Departmental BPC Plan
Department of Computer Science
University of Virginia

Effective dates of plan: 10/21/2021 – 10/21/2023
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Context

The department of computer science at the University of Virginia has a 20-year history of activity in supporting students from populations underrepresented in computing both within and beyond the university. For example, a multi-pronged internal effort of curricular restructuring, focused hiring, and teaching assistant training moved our student body from 14% female-identified in 2000 to 29% female-identified in 2020, with similar increases in graduate student and faculty composition. We have provided more than ten thousand student contact hours of computing education to students from underfunded schools nationwide and provided multi-day diversity and inclusive pedagogy training for more than a thousand high-school and community-college computer science faculty.

Female student representation in our majors is above national averages and an internal study found no significant male/female grade or drop-rate differences in any of our courses from 2008 to 2018. However, our 2019 CRA Data Buddies report shows that women feel less welcome, more overworked, and less confident than men at statistically significant levels (n=325, 13% response rate).

Our courses have few students who identify as Black and/or African-American, or as Hispanic and/or Latinx (4.3% and 4.2% respectively in 2019, compared to university-wide 6.1% and 6.2%)[1]. Formal and informal focus-groups with students from these groups from 2018 through 2020 reported concerns related to microaggressions, tokenism, sidelining, pigeonholing, and implicit biases from both faculty and fellow students. We have not yet collected racially-disaggregated retention or performance data. We also have very few graduate students (less than 2%) and faculty (4%) who identify as Black, African-American, Hispanic, Latinx, and/or Indigenous.

We are aware of other equity concerns, including those related to gender identity, religious minorities, nationalism, accent, dialect, and socio-economic background. We have observed inequities in faculty interactions; differential treatment of faculty vs staff; and student-perceived differential status based on degree program. While committed to resolving all of these concerns, we do not discuss them further in this document.

Goals and Activities

G1 Train 300 CS educators in BPC practices each year.
A1 (Tychonievich): Deliver computing content training for K-8 teachers with local school districts with large numbers of Black and Hispanic students; LighthouseCC workshops on BPC for community college faculty; and Tapestry workshops on BPC for high-school CS teachers. **Measures:** number trained, post-survey of implementation.
A2 (Tychonievich): Train teaching assistants in diversity, equity, inclusion, and pedagogy in a TA course or staff meeting. **Measures**: numbers trained.

[1] There are few enough students from Indigenous groups (Native American, Alaskan Native, Pacific Islander, and Native Hawaiian) that providing numbers may violate privacy.

G2 Increase our computing degrees from 29% female to 32% female by 2025.
A3 (Ngyuen): Establish a media computation pathway into computing, as media computation has been shown to attract more female students to computing. **Measures:** numbers and demographics of enrolled students and of students who take additional computing courses.
A4 (Praphamontripong): Organize groups of faculty and students participating in celebrations of diversity in computing. **Measures:** number of faculty and students attending the celebrations.
A5 (Hott): Volunteer to help organize and run celebrations of diversity in computing, including CAPWIC. **Measures:** event size and post-survey results.

G3 Improve confidence and sense of belonging of students who identify as female, Hispanic, and/or Black students to levels seen in other student populations by 2025.
A6 (Horton): Promote, deliver, and analyze results of climate surveys, including CRA Data Buddies. **Measures:** response rates, presentations of results.
A7 (Praphamontripong): Implement and assist others in implementing mastery-learning as a confidence-leveling strategy. **Measures**: report of what was implemented and its impact.
A8 (Praphamontripong): Define, deliver, and prepare materials for ongoing delivery to better contextualize computing content, both to show the societal impact of computing and to encourage discussion of gender, racial, and ethnic inequities. **Measures**: specific materials added.
A9 (Orrico): Work with two female-focused CS student groups (WiCS and Girls Hoo Code) to implement a multi-tiered mentorship program with a goal of increasing confidence and sense of belonging. **Measures**: number of mentors, number of mentees, surveys of impact.
A10 (Horton): Each semester, faculty meet with Black and Hispanic affinity groups, listen to their concerns, and bring a summary to the Diversity Committee. **Measures**: meetings held.

G4 Discover if there are performance or retention issues related to race and ethnicity in our courses by 2023 as a first step towards understanding and addressing these inequities.
A11 (Tychonievich): Collect and analyze racially-disaggregated performance and retention data on a per-course level to identify inequities. **Measures**: data analyzed.

G5 Track and increase the number of female, Hispanic, and Black students engaged in computing research 10% each year.
A12 (Dwyer): Establish long-term relationships with area minority-serving institutions to encourage graduate school attendance. This involves visiting each semester, giving tech talks, and mentoring students to help them prepare for graduate work at UVA or elsewhere. **Measures**: number and frequency of visits.
A13 (Dwyer): Mentor individual students from populations underrepresented in computing in applying for the Graduate Research Fellowship program. **Measures**: students mentored, fellowships awarded.
A14 (Skadron): Provide funded undergraduate research opportunities for students from populations underrepresented in computing. **Measures**: number of students participating.
A15 (Tychonievich): Using best practices for undergraduate mentoring, faculty mentor 2 REU students from groups underrepresented in CS. **Measures**: demographics of REU students mentored

G6 Train all CS faculty to avoid discriminatory and microaggressive practices identified in past conversations with students by Summer 2022.
A16 (Tychonievich): Take time in faculty meetings to learn about the five broad areas of concern identified in conversations with students: implicit biases, microaggressions, tokenism, sidelining, and pigeonholing. **Measures**: trainings held, faculty in attendance.