



CALIFORNIA STATE
UNIVERSITY
E A S T B A Y

**COMMITTEE ON ACADEMIC PLANNING AND REVIEW
ANNUAL PROGRAM REPORT**

College	CoS
Department	Math Computer Science
Program Unit	Computer Science
Reporting for Academic Year	2015-2016
Department Chair	Matt Johnson Reported by Leann Christianson
Date Submitted	6/28/2016

1. SELF-STUDY (about 1 page)

A. Five-year Review Planning Goals

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-state and out-of-state tuition. According to exit surveys done by AACE, *Computer Science majors are the most successful of CSUEB graduates at finding degree-related employment within one year of graduation.*

The local technology industry recovered relatively quickly from the recent economic downturn, and IT jobs in the Bay Area are abundant. Overall enrollment in our B.S. Computer Science program has increased roughly 40% since the date of our last 5-year review.

The Bachelors Computer Science goals from the last 5 year review included the following:

- 1) Increase enrollment**
- 2) Replace retiring faculty**
- 3) Curriculum - ABET**
- 4) Implement an assessment plan**
- 5) Resources – technical laboratories. IT support**

B. Five-year Review Planning Goals Progress

1) Overall enrollment in our B.S. Computer Science program has increased roughly 40% since the date of our last 5-year review. To better serve our undergraduate students, we have created and undergraduate adviser position. The undergraduate adviser is a first contact for students who want to plan their schedules, receive transfer credit evaluation, request job search tips and recommendations, and review graduation requirements. We see a rise in student interest in Computer Science events. Dr. Ertaul successfully led a Hackathon in Fall, and the student Recreational Math and Computer Science Club has been active and has recently become and ACM-W chapter.

2) There continues to be a looming issue with retiring faculty, as there are currently four faculty members in the FERP program. Fall 2015 was the first quarter that Computer Science operated as its own department apart from Math. The department currently functions with eight tenure track faculty. The department's search for two new faculty members resulted in the hire of one professor, Dr. Varick Erickson. His expertise in wireless sensor networks will be an asset to the department. Potential candidates reported that they were deterred from accepting our position due to the cost of living in the Bay area and CSUEB's compensation. We will again search for two new faculty members next year as the department is under staffed and increasingly relies on lecturers.

3) The Computer Science does continue to face the challenges of managing an appropriate

curriculum that adapts to our dynamically evolving discipline, while at the same time maintaining a solid core of fundamentals. The primary goal of the department this year was semester conversion. This has given us time to revamp our curriculum and align it with ABET. We hope to seek accreditation in the near future.

4) At the time of our last five year review, we were just starting to identify program learning outcomes and student learning outcomes. In the past two years, we have finalized our assessment process and have conducted post-assessment examinations for targeted course. The exams are deployed through Blackboard and automatically scored. We are looking at ways to streamline this process. Under semesters we will assess one PLO per course through Blackboard which will allow for easier evaluation of results.

5) The Computer Science program is in need of resources such as technical 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 are in need of a dedicated laboratory technician.

C. Program Changes and Needs

Since our last five year review, three new hybrid courses have been added to the curriculum: Security in Mobile, Wireless, Grid and Pervasive Computing (CS 4526), Security Management (CS 4527) and Cloud Computing (CS 4593). These courses are currently tiered with graduate sections. Under semesters, this will no longer be the case.

In previous reports, we mentioned a problem with oversubscribed courses. Graduate students with early registration appointment times would sign up for the maximum allowed by the system (4 enrollments and 4 waiting lists). They would then drop the courses they did not want on the last day of the Add/Drop period. This meant that students with later registration appointments, including all incoming students and BS students, would be on waiting lists. This continues to be an issue, however, the department policy allows graduate students to enroll in just two CS courses prior to the start of the quarter. This is helping the situation though our administrative assistant is forced to drop graduate students when they enroll in more than two courses

Academic dishonest continues to be an issue. The current departmental policy states that students with academic dishonesty report may not be graders and cannot take the CS3898 Coop course.

