Annual Program Review Form
Fall 2012

To complete this form you will be “Looking at last year to plan for next year.” Complete by December 7, 2012 to inform the College’s plans and budgets for 2013-2014. Guidelines and other resources are available at this link: www.ccsf.edu/program_review

As you complete the form, please cite linkages to Board priorities and/or Board-approved college plans.

Department: Computer Science
Contact Person: Craig Persiko
Date: December 5, 2012

Please check this box to certify that faculty and staff in your unit discussed the unit’s major planning objectives:

1. Description of Programs and Services and their Locations

The CCSF Computer Science Department provides credit courses for students who plan to transfer to baccalaureate institutions, earn an Associate’s Degree, and/or acquire certificates and career skills needed for success in the workplace. Specifically:

- We offer 13 courses which satisfy CCSF’s requirements for General Education Area A: Communication and Analytical Thinking Requirement.
- Our A.S. degree in Computer Science articulates well to B.S. degree programs in Computer Science at SFSU and many other universities in our region.
- We offer 11 certificates for students seeking career skills in Computer Science.
- We offer approximately 23 different courses each semester, for a total of approximately 40 sections.

Main site: Ocean
Satellite locations: 1-2 course sections per semester at Mission Center, occasional courses at Downtown Center.

2. Please provide reflections on the data trends for your department. If you have additional data that you would like to provide, please also include that here.

Our student demand and overall productivity continues to increase dramatically. Specifically, comparing 2010-2011 to 2011-2012, we have experienced:

- **9.96% increase in FTES**
- 2.54% increase in Headcount
- 3.27% decrease in FTEF Instructional
- **13.7% increase in Productivity FTES per FTEF Instructional**
- 9.96% increase in Productivity Apportionment Credit

We do not have the resources to fully meet the demand for our courses. For example, in Spring 2012, there were 48 students (9.3%) closed out of CS 110A, and 21 students (4.3%) closed out of CS 111A, because all sections were full (according to DSS). This number does not include students who didn’t try to register because course was listed as closed. We had the same number of sections of these courses as in Spring 2013; we were unable to offer more sections because of budget restrictions.

According to a draft document produced by MPICT, between 2008-09 and 2010-11, overall credit enrollment in ICT related courses at California Community Colleges decreased by 7%.

The largest credit enrollment increases were realized by City College of San Francisco at 40%.

Other continuing data trends of note include:

- An achievement gap, particularly among African American students.
- A large gender gap in enrollment, with women making up just 23.9% of our students (but achieving higher grades and pass rates than their male counterparts.)
• An increased percentage of students between ages 20-29. Specifically, we have a 9.39% increase in percentage of students 25-29 from 2010-2011 to 2011-2012. This may be due to increased employment opportunities in computer science, as detailed below.

3. Please describe any internal or external developments affecting your department since the last program review.

External Developments (outside CCSF):

The Computer Science department is working closely with government, industry, and community partners, most notably the City's TechSF initiative with BAVC and the newly formed sf.citi (essentially a tech chamber of commerce for San Francisco). Sf.citi surveyed its member companies in mid-2012 and reported that there will be 65,000 tech job openings in San Francisco this year alone.

With funding from two TechSF grants, the Computer Science Department is offering accelerated course sections for target populations to earn certificates. Also from these grants, CS Department faculty are given release time to build greater connections with industry, to revise our curriculum to better meet industry needs, and to increase student internship opportunities.

With funding through MPICT, we are participating in the San Francisco ICT Pathways Project, to increase coordination between SFUSD and CCSF in ICT (Information and Communications Technologies) programs (including Computer Science).

We are working with CS faculty at UC Berkeley on a project to bring more hands-on activities to CS-1 – learning from their successes by having more supervised, directed computer lab time and less lecture.

Internal CCSF Developments:
In 2011-2012 we hired 1 tenure-track instructor and 2 part-time instructors, to replace several instructors who have retired in recent years. Because of budget cuts for Fall 2012 semester, we could not offer a teaching assignment to one of these excellent new part-timers, and she found work elsewhere despite her preference to teach at CCSF, and our unmet student demand. Now that we can schedule classes for her again, she has less time to offer because she had to commit to this other employer. Retaining quality instructors is very difficult when our budget is unstable.

We received a Perkins grant for $24,285 in 2011-2012, primarily to buy a cart full of 35 laptop computers to be used in classes. These computers are useful as a supplement to the computers in our Linux classroom lab (L413) for large classes, as well as to bring to other classes for greater hands-on student access. However, the time and logistics issues make these laptops a poor substitute for a lab classroom.

