

Administrative Response to CS Program Review 4/23/2010

On April 23rd, 2010 Doug Jones with support from both full and part time instructors presented the CS program review to panel of administrators. First, we would like to thank you for your thoughtful and thorough reflections on your program. We realize CS covers an area of study which experiences ever changing technology so we applaud you for your numerous efforts designed to keep current, which has included the revision and development of new courses. Since 2005 CS has experienced phenomenal growth with FTE increases of 51.2%. Currently, across the district there are 5 full time faculty along with some part time instructors. The five full time faculty teach roughly 52% of all CS sections offered. Additionally, you've maintained the relevance of your offerings by keeping your articulation agreements with PSU and OIT current, thus helping smooth the way for student transfers.

You selected and concentrated on 13 Goals which individually and collectively support the college's Mission, Values and Goals. These goals provided cohesiveness throughout your report. They included:

1. Community Spirit
2. Program
3. Pedagogy
4. Program Position and Marketing
5. Service Component
6. Transferability
7. Lab Facilities
8. Industry Partnership
9. Academic Partnerships
10. Distance Learning
11. Night and Saturday Offerings
12. Women and Minorities
13. Gaming

Additionally, you presented PCC's Core Outcomes both through brief narrative as well as a course by course crosswalk, helping paint a picture of how they are being addressed. Next, you cross-walked various courses showing how they related to 14 of the 63 core topics developed by the Association for Computing Machinery (ACM). The selection and incorporation of the core topics is largely driven by articulation agreements with 4-year universities, and more specifically the agreement with PSU. Drilling further down, you addressed Course Outcomes and Assessment Strategies.

Though not specifically included as formal recommendations, some issues surfaced throughout the body of the report. For example, you noted, "Students need unambiguous information about academic and career paths in Computer Science, including transfer requirements, degree requirements, and career opportunities." As PCC's Degree Works evolves and is able to address lower division

transfer/articulations it could provide an important resource to assist students. Later in the report you noted, "One or more computer labs (Windows or Mac) will help...." Though again not a formal recommendation, we offer the following thoughts: consider exploring opportunities to access existing labs that are closely connected to other departments. Secondly, with bond renovations and build outs scheduled throughout the District, we suggest you provide your Division Deans and Administrative Liaison detailed information as to these needs. In your Distance Learning section you noted as a concern, plagiarism, cheating and students submitting work done by someone else. If you haven't already we suggest you share your concerns with the subcommittee of the EAC DL Taskforce addressing these issues. The contact person for this committee is Susanne Christopher.

Recommendations for Improvement

The Computer Science program must continue to evolve to meet the needs of our students, stakeholders, and larger communities. The recommendations presented below guide this evolution.

1. *Work with the College leadership and the College community to expand the instructional technology resources available to Computer Science students*

Computer Science is one of many technology-intensive programs supported by the College, and expansion of technology resources is a College-wide issue. The technology issues of interest to the Computer Science program include:

- a. Increasing the capacity of our computer-equipped classrooms. Class size is limited by the number of workstations available in a room, and sections are limited by the number of computer-equipped classrooms.

In early bond discussions regarding classrooms and standards, a move from computer labs with 24 work stations to 30 is being considered. Additionally, two other thoughts were discussed during the review: First, the idea of replacing larger, space consuming computer workstations with smaller lap tops, thus enabling more students to enroll in classes/labs currently designed for 24 students. And secondly, it was suggested that hybrid classes be explored as a way to maximize use of labs, particularly for Friday/Saturday class offerings.

- b. Increase the diversity of computer equipment in the classrooms to include Mac workstations, game consoles, and other technology specific to Computer Science courses.

With reduced funding coupled with sky rocketing enrollments, competition for limited resources is expected to continue for the foreseeable future. An avenue, though not immediate, to address this need might be the Bond. Again, please consult with your Division Dean and Administrative Liaison.

- c. Increase the availability of mobile devices for classroom instruction so that courses can include, for example, demonstrations of Android or iPhone software, multi-touch user interfaces, and other technologies specific to mobile devices.

