Research Fellowship in Marine Microbial Ecology** \$285,000, *declined for C-CoMP Postdoctoral Fellowship*  
Simons Foundation
- **BioGeoSCAPES Early-Career Fellow**, NSF AccelNet Initiative \$5,000, August 2023-2025
- **Computational Science Graduate Fellowship**, U.S. Department of Energy >\$400,000, March 2019-2023
- **Grassle Fund Grant**, Woods Hole Oceanographic Institution \$7,400, July 2022  
*Proposal:* Contextualizing *Emiliania huxleyi* thermal acclimation experiments with coastal metatranscriptomic surveillance
- **Ocean Venture Fund Grant**, Woods Hole Oceanographic Institution \$9,600, March 2020  
*Proposal:* Identifying strain-specific differences in thermal acclimation of *Emiliania huxleyi*
- **Ernest F. Hollings Scholarship**, NOAA \$30,000 internship, tuition, conference funds, 2017-2019
- **Luther and Alice Hamlett Research Grant**, Virginia Tech Academy of Integrated Science \$3,000, December 2017  
Competitive award for research funds

#### *Teaching Awards*

- **Teaching Development Fellowship**, MIT Teaching and Learning Lab \$2,100, 2023-2024
- **Graduate Teaching Award**, MIT Graduate Student Council April 2023

#### *Competitions*

- **Communicating Your Science and Engineering Essay Contest**, Annual Prize Winner April 2022  
One winner chosen each year for a general-audience scientific essay on their research to be published in *DEIXIS*, Krell Institute
- **Outstanding Winner**, International Mathematical Competition in Modeling \$10,000, April 2018 & 2019  
Part of a team of two that won this international competition (approximately 15 winners per year of thousands of teams; 10,670 in 2018) in 2018 and 2019 (team from Virginia Tech)

#### *Travel Awards*

- **Travel Award**, Workshop on Traits-Based Approaches to Ocean Life, Knoxville, TN ≈\$1,000, January 2022
- **Travel Award**, International High-Performance Computing Summer School, Atlanta, GA ≈\$1,250, July 2023

#### *Scholarships*

- **Barry Goldwater Scholarship**, Goldwater Scholarship Foundation \$7,500, March 2018
- **Astronaut Scholarship**, Astronaut Scholarship Foundation \$20,000, 2017 & 2018
- **Northrup Grumman and General Electric Women's Network Scholarships** \$5,000, 2016 & 2017  
Society of Women Engineers

- **Eleanor Davenport Leadership Scholarship**, Virginia Tech Engineering \$28,000, 2015-2019
- **William C. McAllister Leadership Scholarship**, Virginia Tech Engineering \$5,500, March 2018

*Nominations:* 2023 Outstanding UROP (MIT Undergraduate Research) Mentor Award

## ADVISING

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### Research Advisees

Kathy Sun, Undergraduate Research and Teaching Awards (UTRA) Student, Brown University	2025-present
Remy Dufresne, Summer Undergraduate Research Student, Brown University	Summer 2025
Evan Li, Summer Undergraduate Research Student, Brown University	Summer 2025
Ashely Aguayo, Summer Undergraduate Research Student, Brown University	Summer 2025
Emily Hu, Bridge-to-PhD Fellow, Brown University	2024-present
Jo Hickman, PhD Student, MIT-WHOI Joint Program in Biological Oceanography	2023-present
Miah Manning, PhD Student, MIT-WHOI Joint Program in Biological Oceanography	2023-present
Quinn Perian, Undergraduate Student, MIT '26	2023-2024
Weixuan Li, MIT Exchange Undergraduate Student (Mechanical Engineering) Southern U of Sci and Tech (Shenzhen, China) '23	2022-2023
Celeste Nobrega, Wheaton College '22	Summer 2021
Amy Zhong, MIT '23	Summer 2020

### Other Academic Advising Programs

Total of 10 students advised in MIT-WHOI Joint Program (prospective and graduate students)

## CURRICULUM DEVELOPMENT

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**MIT Courses:** Developed plan for Phytoplankton Physiology and Ecology reading group including weekly lecture content and discussion questions

**Independent Courses:** HSSP (Population Dynamics and Bayesian Statistics), Falmouth Academy (math-environmental science interdisciplinary course)

**Problem Sets:** Contributor to problem bank, MIT 18.02 (Multivariable Calculus) and 18.06 (Linear Algebra): sustainability-related word problems

## PEDAGOGICAL ENGAGEMENT

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**Sheridan Teaching Seminar:** Participating in a semester course and discussion group in teaching practices through the Sheridan Center for Teaching and Learning at Brown in Fall 2025.

