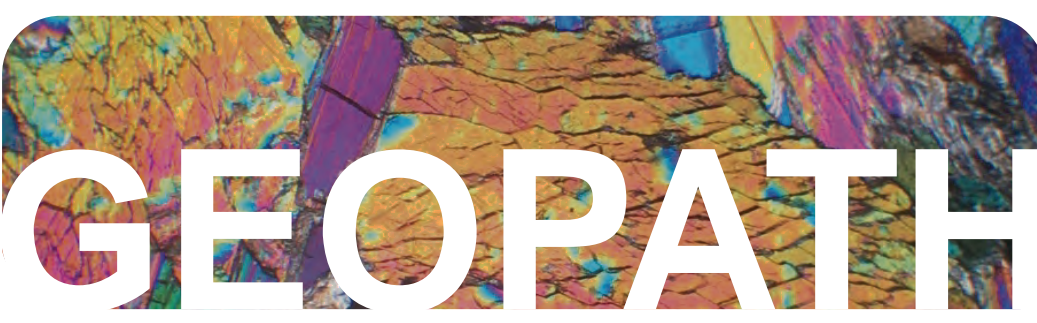


# Invigorating the geoscience community: Graduate student-led efforts in creating inclusive, equal and diverse science community at the University of Wisconsin-Madison



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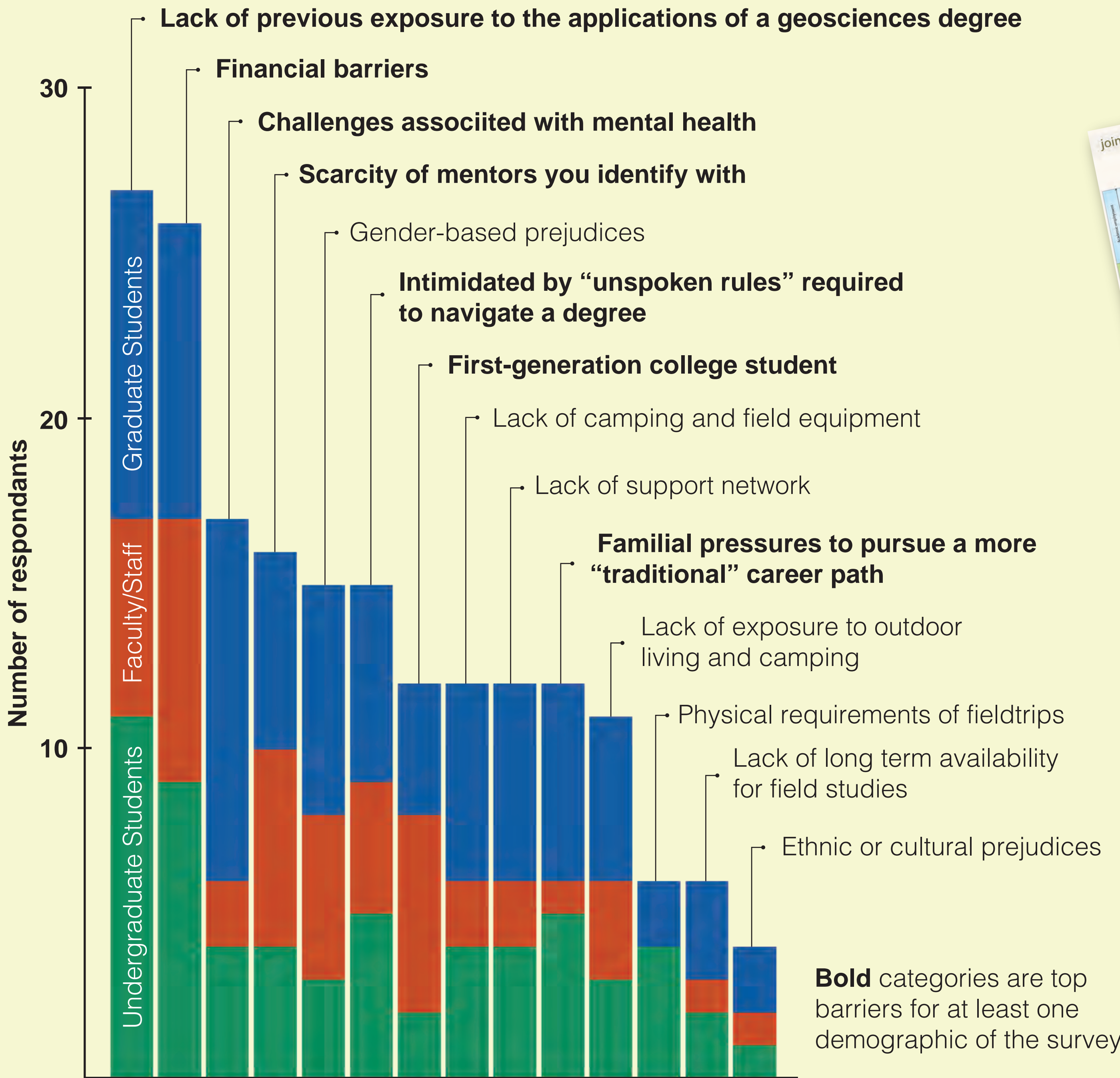
## What is GeoPath ?

