

DIVERSITY, EQUITY, AND INCLUSION

Annual Report 2022-2023

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LETTER FROM THE ASSOCIATE DEAN

I am pleased to share our annual report of the Thayer School of Engineering at Dartmouth's Diversity, Equity, and Inclusion (DEI) Committee. This report highlights the committee's work over the 2022-2023 academic year to create a more inclusive and equitable environment for all members of the Dartmouth Engineering community.

Diversity, equity, and inclusion are central to our mission and critical to expanding our capacity for truly human-centered innovation. During 2022-2023, we made significant progress in the prior year which you will read about in the report. In September 2023, we launched the school's 4-year DEI Strategic Plan, which integrates the voices of nearly 100 students, faculty, and staff, to help guide our actions over the next four years.

The progress we make now and into the future will help us build a school that includes a full spectrum of lived experiences, backgrounds, abilities, cultures, and perspectives and will help us ensure that every individual feels welcome, respected, and valued to thrive to their fullest potential. This work would not be possible without the time, commitment, and contributions from the members of our DEI Committee and the many students, faculty, and staff across Thayer who volunteer on committees, attend learning sessions, organize events, and so much more.

Thank you for your commitment to diversity, equity, and inclusion at Thayer School of Engineering.

Petra Bonfert-Taylor, Associate Dean for Diversity and Inclusion

DEI COMMITTEE

The DEI Committee plays a key role in advancing Thayer's commitment to diversity, equity, and inclusion. To support us with this important work, we hired a full-time DEI Program Coordinator, Simge Engelkiran, in January 2023.

The 2022-2023 DEI Committee was comprised of the following members:

Faculty and Staff

Julia Abraham, Institutional Research Analyst

Alexis Abramson, Dean

Kelly Blue, Financial & Research Analyst

Petra Bonfert-Taylor, Associate Dean for Diversity & Inclusion

Nathan Carlson, Systems Engineer

Simge Engelkiran, DEI Program Coordinator

Faith Goodness, Director of Human Resources

Britt Goods, Assistant Professor of Engineering

Katie Hixon, Assistant Professor of Engineering

Jess Kinzie, Diversity, Equity, and Inclusion Staff Advisor to Student Groups

Eugene Korsunskiy, Associate Professor of Engineering

Vicki May, Professor of Engineering

Colin Meyer, Assistant Professor of Engineering

Laura Ray, Sr. Associate Dean for Faculty Development

Rafe Steinhauer, Assistant Professor of Engineering

Tricia Spellman, Chief Financial & Administrative Officer

Haley Tucker, Social Media & Communications Manager

Holly Wilkinson, Assistant Dean for Academic & Student Affairs

Student

Chase Yakaboski, PhD candidate

MISSION

We strive to build a Thayer that embodies openness, accessibility, collaboration, and human-centered innovation, elevates the voices of those from historically marginalized backgrounds, and continually works toward becoming a community that comes together across differences as we respond to challenges in our world.

VALUES

As part of Dartmouth's "Toward Equity: Aligning Action and Accountability," a three-year institutional strategic plan for the university, the Dartmouth Engineering aims to:

- **Invest in the initiatives that prioritize equity and access** by giving deliberate attention to the recruitment, retention, or training hurdles that limit the participation of individuals from historically marginalized groups.
- **Improve the health and well-being of our community** through organizing resources and programming that meet the specific needs of diverse groups and create a culture where skill-sharing, storytelling, and acts of caretaking and wellness are uplifted.
- **Imagine and create a more equitable future** in which we listen to and learn from the stories, struggles, and successes of those most impacted by a history of inequities, using them as roadmarkers towards the solutions we practice as a community.

STRATEGIC PRIORITY AREAS

During the 2022-2023 academic year, the DEI Committee focused our work on the following priority areas:

. DEI IN THE CLASSROOM

Pilot methods for increasing inclusion in Thayer courses, including helping instructors adopt existing best practices and developing materials tailored for our community.

II. CLIMATE AND CULTURE

Support evidence-based change to policies, norms, and interactions that lead to Thayer being a place where ALL students, staff, and faculty are able to thrive.

III. DEI COMMUNITY ENGAGEMENT

Foster engagement by providing meaningful learning opportunities within the Thayer community surrounding diversity, inclusion, equity, and access.

IV. STRATEGIC PLANNING

Building on Dartmouth's DEI Strategy, develop a 4-year DEI strategic roadmap for Dartmouth Engineering, including objectives, tactics/activities, outcomes, and measures for success, leveraging overarching DEI principles and best practices, customized to our Thayer's culture.



