College	CSCI
Department	Computer Science
Program	Undergraduate Computer Science
Reporting for Academic Year	2022-2023
Last 5-Year Review	2022-2023
Next 5-	

faculty member is not easily replaced. The Department is continuing to hold regular undergraduate “Town Hall” meetings to get feedback from students and to increase the sense of community within the major.

This past year, the Department attempted to hire two full time tenure-track faculty members. Tiantian Chen was hired as a new tenure-track faculty member. Her expertise in machine learning, social networks, and algorithms will be very beneficial to students and the Department. David Yang has retired. Several faculty members have taken on a significant number of student research and capstone projects. Based on the policy set by the college of science, and conversations with the College of Science Dean and Assistant Dean, these faculty members will be able to receive a course release to support this work.

The Computer Science program needs resources such as teaching/research laboratories and office space. Moving to the SF building was a positive experience, however, we worry that there will not be enough room for our new hires. In addition, we received A2E2 funding to purchase new equipment and continue to build our labs. We have more than 50 types of lab equipment including routers, sensors, GPU servers, XR headsets, drones, 3D printers, robotic arm, etc. We need physical lab space to store the equipment and to allow faculty and students to work on their research projects. We also need a dedicated laboratory technician to manage the hardware and update the software in the teaching/research labs for Computer Science faculty and students.

C.

The Department of Computer Science has a proven track record of success. Our graduated students are quite successful in Silicon Valley and in the national and international IT sector. In November 2014, The Washington Post reported that CSUEB Computer Science graduates were ranked #9 nationally in terms of career earnings, and ranked #7 nationally for the best rate of return for both in-

A significant number of students have been found to take courses without the required prerequisites.

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To do so, the Department may have to offer salaries that are more competitive. For the 2024-2025 academic year, we may have up to four faculty members on leave. One great concern is that the university only offered the department a single hire for the 2024-2025 school year. However, last year we were not able to fill two tenure track positions, and this year one of our tenured faculty just retired, another tenured faculty will retire soon by the end of the academic year. In the next 5 to 8 years, as more senior faculty FERP or retire, we need to make sure our department has enough mid-career faculty to ensure continuity. If we do not address this issue now, it will only become increasingly challenging to resolve and may force our department to become impacted. For the department to continue being successful, the department needs to consistently hire and retain tenure-track faculty each year.

Since we are short staffed with regards to full-time tenure-track faculty, we rely heavily on adjunct instructors. Also of note, it is difficult to retain quality adjunct instructors. Last year we lost several adjunct instructors because our compensation was not as competitive as the compensation offered by Community Colleges. For example, one adjunct instructor was offered a full-time tenure-track position at a community college for a salary of approximately $90,000/year. In comparison, our department was only offering $60,000/year compensation for the same course load. The same instructor indicated they would have preferred to stay at CSUEB had the compensation been more competitive. Another adjunct instructor indicated they would consider leaving their tenure-track position at the community college if a similar position were offered at CSUEB with similar salary. If we could advocate the hiring of permanent teaching professors/lecturers with salaries at matching community colleges, this would greatly improve our ability to attract and retain instructors.

Administrative help is required by the Department. In the past, we have had funding to support student workers with various tasks. However, due to reduced funding we are unable to hire students for this purpose. Coordination has been done at the college level to help support our office by adjusting roles and responsibilities within other offices on campus. This year the college of science has reorganized our administrative staff from a department-based model to a new system called Administrative Hubs, where Stephanie Wiley and Stacy Sahagan will join the CS/ENG hub with Karina Mendez Martinez to support both Computer Science and Engineering departments. Our staff members are as follows:

Mendez Martinez, Karina	0.5/0.5	Engineering
Synder, Janet	0.5/0.5	Mathematics
Sahagun, Stacy	0.5/0.5	Engineering
Wiley, Stephanie	0.5/0.5	Engineering

With regards to technical support, Brian Campbell functions as our technician who currently splits his time between the College of Science and IT. However, Brian is leaving this year. Moving forward, we would like to have a dedicated technician to support the computer science department full time, who will manage more than 50 types of lab equipment and install/update software on those lab equipment for computer science faculty and students.

