

**Molly Bates**

Bates College, Lewiston, ME 04240  
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**EDUCATION**

Expected 2024

**Bachelor of Science, Biochemistry major**

Bates College, Lewiston, Maine  
Minor: Asian Studies  
Concentrations: The Human Body, Buddhism

**Senior Thesis:** “The role of the immunity gene DMBT1 in establishing and maintaining Ephydatia muelleri /Chlorella Symbioses” Thesis Advisor: Professor April Hill, PhD

GPA: 3.8 out of 4.0

**HONORS AND AWARDS**

2022  
2021  
2020

**Dean List for Academic Excellence**  
**Bates Purposeful Work Summer Internship Grant**  
**Bates Purposeful Work Job Shadow Grant**

**RESEARCH EXPERIENCE**

2023-2024

**Senior Thesis**

Bates College, Chemistry & Biochemistry Departments

- Independently designed and conducted a study utilizing molecular techniques, microscopy, and bioinformatics to study the cellular mechanisms used by fresh-water sponge Ephydatia Muelleri to establish and maintain long-lasting symbiotic relationship with its endosymbiont Chlorella

Summer 2022 – Fall 2022

**Research Intern**

Brigham and Women’s Hospital, Department of Obstetrics and Gynecology

- Co-authored a book chapter titled “iPSCs Derived Ovarian Tissue”
- Co-authored a review article titled “IPSCs, Organoids, and Steroidogenesis, Perspectives on How Patient-derived IPSCs Provide in-vitro Models for Therapeutics in Reproductive Medicine” on Stem Cell Reports
- Collected, organized data and contributed to the process of planning and developing a pre- grant application for the Chronic Pain Management Research Program – Investigator-Initiated Research Award.
- Helped plan and develop an IRB for clinical trial investigating the safety and tolerability of a new potential COVID-19 prevention option using povidone-iodine.

Summer 2021 – Summer 2022

**Undergraduate Researcher**

Bates College, Chemistry and Biochemistry Department

- Analyzed gene networks and the molecular linkages between intracellular algal symbionts and sponges to further understand the role of host and symbiont interactions in animal development and function
- Developed and established protocol for isolating green algal symbionts from freshwater sponges and subsequent reinfection of sponge

**ADDITIONAL EXPERIENCE**

Fall 2023

**Panelist**

Bates College, Chemistry and Biochemistry Department

- Nominated and chosen by chair of the Department of Chemistry and Biochemistry to give a presentation to students in the Bates College STEM Scholar program.

Summer 2022

**Website Developer**

Brigham and Women's Hospital, Department of Obstetrics and Gynecology

- Co-developed and designed a user-friendly website for the Anchan Laboratory to bring translational research, specifically research aims at treating gynecological closer to the general public

Fall 2020 – Fall 2021

**Animal Care Technician**

Bates College, Chemistry and Biochemistry Department

- Handled and monitored the health of research animals and performed duties such as receiving new animals, cleaninghanging cages and providing food and water.

**LEADERSHIP EXPERIENCE**

Fall 2023

**Teaching Assistant for Microbiology/ Lab**

Bates College, Biology Department

- Supported 15 students through laboratory-based experiments to examine and understand the characteristics, roles, and mechanism of microbial communities in nature

Fall 2022

**Teaching Assistant for Epidemiology: Disruption, Inequality. Change Seminar**

Bates College, Biology Department

- Facilitated classroom discussion sessions for 15 first-year students on racial, ethnic, social, and economic disparities that affected the distributions of global epidemics of historical and current significance.
- Hosted regular office hours for study and review sessions

Fall 2021

**Scientific Content Creator**

Bates College, Harward Center for Community Partnerships

- Co-developed a digital presentation explaining the general principle of CRISPR-mediated gene editing for high school students in the Lewiston-Auburn area in Lewiston, Maine.

Summer 2021

**Research Mentor**

Brigham and Women's Hospital, Department of Obstetrics and Gynecology

- Guided and instructed a high-school student from the Continuing Umbrella of Research Experiences (CURE) program in developing a scientific abstract, literature review, and a presentation focusing on pluripotent stem cells (iPSCs) potential in regenerative medicine

Summer 2021

**Co-Founder and Main Facilitator**

Bates College, Scientific Journal Club

- Connected faculty members from 3 science departments and 40 students across all class years by establishing the first Bates College Journal Club
- Directed a group of 8 students to facilitate weekly 2-hours journal club meetings

Winter 2020

**Teaching Assistant for Lab-Based Organismal Biology**

Bates College, Biology Department

- Advised 15 students on following experimental protocol and supported them with laboratory projects
- Prepared and arranged necessary materials, solutions, and reagents
- Set up, cleaned and maintained equipment for safe use
- Instructed students to properly handle and utilize laboratory instruments

Fall 2020 – Winter 2020

**Writing Tutor for Natural Sciences Courses**

Bates College, Academic Resource Commons

- Mentored and helped familiarize STEM students with the conventions of scientific prose
- Provide assistance to students in writing up scientific reports for science courses

Fall 2020

**Co-organizer and Facilitator**

Bates College, Center for Global Education

- Facilitated the first International Student Orientation Week at Bates College
- Lead sessions to aid in the transition of new international students to life at Bates College and in the United States.

## PUBLICATIONS

### PROTOCOL PUBLICATION

April Hill, **Molly Bates**, Malcolm Hill 2022. Isolation of green algal symbionts from freshwater sponges and subsequent reinfection of sponge tissues. <https://dx.doi.org/10.17504/protocols.io.bmuzk6x6>

### REVIEW ARTICLE (in review for Stem Cells Report)

Maya L. Seshan, **Molly Bates**, Nicholas Ng, Raymond M. Anchan, Behzad Gerami-Naini, iPSCs, Organoids, and Steroidogenesis, Perspectives on How Patient-derived iPSCs Provide in-vitro Models for Therapeutics in Reproductive Medicine

### BOOK CHAPTER (in review)

Emily R. Disler, Nicholas W. Ng, **Molly Bates**, Raymond M. Anchan, “iPSC derived ovarian tissue”

## REFERENCES

April L. Hill, Ph.D.

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STEM Department of Biology Bates College, Maine  
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