

# Zachary (Zack) Quirk

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## Education

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**PhD Candidate** 2018 - Expected Graduation: 2023  
Department of Earth & Environmental Sciences, University of Michigan Ann Arbor  
Advisor: Dr. Selena Smith

**Science, Technology, & Public Policy Certificate Program** 2019- Expected completion: 2021  
Ford School of Public Policy, University of Michigan Ann Arbor

**Doctoral Graduate Student** 2017-2018  
Department of Environmental & Plant Biology, Ohio University  
Advisor: Dr. Elizabeth Hermsen

**B.Sc., Evolutionary Biology/Ecology**, University of Rochester (Rochester, NY) 2017  
**B.A., Geology**, University of Rochester (Rochester, NY) 2017

## Research interests

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Plant macroevolution; Response of modern/fossil plant traits and distribution to environmental and climatic change; Monocot leaf venation

## External Awards

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**National Science Foundation Graduate Research Fellowship Program Recipient** 2019  
Awarded three-year fellowship to study monocot leaf venation at the University of Michigan, Ann Arbor

## Internal Awards

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**University of Michigan Rackham Pre-Candidate Research Grant** 2020  
"Times are changing: using growth chamber experiments to determine how living ginger plants will respond to modern environmental and climatic shifts", \$1500

**University of Michigan Department of Earth & Environmental Sciences Turner Grant** 2019  
"An ancient flora puzzle: using a new quantitative leaf trait to improve fossil monocot plant identification in Pandanales (screw pines)", \$1560

**University of Michigan Department of Earth & Environmental Sciences Turner Grant** 2018  
"Plant family relations: how can modern monocot leaf morphology improve identification of fossil specimens?", \$1500

**Earth and Environmental Sciences Department Fellowship** 2018

**Dean's list University of Rochester** 2017

**University of Rochester Grace McCormack Award** 2017  
Awarded due to demonstration of excellence in science and teaching

**High Distinction and Honors in Research** 2017  
University of Rochester Geological Sciences Department

## Peer-Reviewed Publications

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Published

Quirk, Z.J., Hermsen, E.J. 2020. Neogene *Corylopsis* seeds from Eastern Tennessee. Journal of Systematics and Evolution. doi: [10.1111/jse.12571](https://doi.org/10.1111/jse.12571).

Quirk, Z.J., Blanton, D.B. 2020. A southeastern North America river community forty-thousand years ago. Georgia Journal of Science 78: 1-18.

<https://digitalcommons.gaacademy.org/cgi/viewcontent.cgi?article=1940&context=gjs>

## Abstracts of Conference presentations

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Quirk, Z. & Smith, S.Y., Reading the leaves: developing a quantitative approach to improve interpretation of fossil monocot leaf systematics and ecology, Geological Society of American Meeting, Phoenix, Arizona, September 2019.

Quirk, Z. & Hermsen, E.J., *Corylopsis* seeds from eastern Tennessee, Mid-Continental Paleobotanical Colloquium, Ohio University, Athens, OH, June 2018.

## Seminars and Special Programs

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### AAAS Leadership Seminar in Science and Technology Policy

2020

Participated in the four-day program by the American Association for the Advancement of Science on how Science and Technology policy works and learned from policy experts about the opportunities, challenges, and solutions of working in Science and Technology policy.

## Outreach and Service

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### Diversity, Equity, & Inclusion Committee Graduate Student Representative

2020-present

University of Michigan, Earth & Environmental Sciences Department

Aided in addressing/mitigating DEI issues pertaining to the department and the greater UM scientific community.

### Moderator for the Mid-Continental Paleobotanical Colloquium

2018

Moderated presentations for the Mid-Continental Paleobotanical Colloquium 2018 meeting at Ohio University.

### Peer Advisor for the University of Rochester

2016-2017

Guided and helped students interested in pursuing studies/classes in the geological sciences.

### Docent of Fernbank Polaris Program

2014-2015, 2016-2017

Docent for the Fernbank Natural History Museum in Atlanta, educated visitors on fossils, rocks and answered questions about geology.

## Research & Field Experience

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### Graduate student research assistant in PEPPR Lab, University of Michigan

2018-present

Measure vein length per unit area (VLA) in fossil and modern monocot leaves. Operate  $\mu$ CT Scanner in PEPPR Lab at University of Michigan. Maintain lab space as safety officer.

