

# Olivia A. Asher

Athens, GA 30605 | 718.772.3881 | [oliviaallisonasher@gmail.com](mailto:oliviaallisonasher@gmail.com) | [thesciencenotebookblog.wordpress.com](https://thesciencenotebookblog.wordpress.com)

## EDUCATION

### University of Georgia

PhD in Bioinformatics

GPA: 3.84

Advisor: Jeffrey Bennetzen

Research: using genomic sequencing to understand the interactions between arbuscular mycorrhizal fungi, their microbiome, and their plant host.

Athens, GA

Expected: May 2026

### Macaulay Honors College at Lehman College, City University of New York

Bachelor of Science in Biology *Summa Cum Laude*

Bronx, NY

May 2021

## RESEARCH EXPERIENCE

### Los Alamos National Laboratory

Department of Energy Computational Science Graduate Fellow Practicum Student

Los Alamos, NM

May 2023– August 2023

#### Advisors: Aaron Robinson and Reid Longley

- Developed, tested, and improved a bioinformatics workflow for removing bacterial genome sequences from fungal genome sequences in pooled samples
- Analyzed the evolutionary history of the bacteria and fungi using phylogenetics
- Presented research results to colleagues

### Los Alamos National Laboratory

Department of Energy Computational Science Graduate Fellow Practicum Student

Los Alamos, NM

May 2022– August 2022

#### Advisor: Hau Nguyen

- Used directed evolution to successfully engineer bacterial enzymes to digest plastics more efficiently than wild type enzymes
- Assessed enzymes for expression, activity, and thermostability using plate and shaking powder assays, split green fluorescent protein assays, and heat treatments
- Compared data from newly engineered enzyme to wild type enzyme to quantify improvement

### University of Georgia

Research Experience Undergraduate (REU) Intern

Athens, GA

May 2020 – July 2021

#### Advisor: Jonathan Arnold

- Created a mathematical model of ordinary differential equations to describe the interactions between two symbiotic fungi and a plant host
- Participated in workshops on advanced computing techniques, current bioinformatics research, and bioethics

### Lehman College City University of New York

Honors Thesis Researcher

Bronx, NY

January 2020 – July 2021

#### Advisor: Jack Henning

- Conducted ecological assessment of woody and herbaceous plants in two renovated sites in Van Cortlandt Park, Bronx NY
- Became proficient in local plant identification using morphological technique
- Used data analysis to show the effects of renovation on native plant species

### New York Botanical Garden

Lichenology and Mycology Research Assistant

Bronx, NY

January 2018 – July 2021

#### Advisors: James C. Lendemer and Naveed Davoodian

- Conducted DNA extractions, polymerase chain reaction (PCR), phylogenetic analysis (ML, Bayesian Inference), and ancestral state reconstruction to describe new species and to understand evolutionary relationships
- Analyzed lichens and fungi morphologically using microscopy to describe new species
- Organized raw data from MyCoPortal herbarium database to make a species list of Bronx fungi

Cryptogamic Herbarium Volunteer

#### Advisor: Laura Briscoe

October 2017 – January 2018

- Organized herbarium specimens by taxonomic group and locality
- Facilitated collection preservation by repackaging herbarium specimens

### Royal Botanic Garden Victoria

Mycology Research Assistant

Melbourne, Victoria, Australia

June 2019 – July 2019

#### Advisor: Naveed Davoodian

- Conducted DNA extractions, and PCR of historic fungal collections to enhance database
- Used molecular phylogenetics (ML, Bayesian Inference) to infer a phylogeny of Southern Hemisphere representatives of the fungal genus *Scleroderma*
- Analyzed Southern Hemisphere *Scleroderma* morphologically to compare to previously described species

- Collected, processed, and prepared fungi from Australian rainforests by data-basing and drying specimens
- Participated in a workshop on IUCN Red Listing of fungi to advance fungal conservation

**American Museum of Natural History, Department of Mammalogy**  
Science Research Mentoring Program Intern

New York, NY  
September 2015 – August 2017

**Advisors: Neil Duncan and Mark Weckel**

- Researched diet of NYC coyotes by identifying prey remains in scat samples using microscopy
- Led field testing of telemetry equipment for tracking of coyotes in New York City