**Communicating Ocean Science:** Completed course in pedagogy at WHOI focused on active learning and communicating science to a broad audience; included science teaching outreach at the fourth grade and community college levels. Based on teaching content from UC Berkeley and the MIT Teaching and Learning Lab.

**Kaufman Teaching Certificate Program:** Completed course in pedagogy at MIT with the Teaching and Learning Lab including practical microteaching sessions.

**Earth, Atmospheric, and Planetary Sciences Pedagogy Seminar:** Participated in January (2022) term seminar course on pedagogy and active learning in the Earth sciences.

**Honors Service Learning:** Completed pedagogy course at Virginia Tech aimed at teaching in diverse communities; included classroom content as well as service at Giles County, VA Head Start center.

**Reading Group:** Participant in and contributor to Pedagogy Reading Group within the Department of Earth, Atmospheric, and Planetary Science (EAPS), MIT

## SHORT-TERM APPOINTMENTS

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- Joint Genome Institute**, Lawrence Berkeley National Laboratory (advisor: Dr. Frederik Schulz) June-Sept 2022
- Implemented topic modeling algorithm for taxonomic prediction in eukaryotes
  - Wrote benchmarked code in Python, Julia, and R to create and evaluate strain-specific metagenome-assembled genomes
  - Applied population genetic approaches to explore strain diversity in algal populations
- Joint Genome Institute**, Lawrence Berkeley National Laboratory (advisor: Dr. Tanja Woyke, Dr. Frederik Schulz, Dr. Robert Bowers) Jan-Mar 2021
- Applied genomic approaches to identify microbial eukaryotes in a eutrophic lake
  - Implemented network correlation algorithm to explore putative interactions between eukaryotes and prokaryotes
- Geophysical Fluid Dynamics Laboratory**, NOAA (advisor: Dr. Charles Stock) Summer 2018
- Designed and wrote agent-based models in Python and Julia to explore population ecology of economically-relevant blue crab in Chesapeake Bay
  - Used statistically-downscaled global climate model output to drive projected futures in a marine resource
- Advanced Computing and Information Systems Lab.**, Univ. of Fla. (advisor: Dr. R. Figueiredo) Summer 2017
- SELECTED PRESENTATIONS** \*presenting author, +invited, #mentored student
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- Krinos, A.I.\*. Integrating -omics insights with modeling approaches, from the cellular to the global. BioGeoSCAPES Modeling Workshop, Woods Hole, MA, September 2025.<sup>+</sup>
- Krinos, A.I.\*; M. Mars Brisbin, H. Alexander, and M.A. Freilich. Metatranscriptome-informed modeling of diatom ecological succession in Cape Cod Bay. AtlantECO Final Scientific Conference, Azores, Portugal, September 2025.
- Krinos, A.I.\*. *Gephyrocapsa huxleyi* lineages leverage distinct genes for temperature response. 7<sup>th</sup> Workshop on Traits-Based Approaches to Ocean Life, Pacific Grove, CA, August 2025.
- Krinos, A.I.\*. Time-Series -Omics to Track Coastal Diatom Metabolism in Cape Cod Bay. Phycological Society of America Annual Meeting, San Juan, Puerto Rico, July 2025.
- Krinos, A.I.\*. Integrative Computational Tools for Mapping and Projecting Ocean Phytoplankton. Computational Science Graduate Fellowship Annual Program Review, Washington, DC, July 2025.<sup>+</sup>
- Krinos, A.I.\*. Leveraging meta-omic time series for phytoplankton community surveillance. Biology and Paleo Environment Seminar Series, Lamont-Doherty Earth Observatory, Columbia University, Palisades, NY, April 2025.<sup>+</sup>
- Krinos, A.I.\*. Translating diverse traits of marine microbial eukaryotes to biogeographic patterns. Climate & Environment Lunch Seminar, Brown University, Providence, RI, February 2025.
- Krinos, A.I.\*. Translating diverse traits of marine microbial eukaryotes to biogeographic patterns. University of South Florida College of Marine Science Seminar, St. Petersburg, FL, January 2025.<sup>+</sup>
- Krinos, A.I.\*. Traits to biogeography in the marine microbial eukaryome. The College of New Jersey Biology Department Seminar, Ewing, NJ, December 2024.<sup>+</sup>
- Krinos, A.I.\*. Diatom relatedness and recoverability in metatranscriptomic taxonomic annotations. Ocean Carbon and Biogeochemistry Workshop on Metatranscriptomic Intercalibration, Savannah, GA, October 2024.<sup>+</sup>
- Alexander, H., A.I. Krinos\*, R. Hamilton, S. Shapiro, S. Haley, and S. Dyhrman. Ecology and biogeography of *Gephyrocapsa (Emiliania) huxleyi* through a pangenomic lens. International Society for Microbial Ecology Meeting (ISME19), Cape Town, South Africa, August 2024. Presented on behalf of H. Alexander *in absentia*.
- Krinos, A.I.\*; M. Mars Brisbin, S.K. Shapiro, A. Costa, M.J. Follows, and H. Alexander. Metabolic drivers of summer coccolithophore abundance in Cape Cod Bay. International Society for Microbial Ecology Meeting (ISME19), Cape Town, South Africa, August 2024. Poster.
- Krinos, A.I.\*; S.G. Leles, S.K. Shapiro, Q. Perian #, N.M. Levine, M.J. Follows, and H. Alexander. Transcriptome data enable physiological model customization and illuminate phytoplankton thermal response. Ocean Sciences Meeting, New Orleans, LA, February 2024.
- Krinos, A.I.\*. Connecting marine microbial genetic diversity and ocean biogeography. University of Tampa Integrative Biology Seminar, Tampa, FL, January 2024.<sup>+</sup>
- Krinos, A.I.\*. Intraspecific thermal observations inform phytoplankton ecosystem models. CBIOMES Collaboration Meeting, (virtual), October 2023.