Dartmouth Engineering Earns Silver Award for DEI

In March 2023, Thayer School of Engineering at Dartmouth earned the Silver Award from the American Society for Engineering Education (ASEE) Diversity Recognition Program for making significant and measurable progress in advancing diversity, equity, and inclusion (DEI) goals one of three engineering schools in the country to achieve this status. The award is currently the highest level of distinction in the ASEE program and recognizes Dartmouth Engineering for making significant progress towards its diversity, equity, and inclusion goals including:

- Women faculty comprise nearly 25% of total engineering faculty, surpassing the national average of 19%.
- Female students comprise nearly 50% of total enrollment in Dartmouth Engineering's master's degree programs, outpacing national average of 30%.
- Increased resources for programs such as Dartmouth Emerging Engineers (DEE) that offer support, mentorship, and retention initiatives for students who may not have followed a traditional STEM path.

I. DEI IN THE CLASSROOM

The DEI in the Classroom working group took on the following three initiatives during the 2022-2023 academic year:

- **Learn, Translate, and Share:** Each working group member participated in an external professional development experience aimed at fostering equity and inclusion in the classroom, and then they shared key concepts and strategies for implementation with all Thayer faculty.
- **Sense of Belonging for Junior Faculty:** Hosted a series of lunches for junior faculty to build community among each other, foster a sense of belonging at Thayer, and to share challenges to-and strategies for-building inclusion in courses and in the workplace.
- **Diversity and Broader Impact:** Provided support for faculty writing Broader Impact and Diversity Statements for grant applications to help faculty more deeply consider how they can be more inclusive and have greater impact in and out of the classroom.

IMPROVING STUDENT SUPPORT

Dartmouth Emerging Engineers (DEE)

Established in 2015, the Dartmouth Emerging Engineers program has provided support and assistance to first-year Dartmouth students interested in engineering as they navigate prerequisite courses in mathematics, physics, chemistry, and computer science. Trained upper class peers play a crucial role in DEE, offering nightly drop-in help sessions, academic advising, and mentoring. The program fosters community among students, especially those from non-traditional STEM backgrounds, and provides support and motivation to help students persevere through their studies. DEE not only enriches students' overall engineering experience, but also helps Dartmouth Engineering attract and retain diverse groups of students in the engineering major.

Exploring the Impact of Textbook Costs on Undergraduate Engineering Majors

In Fall 2022, Dartmouth Library and Thayer School of Engineering launched an exploratory survey to determine the amount spent on textbooks by declared engineering majors and the impacts of these costs on the student experience. The goal was to determine the average dollars spent by engineering majors, the academic and financial impacts of the cost on students, and learn how students paid for necessary textbooks to help identify where the library can provide additional support for course texts and Open Educational Resources (OER). This survey served as a pilot for a university-wide survey looking at the costs associated with textbooks across various disciplines.

Key findings include:

- Faculty should be clear about what texts are genuinely required for the course, and be careful not to center graded tests or quizzes on textbook access
- Enhanced library-faculty partnerships can help students access materials at a lower cost
- Curriculum Review Committee can set formal thresholds for materials costs
- Opportunity for increased outreach around OER materials
- Exploring additional access models for students is imperative to reducing costs
- Students report spending only \$100 per quarter, but the number is likely skewed due to use of unofficial copies.

II. CLIMATE AND CULTURE

The Climate and Culture working group focused on two main initiatives — administering "Pulse Check" surveys and establishing a professionaism agreement for staff and faculty — to help improve the climate of the learning and working culture at Thayer.

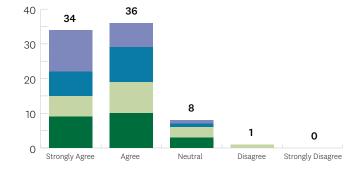
Pulse Checks

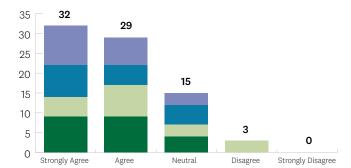
The working group developed and has been administering a pulse check survey at regular intervals for faculty and staff to help guage, track, and guide efforts to improve the climate and culture at Thayer. Administered every three months (per academic term) by the Dean's Office, the surveys have provided opportunities for faculty and staff to report their sense of belonging at the school and their current levels of comfort with various aspects of their learning or working environments. Below are snapshots of the sentiment among our faculty and staff for "I am able to be my true self" and "Overall, I am comfortable with the climate/culture."

Faculty:

I am able to be my true self

Overall, I am comfortable with the climate/culture.