## ACADEMIC PUBLICATIONS

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- Longley, R., Robinson Aaron, J., **Asher Olivia, A.**, Middlebrook, E., Bonito, G., & Chain Patrick, S. G. (2024). Signatures of Mollicutes-related endobacteria in publicly available Mucoromycota genomes. *mSphere*, 0(0), e00309-00324. <https://doi.org/10.1128/msphere.00309-24>
- Asher, O.A.**, J. Howieson & J.C. Lendemer. (2023). A new perspective on the macrolichen genus *Platismatia* (Parmeliaceae, Ascomycota) based on molecular and phenotypic data. *The Bryologist* 126(1), 1-18.
- Asher, O.A.** & N.Davoodian. (2023). Boletes in the Bronx and Beyond: A Study of Boletales (Agaricomycetes, Basidiomycota, Fungi) Specimen Records of New York City. *Rhodora* 124(997), 1-16.
- Davoodian, N., Hosaka, K., Raspé O., **Asher, O.A.**, Franck, A.R., De Kesel, A., Delaney, T.P., Ammirati, J.F., Nagasawa E., B. Buyck & Halling, R.E. (2020). Diversity of *Gyroporus* (Gyroporaceae, Boletales): rpb2 phylogeny and three new species. *Phylotaxa* 434(3), 208-218.
- Duncan, N., **Asher, O.A.**, Weckel, M., Nagy, C., C. Henger & Yau, F. (2020). Baseline diet of an urban carnivore on an expanding range front. *Journal of Urban Ecology* 6(1), <https://doi.org/10.1093/jue/juaa021>.
- Asher, O.A.** & Lendemer, J.C. (2018). *Lecanora caperatica* (Lecanoraceae, lichenized ascomycetes) a new sorediate species widespread in eastern North America. *The Bryologist*, 121(3), 306–323.

## GENERAL AUDIENCE PUBLICATIONS

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- Asher, O.A.** (2025). You CAN Make a Difference: My Story of Science Advocacy and Community Building in Face of Funding Cuts. *Athens Science Observer*.  
<https://athensscienceobserver.com/2025/04/07/you-can-make-a-difference-my-story-of-science-advocacy-and-community-building-in-face-of-funding-cuts/>

## AWARDS & HONORS

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<b>Macaulay Honors College</b> , Full Merit Full-Tuition Scholarship (Four Year)	August 2017 – May 2021
<b>Lehman College</b> , Presidential Scholar (Academic honor)	August 2017 – May 2021
<b>Macaulay Honors College</b> , Goldsmith Scholar (Academic honor)	February 2019– May 2021
<b>Torrey Botanical Society</b> , Undergraduate Student Research Fellowship (\$1,000)	May 2019
<b>Macaulay Honors College</b> , Enhanced Opportunities Fund (\$5,000)	May 2019
<b>Mycological Society of America</b> , Undergraduate Research Award (\$500)	May 2019
<b>Con Edison Inc.</b> , Con Edison Endowed Scholarship (\$5,000)	October 2019
<b>National Institute of Health</b> , Research Initiative in Scientific Enhancement (RISE) (\$3,040/year)	October 2019 – May 2021
<b>Lehman College</b> , Department of Biological Sciences Dominick Basile Undergraduate Award (Academic honor)	April 2021
<b>Lehman College</b> , Department of Biological Sciences Kane Prize (\$100)	May 2021
<b>Lehman College</b> , CUNY-AC Scholar Athlete of the Year (Academic honor)	May 2021
<b>Department of Energy</b> , Computational Science Graduate Fellowship (\$45,000 per year)	September 2021-July 2025
<b>University of Georgia</b> , Presidential Fellowship (\$10,000 per year)	August 2021-August 2025
<b>University of Georgia</b> , Institute of Bioinformatics Community Builder Award (\$200)	April 2025
<b>University of Georgia</b> , Institute of Bioinformatics 3MT Slide Design Award (\$100)	April 2025

## PRESENTATIONS

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### Talks

- University of Georgia Institute of Bioinformatics Retreat 2025 (Athens, GA) – Three Minute Thesis Presentation: Who Lives in a Spore?
- University of Georgia Research Experience Undergraduate Symposium 2020 (Online) – Who Will Survive? Ecological Modeling of Nutrient Exchange Between Plants and Arbuscular Mycorrhizal Fungi. [Link](#).
- Northeast Natural History Conference 2017 (Cromwell, CONN) – Spatial Variation in the Diet of New York City Coyotes

### Posters

- International Conference on Mycorrhizas 2024 (Manchester, UK)—Fungi and bacteria associated with arbuscular mycorrhizal fungal spores
- Department of Energy Computational Science Graduate Fellowship Program Review 2024 (Washington, DC) – The Secret Life of Spores: Assessing the diversity of arbuscular mycorrhizal fungal spore-associated fungi and bacteria
- Department of Energy Computational Science Graduate Fellowship Program Review 2023 (Washington, DC) – Who lives in a spore?
- 2022 Annual Student Symposium Los Alamos National Laboratory (Los Alamos, NM) – Optimizing Enzymes for Digesting Plastics