We received Perkins funds of $36,000 in Fall 2011 to replace 35 aging PC workstations in the ACRC Computer Lab (PC-Lab 1), for our students and others to do their homework with faculty lab aide supervision and tutorial support. We have also been bringing our classes to this lab more than in previous years, and faculty from other departments bring their classes there as well. However, we have been unable to schedule regular classes in this lab because the room's capacity is too low (maximum of 34 students) and the room lacks sufficient whiteboard space.

We received a Perkins grant for $14,500 in Fall 2012 to replace our Linux server and computers needed for our Linux classroom lab. However, we have not been able to secure funding for the Red Hat Linux software licenses we need for this lab, at approximately $400/year.

We received Perkins Student Success Grants in 2011-2012 and in 2012-2013 to survey our students and ACRC lab tutors, and discuss ways to improve our courses and support services. These efforts are resulting in greater collaboration between our instructional faculty and the ACRC lab monitors and tutors. They also have helped our faculty understand our students' need for more hands-on learning support opportunities, and greater connections to industry.
As our faculty have been teaching hands-on more and more, we have reached scheduling capacity for our computer lab classroom (L413). Thus we are seeking other computer lab classrooms we can use regularly.

Our increased efficiency is largely due to most classes being filled at or above capacity. We are also increasing efficiency by offering large online classes with multipliers instead of multiple sections of the same online course, where possible. We did this for a few courses in Fall 2012, and are planning to do so more in Spring 2013.

For the Spring 2013 schedule we were given an allocation of 9.7 FTEF, but due to student demand and College need for greater enrollment, we have expanded that to 11.9 FTEF, plus 0.5 FTEF funded by the TechSF Grant. We could easily schedule another 1.5 FTEF, to just barely meet student demand. We have accomplished this expansion through a part-time faculty upgrade, lots of overload assignments to full-timers, and two emergency hires. To maintain this level of service, we need to hire additional faculty.

4. Summarize overall departmental directions taken as a result of the assessment of learning outcomes. If your unit does not offer courses or direct service to students, summarize improvements made based on the assessment of your administrative unit outcomes.

We have completed the definition and mapping of SLO's for all of our programs and courses, and are conducting ongoing assessments and improvements for them.

Department SLO-related highlights:

- We revised our C++ Programming Certificate to remove CS 101 and CS 176, better focusing this certificate on current workplace needs.
- The State’s Transfer Model Curriculum (TMC) for Computer Science has now been released. We are in the process of determining how to match our CS Degree with this curriculum - specifically the TMC’s omission of the introductory programming course.
- We created new Android and iPhone App Programming certificates, based on the demand for these skills in the workplace, and the need for public grants such as TechSF to support credential attainment.
- We are in the process of revising our Unix/Linux Administration certificate, to make it align more closely with Red Hat Linux certification exams. Our instructor Greg Boyd spent his sabbatical working on this curriculum and taking the Red Hat Certified System Administrator certification exam. (He passed!)
- We are revising our CS 110B course outline to more closely align it with the topics covered in CS 111B. This was inspired by discussions surrounding the creation of our iPhone App Programming certificate, and what courses need to be included.
- Based on advice from our Industry Advisory Committee, we are considering revising LAMP Admin into two certificates: one with programming and JavaScript, one without, but to include topics re: Cloud/Scalability.
- We deleted our CIS Major because we found that it didn’t help students transfer to Bachelor's Degree programs, and didn’t prepare them adequately for jobs.
- We are continuing to improve our courses based on our individual SLO assessments and discussions.
- At our monthly Department meetings and informal meetings in between, we discuss SLO assessments and plans for improvement.

5. Summarize your department’s progress to date on the major planning objectives identified in the last program review (excluding progress already cited in #4).

- We are successfully serving more CS and other STEM majors who take our classes than in previous years, despite lacking the resources to fully meet student demand.
- We are providing more hand-on courses in Linux classroom lab.
- We have hired new adjunct faculty, and continue to do so this semester, to meet student demand.
- We have greatly increased our partnerships with industry and community-based organizations such as BAVC
- We have increased our partnership with SFUSD through MPICT’s ICT Pathways Project.
- We have continued to secure Perkins grants to fund needed equipment upgrades, especially for our Linux classroom lab and the ACRC, but have not yet secured institutional funding for our computers and related equipment.
- We have continued to work closely with CNIT, Multimedia Studies, and other departments/programs on curriculum improvements, especially regarding mobile device programming.
6. Assuming a status quo budget for your unit, indicate your department’s major planning objectives for next year (2013-14). Include objectives that utilize status quo resources as well as objectives that do not require new resources.