- Krinos, A.I., Q. Perian#, S.K. Shapiro, M.J. Follows, and H. Alexander. Shared genes and thermal response among *Gephyrocapsa huxleyi* strains. Advances in Coccolithophore Research Annual Meeting, Bergen, Norway (*hybrid delivered virtually*), September 2023.
- Krinos, A.I.\*. Intraspecific thermal observations inform phytoplankton ecosystem models. WHOI Biology Department Seminar, Woods Hole, MA, USA (*hybrid delivered in-person*), August 2023.
- Krinos, A.I.\*, M. Mars Brisbin, S.K. Hu, N.R. Cohen, T. Rynearson, M.J. Follows, F. Schulz, and H. Alexander. Missing microbial eukaryotes and misleading meta-omic conclusions. New Lineages of Life Symposium, JGI Genomics of Earth & Environment Annual Meeting, Berkeley, CA, USA (*hybrid delivered virtually*), August 2023.
- Krinos, A.I.\*. Leveraging large datasets to discover protistan diversity across scales. Computational Science Graduate Fellowship Annual Program Review, Washington, DC, USA, July 2023.<sup>+</sup>
- Krinos, A.I.\*, S.K. Shapiro, W. Li#, S. Dutkiewicz, M.J. Follows, and H. Alexander. Intraspecific differences in thermal acclimation impact the ecological niche of coccolithophores. Phycological Society of America Meeting, Providence, RI, USA, June 2023.
- Krinos, A.I.\*, S.K. Shapiro, W. Li#, S. Dutkiewicz, M.J. Follows, and H. Alexander. Intraspecific differences in thermal acclimation impact the ecological niche of coccolithophores. CBIOMES Annual Meeting, New York City, NY, USA, June 2023.
- Krinos, A.I.\*, S.K. Shapiro, W. Li#, S. Dutkiewicz, M.J. Follows, and H. Alexander. Intraspecific differences in thermal acclimation impact the ecological niche of coccolithophores. ASLO Aquatic Sciences Meeting, Palma de Mallorca, Spain, June 2023.
- Krinos, A.I.\*. Phytoplankton diversity across scales: from strain identity to wrangling assemblage-level taxonomy. Northeastern Marine Science Center Seminar, Nahant, MA, USA, April 2023.
- Krinos, A.I.\*, S.K. Shapiro, M.J. Follows, and H. Alexander. Thermal acclimation experiments highlight intraspecific differences in the flexibility of *Emiliania huxleyi* to thermal stimuli. International Society of Evolutionary Protistologists (ISEP) Virtual Meeting, January 2023.
- Krinos, A.I.\*. Hello, my name is *Emiliania*: an omic exploration into annotating marine protists. Bucknell University Biology Department Seminar, Lewisburg, PA, USA, October 2022.<sup>+</sup>
- Krinos, A.I.\*, N.R. Cohen, S.K. Hu, R.J. Gast, M.J. Follows, S.T. Dyhrman, and H. Alexander. Exploring the ecology of marine cryptophytes with metatranscriptomics. Gordon Research Seminar and Conference on Marine Microbes, Les Diablerets, Switzerland, May-June 2022. Poster.
- Krinos, A.I.\*, S.K. Hu, M.A. Saito, S.K. Shapiro, M.J. Follows, H. Alexander, and F. Schulz. Exploring thermal controls on coccolithophores with multi-omic tools. Advances in Coccolithophore Research Meeting, Virtual hosted from Bergen, Norway, June 2022.
- Krinos, A.I.\*, N.R. Cohen, S.K. Hu, M.J. Follows, and H. Alexander. Meta-transcriptomics in the multi-omic pursuit of truth in marine protists. University of Georgia Department of Marine Science Seminar, Savannah, GA, USA, March 2022.
- Krinos, A.I.\*, S.K. Shapiro, M.J. Follows, and H. Alexander. Thermal acclimation experiments and genetic analysis highlight intraspecific differences in *Emiliania huxleyi*. CBIOMES Collaboration Virtual Meeting, Simons Foundation, February 2022.
- Krinos, A.I.\*, S.K. Shapiro, M.J. Follows, and H. Alexander. Thermal acclimation experiments and genetic analysis highlight intraspecific differences in *Emiliania huxleyi*. Fifth Workshop on Traits-Based Approaches to Ocean Life, Knoxville, TN, USA, January 2022.
- Krinos, A.I.\*, N.R. Cohen, M.J. Follows, and H. Alexander. Daily patterns in expression in Western Antarctic Peninsula metatranscriptomes. CBIOMES Collaboration Virtual Annual Meeting, Simons Foundation, Virtual, June 2021.
- Krinos, A.I.\*, N. Cohen, M. Follows, and H. Alexander. *eukrhythmic*: leveraging the metatranscriptomic landscape to reproducibly detect and describe marine protistan communities. WHOI Biology Department Seminar, Virtual, May 2021.
- Krinos, A.I.\*, N.R. Cohen, M.J. Follows, and H. Alexander. *eukrhythmic*: leveraging the metatranscriptomic landscape to reproducibly detect and describe marine protistan communities. Association for the Sciences of Limnology and Oceanography Aquatic Sciences Meeting, Virtual, May 2021.
- Krinos, A.I.\*, N.R. Cohen, M. Saito, M.J. Follows, and H. Alexander. *eukrhythmic*: Applying Metatranscriptome Methodology to Marine Eukaryotes. CBIOMES Collaboration Virtual Annual Meeting, Simons Foundation, Virtual, June 2020.
- Krinos, A.I.\*, M.J. Follows, and H. Alexander. Single-cell transcriptomics: The Next Frontier For Eukaryotic Algae. Microbiome Symposium, University of Rhode Island, January 2020.