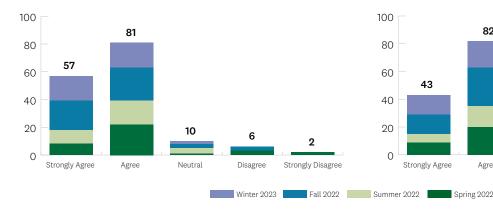


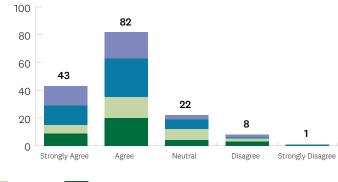


Staff:

I am able to be my true self

Overall, I am comfortable with the climate/culture.





Professionalism Agreement

The Climate and Culture working group also developed a Professionalism Agreement and the accompanying Filing a Complaint document, based on similar documents developed as Geisel. The Professionalism Agreement has been reviewed by the faculty, staff, and graduate students.

Women of Thayer at the Organic Farm

Dean Alexis Abramson and Professor Laura Ray invited faculty, staff, and graduate students who identify as women at Thayer to a reception at the Dartmouth Organic Farm. This event offered faculty, staff and graduate students a chance to come together, celebrate, and strengthen the ever-expanding community of women at Thayer by providing representation, mentorship, friendship and support.



III. DEI COMMUNITY ENGAGEMENT

The DEI Community Engagement working group coordinated a series of programs aimed at fostering meaningful dialogue among students, faculty, and staff at Thayer and providing valuable opportunities to engage, learn, and reflect.

Lunch & Learn: Digital Accessibility

(January 2023)

Linda Braden, Associate Director of Web and Digital Strategy, led a session on digital accessibility to help faculty and staff better understand digital accessibility and steps they can take to make digital documents they create (eg. emails, webpages, Google Docs, PDFs) more accessible for all people, including people with visual and hearing impairments.

Lunch & Learn: What Does DEI Means to You?

(February 2023)

Thayer community members explored what diversity, equity, and inclusion means to individuals and to our community as a whole.

The DEI Lunch & Learn program was incredibly insightful and thought-provoking. Thank you for fostering a safe space to explore and understand diversity, equity and inclusion.

-Lunch & Learn Participant

International Women's Day and Women's History Month: Graduate Student Panel (March 2023)

Master of Engineering Management student Shivangi Tandon and PhD students Afton Limberg and Adrianne Gowie spoke about their experiences as women in engineering, their achievements, and the challenges faced by women in STEM on the International Women's Day and Women's History Month panel.



Silent Lunch (May 2023)

This unique event embraced the power of silence to promote unity and understanding among the diverse community at Thayer.

I think we, as engineers mostly working with machines, don't always have a lot of opportunities to remind ourselves that objective communication is not only about words.

- Bruno Miranda Henreque, PhD student

IV. STRATEGIC PLANNING



Faculty, staff, and students participated in a full-day DEI Strategy Lab in March.

As part of Dartmouth's "Toward Equity: Aligning Action and Accountability," Thayer School of Engineering at Dartmouth embarked on a strategic planning process to develop an institutional plan with a comprehensive DEI roadmap for our school, including objectives, activities, outcomes, and measures for success, leveraging overarching DEI principles and best practices.

Thayer partnered with Be Equitable, the consultants who worked with Dartmouth on the university's "Toward Equity" plan, to suppor Thayer in developing a strategic plan that not only complements Dartmouth's strategic DEI goals, but also incorporates valuable insights from the school's staff, faculty and student community.

Throughout January and February, the DEI Strategic Planning Project Team conducted a total of 14 focus groups with nearly 100 stakeholders, including: junior and senior faculty; post-doctoral researchers and research staff; administrative staff; and undergraduate and graduate students, including a session specifically for international students. The committee also gathered alumni insights through an online survey.

In March, faculty, staff, and students from across Thayer participated in an active, day-long Strategy Lab session to delve deeper into the information gathered during the focus groups. The

30 participants helped identify key areas for improvement and common themes as it relates to Thayer's current DEI efforts and emerging needs. Four key priority areas emerged:

- 1. Leadership and Accountability
- 2. Culture, Climate, and Community Engagement
- 3. Recruitment, Retention, and Curriculum
- 4. The Student Experience

Thayer's DEI Strategic Plan — which encompasses the school's DEI goals, outcomes, action steps, and metrics over the next four years — launched in the new academic year.

