

Departmental BPC Plan
Computer Science & Engineering (CS&E)
University of Minnesota–Twin Cities



Effective dates of Plan: 05/24/2022- 05/24/2024

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CS&E defines 'BPC focal groups' to include: Women; People who experience discrimination because of their gender and/or sexual identities and expressions; African Americans; Hispanics; American Indians; Alaska Natives; Native Hawaiians; Pacific Islanders; Other Indigenous populations; People with apparent or non-apparent disabilities; and Others who might encounter barriers in our discipline based on their religious expression, age, marital status, origin (national or rural/urban), ethnicity, or veteran status.

1. Context

The University of Minnesota–Twin Cities (UMN) is a public university and the only R1 institution in the state. The Twin Cities metro area is the population center for the state and home to diverse communities, including large Somali, Hmong, African American, and American Indian communities. Minnesota is home to 11 federally recognized tribal nations. CS&E is housed in the College of Science and Engineering, but its degree programs span multiple colleges. CS&E's 59 faculty and 60 staff members serve more than 2,000 undergraduate students and more than 600 graduate students annually. As of Fall 2020, women (regardless of race/ethnicity) make up 17% of students in the undergraduate CS majors (BA and BS) and 20% of students across all CS&E undergraduate degree programs. This compares to 29% for the College of Science and Engineering as a whole and 54% for the University as a whole. Students who identify as Black, African Americans, Hispanics, Latinx, American Indians, Alaska Natives, Native Hawaiians, or Pacific Islanders make up 6% of CS&E's undergraduate students as compared to 10% for all UMN undergraduate programs. At the graduate level, women make up 25% of Ph.D. in CS students, 29% of MS in CS students, and 17% of MCS students. CS&E leads or contributes to interdisciplinary graduate programs in Cognitive Science, Computational Biology, Human Factors, Data Science, Software Engineering, and Robotics; in these programs, the average rate of participation by women is more than 46%. Students who identify as Black, African Americans, Hispanics, Latinx, American Indians, Alaska Natives, Native Hawaiians, or Pacific Islanders make up 5% of CS&E's graduate programs as compared to 9% for all UMN graduate and professional programs. The Twin-Cities campus, including all CS&E buildings, resides on Dakota land ceded in the Treaties of 1837 and 1851; yet, American Indian and Alaskan Native students make up less than 1% of the UMN student population, including 0.8% of CS&E undergraduate and 0.1% of CS&E graduate students.

2. Goals

(G1) By 2025 (CS&E's 55th anniversary), increase representation of BPC focal groups among students, faculty, and staff at all levels and match college demographics for women in the undergraduate majors.

(G2) By 2025, bring measures of climate and student experience for BPC focal groups in line with measures for students in the majority.

(G3) Continue to run outreach for K-12 students from BPC focal groups and increase the number of students included each year.

3. Activities

CS&E faculty, staff, and students contribute toward these goals via a program of activities detailed internally within a Departmental BPC Activity Map, where faculty are encouraged to "sign up" for roles in more than 35 specific, measurable, actionable, relevant, and time-bound activities. These include:

G1: Representation: A1: Implement the inclusive teaching practices developed in the recent externally funded Gini/Watters pilot program that successfully reduced in Drop-Fail-Withdraw (DFW) rates for BPC focal populations in CS&E's CS1 course (Gini/Watters); **A2:** Implement the same inclusive teaching practices in CS2 where DFW rates for BPC focal populations remain high (Gini/Watters); **A3:** Mentor students in programs designed specifically to attract students from BPC focal groups, such as CS&E's Summer NSF REU Site (Suma Rosenberg/Yarosh), CS&E's ExploreCSR (research) program (Gini/Watters), and the Computing Research Association (CRA) Distributed-REU program; **A4:** Serve as PI for the grants CS&E regularly renews to provide tuition and related financial support for students from BPC focal groups (Gini, Van Wyk); **A5:** Give recruiting talks at local community colleges where CS&E has established strategic credit transfer agreements because of the higher population of students from BPC focal groups (Nelson); **A6:** Present research and recruit students, including via application-fee waivers, at conferences CS&E has found to be successful venues for recruiting students from BPC focal groups, e.g., MinneWIC, Grace Hopper, and Richard Tapia (Nelson, Watters); **A7:** Draft and implement policy revisions recommended by the Inclusiveness, Diversity, Equity, & Advocacy committee (CS-IDEA) after studying best practices for reducing bias in, e.g., admission to the major (Burt/Coleman/Kahlenbeck/Nelson/Thomas), grad recruiting/admissions (Terveen/Van Wyk), faculty recruiting (Terveen/Keefe).

G2: Inclusive Community: A8: Participate in CS&E's "Ethics in the Curriculum" summer workshops (Yarosh) and revise your course to include a BPC-related ethics module, e.g., Data Feminism (Keefe), Structural Inequality and Mitigating the Negative Impacts of Computing (Yarosh/Keefe), Indigenous Data Sovereignty (Keefe); **A9:** Self-educate and revise your course using CS-IDEA curated materials for accessibility, code of conduct, ethics, inclusive teaching practices, and anti-racism (CS-IDEA); **A10:** Participate in the Office for Equity and Diversity certificate program (OED); **A11:** Organize CS&E-wide faculty trainings on implicit bias, microaggressions, etc. (Heimdahl, Watters); **A12:** Join and represent the department in the College DE&I (Diversity, Equity, & Inclusion) Alliance (Ramadan/Keefe/Favonia), University Diversity Community of Practice (Keefe/Favonia), University Equity Lens Policy Review Committee (Favonia), or similar orgs; **A13:** Serve as PI for the grants CS&E regularly renews to provide financial support for women in computing lunches, student travel to BPC-themed conferences, etc. (Watters); **A14:** Join the website sub-team charged with increasing CS&E's DE&I web presence, resources, and bias reporting mechanisms (CS-IDEA); **A15:** Fund and support student affinity groups (Nelson/Heimdahl); **A16:** Lead DE&I TA training programs for undergraduate (Burt/Thomas) and graduate (Barry) TAs; **A17:** Host speakers for CS&E's BPC-themed distinguished speaker series (Terveen); **A18:** Revise CSci-8001/8002 Intro to CS Research via co-design with students from BPC focal groups to create an inclusive cohort (Keefe/Yarosh); **A19:** Organize CS&E's strategy to increase student participation in Data Buddies and SERU student surveys (Heimdahl).

G3: Outreach/Pipeline: A20: Teach in CS&E's Summer Computing Academy for 8-12th graders from BPC focal groups (Gini/Watters); **A21:** Guest lecture and demonstrate research for students from BPC focal groups in university summer K-12 programs (Klaers); **A22:** Develop research partnerships and relationships with families in Indigenous (Keefe) and other local BPC focal group communities (Yarosh).

4. Evaluation

Progress is measured by tracking: the number and demographics of students reached by BPC activities (CS-IDEA); the number and demographics of applications to and enrollments in all degree programs (Nelson); climate data collected from the CRA Data Buddies and Student Experience in the Research University (SERU and gradSERU) surveys (Heimdahl); and faculty reporting of BPC-related outreach efforts during annual reviews (Heimdahl).