GeoPath is a **graduate and undergraduate organization at UW-Madison**. We provide a range of resources and initiatives aimed at **breaking down barriers that limit the quantity and quality of equal opportunities for underrepresented minorities**, ranging from community building efforts to activities focused on mentorship, to resources for easing financial stress. We believe that these barriers are detrimental to scientific research and the geoscience community.

**Geoscience programs** have historically lacked equitable representation of diverse groups. Recent studies suggest that earth sciences and neighboring ocean and atmospheric sciences are the **least diverse in all science, technology, engineering, and math (STEM) fields(1)**. While the overall number of PhD degrees granted in the earth sciences has increased in the last decade, and while gender parity is on the rise, **the specific representation of non-Caucasian groups has remained stagnant when compared with the proportion of the US population**, with 85% of PhDs in 2016 awarded to non-Hispanic white people(2). This disparity has been shown to be due in large part to pre-existing identities of 'successful' STEM students, with a 2017 report from the Urban Institute highlighting that wealthier and younger undergraduate students are much more likely to enroll in graduate programs.

## Survey Responses: Top barriers @ UW-Madison Geoscience

- | Undergraduate Students  | Post-doc, Faculty, Staff  | Graduate Students  |
|---|---|--|
| <ul style="list-style-type: none"><li>Lack of previous exposure to the applications of a geoscience degree</li><li>Financial barriers</li><li>Familial pressures to pursue a more "traditional" career path</li><li>Intimidated by "unspoken rules" required to successfully navigate an undergraduate or graduate degree</li></ul> | <ul style="list-style-type: none"><li>First generation college student</li><li>Scarcity of mentors you identify with</li><li>Lack of previous exposure to the applications of a geoscience degree</li></ul> | <ul style="list-style-type: none"><li>Lack of previous exposure to the applications of a geoscience degree</li><li>Challenges associated with mental health</li><li>Financial barriers</li></ul> |



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## GeoPath Initiatives: Breaking down barriers and building community

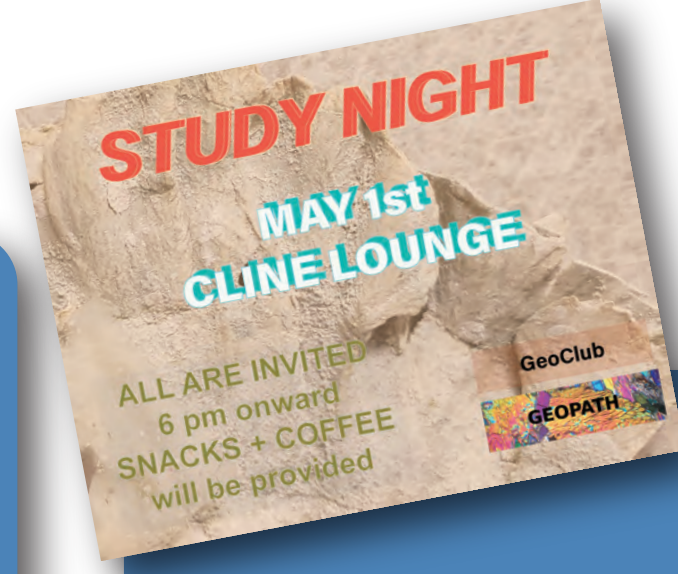
### Trivia Nights

- Fun event to build community
- Raises awareness of environmental and sustainability issues