To reiterate, we need additional staffcur rei

Currently our classroom labs are SC N336, AE 0393 and a small room SC N104 which are all shared. They are just CS teaching Labs. With the growth of the Department that is 28% in last five year, the needs for adequate classrooms have been increasing. Specifically, classes with lab components have also increased the demand for classrooms with computer labs. Since we do not have adequate lab spaces, we are having difficulty with offering new courses such as XR, Deep Learning, and Introduction to Drones. Therefore, we need more instructional labs to offer those classes.

The department also needs more physical lab space for research. Currently, we have seven labs including the computer networks and network security lab (CNNS), XR lab, AI and deep learning lab, parallel computing lab, drone lab, IoT lab, and iLAB. We have more than 50 types of lab equipment including routers, sensors, GPU servers, XR headsets, drones, 3D printers, robotic arm, etc. However, we do not have any dedicated rooms for each lab, but only a small room in VBT 218 for the computer networks and network security lab, which is an instructional lab for teaching CS 441. We temporarily share space with other departments in SCS 125 to store our lab equipment for the other six labs. However, this lab will be converted to a classroom for another department to use starting next year. Therefore, we desperately need more lab space to store the equipment and to allow computer science faculty and more than 1,000 computer science students to work on their research projects.

The need for additional resources to fund graders, Teaching Assistants, and travel to academic conferences continues to be critical for the Department. The lack of funding is especially an important factor as we attempt to hire new faculty who are especially in need of grading support and are expected to publish and present at conferences. This greatly affects the ability of new tenure-track faculty to pursue research.

A.

Students graduating with a B.S. in Computer Science will be able to:

1. Apply knowledge of mathematics and computational theory to analyze problems in computer science, and identify and define the resources and requirements needed for their solution.
2. Design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.
3. Recognize and distinguish the mechanisms, components and architecture of computing systems.
4. Employ current techniques, skills, and tools necessary for computing practice, and recognize the need for continuing professional development.
5. Identify professional, ethical, legal, and security issues and responsibilities and the impact of computing on individuals, organizations and society.
6. Perform successfully on teams to accomplish a common goal, and communicate computer science concepts effectively in written and oral form.

CS 401 and CS 411.

B.

We assess each PLO using a standardized multiple-choice test that is created for each course. Each test has 10 questions and the tests are administered by the instructor at the end of the semester.

Assessment quiz was given to students in one section of CS471 offered last year. Average score of the assessment quiz is used to analyze the results.

All students taking CS 471 are required to complete the assessment test. All scores are collected.

Instructor gathers results and sends them to the undergraduate assessment coordinator.

Assessment coordinator compiles the results in tabular form. This data is shared with the undergraduate committee for curricular changes, areas of concern, and general comment.