DEI Strategic Planning Project Team

Petra Bonfert-Taylor, Associate Dean for Diversity, Equity, & Inclusion

Julia Abraham, Institutional Research Analyst

Simge Engelkiran, Thayer DEI Coordinator

Faith Goodness, Thayer Human Resources Director

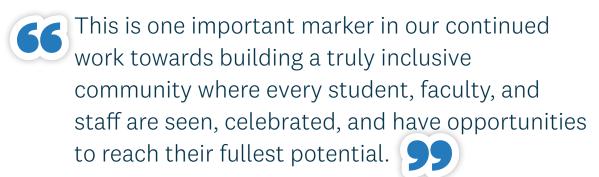
Lee Koh, Sr. Director of Communications & Creative Services

Nandita Nanda, Graduate Student Representative

Tricia Spellman, Chief Financial & Administrative Officer

Holly Wilkinson, Assistant Dean for Academic and Student Affairs

Chase Yakaboski, Graduate Student Representative



— Petra Bonfert-Taylor, Associate Dean for Diversity and Inclusion

ADDITIONAL DEI INITIATIVES

THAYER COMMUNITY HEALTH & WELLNESS COMMITTEE

Thayer's Community Health and Wellness Committee became a stand-alone committee to underscore its importance and to elevate the health and well-being of our students, faculty, and staff as a priority in its own right. In response to community feedback, the committee focused much of its efforts on planning and executing events that bring people together, help build camaraderie, and support mental health. There were a number of offerings throughout the 2022-23 academic year, including:

Holiday Celebrations: The Thayer community came together for food and conversation during the Halloween dessert break (October), Thanksgiving potluck for students, staff and faculty (November), and the gingerbread decorating event for students, staff and faculty (December).



Trainings: The committee sponsored and participated in a two-day intensive training in Mental Health First-Aid for Adults, bringing together members of the Thayer community as well as colleagues from other offices at Dartmouth.

Thayer Talent Showcase: In March, the committee organized the first-annual Thayer Talent Showcase, including visual arts, performing arts, and even a comedy performance.

Wags 'n' Waffles: At the midpoint of the spring term, Dean Alexis Abramson joined us with her favorite Belgian-style waffle recipes. More than 150 waffles were made and enjoyed by students, faculty, and staff. Two therapy dogs were on hand with plenty of wags.



Summer Staff Lunches: Similarly to the prior year, during the summer of 2023 Thayer hosted monthly lunches for staff to continue reconnecting our community.

DEI LEARNING SERIES

Throughout the academic year, Thayer's ongoing DEI Learning Series offered staff and faculty a comprehensive exploration of three themes:

Ableism: How to consider hidden or unapparent disabilities; how able-bodied people can be better allies.

DEI Vocabulary Primer: Weekly resources on current concepts within DEI, such as implicit bias, code switching LGBTQIA and gender diversity, microaggressions, stereotype, allyship, intersectionality and cultural competence

Implicit Bias: Exploring what bias is and how it can impact your interactions with others.



Resources were sent to the community weekly, and each of the three series culminated in a facilitated community conversation with discussion and reflection on the learning experiences.

PROFESSIONAL DEVELOPMENT FOR UNDERREPRESENTED ENGINEERS

Thayer continues to provide financial support and resources to four active student organizations that support the academic and professional growth of students underrepresented in engineering:

- American Indian Science and Engineering Society (AISES)
- National Society of Black Engineers (NSBE)
- Society of Hispanic Professional Engineers (SHPE)
- Society of Women Engineers (SWE)

Durign the 2022-2023 year, Thayer providing funding for a total of 35 students to attend national conferences in California, Missouri, North Carolina, and Texas. Membership in the student chapters of AISES, NSBE, SWE, and SHPE has grown, as well as the interest in national conferences. While rising costs have made it difficult for Thayer to keep up with the demand, we have been able to continue to support students each year.

American Indian Science and Engineering Society (AISES)

AISES currently has 35 active members, a significant increase from 5 members in 2020. AISES members at Dartmouth recognize the importance of the National Convention, as it brings Native-Indigenous populations together, especially those in STEM. The AISES Dartmouth Chapter sent four undergraduate seniors studying engineering and/or biology to the National Convention. Students participated in networking events that led to the possibility of research and job opportunities in the future, and took part in research-focused discussions/presentations in their respective fields. This opportunity is important to expand and continue because it allows for Native-Indigenous STEM students across the country to connect with each other and to connect with future employers and scholars. The AISES organization supports and pushes their Native-Indigenous student members to continue in their respective fields of study in STEM and provides them with opportunities after graduation, which positively impacts the AISES Dartmouth Chapter.