Resources and Needs:

i) Facilities for Department faculty offices, teaching labs, research labs, including co-locating office space to provide opportunities for faculty to work together more easily.

The Department was pleased that space was made available in the new Student and Faculty Support (SF) building for the department office and faculty offices. Faculty had been spread over all four floors of both Science buildings previously. Proximity to colleagues and the department office has already led to increased communication between department faculty, more frequent department committee meetings, and increased productivity. Unfortunately, space was not made available for all department faculty. In particular, faculty participating in the FERP program, and all lecturers are still housed in the Science buildings. In addition, there is not enough space in the new building even to house the faculty that would result from successful searches that have been approved for next year. Ideally, it would be beneficial to house the entire department in one place with enough made available for desired growth.

The College of Science has provided some limited additional teaching lab space, but this is still a significant concern as current space is insufficient to meet department needs. As our outside reviewer mentioned, if we choose to seek accreditation, our relative lack of teaching and experimental lab space would be a major concern to the accrediting board. The Department is in discussions with the Dean of the College of Science to address these issues.

ii) Support from campus Information Technology Services for teaching and research needs.

The centralization of Information Technology Services (ITS) on campus left the Department of Computer Science with no dedicated support for its teaching and research support needs. The centralized model was unwieldy, slow, and has not served the Department well, leading to impact to the students as software and hardware testbeds and learning environments have become outdated or unusable. Our outside reviewer stated that even the support that was provided before

centralization was insufficient. The Department is in discussions with the College of Science to provide dedicated lab course support as is the norm for other lab-based disciplines.

iii) Need for funds for readers, TAs, and travel to academic conferences.

The need for additional resources to fund readers, Teaching Assistants, and travel to academic conferences is little changed. Our outside reviewer specified lack of funding for continuing development and other department needs was a significant issue. 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.

iv) Need for library resources, specifically to support graduate courses.

Library offerings have been uneven, with important database subscriptions cancelled and re-established. Access to a wide range of journals and conference proceedings is especially important as we plan to increase the rigor of our graduate courses under the semester system.

Faculty:

Name	Time Base
Brown, Kevin	1.0
Christianson, Leann	1.0
Ertaul, Levent	1.0
Grewe, Lynne	1.0
Johnson, Matt	1.0
Jurca, Dan	0.44 (FERP)
Reiter, Eddie	0.5 (FERP)
Roohparvar, Farzan	1.0
Simon, Steve	0.44 (FERP)
Yang, David	1.0
Yu, Ytha	0.44 (FERP)

Zhong, Fay	1.0
TOTAL FTEF	9.82

2. SUMMARY OF ASSESSMENT (about 1 page)

A. Program Student Learning Outcomes

Students graduating with a Bachelor of Science in Computer Science will be able to:

1. apply knowledge of mathematics and computational theory to appropriate problems in computer science
2. analyze a problem, and identify and define the resources and requirements needed for its solution
3. design and implement a program to meet stated needs
4. develop and maintain computer-based systems, processes, and platforms
5. recognize and distinguish the mechanisms, components and architecture of computing systems
6. employ current techniques, skills, and tools necessary for computing practice
7. identify professional, ethical, legal, and security issues and responsibilities and the impact of computing on individuals, organizations, and society
8. perform successfully on teams to accomplish a common goal, and communicate effectively in written and oral form

B. Program Student Learning Outcome(s) Assessed

As according to our assessment plan, we are closing the loop on PLO #3 this year. We also include assessment results for additional PLOs as listed below:

CS 2370 Programming in C++ III, Introducing PLO's 2,3,6
CS 3240 Data Structures, Developing PLOs 2,3,6
CS 3340 Object Oriented Programming, Developing PLOs 2,3,6
CS 4525 Network Security, Mastering PLOs 5,7,8
CS 4560 Operating Systems, Mastering 3, 4,5
CS 4596 Wireless Networks, Mastering 1,4,6

