

Julian A. Liber

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Room 137, Biological Sciences Building
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EDUCATION

Duke University, Durham, NC

Aug 2021 – Expected May 2026

Doctor of Philosophy in Biology – Current GPA: 4.00

- Coursework: Systematic Biology, Microbial Pathogenesis, Plants and Climate Change, Science Communication, Biophysics Methods, Microbial Genetics, Exploring the Microbiome, Business of Science
- Proposed dissertation topic: The roles of microbial traits and microenvironments in shaping microbiome assembly in the phyllosphere.

Michigan State University, East Lansing, MI

Aug 2018 – May 2021

Master of Science in Plant Biology – GPA: 4.00

- Coursework: Advanced Mycology, Evolutionary Biology, Special Topics in Mycology, Eukaryotic Cell Biology, Foundations of Plant Biology, Statistical Methods in Ecology and Evolution 1 & 2, Plant Genomics, Teaching College Science, Population & Community Ecology, Integrative Microbial Biology
- Thesis: Understanding the roles of interkingdom microbial interactions, microbial traits, and host factors in the assembly of plant microbiomes.

Michigan State University, East Lansing, MI

Aug 2016 – May 2019

Bachelor of Science in Plant Biology - GPA: 3.99

- Minor: Computational Mathematics, Science, and Engineering

SELECTED RESEARCH EXPERIENCE

Graduate Research Assistant, Duke University, Durham, NC

Aug 2021 – Present

- He Lab – Microbiota-host interactions in the phyllosphere.

Research Technician, MSU, East Lansing, MI

May 2021 – Aug 2021

- Bonito Lab – Plant-microbe interaction imaging, genomics of Mycoplasma-related endobacteria, systematics of Mortierellaceae

Graduate Research Assistant, MSU, East Lansing, MI

Summer 2019 – May 2021

- Bonito Lab – Systematics of Mortierellaceae, fungal interactions with bacteria, algae, plants, nematodes, and plant viruses, computer vision applications to fungi.
- Mentoring of undergraduate and high school students

Undergraduate Research Assistant, MSU, East Lansing, MI

Spring 2017 – Spring 2019

- Bonito Lab – Independent research project studying the interaction of bacterial and fungal endophytes in grasses. Study of endosymbiotic bacteria interactions in fungi; culturing and sequencing novel fungi strains, microscopy, and image analysis.

iGEM Competition Team Leader, MSU, East Lansing, MI,

Spring 2018 – Fall 2018

- Team project to use an engineered endophyte of grasses to promote drought stress tolerance in cereal crops
- Responsibilities – Organizing team meetings, project and experimental design, technical problem solving, community outreach, inter-lab collaboration, research presentation

SELECTED TEACHING EXPERIENCE

Teaching Assistant, Duke, Durham, NC

Fall 2022 - Spring 2023

- Courses: BIOL 557L – Microbial Ecology, BIOL 202L – Genetics and Evolution
- Responsibilities – Laboratory protocol development and presentation, lab safety compliance, microbiology material preparation, bioinformatic processing and analysis of sequencing data, identification of plants (in

field) and microorganisms (in laboratory), meta-amplicon sequencing, hands-on explanation of animal and plant anatomy, genetics problem solving.

Teaching Assistant, MSU, East Lansing, MI

Fall 2019

- Center for Integrative Studies in General Science
- Course: ISB 208L – Applications in Biological Science Laboratory
- Responsibilities – Course development and planning, lectures, grading, working with course coordinator and TAs, help room.

SELECTED AWARDS

- TriCEM - Duke Microbiome Center Graduate Award in Evolutionary Medicine June 2024-2025
- Mycological Society of America, Best Graduate Student Poster Summer 2021
- Summa Cum Laude, MSU Spring 2019
- Department of Plant Biology Outstanding Undergraduate Award Spring 2019
- Department of Comp. Mathematics, Science, and Engineering Outstanding Learning Assistant Spring 2019
- University Undergraduate Research and Arts Forum 1st Place Poster Spring 2018
- Scholarships - Alumni Distinguish Scholarship Finalist, National Merit Finalist, Norman A. Good Scholarship Award, College of Natural Science Research Scholarship

SELECTED SYNERGISTIC ACTIVITIES/PROFESSIONAL IMPACT

Duke University Graduate and Professional Student Government, 2021 – 2025

- *Director of Academic Affairs* May 2023 – May 2025
 - Assess issues pertaining to courses, teaching, diversity, harassment, discrimination, and due process and work to resolve them by working with university administration. Management of GPSG Lawyer Assistance Program.
- *Secretariat Rep. for Trinity College of Arts & Sciences (Nat. Science)* May 2022 – May 2023
 - Develop and set legislative agenda, communicate with Natural Science grad student constituency and represent their interests, provide oversight of Executive Committee, organize and run elections.
- *General Assembly Rep. for Department of Biology* Sept 2021 – May 2022
 - Read, discuss, and vote on legislation, share information with department, bring student concerns to administration. Member of Climate Crisis Committee.

Duke Biology Organisms and Evolution Seminar Czar

Fall 2021

Notify department of seminar, coordinate meeting with speaker, host seminar event.

MSU Plant Biology Graduate Student Organization Outreach Committee

2019 – 2021

Organize and participate in events in the Lansing, MI area to promote interest in science and science literacy.

SELECTED PUBLICATIONS/PRESENTATIONS/FEATURES

- Bian Z, Wilhoit K, **Liber JA**, Peer A, Xu Z, Magwene PM, Sun S, Heitman J. (2025) Meiosis-specific genes play roles in ploidy reduction in *Cryptococcus neoformans* titan cells. bioRxiv. 2025.09. 16.676405
- Guo YS, **Liber JA**, Morrell-Falvey JL, Bonito G, Retterer ST. (2024) Monitoring the impact of confinement on hyphal penetration and fungal behavior. PloS one. 19(12): e0312855
- Longley R, Robinson A, **Liber JA**, Bryson AE, Morales, DP, LaButti K, Riley R, Mondo SJ, Kuo A, Yoshinaga Y, Daum C, Barry K, Grigoriev IV, Desirò A, Chain PSG, Bonito G. (2023) Comparative genomics of Mollicutes-related endobacteria supports a late invasion into Mucoromycota fungi. Communications Biology. 6(1): 1-13.
- Sohrabi R, Paasch BC, **Liber JA**, He SY (2023) Phyllosphere Microbiome. Annual Review of Plant Biology. 74(1).
- Vande Pol N, **Liber JA**, Yocca A, Matlock J, Edger P, Bonito G. (2022) *Linnemannia elongata* (Mortierellaceae) stimulates *Arabidopsis thaliana* aerial growth and responses to auxin, ethylene, and reactive oxygen species. PloS one. 17(4): e0261908.
- **Liber JA**, Benucci GMN, Bonito G. (2021) CONSTAXv2: a software for accurate taxonomic classification of environmental DNA markers. Bioinformatics. 37(21): 3941-3943. <https://github.com/liberjul/CONSTAXv2>
- **Liber JA**, Bryson A, Bonito, G, Du Z. (2020) Harvesting microalgae for food and energy products. Small Methods. 2020(2000349): 1-16.