- Krinos, A.I.\*<sup>,</sup> K. Dixon, A. Ross, and C. Stock. Understanding spatial effects of climate change on Chesapeake Bay blue crab using statistical downscaling and agent-based modeling. Association for the Sciences of Limnology and Oceanography (ASLO) Aquatic Sciences Meeting, San Juan, Puerto Rico, February 2019.
- Krinos, A.I.\*<sup>,</sup> D.M. Medina, M.C. Hughey, J.B. Walke, Z. Gajewski, L.S. Sarment, and L.K. Belden. An evaluation of the predictive potential of gene sequences for antifungal capacity of amphibian skin bacterial isolates. Society for Integrative and Comparative Biology Annual Meeting, Tampa, FL, January 2019.
- Krinos, A.I.\* and A.E. Maurais\*. Parameter and Uncertainty Estimation for a Model of Atmospheric CO<sub>2</sub> Observations. Department of Mathematics Annual Research Presentations, Blacksburg, VA, May 2018. **Layman Prize Award**.
- Krinos, A.I.\*<sup>,</sup> R.J. Figueiredo, P.C. Hanson, A.L. Hetherington, K. Subratie, J.T. Sukumar, and C.C. Carey. Numerical simulation modeling coupled to the GRAPLER distributed computing platform provides insight into lake water quality responses and land use change. Pacific Rim Applications and Grid Middleware Assembly (PRAGMA) 32nd Bi-Annual Meeting, Gainesville, FL, April 2017. **Best Student Poster Award**.
- Krinos, A.I.\*<sup>,</sup> and G.A. Ahearn. Effect of pH on uptake of calcium by crustacean gills. Society for Integrative and Comparative Biology Annual Meeting, New Orleans, LA, Jan. 2017.
- Krinos, A.I.\*<sup>,</sup> M. Billah, P. Valayamkunnath, and V. Sridhar. Hydroclimatology of the New River Basin for effective land and water management. Amer. Soc. of Agricultural & Biological Engineers Annual International Meeting, Orlando, FL, July 2016.

