

**Departmental BPC Plan
Computer Science
Colorado State University**



Effective dates of Plan: 05/17/2022- 05/17/2024

Contact: Craig Partridge, Department Chair (craig.partridge@colostate.edu) [contact for all activities below]

1. Context

Colorado State University (CSU) is a land grant and Carnegie R1 (Very High Research Activity) university nestled in the foothills of the Rocky Mountains. CSU is known for its commitment to improving undergraduate graduation rates and its Student Success Initiative has brought graduation rates for nearly all undergraduate communities to well over 70% (from the national average of 65%).

The Computer Science department supports 1,000 undergraduate majors and 175 graduate students plus approximately 70 minors. The department was a 2019 BRAID Affiliate and is a partner with the Northeastern Center for Inclusive Computing.

The department leadership strongly believes in having one major goal and focusing all its diversity resources (a budget of approximately \$325,000 per year) on achieving that goal. The department's current goal is to increase the fraction of Computer Science majors who are female (all ethnicities and abilities) from 11% in 2018 when we started, and currently 21%, to between 35% and 50%. (CSU's undergraduate population is 53% women). To guard against intersectionality concerns, the department periodically tracks performance by ethnicity and ability for all students, to ensure our focus on women does not unintentionally harm other communities.

Once the department achieves its goal, it will pivot to another diversity goal. Our current expectation is that our next goal will be associated with improving graduate and retention rates for our Hispanic/Latinx students, who experience a graduation rate about 8% lower than our students overall.

2. Goals, Activities, and Measurement

G1: Increase the fraction of Computer Science majors who are female to between 35% and 50% using the BRAID commitments by 2027

A1a: Modify introductory CS courses to make the more appealing and less intimidating to women [BRAID commitment #1]. The department makes a substantial investment each year in this effort, including funding graduate students to measure and evaluate courses.

Contact: department chair.

A1a1: modify introductory courses to bring participation by women to 35%-50% by 2021 (CS150, CS163/4, CS165) – this effort has been largely completed and has met its goals.

A1a2: modify 200-level courses (CS220, CS253, CS270) to achieve the same level of participation seen in CS150/163/165 by 2025.

M1a: Success for A1a and its sub-measures is measured in the percentage of women completing each course, showing that women are not more likely to DWF (Drop/Withdraw/Fail), and the persistence rate (the decision of female students to take the next course). The goal for persistence is 95%, and the goal for DWF is 0%. The department has a strong preference for efforts where courses are currently taught in old and new formats by the same instructor to control for instructor effects (which can be pronounced).

A1b: Lead outreach programs for high school teachers and students to build a diverse pipeline of students [BRAID commitment #2]. The department makes a modest investment in this activity each year. The department also can leverage the work of the Educational Outreach Center of the College of Natural Sciences. Contact: department chair

M1b: Success in A1b is measured in numbers of high school teachers and students who participate in department events and K-12 student activities annually.

A1c: Build confidence and community among underrepresented students [BRAID commitment #3]. The department invests heavily in this activity. By keeping our student/[non-faculty] advisor ratio low, we give advisors time to interact in more ways with students and students report a greater sense of community. We support student clubs, most notably ACM-W. We also find that sending a faculty member at least once with a team of students to ACM Grace Hopper and Tapia conferences leads to deeper faculty understanding of diversity issues and more insightful participation in diversity efforts. This activity is led by the department's advising team. Contact: department chair

M1c: Success for A1c is measured in female student retention and graduation rates. We have data showing that keeping the student/advisor ratio below 250/1 improves retention of women and so we also track that ratio.

A1d: Develop and/or promote joint majors in areas like CS and biology that are attractive to female students [BRAID commitment #4]. The department seeks to create one joint program per year. The activity is led by the department's advising team and undergraduate curriculum committee. We already have joint programs with Biology and Data Science. Contact: department chair

M1d: Success for A1-4 is measured in terms of students who are in joint majors and their retention and graduation rates.