Society of Women Engineers (SWE)

The SWE Convention is the largest convention for women in engineering. The exposure to an enormous range of multinational engineering firms offered students unparalleled opportunity to network, improve resumes and career-building skills, as well as explore new pathways, and secure work placements. It was a successful and rewarding "breakout of the Hanover bubble" — as a cohort, students engaged with engineers in new industries, for new companies, outside of Dartmouth connections while also deepening relationships with alumni. Students connected with the Dartmouth Club of Houston and talked to alumni about their work in Houston, in industries completely different than usual in the Northeast.



The career fair was especially valuable. I was able to talk to representatives at 13 different companies and learned a lot about different career paths available to me. After one of these conversations, someone reached out to me for an interview, and I was able to secure my job after I graduate.

SWE Convention Attendee

National Society of Black Engineers (NSBE)

MEM student Serena Yombe and PhD Innovation Fellow Gideon Kassa represented Thayer at this year's National Society of Black Engineers (NSBE) Convention. Dartmouth alumni, including Onyedika Onuorah Th'22 and Natasha Herring '12 Th'13, stopped by Thayer's booth. NSBE currently has 26 active members, doubling in membership in 2023.



Society of Hispanic Professional Engineers (SHPE)

Society of Hispanic Professional Engineers (SHPE) is the only club at Dartmouth aimed at providing professional development opportunities specifically for Latinx students interested in the STEM fields. The SHPE national conference helps close the gap by exposing Latinx students to employers and graduate schools, connecting students to an engineering community beyond Thayer, and fostering camaraderie and community among Latinx engineering and STEM students



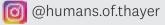
at Dartmouth. The SHPE conference is one of our biggest pathways for various professional development and career opportunities, including on-site interviews that help our members gain confidence and experience for future recruiting events. Nine of the 14 students who attended the national conference this year secured an internship or job offer. Many of the underclassmen who attend conference have become SHPE officers in their junior or senior years. The SHPE conference helps create the next generation of Latinx engineers.





Humans of Thayer

Humans of Thayer, our photo-story project on Instagram, continues to showcase the stories of the individuals who make up the Dartmouth Engineering community. Each story has heped promote human connection, acceptance, and a sense of belonging.



COMMUNITY OUTREACH

Rural STEM Educator Partnership



Through a Science Education Partnership Award (SEPA) from the National Institute of General Medical Sciences, Dartmouth has partnered middle schools in the region and with the Montshire Museum of Science in Norwich, Vt. Professor of Engineering Vicki May is one of the Co-Principal Investigators. During the 2022-2023 academic year, eight graduate students in STEM departments across Dartmouth, including one student from

Thayer, developed and ran a CSI-related curriculum for eighth grade students that culminated in a heist mystery for the students to solve at the Montshire Museum.

Women in Engineering Day

Thayer undergraduate engineering students led interactive activities in various engineering disciplines to encourage local middle and high school female-identifying students to pursue engineering and STEM in their studies and eventually in their careers. Overall, 13 female-identifying 7th-11th graders participated.



DIFUSE Grant

Data Science Infused into Undergraduate STEM Education (DIFUSE) is a Dartmouthwide, National Science Foundation (NSF)-funded project to develop opportunities for undergraduates to learn, use, and apply data science in introductory STEM and social sciences curriculum. Professors Laura Ray and Petra Bonfert-Taylor, who serve as coprincipal investigators of the project, work with both students and faculty to develop data science modules that can be integrated into the undergraduate curriculum. In July, 30 participants from a range of higher education institutions and disciplines engaged in a remote workshop, led by the co PI's, to engage with the data science modules. Participants brought experience from a range of disciplines, including anthropology, biology, computer science, engineering, geography, mathematics, neuroscience, physics, and psychology, as well as secondary and two-year college STEM education.

School of Ice

The NSF-funded Ice Drilling Program (IDP) hosted the School of Ice (SOI) at Dartmouth this past summer, a rigorous professional development program for faculty from two- and four-year minority serving institutions, to help address the national challenge of attracting more people to science and engineering careers, in particular students typically underrepresented in STEM fields.



Led by Louise T. Huffman, director of education and public outreach for the U.S. Ice Drilling Program and director of the School of Ice at Dartmouth, SOI brings together educators who serve underrepresented student populations to engage in hands-on analysis of paleo-climate data and ice cores to expand their knowledge of the Earth's climate records, refine teaching pedagogy skills, and acquire resources to help them integrate exciting new inquiry into new and existing Earth and environmental science classes on their campuses. The goal is to introduce students who have not followed the typical STEM path to opportunities they may not have previously considered, including to exhilarating research conducted in the polar extremes and associated careers.

