

Departmental Broadening Participation in Computing (BPC) Plan
Department of Computer Science
The College of New Jersey



Effective dates of Plan: 11/10/23 - 11/10/25

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1. Context

TCNJ is a public institution that has earned national recognition for its commitment to excellence, and enrolls approximately 7,400 students, including 6,790 undergraduates and 610 graduate students. Strong curricular and co-curricular programming have helped foster a first-year to sophomore retention rate of 92%, a 4-year graduation rate of 75% (7th highest in the U.S. for public institutions), and a 6-year graduation rate of 87% (among the highest in the country). Signature experiences include: a personalized, collaborative, and rigorous education; undergraduate research, mentored internships, and field experiences; community engaged learning; global engagement; and leadership development. The Department of Computer Science (CS) strives to educate and assist each student individually through the undergraduate years by providing a comprehensive learning environment and developing a community of learners. Faculty members are teacher-scholars who assume the roles of class instructors, research mentors, academic advisors, and coordinators of CS-related extracurricular activities. In Fall 2023, there are 218 declared CS majors (including two with CS as the second major). Among CS majors who provided demographic data, 24% self-identify as female, 7% self-identify as African American, and 21% self-identify as Hispanic.

In this document,

HUG represents: groups that are historically underrepresented in Computer Science, i.e., people who identify as women, queer, or gender-neutral, having disabilities, Latina/o/x, Black, African American, Native American, Native Alaskan, Native Hawaiian, and/or Other Pacific Islander;

G represents: Goal; A represents: Activity;

Introductory CS core (200-level) courses include: CSC 220: Computer Science I: Computational Problem Solving, CSC 230: Computer Science II: Data Structures, and CSC 270: Discrete Structures.

2. Goals

We aim to achieve the following goals.

G1: The department will measure and improve retention of students from HUGs from first to second years by Fall 2025.

G2: The department will measure and improve students' perceptions of community and belonging by Fall 2025, with a particular focus on students from HUG.

3. Activities and Measurement

A1 (G1, G2): By Fall 2024, the department will coordinate with the Institutional Research and Analytics (IRA) to generate reports on student retention in CS, with the aim of identifying areas of concern and demographic differences in climate perception in CS. Data collected will include all CS majors, including CS majors who transfer into another major and those who enter the CS major from another major after completing introductory courses in that major, with a particular focus on

students from HUGs and introductory CS core courses, including (1) rates for CS majors earning a D, F, or W (withdraw), (2) attrition rates for CS majors after each of these courses. **Metric:** *Data collection commenced in coordination with IRA and a plan is developed for analysis.*

A2a (G1): By Spring 2024, all faculty will have attended an inclusive pedagogy session offered by TCNJ's Center for Excellence in Teaching and Learning (CETL), ACM's Special Interest Group in Computer Science Education (SIGCSE), TCNJ's Accessibility Resource Center (ARC) or similar. They will integrate effective pedagogical strategies that have been shown to help all students learn and engage. **Metric:** *# of faculty who attend training; # faculty who integrate effective pedagogical strategies in at least one of their courses.*

A2b (G1): By Fall 2024, all faculty revise homework and programming assignments to make the requirements and grading criteria more transparent, which has been shown to most benefit students from HUGs. **Metric:** *# of courses that have clearly identified requirements and grading criteria.*

A2c (G1): By Fall 2024, the department will review the introductory course sequence and develop strategies for revisions (such as adding a course in the sequence) that will better support students with little to no background in CS, which includes a disproportionately large number of students from HUG. **Metric:** *Plan for revisions is developed.*

A2d (G1): For each course, analyze performance of students from HUGs in past semesters in comparison with current semester (after changes from A2a-c were applied). **Metric:** *# of students who successfully progress in the major.*

A3 (G2): Faculty and staff will visit regularly with existing affinity groups, including those within CS such as DIGIT.All, and those that are campus-wide, such as SACNAS, and support their activities.

Metric: *# of visits to student club meetings by faculty and staff and activities supported.*

A4 (G1, G2): The department will work with TCNJ's Division of College Advancement for ongoing support to:

(a) Sustain the Computer Science Peer Mentor (CSPM) program; such programs help all students learn and engage, with particularly large benefits for students from HUGs. **Metric:** *# of CSPMs hired.*

(b) Renew and expand scholarship opportunities for student attendance at diversity-focused conferences, and faculty attendance when possible; **Metric:** *# of students and faculty supported to attend conferences.*

(c) Provide stipends for students from HUGs to participate in departmental research experiences.

Metric: *# of students and faculty receiving stipends*

A5a (G1, G2): Faculty will implement recruiting strategies to diversify the pool of applicants to CSPMs for their classes. **Metric:** *Diversity of CSPMs is aligned with the diversity of CS majors.*

A5b (G1, G2): Beginning in Fall 2023, all CSPMs will be required to complete inclusive tutoring training prior to beginning work each semester. **Metric:** *# of CSPMs completing training.*

A6 (G2): Faculty will continue to encourage and support undergraduate students from HUGs to participate in research opportunities. **Metric:** *# of students from HUGs engaged in research*

A7 (G2): Beginning in Fall 2023, the department will encourage students in CS courses to participate in the annual TCNJ Campus Climate Survey and discuss the results at the annual retreat. **Metric:** *# of students who complete the survey.*