

# Departmental BPC Plan

## Department of Computer Science

### Binghamton University (SUNY)

**Effective dates of Plan:** December 2021 - present

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## 1. Context

Binghamton University (BU) is one of the four Centers in the State University of New York (SUNY) system, with a total student population of about 18,000. The campus is located in upstate New York in the Binghamton metropolitan area. The Computer Science Department, which is part of the Watson School of Engineering and Applied Science, offers Bachelors, Masters and PhD degrees, and enrolls more than 1,000 students who are taught by over 30 faculty members.

At the undergraduate level, in the Fall 2019 semester:

- The CS Department included 628 undergraduates; 110 (17.5%) were female and 98 (15.5%) were from groups that are underrepresented in computing: African Americans, American Indians including Native Alaskans, Hispanics or Native Pacific Islanders. These numbers increased from Fall 2010 (from 14.7% and 7% respectively), but remain too low.
- The Watson School (including CS) enrolled 23.8% female undergraduates and 15.8% students from groups underrepresented in computing.
- BU undergraduates were 50% women and 17.8% students were from groups underrepresented in computing.

We would like to increase both percentages of students in CS. The numbers reveal an opportunity to increase the percent of female students; to increase the percent of students from groups that are underrepresented in computing, we will need to grow them to exceed those of the school and university.

At the graduate level, the CS Department had 24% female students and 1.5% students from groups underrepresented in computing, in the Fall of 2019. 89% of CS graduate students are international students, limiting our ability to grow some numbers without growing the percent of domestic students.

Binghamton University, the Watson School, and the CS Department are all committed to diversity. The University recently established a Vice President for Diversity, Equity and Inclusion, and the Watson School has an Assistant Dean for Academic Diversity and Inclusive Excellence. We will continue to work with both of these offices to implement our plan.

## 2. Goals

- G1. **Understand** more deeply the challenges related to attracting, retaining, and ensuring the success of students from groups that are underrepresented in computing. This effort will begin with enhanced data collection and dissemination, and we hope to ensure the continued receipt and analysis of data.
- G2. **Educate** CS faculty and staff on the importance of BPC values, and develop BPC activities that every faculty member can participate in and contribute to.
- G3. **Increase** the population of female CS undergraduates to 25% (an increase of 42%) and of students from groups underrepresented in computing to 20% (an increase of 29%) over the next 3 years. We set these numbers to be slightly higher than, but in line with, corresponding numbers in the Watson School, and nationally in Computer Science. We did so because we hope those numbers will also increase, and we hope to help *broaden* participating in computing with aspirational but realistic goals.
- G4. **Evaluate** the true impact of BPC initiatives by identifying (or if necessary by developing and validating) effective methods and instruments for measuring their success.

### 3. Activities and Measurement

Toward **G1 understanding** how to attract, retain, and support students from underrepresented groups:

- A1. Work with the Admissions Office to obtain and understand data about new and transfer applicants to the CS program. Questions about this data include: Do CS applicants from groups that are underrepresented in computing have academic profiles in high school or community college that are similar to students in the overall CS applicant pool? How do acceptance and enrollment rates compare? Are there opportunities to influence and adjust admissions decisions to help broaden participation in computing? *[Coordinator: Lewis]*
- A2. Collect student performance data for different demographic groups, including percentages of students who (i) receive grades of D, F, or W in their first year, (ii) leave the CS program after freshman year, and (iii) do not graduate within four and five year windows. Produce an annual report for the full CS faculty and Watson College. *[Coordinator: Ponomarev]*
- A3. Participate in the Data Buddies Survey (<https://cra.org/cerp/data-buddies/>), which will survey students and provide an annual report. We hope to achieve at least a 66% student participation rate. *[Coordinator: E. Head]*

Toward **G2 educating** faculty on the importance of BPC:

- A4. Conduct a two-hour workshop during the annual CS faculty retreat after the Spring semester, to discuss BPC initiatives. Measure effectiveness by faculty participation, satisfaction (via feedback instruments), and development of individual BPC plans in future proposals. *[Coordinators: Lewis & Ponomarev]*
- A5. Design a mechanism to encourage, review, and support BPC initiatives by individual faculty members, help them connect their plans to the Department plan, and promote some to become department-level initiatives. As a measure of success, 80% of medium NSF proposals from CS faculty should include individual BPC plans that reference this department plan. *[Coordinators: Ponomarev & Lewis]*

Toward **G3 increasing** the population of CS students from groups that are underrepresented in computing:

- A6. Reach out to several local high schools to establish contact, with the goal of conducting periodic coding camps and presentations by CS faculty, to encourage more high school students, especially those from groups underrepresented in computing, to apply to our program. Candidate schools in the local area include Binghamton, Endicott, Johnson City, and Vestal. This effort will be successful if all four schools are contacted, and students from at least two of the four schools submit applications to our program. *[Coordinator: Lewis]*
- A7. Re-establish a 2-week *Introduction to Coding and Computer Science* summer program designed for female HS students, including opportunities for many CS faculty to participate. Establish a mechanism to continue to advise and track the progress of participants after they have completed the program, perhaps via Slack. We hope that 50% will major in CS, and 50% will apply to Binghamton. *[Coordinators: Madden & Lewis]*
- A8. Establish contact with the Undergraduate Admissions office to discuss how to increase enrollment of students from underrepresented groups, using holistic application review, for both freshmen and transfers. Report on the results of this meeting to the full faculty during our annual retreat at the end of the academic year. *[Coordinator: Lewis (in conjunction with item 1 above)]*

Toward **G4 evaluating** true impact

- A9. Identify existing surveys of current and graduating students to receive their feedback about the activities they believe to be most important to their development and future success. *[Coordinators: Head & Lander]*
- A10. Investigate differences in perception between (a) students from groups that are underrepresented in computing and (b) the full cohort of students, in terms of support and benefits they receive from advising and student group activities. For example, assess the relative impact of coding contests, clubs like UPE and CoRE, and other similar activities. *[Coordinators: Ponomarev & Lewis]*