Departmental BPC Plan
Department of Computer Science (CS)
University of Texas at San Antonio (UTSA)

Effective Dates of Departmental BPC Plan: 11/09/2021- 11/09/2023
Contact: Dr. Sushil Prasad, Department Chair & Professor (sushil.prasad@utsa.edu)
Dr. Murtuza Jadliwala, Associate Professor (murtuza.jadliwala@utsa.edu).

1. Context

UTSA CS department serves a diverse group of student communities in computing related disciplines, specifically, students from underrepresented groups: i.e., students who identify as **Hispanic**, **Black/African American** and **Women,** and **First-Generation** (**FirstGen**). Table 1 below shows the Fall 2019 enrollment and 5-year average enrollment, retention, and graduation rates of these groups of CS students.

Category	CS Enrollment (Fall 2019)	Average CS Enrollment from 2015-19 (UTSA average)	Average CS One Year Retention from 2014-18 (UTSA average)	Average Graduation Rates – U: 4yr/6yr, M: 5yr, D: 10yr (UTSA average).
Women (U)	16.5%	14.4 % (50%)	81.6 % (73%)	28.0 % / 38.2% (30%/44%)
Women (M)	26.3%	26.8 % (58%)	78.8 % (83%)	62.9 % (70%)
Women (D)	31%	25.0 % (48%)	79.1 % (90%)	50.0 % (61%)
Hispanic (U)	46.4%	45.5 % (56%)	72.8 % (73%)	22.2 % / 38.1 % (25%/41%)
Hispanic (M)	21.1%	17.5 % (44%)	62.0 % (83%)	32.3 % (67%)
Hispanic (D)	8.5%	8.5 % (25%)	100.0 % (90%)	0.0 % (60%)
African American (U)	5.4%	6.0 % (8%)	74.2 % (80%)	23.8 % / 39.0 % (28%/43%)
African American (M)	2.6%	2.5 % (7%)	50.0 % (80%)	25.0 % (65%)
African American (D)	1.4%	1.7 % (4%)	25.0 % (86%)	0.0 % (58%)
FirstGen (U)	37.6%	39.8 % (45%)	74.0 % (74%)	17.4 % / 32.2 % (23%/40%)
FirstGen (M)	30.3%	35.0 % (44%)	66.3 % (82%)	52.9 % (70%)
FirstGen (D)	32.4%	30.3 % (38%)	91.2 % (92%)	33.3 % (60%)

Table 1: UTSA CS Key Academic Statistics (U-Undergraduate, M-Masters, D-Doctoral)

As seen from the table above, enrollment of undergraduate Women and African American students significantly lags university numbers and roughly matches national levels (21%, 3.3% - 2019 CRA Taulbee Survey). Enrollment of students from these categories in CS graduate programs is also comparatively low, especially for Hispanic and African American students. Retention of undergraduate Hispanic and African American students is also a concern, while graduation rates of all student communities are low compared to university levels.

2. Goals

The overarching goal of this BPC plan is to pursue targeted improvements in the Enrollment, Retention and Graduation (E-R-G) rates of the above four student communities, and eventually bringing them within 10% of UTSA and national E-R-G rates. In line with this, the following specific goals will be pursued:

Goal 1 – Increasing Undergraduate Enrollment: Increase the enrollment of **Women** and **African American** undergraduate students by at least **10%** in **5 years** and increase the enrollment of **Hispanic** and **FirstGen** undergraduate students by at least **5%** in **5 years**.

Goal 2 – Increasing Undergraduate Graduation and Retention Rates: Increase **4-year** graduation rates across **ALL** the above categories of undergraduate CS students by **2.5%** in **5 years** and **6-year** graduation rates by **5%** in **5 years**. UTSA's goal is to increase the 4-year graduation rates to as high as **70%**. Increase retention rates of Hispanic and African/American undergraduate students to university levels.

Goal 3 – Increasing Graduate Enrollment: Maintain current high levels of **Women** and **FirstGen** graduate students, and increase **Hispanic** and **African American** student enrollment by at least **10%** in **5 years**.