SOI faculty participants teach at institutions where students from underrepresented backgrounds comprise 25 to 80 percent of the total student population. Over the past two years, about 40 percent of faculty participants themselves have also self-identified as an underrepresented minority. Faculty from Hispanic-serving institutions comprise the largest share of the total participating institutions (41 percent). Faculty from minority-serving institutions comprise about 26 percent, and faculty from Historically Black Colleges and Universities (HBCUs) represented about 18 percent of the total faculty participants. In 2023, SOI welcomed the first faculty member from a Tribal College (TCU), and we plan to work with the faculty to find ways to make School of Ice more relevant to educators representing TCUs.



My greatest takeaway from this workshop is that not only does ice core science need to be included into curriculum from a humanitarian standpoint, but that it can also be easily incorporated into any content area. The activities presented by the School of Ice follow this pattern [observation-before-content]: they are not only critical to the knowledge of climate history of our planet, but they are also accessible to all learners and just as importantly, easily adapted and modifiable for the educators.

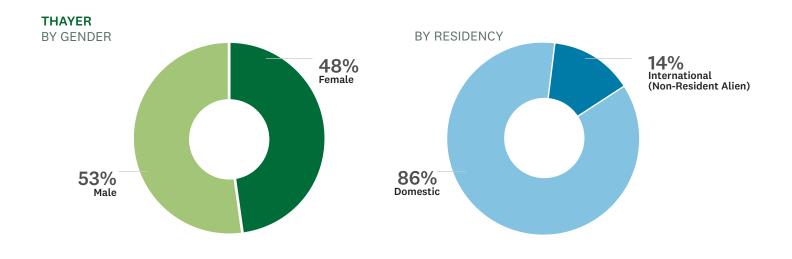
⁻ Tribal College faculty participant

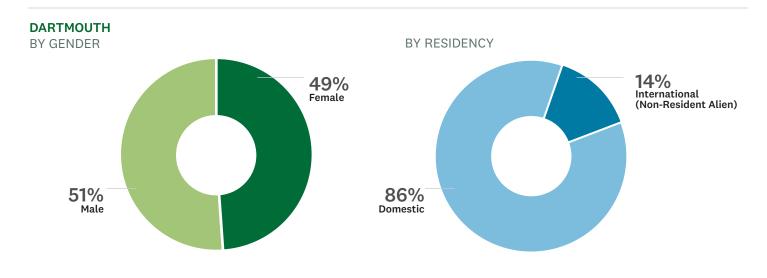
APPENDIX

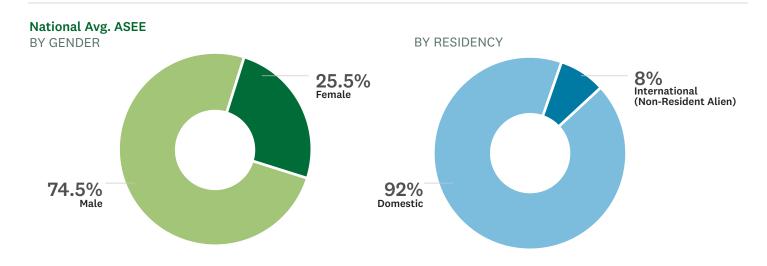
Thayer School of Engineering demographics, as compared to Dartmouth and to data provided by the American Society for Engineering Education:

- Academic Year 2022-2023 for Students
- Fall 2022 for Faculty and Staff

ENROLLMENTS (Fall 2022) Undergraduate (AB)