### Picnics

- Post-final exam events to relax and spend time together
- Includes physical activity and spending time outside



### Study Nights

- Afternoon events providing designated spaces for studying
- Accommodates different learning styles: spaces for quiet work, break rooms for discussion and socialization

### Speed Mentor-finding

- Annual event connecting undergraduate and graduate students through rotating five-minute, one-on-one conversations
- Fosters mentor-mentee relationships
- Facilitates undergraduate engagement in research and industry



### Informational Panels

- Information sessions on topics involving implicit guidelines, including graduate school applications and attending field camp
- Designed to help undergraduate students navigate unspoken rules and to provide general information about the panel topic
- Undergraduates hear directly from students with experience in the panel topic



### Collaborations with Intro Geology

- Open house in Geoscience Department for students in Introductory Geology course
- Designed to expose students to the breadth of disciplines and methodologies within the geosciences
- Lab tours, demonstrations of techniques for data collection and analysis
- Collaboration with Tadada Scientific Lab®, a multimedia scientific outreach initiative

### Diversi-TEA

- Serve to confront the invisible barriers to being academic scientists
- Through these discussions, we address issues of inclusivity and how to increase diversity
- Monthly, department-wide discussions on topics relevant to diversity



## Comments from the GeoPath community:



GeoPath after a Diversi-TEA, 2019

"I have appreciated the forum where explicitly recognizing strength in differences of background and experience occurs."

- Faculty member

"I feel more welcome in the department."

- Graduate Student

"It promotes community within our department which I value very much. As a staff member I have appreciated getting to hear more from students about their experiences here and elsewhere. I am hopeful that we can continue to improve our department for future students, staff, and faculty."

- Staff member

"Yes, it's helpful to know that other people have impostor syndrome, mental health, and financial concerns associated with college. I also feel less out of place at events with a focus on diversity."