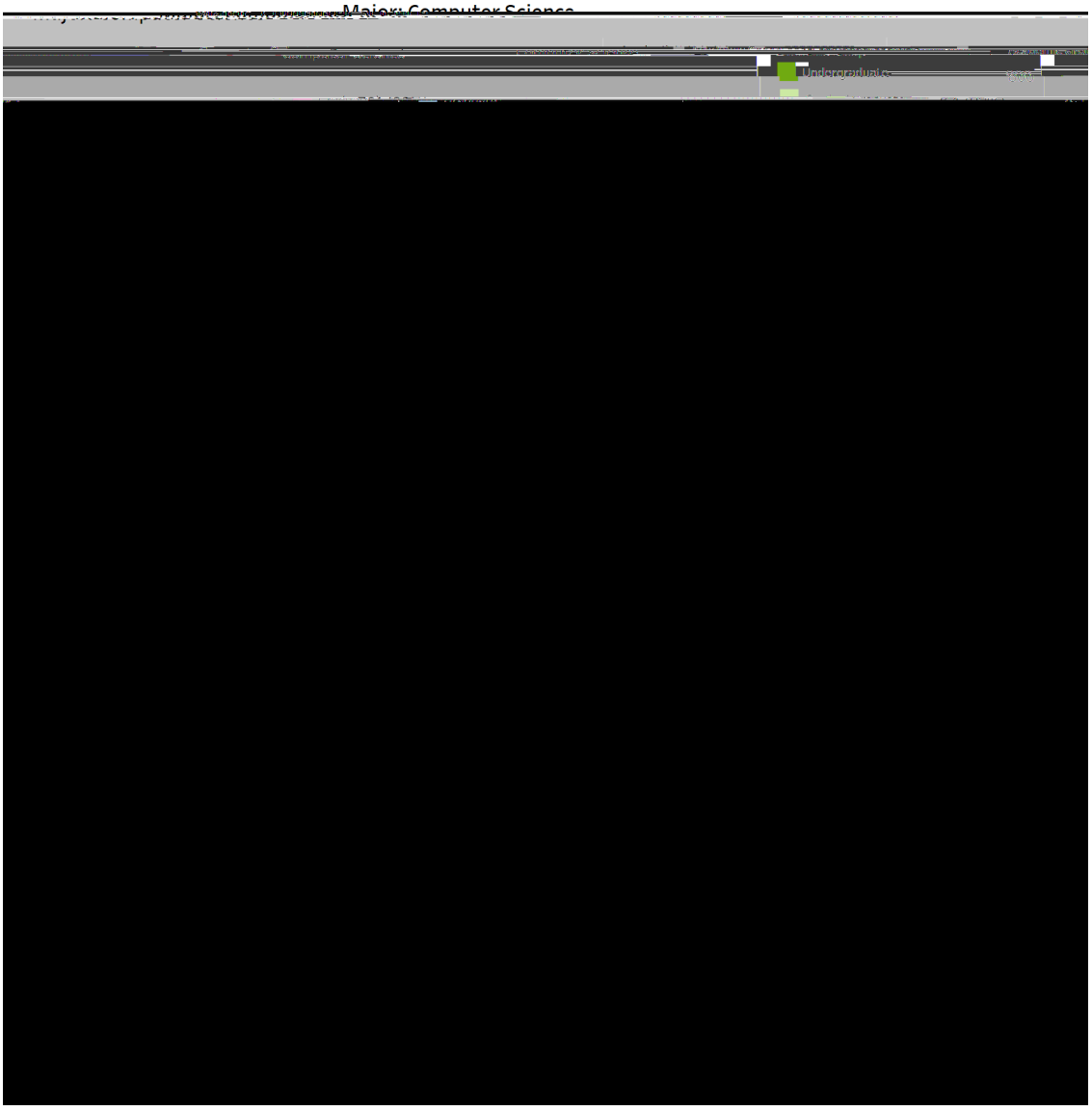
C.