C. Summary of Assessment Process

We created SLOs and PLOs for the Computer Science program in the academic year 2012-2013. The decision was made to use Blackboard as a means to provide students with an assessment exam that addresses the SLOs of each course which are aligned to the PLOs for each program and the ILOs of the university. We have these in place for approximately eight courses in the B.S. Computer Science program at this time. The results of these exams are being stored in a separate Blackboard shell repository for the department. Evaluating the results of these exams is challenging, as each assessment contains questions for multiple PLOs. Additionally, each instructor creates the assessments in different ways – some combining PLOs in one question and some keeping them separate. We are currently looking at averages over the entire exam. As we move to semesters, our undergraduate committee will create assessments for each class. These will address one PLO only thus simplifying the evaluation of data. Currently another challenge is addressing PLOs for courses that serve both the graduate and undergraduate degree programs. Under semesters this will not be an issue as graduate students will not be able to take undergraduate courses.

For changes made to close the loop for PLOs, adjustments are in an ad hoc manner. Instructors rotate for each class and may not be aware of the previous instructor’s assessment results. For PLO #3 this year, assessment scores were an agreeable score of 82%, indicating that at this juncture we are adequately addressing this outcome in our curriculum.

D. Summary of Assessment Results

2015-16 Assessment Results	1	2	3	4	5	6	7	8
CS2370 Programming III	1.0		9.4					
CS 3240 Data Structures			6.7					
CS 3340 Introduction to OOP and Design			7.6					
CS 4525 Network Security						7.8	7.8	7.8
CS 4560 Operating Systems	8.7		9.1		10			
CS 4596 wireless Networks	6.8			5.7		7.1		

3. STATISTICAL DATA (about 1 page)

Student Demographics:

BS Computer Science		Fall 2011	Fall 2012	Fall 2013	Fall 2014	Fall2015
Female	Black, non-Hispanic	3	2	3	5	6
	American Indian					
	Asian	18	21	10	17	20
	Asian Pacific Islander		2			1
	Hispanic	3	5	7	6	12
	White	7	2	4	8	6
	Multiple ethnicity	2		2		1
	Race/ethnicity unknown	1	2	3	3	1
	Nonresident aliens	15	5	3	5	7
	Total	41	39	29	44	54
Male	Black, non-Hispanic	24	15	12	16	20
	American Indian					
	Asian	81	76	82	98	139
	Asian Pacific islander	3	1	3	5	6
	Hispanic	22	29	39	53	63
	White	55	74	70	64	67
	Multiple Ethnicity	5	6	10	9	14
	Race/ethnicity unknown	11	15	20	19	17
	Nonresident aliens	48	60	61	47	42
	Total	249	276	297	311	368
Total	Black, non-Hispanic	27	17	15	21	26
	American Indian					
	Asian	99	97	92	115	159
	Asian Pacific	3	3	3		

Islanders				5	7
Hispanic	25	34	46	59	75
White	62	76	74	72	73
Multiple ethnicity	7	6	12	12	15
Race/ethnicity unknown	12	17	20	19	18
Nonresident aliens	55	65	64	52	49
Total	290	315	326	355	422

Annual Data:

A. Student Headcount:

Headcount Enrollment	Fall Quarter				
	2011	2012	2013	2014	2015
<i>Computer Science</i>					
1. Undergraduate	290	315	326	355	422
2. Postbaccalaureate	4	0	1	1	0
3. Graduate	148	105	152	222	183
4. Total Number of Majors	442	420	479	578	605

B. Degrees Awarded:

Degrees Awarded	College Years				
	10-11	11-12	12-13	13-14	14-15
<i>Computer Science</i>					
1. Undergraduate	54	51	63	74	72
2. Graduate	102	89	57	31	59
3. Total Number of Majors	156	140	120	105	131

C. Faculty Information:

Please note that the university does not calculate separate data for the Math and Computer Science programs. Please see above (Program Needs) for information on Computer Science and Computer Network faculty.