- Department of Energy Computational Science Graduate Fellowship Program Review 2022 (Washington, DC) – Understanding Arbuscular Mycorrhizal Fungal-Plant Interactions Using Genomics and Dynamic Modeling
- Student Research Advisory Board: Annual Scholarly Work Conference 2022 (Online) – Comparing Dual Restorations in an Urban Park, Twice as Nice? [Link](#).
- Mycological Society of America Meeting 2019 (Minneapolis, MN) – Phylogenetic Analyses of the Genus *Platismatia* (Parmeliaceae, Lichenized Ascomycetes) Shed New Light on Species Relationships
- Northeast Natural History Conference 2019 (Springfield, MA) – Phylogenetic Analyses of the Genus *Platismatia* (Parmeliaceae, Lichenized Ascomycetes) Shed New Light on Species Relationships
- Student Undergraduate Research Conference 2019 (Farmingdale, NY)– Phylogenetic Analyses of the Genus *Platismatia* (Parmeliaceae, Lichenized Ascomycetes) Shed New Light on Species Relationships
- Lehman Student Scholars Conference 2019 (Bronx, NY) Phylogenetic Analyses of the Genus *Platismatia* (Parmeliaceae, Lichenized Ascomycetes) Shed New Light on Species Relationships
- Student Conference on Conservation Science 2016 (New York, NY) – Diet of New York City Coyotes

## CLUBS & ORGANIZATIONS

### Science for Georgia

Athens, GA

Policy and Outreach Volunteer

January 2025 – Present

- Lobby for science-backed bills at the State Capitol
- Build coalition of experts on environmental impacts of data center in Georgia
- Assist with event planning and management

### University of Georgia | Plant Center Spring Symposium Planning Committee

Athens, GA

Lightning Talk Coordinator and Website Management Team Member

December 2023 – Present

- Recruit graduate students to participate in lightning talk competition
- Facilitate competition on the event day
- Coordinate audio-visual setup for the symposium
- Manage website content and design (<https://sites.google.com/uga.edu/plantsymposium>)

### University of Georgia | Bioinformatics Graduate Student Association

Athens, GA

President (2022-2023), Treasurer (2023 to 2024), Representative (2025)

May 2022 – May 2025

- Worked with other club officers to research, recruit, and host seminar speakers for the [Institute of Bioinformatics Seminar Series](#)
- Organized and ran group events such as museum visits and hikes
- Surveyed bioinformatics PhD students on their vision for the future of the group
- Co-authored resolution for the university-wide Graduate Student Association on protecting international students
- Planned and ran annual bioinformatics retreat

### University of Georgia | Graduate Pride

Athens, GA

President

August 2021 – May 2022

- Developed and ran club events such as potlucks, craft circles, online social hours, and game nights
- Increased club membership from 20 to over 200 graduate students
- Recruited a team of officers for the following year to facilitate the longevity of the club

### Lehman College | Flora, Fauna, Fungi Undergraduate Trails Club

Bronx, NY

Founding President

August 2019 – March 2020

- Planned logistics and led outdoor events, such as hikes, gardening, and ice skating with an average attendance of 20 students
- Taught club members to identify local plants and inform them about history and ecology of NYC parks
- Represented the club at club fairs and bake sales to recruit new members, which led to 58 official club members and capturing over 100 new emails for our announcements
- Managed and write club event announcements and re-caps via email to over 200 subscribers
- Networked with other organizations on and off campus to expand brand awareness and mission of club

## POLICY TRAINING

### American Association for the Advancement of Science

Washington, DC

Catalyzing Advocacy in Science and Engineering Workshop

April 2025

- Received training on federal government operations which pertain to science
- Honed communication skills for talking to legislators
- Met with staffers from federal offices across the southeast to talk about research funding

## TEACHING EXPERIENCE

### Lehman College | Science Learning Center

Bronx, NY

CRLA Certified Tutor

February 2019 – May 2021

- Reviewed content and studying practices with students one-on one and in groups up to 25 on genetics and general chemistry

- Participated in training sessions on effective learning strategies in accordance with the College Reading & Learning Association (CRLA) standards
- Developed review curriculum to further assist students in understanding new genetic concepts

**Macaulay Honors College**

New York, NY

Lead Instructor

September 2019

- Led a survey of lichen species in Gowanus, Brooklyn at the Macaulay BioBlitz for two groups of 10 students
- Taught students to identify common species of urban lichens and recorded observed species

Lead Instructor Assistant

September 2018

- Assisted in leading the lichen survey group at the Macaulay BioBlitz in Inwood Hill park for two groups of 20 students
- Informed fellow participants about lichen physiology and identification

**American Museum of Natural History**

New York, NY

Lang Science Program Teaching Assistant

July 2017 – August 2017

- Assisted in classroom set up and management and field trip supervision
- Taught students about the diet of coyotes in New York City based on original research