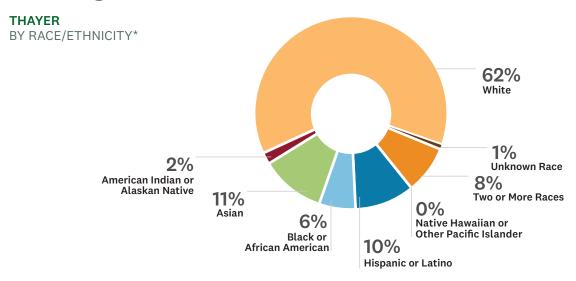


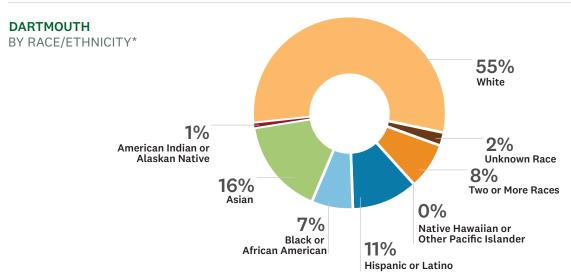


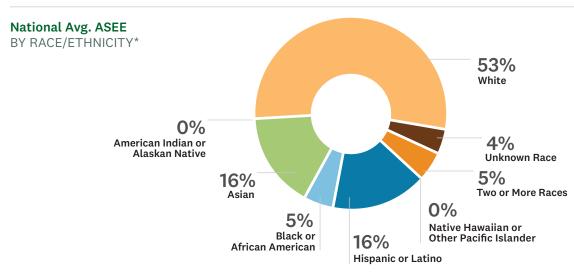


ENROLLMENTS (Fall 2022)

Undergraduate (AB)



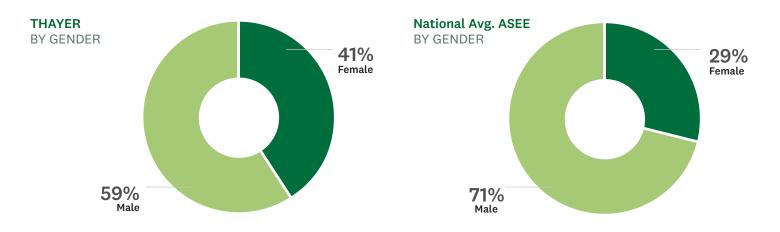


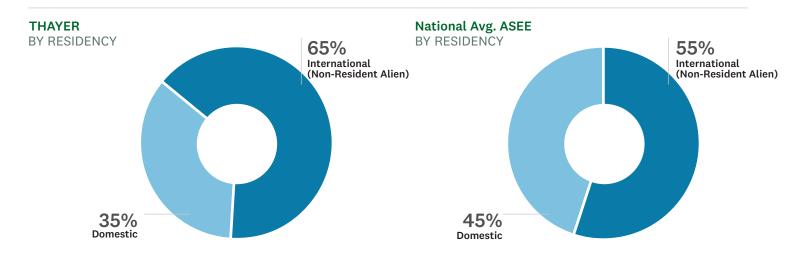


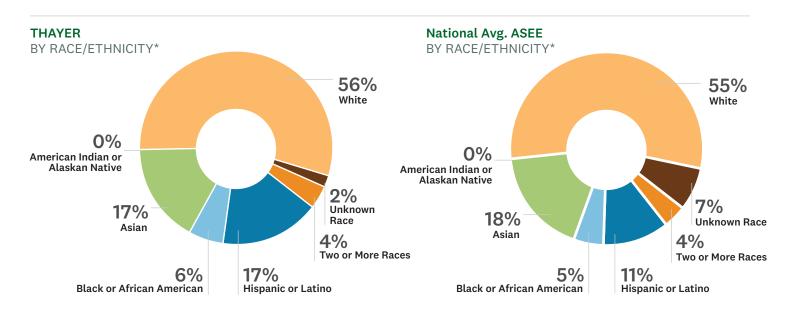
*Definitions align with U.S. Department of Education, ASEE and NSF. Non-resident aliens are not included in any of the race and ethnicity categories.

ENROLLMENTS (Fall 2023)