	Fall Quarter					
	2010	2011	2012	2013	2014	2015
C. Faculty	Computer Science and Mathematics Combined					
Tenured/Track Headcount	Computer Science and Mathematics Combined					
1. Full-Time	25	25	23	21	22	19
2. Part-Time	4	2	1	1	2	3
3a. Total Tenure Track	29	27	24	22	24	22
3b. % Tenure Track	80.6%	62.8%	58.5%	52.4%	57.1%	48.9%
Lecturer Headcount	Computer Science and Mathematics Combined					
4. Full-Time	1	1	1	2	2	4
5. Part-Time	6	15	16	18	16	19
6a. Total Non-Tenure Track	7	16	17	20	18	23
6b. % Non-Tenure Track	19.4%	37.2%	41.5%	47.6%	42.9%	51.1%
7. Grand Total All Faculty	36	43	41	42	42	45
Instructional FTE Faculty (FTEF)	Computer Science and Mathematics Combined					
8. Tenured/Track FTEF	22.4	19.4	16.5	17.4	17.0	21.0
9. Lecturer FTEF	11.1	18.1	19.0	19.3	18.4	13.7
10. Total Instructional FTEF	33.5	37.4	35.4	36.7	35.4	34.7
Lecturer Teaching	Computer Science and Mathematics Combined					
11a. FTES Taught by Tenure/Track	439.1	307.1	288.1	314.9	356.4	260.3
11b. % of FTES Taught by Tenure/Track	58.7%	38.7%	36.0%	36.2%	39.4%	28.3%
12a. FTES Taught by Lecturer	308.5	487.1	513.2	553.9	547.3	660.0
12b. % of FTES Taught by Lecturer	41.3%	61.3%	64.0%	63.8%	60.6%	71.7%
13. Total FTES taught	747.7	794.2	801.3	868.7	903.7	920.4
14. Total SCU taught	11215.0	11913.0	12019.0	13031.0	13566.0	13806.0

D. Student Faculty Ratios:

<i>D. Student Faculty Ratios</i>	Computer Science				
1. Tenured/Track	14.7	17.1	19.4	20.9	23.1
2. Lecturer	23.6	27.5	30.2	29.2	25.6
3. SFR By Level (All Faculty)	15.5	18.5	21.5	23.0	24.0
4. Lower Division	22.5	20.8	24.9	28.9	26.2
5. Upper Division	17.5	20.2	21.4	23.8	23.2
6. Graduate	10.1	14.5	19.8	19.9	23.6

E. Sections:

<i>E. Section Size</i>					
1. Number of Sections Offered	47.8	37.0	45.8	49.0	47.0
2. SCU taught	2962.0	3054.0	3938.0	4556.0	3872.0
3. Average Section Size	17.8	20.9	22.5	24.0	22.9
4. Average Section Size for LD	26.4	29.5	27.0	27.0	25.9
5. Average Section Size for UD	18.8	21.4	22.9	25.5	22.5
6. Average Section Size for GD	12.5	15.5	19.5	21.1	21.3
7. LD Section taught by Tenured/Track	5	5	5	2	2
8. UD Section taught by Tenured/Track	21	19	21	15	14
9. GD Section taught by Tenured/Track	18	10	12	16	12
10. LD Section taught by Lecturer	2	1	3	7	8
11. UD Section taught by Lecturer	0	3	5	5	5
12. GD Section taught by Lecturer	3	3	3	4	6



2015-2016 CSCI EETF Assessment Year End Report, June, 2016

Program Name(s)	EETF Faculty Rep	Department Chair
B.S. Computer Science	Matt Johnson	Matt Johnson

[NOTE: Items A, B, C, and D are identical to your Page 2 on your Annual Report for CAPR. Please simply cut and paste from there. Item E is unique to the CSCI EETF.]

A. Program Student Learning Outcomes

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E. Suggestions and Recommendations for the CSCI EETF in the Future

NONE