## SELECTED ABSTRACTS

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- Hu, S.K.\*<sup>,</sup> R. Anderson, A.I. Krinos, H. Alexander, M. Pachiadaki, V.P. Edgcomb, M. Serres, S. Sylva, C.R. German, S. Lang, J. Seewald, and J.A. Huber. The Elusive Ecological Roles of Microeukaryotes at Deep-Sea Hydrothermal Vents. Ocean Sciences Meeting, New Orleans, LA, February 2024.
- Mars Brisbin, M.\*<sup>,</sup> A.I. Krinos, S.K. Shapiro, P. Lopez, M.R. McIlvin, A. Costa, M.A. Saito, and H. Alexander. Augmenting a multi-decade time series with multiple meta-omics to uncover molecular mechanisms behind changing phytoplankton bloom dynamics in Massachusetts Bay. Ocean Sciences Meeting, New Orleans, LA, February 2024.
- Farrell, K.J.\*<sup>,</sup> C.C. Carey, A.I. Krinos, N.K. Ward, P.C. Hanson, R.J. Figueiredo, V. Daneshmand, K. Subratie. GRAPLER Platform Accelerates Whole-Ecosystem Simulation Modeling to Increase Understanding of Climate Change Impacts on Lake Nutrient Cycling. Ecological Society of America Annual Meeting, New Orleans, LA, Aug. 2018.
- Carey, C.C.\*<sup>,</sup> R.J. Figueiredo, P.C. Hanson, A.L. Hetherington, A.I. Krinos, K. Subratie, and J.T. Sukumar. Ensemble-based simulation modeling reveals non-linear water quality responses to climate and land use change scenarios in a eutrophic lake. Ecol. Society of America Annual Meeting, Portland, OR, Aug. 2017.
- Beaulieu, Stace, et al., including A.I. Krinos. Building a data science curriculum and community for ocean scientists, engineers, and students using The Carpentries model. AGU Fall Meeting 2020. AGU, 2020.
- Freilich, Mara, et al., including A.I. Krinos. Hurricane Dorian Impacts on Northeast US Shelf Marine Hydrography and Ecosystem. Ocean Sciences Meeting 2020. AGU, 2020.

