

URGEO

Unlearning Racism in Geoscience



Department of Meteorology and
Atmospheric Science

Demographic Data and Goals for Penn State University, College of Earth and Mineral Sciences, and the Department of Meteorology and Atmospheric Science

DEMOGRAPHIC AND STATISTICS DATA FOR OUR ORGANIZATION

- Demographics of Staff and Students
 - Penn State:
<https://datadigest.psu.edu/>
 - College of EMS Undergraduate Students:
<https://www.ems.psu.edu/about/who-we-are/undergraduate-enrollment>
 - College of EMS Graduate Students:
<https://www.ems.psu.edu/about/who-we-are/graduate-enrollment>
- Demographics of Invited Speakers
 - College of EMS

"The number of women invited to speak in college seminars has increased over the last several years. Gender representation among speakers generally matches and, in some venues, exceeds national availability data for disciplinary fields within EMS." from 2017 Report on the Status of Women Academics in the College of EMS
https://www.ems.psu.edu/sites/default/files/documents/faculty_staff/final-report-status-of-women-academics-in-ems-june-2017-modified-july-2017-1f6lwkq.pdf
 - Department of Meteorology and Atmospheric Science:
 - 2020/2021 speakers were 56% male, 44% female and 59% white, 7% black.
 - 2021/2022 speakers were 78% male, 22% female and 56% white, 7% black.
 - 2022/2023 speakers were 63% male, 37% female and 63% white, 0% black.
 - 2023/2024 speakers (fall) were 80% male, 20% female and 55% white, 0% black.

- Representation of women and black speakers has dropped since 2020/2021. Many of the non-white speakers are Asian which are not underrepresented in STEM. The department is aware of this issue and is working to alleviate it. Note that the rate of acceptance of invitations may be higher for white males than women and people of color, so may need to ask even more to achieve a balanced lineup.

- College of EMS Data Analytics

The College of EMS has hired a data analytics consultant to work on these issues and build an internal tool for faculty and staff to explore and evaluate demographic data by unit. Some of this information is posted publicly on the EMS website in the links above. The College is actively compiling and tracking these types of data in response to the 2019 Assessment of Living, Learning, and Working Environments (ALLWE) survey and is making the data available for groups working on implementing plans for improving the culture and climate of the College.

- College of EMS Data Analytics Staff Person
Brian Bills: <https://www.ems.psu.edu/directory/brian-bills>

- ALLWE
<https://www.ems.psu.edu/allwe>

- Penn State University conducted a climate survey in 2020. "Dashboard" access to the information from it, including demographic information, is available through the Office of Planning, Assessment, and Institutional Research

- <https://opair.psu.edu/community-survey/summary-findings/>

- <https://opair.psu.edu/>

- According to Brian Bills (Analysis and Planning Consultant in the College of EMS Dean's Office), the University and EMS are genuinely pushing for more transparency but have different thresholds for confidentiality concerns. Basic demographic data are becoming more easily shared and available, but when numbers get small, the concern is that individuals become identifiable. EMS is presently working on making expanded datasets available internally to administrators, faculty, and staff who have decision-making power over aspects of programs that would impact diversity and is aiming to expand that circle of access as more datasets are compiled. Strict demographic data do not appear to be as generally sensitive as performance-related data (e.g., GPA or salary information). The College of EMS and Penn State as a whole discuss these issues often and are working to balance the need for greater transparency with a desire to protect confidentiality.

DEMOGRAPHIC AND STATISTICS DATA FOR OUR DEPARTMENT

- Graduate Students in Meteorology and Atmospheric Science at Penn State
 - Underrepresented minority students represent 33% of MS and 18% of Penn State Meteorology and Atmospheric Science PhD students in 2023, compared to 22% of MS and 20% of PhD atmospheric science degrees awarded to underrepresented students, excluding international students, in the U.S. in 2021 (<https://datausa.io/profile/cip/atmospheric-sciences-meteorology>). AGU membership (URM) is 9%.
 - Female students represent 33% of MS and 34% of Penn State Meteorology and Atmospheric Science PhD students in 2023, which is lower than the total U.S. graduates in 2021 reported by DataUSA (~40% and 40%). PSU female graduate student representation is slightly higher than AGU membership (30% women).
- Undergraduate Students in Meteorology and Atmospheric Science at Penn State
 - 8% underrepresented minority students in 2022, compared to 20% of undergraduate geoscience degrees awarded to underrepresented students in U.S. in 2021 (DataUSA)
 - 33% women in 2022, lower than U.S. graduate total of ~40% (DataUSA).
- Faculty in Meteorology and Atmospheric Science at Penn State
 - Tenure-line: 10% underrepresented minorities in 2022, 24% women, of 29 total
 - Non-tenure-line: 5% underrepresented minorities in 2022, 15% women, of 20 total
- Postdoctoral Scholars in Meteorology and Atmospheric Science at Penn State
 - 29% underrepresented minorities in 2022, 38% women, of 7 total
- Comparison: AGU membership is 9% URM and 30% women.
- Comparison: Of graduates in 2021 with PhDs in Atmospheric Science, 20% were URM and 40% were women (<https://datausa.io/profile/cip/atmospheric-sciences-meteorology>). Interestingly, for Atmospheric Science the percentages from BS, MS, and PhD are all about the same for URM and women, respectively.
- Comparison: In EMS in 2016 according to the Status of Women Faculty in EMS Report,

women represented

- 21% of standing,
- 17% of tenured,
- 36% of pre-tenured, and
- 34% of non-tenure-line appointments