3. Activities and Measurement

Goal 1: UG Enrollment (Responsible Faculty: Dr. Palden Lama, Dr. Greg White, Dr. Turgay Korkmaz): Goal 1 will be accomplished by pursuing a multi-pronged approach involving significant outreach and community involvement activities with schools with high percentages of Hispanic and African American students over a period of 5 years. **(G1A1, Lama)** One such activity will involve organization of summer camps in broader CS and specific computing related disciplines (data science, AI, robotics, and cybersecurity) targeted specifically towards middle and high school students. Broader CS camps will be organized by the department, while specialized camps for each discipline will be designed and offered by the appropriate faculty with support from their external research grants. **(G1A2, White)** The department's outreach committee will also visit local area (e.g., New Braunfels) and nearby city (e.g., Austin & Houston) school districts to offer seminars advertising department's undergraduate degree programs and concentrations and to provide an overview of CS education and future career opportunities. **(G1A3, Korkmaz)** The department will also explore setting up credit transfer partnerships with relevant departments in area community colleges to provide an easier pathway for undergraduate students to enroll at UTSA. **Evaluation (G1A1-G1A3)**: The student participants in these outreach activities (e.g., number of summer camp and seminar attendees and their demographics), and their conversion rate, will be tracked annually and reported back to the appropriate department committees to appropriately adjust future outreach efforts.

Goal 2: UG Retention/Graduation (Responsible Faculty: Dr. Kevin Desai, Dr. Sam Silvestro): Goal 2 will be accomplished by organizing dedicated on-campus tutoring and mentoring programs to help students succeed in CS and computing courses. **(G2A1, Silvestro)** The department currently offers tutoring support to all its students, which is very popular and well-attended. The department will leverage this existing tutoring infrastructure, and its excellent set of tutors, to create more focused and dedicated peer-mentoring and tutoring groups for each of the undergraduate categories identified above. The department will also ask past participants to serve as tutors for the next cohort of students. Such a program, besides providing financial support, will also provide an exciting mentoring opportunity to students. **(G2A2, Desai)** The department's student success committee will also organize targeted professional development events such as resume building workshops, mock interview sessions and guest speaker series, to assist students in obtaining suitable technical internships and co-ops. The expectation is that this professional work experience will motivate students to complete their degrees in a timely fashion and join the workforce full-time, thus helping the department make progress towards its student graduation goal. **Evaluation (G2A1-G2A2)**: Participation in these tutoring sessions, and how it impacts students' graduation/degree completion, will be tracked every semester. Similarly, participation in the various professional development events and its impact on the employability of students will be tracked annually. Changes to the scope and scale of these programs will be undertaken annually based on this data to stay on course towards Goal 2 objectives.

Goal 3: Grad Enrollment (Responsible Faculty: Dr. Murtuza Jadliwala, Dr. Sumit Jha, Dr. Dakai Zhu): Goal 3 will be accomplished by pursuing several focused student recruitment strategies. **(G3A1, Jha)** The department will tailor its current MS-VIP program, used to offer direct admission to deserving undergraduate students into one of its MS degree programs (with potential financial support), to recruit more Hispanic and African American students. **(G3A2, Jadliwala)** The department will also expand its undergraduate research offerings to these students by encouraging more faculty to leverage REU supplement opportunities related to their current NSF research grants. The objective is to give these students a preview of the type and quality of research done within the department, with the expectation of attracting them back as graduate students. The department will work with on-campus Hispanic and Black student organizations to advertise these graduate study and research opportunities to their cohorts and help them pair with appropriate faculty members if needed. **(G3A3, Zhu)** The CS department's graduate admissions committee will also visit 4-year universities and colleges in the San Antonio and surrounding areas, which typically have large Hispanic and African American student populations, to advertise the department's graduate (Masters and Doctoral) degree programs, research thrusts and funding/scholarship opportunities, with the expectation of recruiting students into the graduate programs. **Evaluation (G3A1-G3A3)**: The number of graduate students recruited through such initiatives will be tracked annually and reported back to the department and faculty for improving the process and for additional outreach.