Broadening Participation in Computing Plan

Oklahoma State University Department of Computer Science

Effective dates of plan: November 2020-May 2023
Revision of plan will begin: May 2021
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Context

Oklahoma State University is a land-grant institution located in north-central Oklahoma in Stillwater, Oklahoma. OSU's student population is 24,041 with 20,574 undergraduate students. The Department of Computer Science, located in College of Arts and Sciences, has 291 undergraduate students and 54 graduate students. Population characteristics and undergraduate enrollment trends are shown in Table I and Table II. In recent years there has been a concerted effort to hire women faculty, and currently 3 of our 20 faculty are women. Also, companies indicate they are interested in supporting diversity in their employee populations, so the efforts of OSU's CS Department to increase these student populations align with the computer industry's demands.

Table I: Population Characteristics (Fall 2019).

Category	Women (%)	Native American (%)	African American (%)	Hispanic (%)	Total population
State of Oklahoma*	50.5%	9.4%	7.8%	11.13%	3,956,971
City of Stillwater**	48.1%	4.5%	4.5%	4.9%	50,299
Oklahoma State University	49.98%	4.21%	4.56%	7.59%	24041
Department of Computer Science	19.18%	3.77%	5.35%	6.92%	318

* https://www.census.gov/quickfacts/OK
** https://www.census.gov/quickfacts/stillwatercityoklahoma

Table II: CS Undergraduate Enrollment Trends.

Classification	Year				
	Fall 2016	Fall 2017	Fall 2018	Fall 2019	Fall 2020
Total	265	276	244	267	291
Women	11.5%	14.58%	15.4%	16.49%	12.00%
Native American	5.2%	3.82%	3.86%	4.21%	3.43%

The percentage of women undergraduates in OCU's CS Department has trended upwards in recent years, but there remains a large disparity in women's representation between CS and the University as a whole. Although representation of Native American undergraduates in the CS Department is similar to representation within the University, Oklahoma has the second largest concentration of Native Americans and the third largest number of sovereign nations compared to other states, which we believe presents an opportunity to better serve this underrepresented population in computing. Thus, our goals will focus on substantially increasing the percentage of women and Native American undergraduate students enrolled in the CS Department, and on supporting their academic success through retention and graduation.

Goals
1. The population of undergraduate women in the CS Department during Fall 2019 was 16.49%. In 2018-19, the graduation rate of Bachelor of Science women students from this department was 13.7%. We will increase these numbers to 20% and 17% by Spring 2025.
2. The Native American population in the CS Department during Fall 2019 was 4.21%. In 2018-19, the graduation rate of Bachelor of Science Native American students from this department was 2%. We will increase these numbers to 6% and 4% by Spring 2025.
3. Track and decrease the DFW rate among women and Native American students in CS1113.

Activities and Evaluation
1. Visit high schools and technical programs, include high schools which have a large Native American population. (Goal 2, ongoing, J. Cecil)
2. Communicate with the Sovereign Nations Center in Life Sciences East to reach out to tribal communities. (Goal 2, new, K.M. George)
3. Provide a teaching assistant (if possible a woman, who could also serve as a role model) for the Collaborative Learning Laboratory who is available to help CS 1113 (Computer Science I) students. (Goals 1 and 3, ongoing, K.M. George)
4. The OSU Student Chapter of the ACM has an active female presence. In 2018-19, two of the organization's leaders were women. The CS Department should continue to support the diversity of the population involved in ACM and provide scholarships to the Grace Hooper Conference. (Goal 1, ongoing, R. Shamsuddin and E. Akbas)
5. Join the Data Buddies Project and encourage CS student participation in the Data Buddies survey (https://cra.org/cerp/data-buddies/). Measuring students' perceptions of their environment and experience will enable the department to identify areas for improvement. (Goals 1, 2 and 3, new, Sathya Aakur)
6. Explore the University's diversity programs, such as the summer RISE program and OK-LSAMP, to determine how the CS Department can assist with these programs or promote the computer science program. The RISE program provides support to high school students who plan to attend OSU but would be a first-generation student or a student from a socio-economic disadvantage. The OK-LSAMP provides research opportunities to underrepresented students. (Goals 1 and 2, new, Thieu and A. Bagavathi)

In addition to measurements of specific activities, we will track the following metrics using Fall 2019 as our baseline.
1. Measure the number and demographics of applications from the high schools which we visit. (Cara Brun)
2. Measure the number and demographics of students from these high schools who choose Computer Science as their major. (Cara Brun)
3. Track the number and demographics of students in the RISE program who choose Computer Science as a major. Track the number and demographics of OK-LSAMP student who are CS majors. (Cara Brun)
4. Track the percentage of applications from Native American students to OSU and the percentage of Native American students in the Computer Science program. (Cara Brun)
5. Track the DFW rate for women and Native American students in CS 1113. (K. M. George)
6. Measure the number of CS women students attending Grace Hopper (2019 was zero). (R. Shamsuddin and E. Akbas)
7. Track the graduation rates for women and Native American students with 2019-20 as the baseline. (K. M. George)