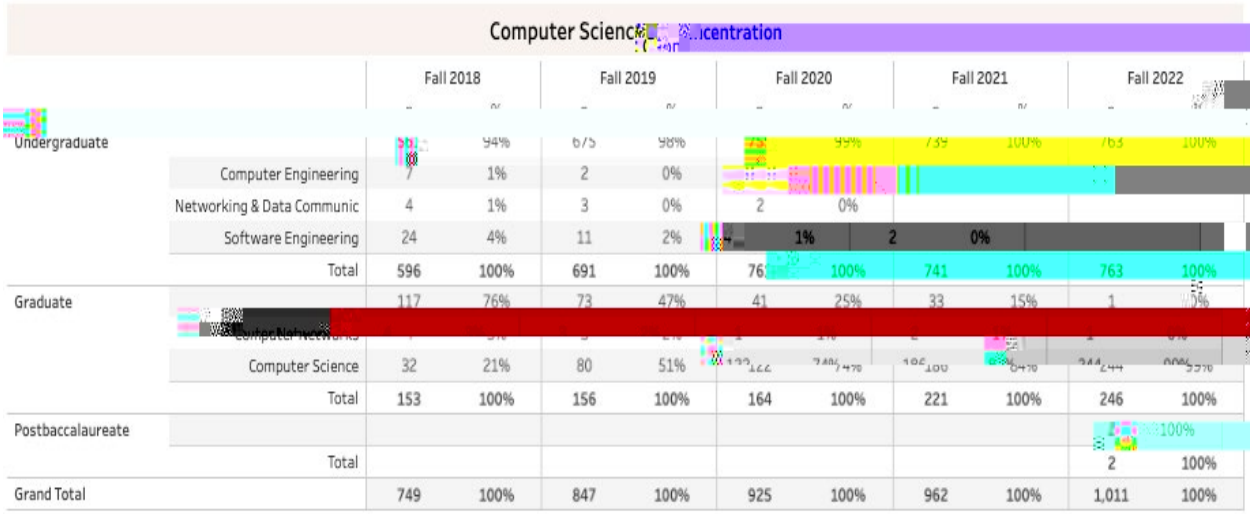
Last year we assessed PLO 5, which was assessed in one section of CS 471 Security and Information Assurance offered in Spring 2023 (1 section, 27 students).

	27	73.7%

Students did well in the Spring 2023 semester with an average score

Based on anecdotal information, many students seem to greatly prefer online instruction. It allows for greater flexibility and gives them more time to spend on study since the commute time is reduced. It also allows for potentially reduced cost as students can live in lower cost areas. This could potentially benefit URM's as most CSUEB students commute. However, there is still uncertainty regarding the effectiveness of online instruction. Over the next few years, a balance between online and on-ground instruction will need to be reached. We need to determine what best supp3 0 T0.5Ad (t)8.2 (s ca)19 (en4.6 (s)4 (t)6.3 (r)mho)10.8 (e


Major: Computer Science
Undergraduate



Computer Science Concentration

		Fall 2018		Fall 2019		Fall 2020		Fall 2021		Fall 2022	
Undergraduate			94%	675	98%		99%	739	100%	763	100%
	Computer Engineering	7	1%	2	0%						
	Networking & Data Communic	4	1%	3	0%	2	0%				
	Software Engineering	24	4%	11	2%		1%	2	0%		
	Total	596	100%	691	100%	76	100%	741	100%	763	100%
Graduate		117	76%	73	47%	41	25%	33	15%	1	0%
	Computer Science	32	21%	80	51%						
	Total	153	100%	156	100%	164	100%	221	100%	246	100%
Postbaccalaureate											100%
	Total									2	100%
Grand Total		749	100%	847	100%	925	100%	962	100%	1,011	100%

Race/Ethnicity

		Fall 2018		Fall 2019		Fall 2020		Fall 2022			
		n	%	n	%	n	%	n	%	n	%
Undergraduate	Asian	215	36%								
	Black	31	5%		4%	46	6%	41	6%	40	5%
	International	84	14%	81	12%	83	11%	71			
	Latinx	116	19%	143	21%	150	20%	160			
	Multirace										
	Native American	1	0%	1	0%	1	0%				
	NHPI	8	1%	4	1%	7	1%	6	1%	9	1%
	Unknown	26	4%	32	5%	36	5%	30	4%	32	4%
	White										
	Total	596	100%	691	100%	761	100%	741	100%	763	100%
Graduate	Asian	17	11%	15	10%	22	13%	19	9%	9	4%
	International	127	83%	129	83%	131	80%	190			
	Latinx	1	1%	1	1%	3	2%				
	Multirace	1	1%								
	NHPI	1	1%	1	1%	1	1%	0	0%		

Graduation/Degree Data