Departmental BPC Plan
Department of Computer Science
Princeton University

Effective dates of Plan: 09/22/2022- 09/22/2024

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1. Context

The Department of Computer Science (COS) had in Fall 2021: 518 declared undergraduate majors, 32 MSE students, 199 PhD students, 26 post-doctoral fellows, 5 research scholars, 12 lecturers, and 47 tenure-track faculty. We are currently the largest undergraduate major at Princeton (about 170 COS majors per class year of about 1350 students), and roughly another 100 students receive the Program in Applications of Computing (PAC) Certificate each year. It is an outward facing department, serving a broad cross section of the campus. Roughly 70% of all undergraduate students at Princeton take a COS course, and we teach many of the most-enrolled courses on campus. This creates an opportunity, and a responsibility, for our department to broaden participation in computing at all levels. This plan is student-focused by design, in the context of other university and department efforts that are addressing diversity and inclusion in faculty, staff, and climate.

Promoting diversity is crucial among the student body, both as a worthy goal and in support of critical mass for members of various underrepresented groups. The graduating classes of COS undergraduates in 2018-2021 had 31%-37% women representation. These ratios are much better than a decade ago, before the department revamped the series of four introductory COS courses to welcome first-year students (all undeclared majors), and prepare students with a diversity of backgrounds. We have also tracked the African-American, Hispanic, and Native American representation over these years. About 12.3%, 12.8%, and 13.6% of our total number of majors (across class years) were drawn from these groups combined, shown as underrepresented groups (URG) in the table below. For the University as a whole (across all departments), women's representation among undergraduates was 50% and URG representation was 19% in 2019.

Representation in COS students (for combined class years)	2017	2018	2019
Women Undergraduate Majors (% of Undergraduate Majors)	35.4%	31.4%	37.0%
URG Undergraduate Majors (% of Undergraduate Majors)	12.3%	12.8%	13.6%
Women Graduate Students (% of Graduate Students)	31.1%	38.3%	36.2%
URG Graduate Students (% of Graduate Students)	5.1%	4.6%	4.2%

The table also shows % women and % URG students among all graduate students (PhD and MSE) in these years. We use a holistic application review process with attention to demographic information (when available) and work with others on campus to help broaden our applicant pool. In addition, we have a fully-funded MSE program that offers a unique opportunity to "onramp" students who have the potential but perhaps insufficient background to enter our PhD program directly. Nevertheless, recruiting graduate students from URG remains challenging.

The proposed activities are listed on the next page, along with the faculty (names within parentheses) who lead and coordinate the larger effort with other participating faculty. More information on existing activities is available at the department's Diversity and Outreach webpage.

2. Goals

G1: To improve the diversity in COS undergraduate majors to reflect the representations of women and students from URG among all undergraduates at the University. We will target increasing women's representation from ~37% to 45%, and URG student representation from ~13% to 19%, in 2025.

G2: Increase representation of students from URG in COS graduate programs (PhD, MSE) from ~4% (in 2019) to 8% in 2025. We aim to increase the diversity of the pool of applicants/admitted/yielded students, and to retain and support students from URG until degree completion.

G3: Go beyond Princeton to promote participation of women and students from URG, including annually, an event for K-12 and university outreach, and five or more undergraduate research opportunities for non-Princeton students.

3. Activities and Measurement

A1: Teaching and curriculum improvements [G1]: Improve introductory courses, develop initiatives to attract students with diverse backgrounds, and modify existing courses to promote inclusive teaching. **(Finkelstein, Lloyd)**

A2: Teaching in support of diversity [G1]: Create new courses (e.g., independent work and graduate seminars) on issues of fairness and social justice. **(Finkelstein, Lloyd)**

A3. Princeton FSI [G1]: Offer a new computing course through Princeton's Freshman Scholar's Institute. This academic bridge program is designed to be inclusive and appealing to a wide range of students in the summer before they enroll at Princeton. **(Leyzberg, Wayne)**

A4: Summer research opportunities [G1, G2, G3]: Consolidate existing ad-hoc efforts that offer summer research opportunities for undergraduates. We will target women and students from URG and provide guidance to support their graduate school applications. **(Gupta, Yun** at SEAS**)**

A5: Provide onramp to PhD program [G2]: Our fully-funded MSE program provides opportunities to identify women and students from URG that have potential to join the PhD program. Launch new efforts to support their research during MSE and/or one year of pre-doctoral studies. **(Moretti)**

A6: Pathways to Graduate School [G2]: Participate in this program (managed by SEAS) that offers rising college seniors the opportunity to prepare for graduate school by interacting with faculty and graduate students, with outreach to local area colleges that serve students from URG. **(Yun** at SEAS**)**

A7: LEAP Alliance advocate [G2]: Participate in LEAP Alliance, an (external) NSF-funded project that aims to increase the diversity of the professoriate in computing at research universities by increasing the diversity among graduate students. We have participated as a LEAP advocate (Cohort 1: since 2017, Cohort 4: since 2021) to promote diversity and recruit, retain, and support graduate students from URG. **(Gupta, Wayne)**

A8: Princeton AI4ALL [G3]: Organize an annual summer camp (sponsored by COS, CITP, and the AI4ALL nonprofit organization) to teach Artificial Intelligence (AI) technology and policy to high school students from URG. **(Russakovsky)**

A9: Princeton CS in Puerto Rico [G3]: A summer program where Princeton undergraduates serve as teaching assistants for a popular introductory COS course at the University of Puerto Rico Mayagüez, combined with performing community service throughout the island. **(Kaplan)**

A10: Community Building [G1, G2]: Support diversity-focused activities including community building (PWiCS, JuST, RISE). **(Russakovsky, Weinberg, Rusinkiewicz)**

A11: Support Conference Participation [G1, G2]: sponsor student participation in diversity-focused conferences (Grace Hopper, Tapia), and support students from URG to attend technical conferences. **(Rusinkiewicz)**

Measurement: We already track demographic representation in undergraduate majors, graduate students, post-docs, faculty, and staff. We will start tracking data at a finer level of granularity, including introductory courses, certificate programs, summer research opportunities, summer internships, and participation in BPC activities.

Gupta will serve as Data Chair for the term of this Departmental BPC plan. We conduct regular town hall meetings, and will re-assess ongoing activities and plan new initiatives based on feedback.