Masters



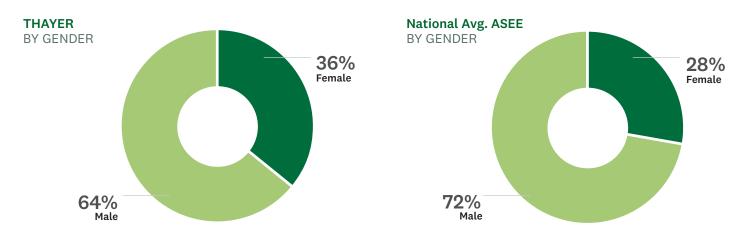


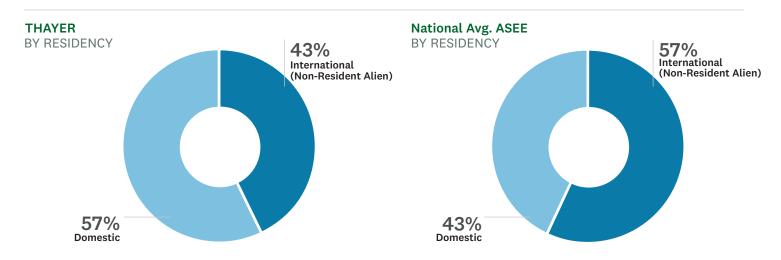


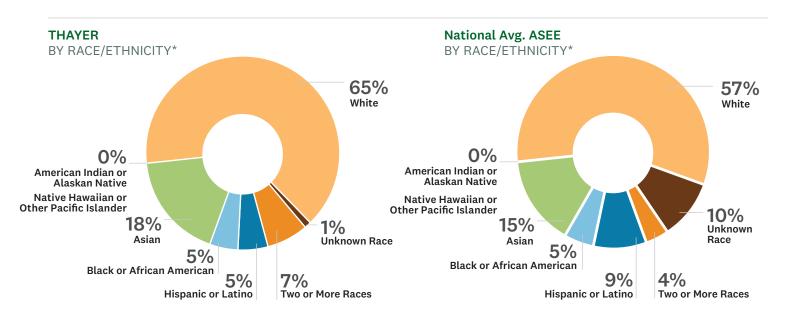
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ENROLLMENTS (Fall 2022)

Doctoral

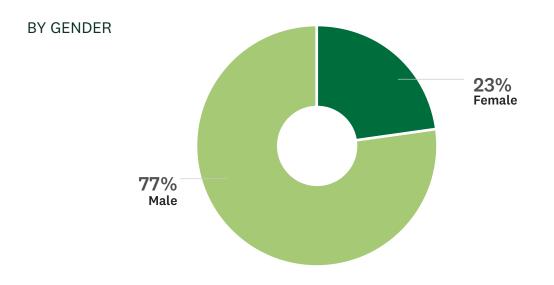


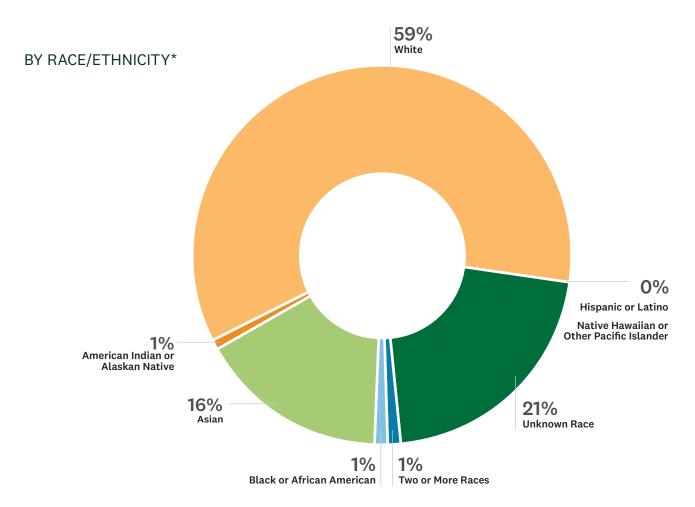




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FACULTY (Fall 2022) Core Faculty

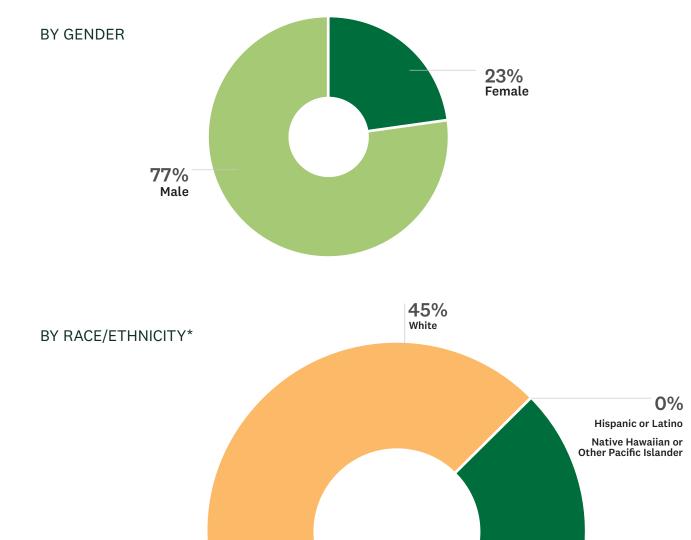




*Definitions align with U.S. Department of Education, ASEE and NSF. Non-resident aliens are not included in any of the race and ethnicity categories.

FACULTY (Fall 2022)

Tenured/Tenure Track Faculty



Black or African American

*Definitions align with U.S. Department of Education, ASEE and NSF. Non-resident aliens are not included in any of the race and ethnicity categories.

32% Unknown Race

Two or More Races

17%

American Indian or Alaskan Native