### microMORPH Plant Anatomy: Development, Function, and Evolution Summer Course

2017

Attended Microevolutionary, Molecular and Organismic Research in Plant History's course at Harvard University; studied plant anatomy and plant evolutionary trends.

### Lab Research at Georgia College and State University

2016

Conducted senior thesis project concerning late-Quaternary aged paleobotanical fossils from southern Georgia with Melanie DeVore, PhD.

### Lab Research in SIREAL Lab at the University of Rochester

2014-2015

Conducted an undergraduate research project concerning isotopes of Bighorn Basin, WY with Penny Higgins, PhD.

**Member of the Paleomagnetic Research Group's (U. Rochester) Summer Arctic Expedition** 2015  
Worked to collect paleomagnetism core samples and find new paleontological field sites in the Canadian High Arctic, led by Dr. John Tarduno.

### **Key Skills**

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**Proficient in Microsoft Office, Adobe Photoshop & Illustrator, ArcGIS, ImageJ, Spanish Language**

**Experience with R, python coding languages**

### **Teaching & Mentoring Experience**

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**Graduate Student Instructor, Dept. of Earth & Environmental Sciences, University of Michigan, Winter 2021. Earth 432: Plant Paleobiology.**

Assisted students with learning geological history of fossil and living plants virtually during the COVID-19 pandemic.

**Graduate Student Instructor, Dept. of Earth & Environmental Sciences, University of Michigan, Fall 2020. Earth 408: Introduction to GIS.**

Assisted students with learning ArcGIS, geographical imaging software, virtually during the COVID-19 pandemic.

**Graduate Student Instructor, Dept. of Earth & Environmental Sciences, University of Michigan, Summer 2020. Earth 496: Earth and Environmental Science Field Methods.**

Taught students geologic field techniques and knowledge regarding Michigan's glacial landscape during the Camp Davis Summer 2020 session, virtually during the COVID-19 pandemic.

**UM Undergraduate Research Opportunity Program (UROP) Advisor, 2019-2020**

Mentored an undergraduate, Malinda Barberio, in conducting plant venation research in the PEPFR lab.

**Graduate Student Instructor, Dept. of Earth & Environmental Sciences, University of Michigan, Winter 2019. Earth 432: Plant Paleobiology.**

Assisted students with learning geological history of fossil and modern plants.

**Teaching Assistant, Dept. of Environmental and Plant Biology, Ohio University, Spring 2018  
PBI0 1150: Plant Structure and Development.**

Helped introduce students to concepts and basics for understanding plant anatomy.

**Teaching Assistant, Dept. of Environmental and Plant Biology, Ohio University, Fall 2017  
PBI0 3080: Anatomy and Morphology of Vascular Plants.**

Helped students learning about structural plant biology.

**Teaching Assistant, Dept. of Biological Sciences, University of Rochester, Fall 2016  
Bio 225: Evolution and Ecology Lab.**

Helped students learn to conduct experiments in an evolution/ecology lab setting.

**Teaching Assistant, Dept. of Earth and Environmental Sciences, University of Rochester, Spring 2016  
EES 201: Evolution of the Earth.**

Helped and assisted students learning about evolution and geology.

### **Professional Affiliations**

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<b>American Association for the Advancement of Science (AAAS)</b>	2020-present
<b>Botanical Society of America (BSA)</b>	2017- present
<b>Geological Society of America (GSA)</b>	2019- present
<b>International Organisation of Palaeobotany (IOP)</b>	2017- present
<b>Paleontological Society</b>	2019-present

## References

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Selena Smith, PhD; Dept. of Earth & Environmental Sciences, University of Michigan; Room 2534, 1100 North University Avenue, Ann Arbor, MI 48109-1005; [sysmith@umich.edu](mailto:sysmith@umich.edu)

Elizabeth Hermsen, PhD; Paleontological Research Institution; 1259 Trumansburg Road, Ithaca, NY 14850; [ejh23@cornell.edu](mailto:ejh23@cornell.edu)

Dennis Blanton, PhD; James Madison University; 800 South Main Street, Harrisonburg, VA 22807; [blantodb@jmu.edu](mailto:blantodb@jmu.edu)