

CS@UH BPC Plan**Effective Date:** January 2021**Revision Begins:** January 2023**Contact:** Prof. Guoning Chen <gchen22 at central dot uh dot edu>**CONTEXT**

University of Houston (UH) is a Tier One public research university, located near downtown Houston. Houston is the fourth largest city in the United States, and according to US News is also the fifth most diverse city in the country. 44.8% of the city's population are Hispanic, 22.5% African American, 24.6% White alone, 6.9% Asian American, 1.2% Others (Native American, Native Hawaiian, Pacific Islander, and two or more races)¹. UH is a Hispanic-Serving Institution designated by the US Department of Education, and an Asian American-, Native American-, and Pacific Islander-serving institute. Among more than 47,000 students enrolled in Fall 2020 (the third largest university in Texas)², 33.2% are Hispanic, 10.2% African American, 5.1% from other *under-represented groups*³, 21.6% Asian American, 23.0% White, and 7.0% International. Female students make up 51.4% of the students enrolled in Fall 2020. The Department of Computer Science at UH was founded in 1967, the second oldest CS department in the United States. Over the years, the CS department has made great strides to attract students from different demographics groups with diverse backgrounds.

In our undergraduate program:

- In Fall 2020, among the 1,379 undergraduate CS major students, 26.5% are Hispanic/Latinx, 5.7% African American, 4.9% from other under-represented groups, 33.0% Asian American, 19.7% white, and 10.2% International. While the statistics of our Hispanic/Latinx students is better than the national average (8%), it is below the university statistics (33.2%). The percentage of our African American students is close to the national average (3%), but it is also lower than the university's 10.2.% statistic.
- In Fall 2020, 16.7% of the enrolled students are female, below the university statistics (51.4%).
- From 2014 and 2018, about 20% of the newly enrolled students are female each year, but only 12% of the graduated students are female. In comparison, 80% of the newly enrolled students are male, and 88% of the graduated students are male (based on NCWIT data of our program).

In our graduate program, over 73.3% of the enrolled 180 graduate students in Fall 2020 are international students. 26.1% of our graduate students are female.

GOALS

Considering the situation revealed by the above data and statistics, the department will be focused on addressing the issues seen in the undergraduate student participation, retention, and graduation rates. In particular, we identify the following goals:

- (1) Understand the reasons for the low participation of female students and students from under-represented groups in our program and the low graduation rates of our female undergraduate students,
- (2) Increase the retention and graduation rates of female students and students from under-represented groups to match the retention and graduation rates of other demographic groups,
- (3) Increase the number of undergraduate female students to 25% by 2025 (an increase of 50%), and

¹ <https://www.census.gov/quickfacts/houstoncitytexas>

² <https://uh.edu/by-the-numbers/student-data/>

³ Hispanic/Latinx, African American, Native American, Native Hawaiian, Pacific Islander, and two or more races are considered under-represented.

(4) Increase the undergraduate students from other under-represented groups (including African American and Hispanic students) to jointly comprise 38% of our majors by 2025 (an increase of 18%).

ACTIVITIES & EVALUATION

- **Data collection activities for understanding issues relevant to BPC goals [Currently on-going] [Coordinators: Long, Rizk, and Solorio, Goals: 1,2]** Retention and graduation rates of our female undergraduate students and students from under-represented groups will be collected. Surveys will be sent out every semester to currently enrolled female (undergraduate and graduate) students and students from under-represented groups to collect data to learn their reasons for choosing the CS major and to understand the challenges they are facing in our program. Surveys will also be sent to students who dropped out of our program to get data on the reasons for dropping. Surveys will be sent to prospective students (e.g., from local high schools via career counselors) to learn their considerations of choosing or not choosing the CS major. We will also organize focus groups as an alternative approach to understand perceived challenges of students from under-represented groups. We will start with two to three focus groups per semester with currently enrolled students, and one to two with students who switched majors. **Metrics:** Success will be determined by identifying the main reasons/factors that lead to female students or students from under-represented groups not pursuing a computing related major or dropping out from our program.
- **Peer tutoring program [Currently on-going] [Coordinators: Chen and Toti, Goal: 2].** Junior and Senior undergraduate students will be recruited to offer tutoring sessions for students taking early CS courses (COSC1306, COSC1430, COSC2430). Female students and students from under-represented groups will be particularly encouraged to apply for the tutor positions. A dataset of online inclusive exercises that the tutors can use in their sessions will be created. **Metrics:** Success will be determined by collecting the retention rate and GPA data of the students who attend the tutoring sessions regularly and those who do not and compare their differences.
- **Training on inclusivity [New] [Coordinator: Toti, Goals: 2, 3, 4].** Working with the Natural Sciences and Mathematics (NSM) college, faculty, staff, and TAs will receive training on implicit bias, as well as on best practices for effective teaching that have shown to support retention of female students and students from under-represented groups (especially African American and Hispanic students). Instructors will be trained to make the curriculum/courses more inclusive. **Metrics:** Success will be determined by performing a climate survey every semester among faculty, staff, and students on the inclusivity in workplace.
- **Women Coding for Success (WCS) [Currently on-going] [Coordinator: Rizk, Goals: 2, 3]** This is a program to empower women and to enhance female undergraduate's programming self-efficacy by holding workshops through the coordination with companies and by organizing female coding competitions regularly. The ACM-W Chapter, Univ of Houston-Cougarettes, is holding Kattis (open.kattis.com) competitions every other Saturday 12-2PM. UH student members of the chapter also volunteer in a few outreach activities. **Metrics:** Success will be determined by collecting the retention and graduation rates and GPA data of the female students who attended the WCS events and compared with those who do not and compare their differences.
- **Research and independent study mentoring [Currently on-going] [Coordinators: Rizk and Huang, Goal: 2].** Series of seminars and workshops will be held for undergraduate students to motivate undergraduate students to pursue research projects with faculty. Undergraduate students who carry out research with faculty will be encouraged to apply for the university scholarships like PURS and SURF, and/or the REU opportunities offered by the department and individual faculty. **Metrics:** Success will be determined by the number of students engaging in research and projects, specifically female students and students from under-represented groups.