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2. *Innovate class delivery and pedagogy to reduce student costs*

Reducing student cost increases student access to the Computer Science program. Many student expenses are beyond the scope of the Program, but a number of cost reductions are possible, including:

- a. Eliminating hardcopy textbooks in favor of electronic or online reference material.
- b. Using electronic distribution and submission of graded assignments and assessments to reduce paper use in the on-campus courses.
- c. Continuing to innovate on-campus course scheduling procedures to reduce conflicts with student work schedules, reduce travel and parking times, and improve the utilization of College resources.

The concept of a Friday/Saturday model was discussed and has come up in other venues. The DOIs will explore ways to 'incent' Friday/Saturday scheduling i.e., free parking and work to facilitate access to needed lab facilities.

3. *Increase faculty expertise in the discipline of Computer Science and the teaching of Computer Science topics*

The College has long recognized and supported the need for ongoing training of faculty, and Computer Science faculty expect to better utilize College resources to maintain their high level of expertise in the discipline with a focus to:

- a. Increase conference attendance to heighten awareness of current developments in the discipline. College resources available to support conference attendance are under-utilized by Program faculty.

We thank you for this thoughtful recommendation and encourage you to work with your respective Division Dean to develop plans to meet these needs. One approach could be to encourage attendance at conferences with respect to Article 5 "Professional Duties" section 5.12 "Remain current in their respective fields." Particularly for continuous appointment faculty, this could assist in mapping out a multi-year (3 yr) plan.

- b. Increase knowledge of current literature. College resources are available for journal and magazine subscriptions.

We encourage you to work with your respective Division Dean to identify and acquire journals etc to meet this need.

4. *Continue to implement innovative curriculum changes*

The core content of the Computer Science curriculum is determined by the needs of our transfer partners, but the Program has always included additional outcomes that reflect College or industry priorities. The Program can better reflect these priorities by integrating the following in our curriculum:

- a. Increase emphasis on collaborative skills needed for effective teamwork
- b. Increase emphasis on cognitive and creative skills to analyze problems and design solutions.
- c. Increase emphasis on engineering skills, for example
 - i. Project management
 - ii. Large program development (multi-source code)
 - iii. Source code and version control management
 - iv. Problem identification and debugging

We applaud you for your vision and efforts to implement innovative curriculum changes.

5. *Work with College leadership and the College community to expand outreach efforts to K-12 and industry stakeholders*

The College has expanded and improved its marketing and outreach capability since the last program review, and the Program seeks to utilize this expertise to improve outreach to K-12 students (particularly High School students) and employees in the local high-technology industry. In particular, we will

- a. Develop an outreach program for local K-12 students, particularly High School students, to ensure students are aware of the benefits of enrolling in Computer Science at PCC

We encourage your interests in reaching out to local K-12 students and suggest that in addition to visiting schools, you consider developing a hands-on event to attract students to the campuses.

- b. Develop an outreach program for local technology employees to support their academic advancement. Many of our existing students are employees seeking specific job skills or a degree that will improve their workplace value.

This is an excellent idea. Even though CS is transfer rather than CTE, you might consider developing an informal advisory group composed of key stakeholders with this purpose in mind.

- c. Develop district wide structure to promote interdisciplinary learning.

We heard and appreciate your frustrations when attempting to address student needs which fall outside of your SAC. There are some models which may be useful in addressing such needs: Gerontology and GIS. With regards to the more recent of the two (GIS) we suggest you contact: Karen Sanders ext 7085, Amy Alday-Murray ext 7814, Steve Smith ext 7815 and/or Matt Constantino ext 7808 for more information regarding the process used to create interdisciplinary cooperation. During these discussions Craig

Kolins noted that the State is considering “majors” for transfer degrees. CS would benefit from this and might be appropriate to serve as a pilot if/when this happens. The DOIs could lend support to this effort through the CIA.

We thank you for your review and the dedication each of you bring every day to help make your students successful.

Respectfully

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