● AGU

<https://www.agu.org/-/media/Files/Learn-About-AGU/2014-2019-Honors-Program-Diversity-Report.pdf>

Table of percentages of women and underrepresented minorities in the Department of Meteorology and Atmospheric Science at Penn State. Comparisons are made to minimally acceptable percentages based on recent B.S. graduates in atmospheric science (<https://datausa.io/profile/cip/atmospheric-sciences-meteorology>) for students (40% women and 20% URG) and based on recent Ph.D. graduates in atmospheric science for postdocs and non-tenure line faculty (37% women and 20% URG). For tenure-track positions, we use the available percentage for tenure-track positions provided by the PSU Office of Equal Opportunity and Access (OEOA) (34% women and 14% URG). Goal percentages are based on population statistics for the state of Pennsylvania. Red numbers indicate those that are noticeably below the minimally acceptable percentage.

	Women PSU (%)	Minimally Acceptable (%)	Goal (%)	URG PSU (%)	Minimally Acceptable (%)	Goal (%)
Undergraduates (number=90 declared in major)	33	40	51	8	20	24
Graduate Students						
MS (number=12)	33	40	51	33	20	24
PhD (number=56)	34	40	51	18	20	24
Postdocs (number=7)	38	37	51	29	20	24
Faculty						
Tenure-line (number=25)	28	34	51	12	14	24
Non tenure-line (number=20)	15	37	51	5	20	24

DEPARTMENT GOALS ON DEMOGRAPHICS AND REPRESENTATION:

- Department Website Mission Statement

PSU MAS Mission Statement: “The Department of Meteorology and Atmospheric Science expands the reaches of the atmospheric sciences, prepares students for emerging careers, and advances the wellbeing of the University and society.”

For comparison, PSU GEOSCI Mission Statement: “We achieve our mission by attracting and retaining a diverse, world-class faculty and student body, by providing a stimulating and collegial educational and research experience for undergraduate and graduate students, and by educating a broader population to make informed decisions about key environmental and resource issues.”

We have asked the department head to add a statement regarding diversity, equity, inclusion and belonging to the “message from the department head” on the website, and suggested an update to the department mission statement.

- Department Strategic Plan

(http://www.met.psu.edu/about-us/mas_strategic_plan_2020_2024_final.pdf/view):

- One of the six initiatives defined within the 2020-2024 Department of Meteorology and Atmospheric Science strategic plan is to “transform education by enhancing faculty and student diversity.”
- Further details in the strategic plan: “A key to achieving our goals of attracting a talented cohort of undergraduates and graduate students is to have a welcoming, inclusive environment and a diverse, supportive, student-centered faculty in which everyone feels a sense of belonging. One important element in creating this environment is to have the composition of the faculty mirror the desired composition of the students. Pennsylvania’s population is 51% female and 49% male; 76% of the commonwealth’s population is white, 12% is African American, 8% is Hispanic, and 4% is from other races. ... Our faculty membership and student populations are slowly becoming more diverse and better represent the population of the commonwealth but more needs to be done.”
- Key Performance Indicators: 1. Status of faculty diversity and implicit bias training. 2. Number and status of partnerships with minority serving institutions. 3. Number of faculty involved in EnvironMentors and REU programs and other university and professional society diversity initiatives. 4. Number of students nominated for fellowships and involvement in university and society diversity initiatives. 5. Number of social events that present the diversity of science backgrounds to our students.
- Comparison to statement in PSU GEOSCI strategic plan: “The geosciences remain the most underrepresented for all STEM fields, and to address this challenge, we must continue to prioritize resources and efforts to diversify our faculty, staff and students. While the

number of female faculty and students in the Department has risen considerably over the past few decades, faculty, staff and students of color still make up less than 10% of the Department.”

- Suggested Additional Goals for Our Organization

- Review demographics with faculty once per year (undergraduate enrollment, graduate applications and admissions, graduate enrollment, student retention, faculty and staff, faculty search statistics, award recipients, first-generation and non-traditional students, alumni board members, and colloquium information, status of faculty and staff diversity and bias training, number and status of partnerships with minority serving institutions, number of faculty involved with EnvironMentors and REU programs). Suggestion is to present yearly at the faculty retreat.
- Strive for more aggressive diversity targets internally for our searches, rather than relying on the HR threshold, might help improve the likelihood of changing our faculty demographics at a noticeable pace.
- Example goals from other organizations:
 - [https://diversity.ideo.columbia.edu/seminardiversity-Increase diversity in seminars](https://diversity.ideo.columbia.edu/seminardiversity-Increase%20diversity%20in%20seminars)
 - <https://www.nature.com/articles/d41586-019-03784-x>-No all-male panels
 - <http://www.ohrc.on.ca/en/policy-and-guidelines-racism-and-racial-discrimination/part-3-%E2%80%93-guidelines-implementation-monitoring-and-combating-racism-and-racial-discrimination>-more information on collection of demographic data in Canada.
 - UC Davis has examples of actionable objectives:
<https://diversity.ucdavis.edu/about/strategic-plan/goals-and-objectives>. In particular, their emphasis on retention (not only recruiting) of diverse populations is a nice example.

Acknowledgment: The Department of Geosciences at Penn State completed URGE training and deliverables during the spring of 2021. As their department is in the same college within the same university, many of our policies and procedures are the same. We have thus relied on the deliverables of their pod, adjusting and updating as appropriate.