## SYNERGISTIC ACTIVITIES & OUTREACH

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### *Broader Impacts*

- **Co-President**, Broader Impacts Group, WHOI 2021-2024
- **K-12 Outreach with the Broader Impacts Group at WHOI** 2021-2024
- **Graduate Student Representative**, EAPS Department Diversity, Equity, and Inclusion Committee  
Bi-monthly discussions and department culture evaluation 2023-2024
- **Member**, Undergraduate Recruitment Working Group, Woods Hole Oceanographic Institution 2022-2024
- **Orientation Coordinator, Dept. of Earth, Atmospheric, and Planetary Science (EAPS)**, MIT 2021
- **Mentoring Coordinator, EAPS Department**, MIT 2021-2022
- **Mentor**, MIT-WHOI Joint Program Applicant Support Knowledgebase 2021-2024
- **Letters to a Pre-Scientist**, write quarterly letters to matched middle school pnepals 2019-present
- Falmouth Academy Science and Engineering Fair Judge 2021

- Mashpee Middle-High School Science and Engineering Fair Judge 2022-2023
- **CovEducation** Mentor for elementary school students 2020-2021
- Virginia Tech Department of Computer Science Ambassador 2017-2019
- **Presenter and Instructor**, Virginia Tech Kindergarten to College Program 2018-2019
- **Weekly Outreach and Teaching**, Giles County, VA Head Start Pre-Kindergarten Program 2019

#### *Writing and Communications*

- Blog Contributor, MIT Graduate Education 2021-2024
- Blog Contributor, The Ripple, MIT Educational Studies Program 2020
- **Engineers' Forum Magazine** at Virginia Tech: writer and Editor-in-Chief (2018-2019) 2015-2019
- **Writing Center Coach**, Virginia Tech 2018 - 2019

#### *Panel Participation*

- **Invited Panelist**, MIT EAPS Panel on How to Find & Fund Your Postdoc October 2024
- **Invited Panelist**, Experienced TA Panel at MIT TA Days August 2023
- **Invited Panelist**, MIT Science Policy - Oceans & Climate November 2019

#### *Workshop Participation*

- **Participant**, BioGeoSCAPES International Modeling Planning Workshop, Woods Hole, MA, USA September 2025
- **Workshop Co-Lead**, Association for the Sciences of Limnology and Oceanography (ASLO) Aquatic Sciences Meeting, Workshop on *Accounting for nitrogen fixation in temperate shelf and high latitude oceans*, Charlotte, NC, USA March 2025
- **Participant**, BioGeoSCAPES International Implementation Planning Workshop, Dedham, MA, USA February 2025
- **Participant**, Eco-DAS Ecological Dissertations in the Aquatic Sciences Collaborative Workshop for Recent PhDs, Honolulu, HI, USA April 2025
- **Participant**, Ocean Carbon & Biogeochemistry Workshop, Metatranscriptome Intercalibration, Savannah, GA, USA October 2024
- **Participant**, WHOI K-12 Education Planning Retreat, Falmouth, MA April 2024
- **Participant**, International High-Performance Computing Summer School, selective summer program in advanced computing held in Atlanta, GA, USA July 2023
- **Participant**, Inclusive Teaching in Phycology Workshop, Providence, RI, USA June 2023
- **Participant**, Simons Foundation CBIOMES Collaboration Workshop on Zooplankton Modeling, Dedham, MA, USA April 2023

#### *Other Academic Service*

- **Lead Chair**, Contributed Session, Association for the Sciences of Limnology and Oceanography (ASLO) Aquatic Sciences Meeting, Charlotte, NC March 2025
- **Lead Chair**, Contributed Session, Association for the Sciences of Limnology and Oceanography (ASLO) Aquatic Sciences Meeting, Palma de Mallorca, Spain June 2023
- **Chair**, Graduate Student Advisory Group for MIT Earth, Atmospheric, and Planetary Science (EAPS) and College of Computing Faculty Search December 2022-April 2023

#### *Certifications*

- **Software Carpentries Instructor** certified August 2020

## SKILLS

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**Programming Languages:** R, MATLAB, Python, Java, C, Fortran, Shell Scripting

**Other Computing Skills:** High-Performance Computing systems, SLURM scheduler, Adobe Illustrator, L<sup>A</sup>T<sub>E</sub>X, Git

**Laboratory Skills:** RNA/DNA extraction; Polymerase chain reaction; gel electrophoresis; scintillation counting; isotope experiments; invertebrate dissection; spectrophotometry; basic analytical water chemistry; algal culturing

**Teaching Certifications:** Certified Software Carpentries instructor, Kaufman Teaching Program Certificate

## ACADEMIC REVIEW

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*mSystems, Microbiology Spectrum, ISMEj, Nature Communications, Environmental Microbiology, Scientific Reports, PNAS, Molecular Biology and Evolution*