- Continue to increase collaboration with industry to stay abreast of changes in the field, and make subsequent improvements to curriculum
- Increase student internship opportunities and related connections with industry
- Improve pathways for SFUSD students into CS courses and programs.
- Continue supporting our existing computer equipment, which requires that we maintain our 1 coordinator unit of faculty release time to manage our Linux classroom lab, in addition to the funding required for computer licenses and upgrades.
- Continue partnerships with CNIT, Multimedia Studies, and other departments/programs on curriculum improvements, especially regarding mobile device programming.
- Continue to replace faculty who retire or leave
- Continue to practice effective enrollment management by shifting course offerings to meet greatest demand.
- Continue to achieve greater efficiency through offering large online classes with multipliers instead of multiple sections of the same online course, where possible. At the same time, we must carefully assess student retention and success in these large online classes to ensure that student learning does not suffer.
- Work to reduce our achievement gap, and to bring more women into Computer Science.

7. If your department faced a reduction in your overall departmental budget for next year (2013-2014), indicate the changes that would be made to the delivery of courses and/or services to adjust to the new allocation.

We would prioritize our highest-enrolled classes and those with unmet demand, especially those required for the A.S. Degree in Computer Science, and for transfer to B.S. Degree programs. This would damage our less-popular, but still-important courses and certificates in Multimedia Programming, Visual Basic Programming, Database Programming, and Linux Administration. These programs all have industry demand, so we would have to consult with industry leaders to determine which cuts would do the least damage.

8. If additional funds become available, indicate your department’s top priorities for resource allocation. Include new projects and/or requests to reverse specific reductions made during the last few years of fiscal austerity. Put your projects in order of priority. Add additional projects as necessary, including indication of priority order.

First Priority

☐ This is a new request ☐ We initially made this request in our __2009__ Program Review

Project Title: Expand course offerings and number of sections, including Mobile Technology

Brief Project Description: Offer enough sections to meet student demand for degree, transfer, and certificate achievement. This includes expanding curriculum in mobile device programming. We will continue to use good enrollment management practices in allocating resources, and we will consult industry partners such as sf.citi to determine areas of expansion. Measurable outcomes include increased FTES, degree and certificate completion, transfer, and internship/job placement.

Timeline: ASAP

Rationale: Demand for Computer Science by both industry and students is increasing rapidly. Mobile devices now outsell laptop computers, and are used for the majority of personal computing. To prepare students for degrees and employment we must meet demand, and teach modern technologies.

For the Spring 2013 schedule we were given an allocation of 9.7 FTEF, but due to student demand and College need for greater enrollment, we have expanded that to 11.9 FTEF, plus 0.5 FTEF funded by the TechSF Grant. We could easily schedule another 1.5 FTEF, to just barely meet student demand. We have accomplished this expansion through a part-time faculty upgrade, lots of overload assignments to full-
timers, and two emergency hires. To maintain this level of service, we need to hire additional faculty.

**Links to Priorities/Plans:** Board Priorities 1, 3, 5, 6, 8; Strategic Plan A. 3, A.4  
**Staffing Needs:** 2 additional full-time, tenure-track instructors, and several additional part-time instructors  
**Equipment Needs:** none  
**Supply Needs:** none  
**Facility Needs:** none  
**Request for Additional Units:**  
Additional 4 FTEF beyond 2012 allocation is needed just to meet current demand as described above. (2.5 FTEF to reach Spring 2013 level of course offerings, additional 1.5 FTEF would allow us to meet student demand in courses that already have all sections full over a month before classes start.)

### Second Priority

- **This is a new request**
- **We initially made this request in our 2009 Program Review**

**Project Title:** Institutionalize Funding for Hardware and Software, including modifying ACRC PC-Lab 1  
**Brief Project Description:** Institutionalize Funding for Hardware and Software in the ACRC Lab, for our department classroom lab (L413), and other equipment, for future maintenance and upgrades. Modify ACRC PC-Lab 1 to replace cabinets with computers and desks, increasing capacity from 34 to 40 students, and improve whiteboard space so the room may be used as a classroom for CS and other departments.  
**Timeline:** Fall 2013 and beyond  
**Rationale:** ACRC should be supported by the institution. CS currently relies on grants for hardware and academic license upgrades. Without current equipment and software, CS cannot offer courses using relevant technology. Modifications to ACRC PC-Lab 1 are needed to meet student and instructor demand for classrooms with hands-on computer access, as documented in the survey results from our Student Success Initiative in 2011-2012. Hands-on classroom time allows instructors to support individuals with less confidence or experience on computers, such as those in underrepresented groups

**Links to Priorities/Plans:** Board Priorities 1, 2, 3, 8; Tech Plan: ITS 2; Board Priorities 3; Strategic Plan E. X  
**Staffing Needs:** None beyond current ACRC staffing  
**Equipment Needs:** 6 desktop computers totaling $6,000, plus ongoing maintenance and replacement of existing computers.  
**Supply Needs:** none  
**Facility Needs:** Take out cabinets in PC-Lab 1 and replace with desks, adding outlets. Estimated to cost about $10,000.  
**Request for Additional Units:** none