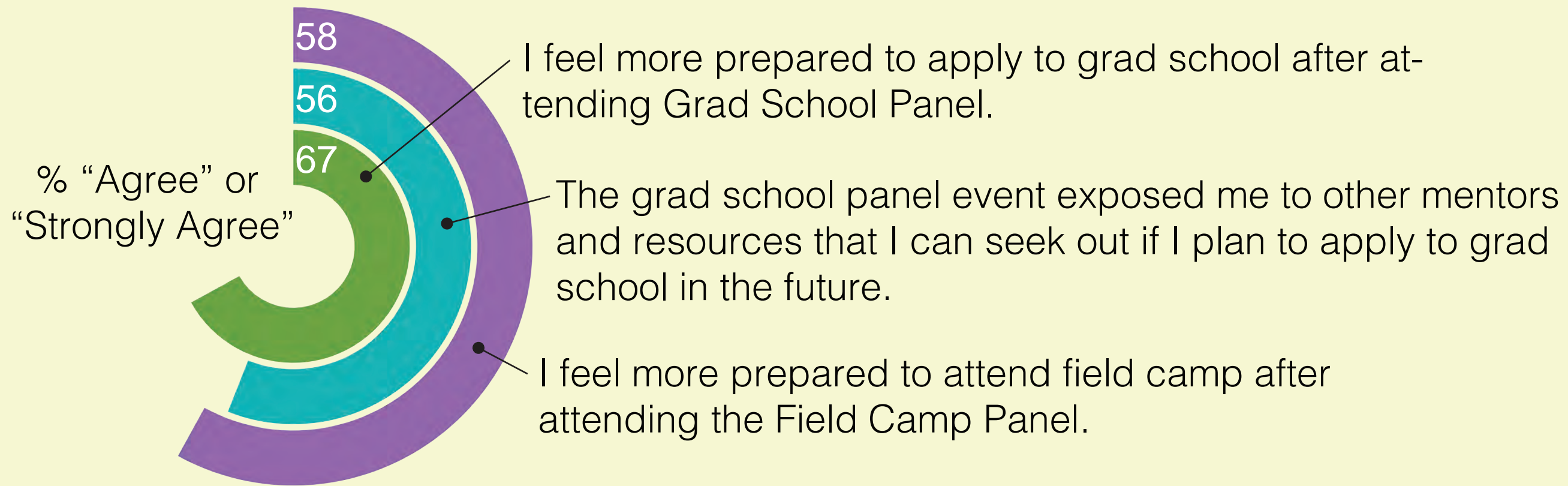
- Undergraduate student

## Tangible results of GeoPath's community-building

While complex barriers to entry in the earth sciences continue to persist, GeoPath and similarly targeted initiatives have had a demonstrably positive effect on opening the doors of geoscience to all people. We hope that GeoPath will serve as a model that can be incorporated into departments across the discipline.

## How 2018-2019 GeoPath participants felt after attending events — survey results

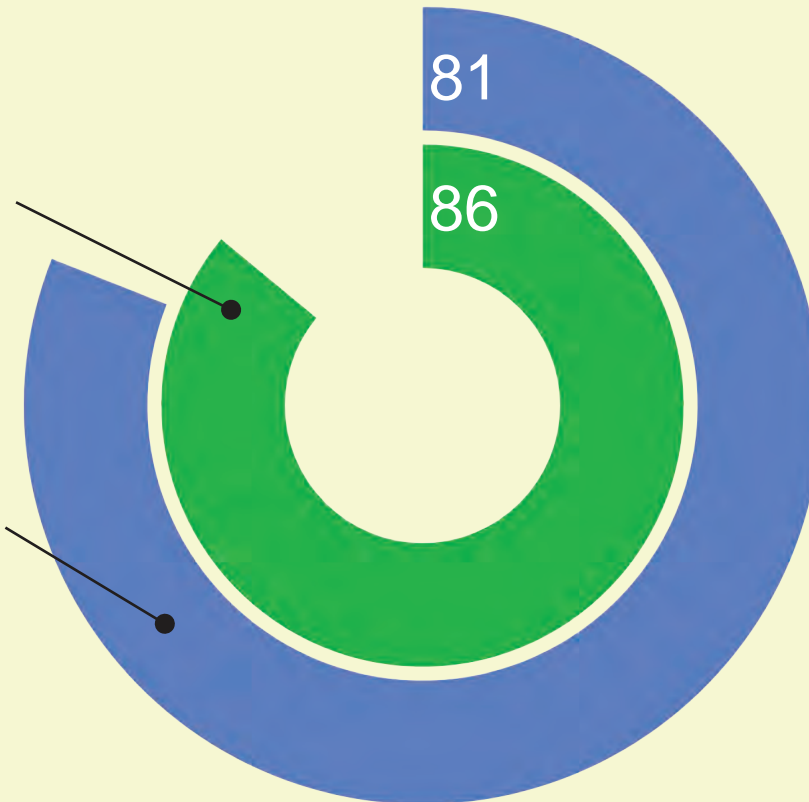
### Graduate school and Field Camp panels



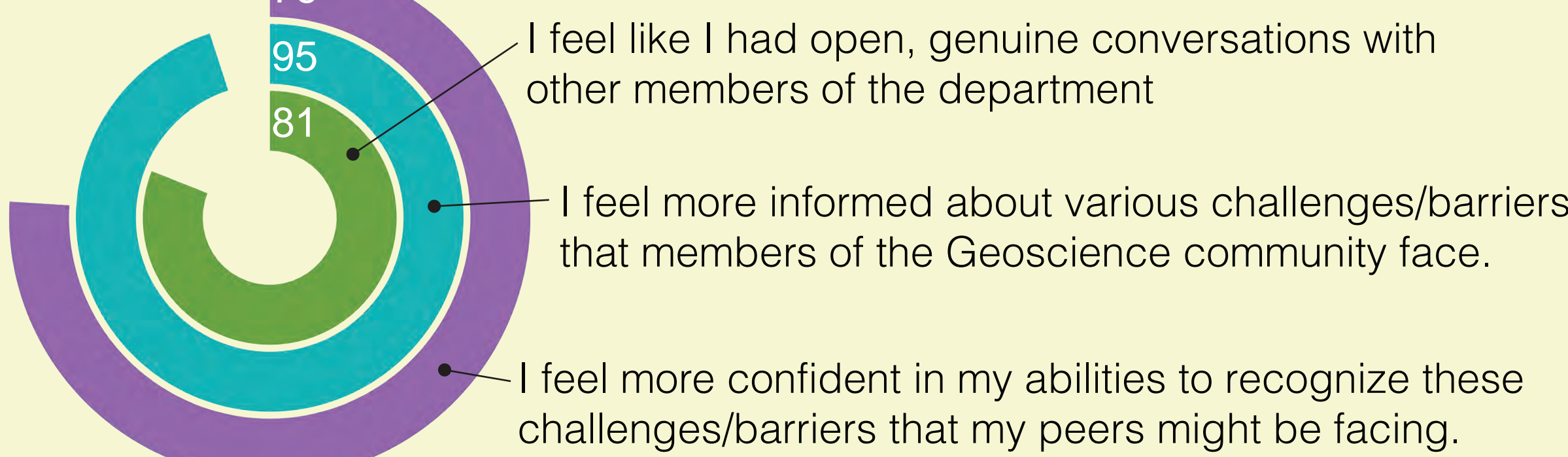
### Speedmentoring

This event has exposed me to potential mentors and research within the Geoscience Department.

After attending this event, I feel more comfortable/connected with graduate students in the Geoscience Department.



### Diversi-TEA

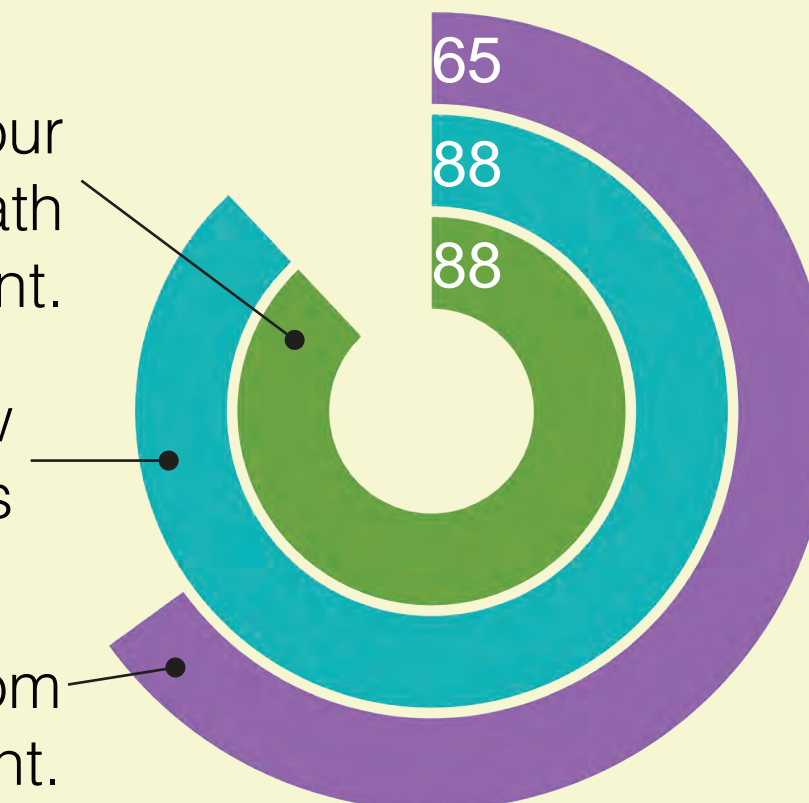


### GeoPath events in general

I feel a greater sense of community within our Geoscience Department after attending a GeoPath event.

After attending a GeoPath event, I am now more interested in future GeoPath events

I feel more comfortable seeking help from others in the department.



## References

- Women, Minorities, and Persons with Disabilities in Science and Engineering: 2017 NSF 17-310 (National Science Foundation, 2017).
- Bernard, R.E., Cooperdock, E.H.G. No progress on diversity in 40 years. Nature Geosci 11, 292-295 (2018).