**Administrative Response to Program Review**
**Computer Science Program**
**Prepared by Dr. Cheryl L. Scott**
**February 2015**

On February 6, 2015, the Computer Science (CS) SAC presented their Program Review findings to an audience of PCC administrators and others with an interest in the discipline. Both the written report and the presentation were informative. Your presentation provided an opportunity for engagement with those in attendance through an informative and interactive dialogue.

This Administrative Response will: A) note particular highlights of the Computer Science Program and Program Review; B) provide suggestions and observations; and C) provide the administrative response to the SAC recommendations.

## Noteworthy Efforts or Achievements

- The CS classes are all offered as Distance Learning courses. PCC's CS department was the first in the state to offer CS 250 and 251 online.
- Curriculum changes have been made to ensure the classes offered are up-to-date and reflect the needs of the students.
- Academic integrity measures have been expanded.
- Professional development for faculty including membership in ACM and IEEE.
- Changes made in class delivery to help reduce student costs for textbooks and printing.
- Work with the Learning Assessment Council to prepare and submit self-assessments. Ensures that the overall program addresses all core outcomes.
- Collaborative scheduling of classes between the campuses.
- Recruitment of more women to the STEM fields.
- Collaboration with other departments at the college including Music and Biology.
- Good analysis of the success and completion rates of classroom and distance learning classes.

## Suggestions and Observations

**Assessment of Student Learning Outcomes (Section 2) –** The CS Program Review did not adequately address assessment of student learning.

Section 2(a) Course Outcomes and Assessment – indicates that pedagogical changes were a result of ongoing assessment of student learning, but this is not suggested by the types of changes cited, except for the last example, which speaks only to the need to identify measurable outcomes.

More importantly, however, Section 2(c), which asked for a description of assessment design, a summary of results and examples of changes planned based on those results, was entirely omitted. Assessment reports have been regularly filed, but the Program Review is expected to have a brief description and summary of results.

We recognize the current issues your SAC is having with the alignment of course content and assessment with the college's core outcomes. We understand that is primarily due to the need to align the courses with Portland State University to ensure our students are prepared for transferring to PSU, but as an accredited institution, PCC has a responsibility to regularly and systematically assess our outcomes even for students who are moving on to a defined program. Since several of your non-core courses are options for General Education, the Core Outcomes are important for these courses as well. Given your close relationship with PSU, there seems to be an excellent opportunity to intentionally align assessment of student outcomes at the end of the CS core sequence with the expectations of PSU for students transferring in.

We also recognize your concerns that in order to prepare students for transfer, the sequence of classes does not align with collegiate curriculum guidelines published by the ACM or IEEE. Please continue to work with Portland State University to encourage curriculum changes.

Please consider reviewing the following program reviews to obtain good examples of assessment:

- World Languages (pp 9 – 19)
- Communication Studies (pp 11 – 19)
- ESOL (pp 12 – 18)

**We are requesting that you complete this section of your program review and submit it as an addendum. We would like to have this work completed and submitted to us by the end of spring term 2015**.

## Administrative Response to Computer Science Recommendations

1. **Additional classroom and lab space is needed. CS courses meet for 6 hours per week (3 lecture, 3 lab), and lab time should be scheduled in a computer-equipped classroom. The CLWEB format is not optimal for CS courses, and we would like all required contact hours in the classroom, and use online tools for optional supplemental instruction.**

   *We recognize the problem with a shortage of available classrooms at PCC. We understand from your presentation that CLWEB courses do not provide an optimal teaching opportunity for your students. If all CS faculty agree, we recommend you work with your division deans to identify potential space to ensure your classroom based classes are no longer offered using the CLWEB model.*

*In addition, there is a comment on page 27 of the program review that states "classes at Rock Creek are scheduled as space allows." This information is not accurate. CS has first scheduling rights for room 7/227 which is a computer equipped classroom. If the department decides to offer two classes during the same time frame, additional computer classrooms are available at the campus on a term-by-term basis.*

2. **Online support for students with disabilities needs to be improved, and this requires expanded support from Disability Services. The Disability Services group needs additional trained staff and resources to meet the demand for their services.**

   *The following response is based on information provided by Kaela Parks, the Director of Disability Services and Steve Beining, Manager, eLearning Instructional Technology, Distance Learning:*

   *Compliance for accessibility of fully online courses is a college-wide responsibility. College instructional leaders, instructors, online curriculum adopters, Distance Learning (DL) and Disability Services (DS) all play a role in ensuring accessible web content is provided to our students with disabilities.*

   *Accessibility requirements are driven by legal mandates; the college interprets the mandates, related case law, and responds by adjusting policy and practice accordingly.*

   *The Program Review reflects some potential misunderstanding about the roles of DS and DL in this regard.*

   *DS is tasked with facilitating the accommodation process, which means converting materials on an individualized case-by-case basis.*

   *DL reviews courses for alignment with Quality Matters and other standards and is also tasked with building awareness and educating others about how to meet the responsibilities within fully online courses. Just as accessibility standards are established in partnership with others; the DL department instructors, and others, need to work together to meet the standards.*

   *Clarity on the specific concerns, expectations and unmet needs would help inform a more focused Administrative Response.*

   *The CS program is encouraged to pursue the findings of the subject area accessibility study supported through the Distance Education Department and the Deans of Instruction. An accessibility plan should be developed and implemented to support students with disabilities. Additional information regarding roles and responsibilities in addressing accessibility can be found on the Distance Education accessibility website.*

3. **The procedures for scheduling and implementing Distance Learning classes needs to be streamlined. The dynamic environment of computer science requires the ability to add new Distance Learning sections, change instructors for existing sections, and add new Distance Learning instructors in a timely manner. The current process to approve new sections and instructors is slow and cumbersome.**

   *The following information was obtained from the Distance Learning Department: Current procedures for assigning new sections to online instructors allows for a timeframe of no less than six weeks prior to the term for a trained online instructor to prepare an existing online CS course to be taught. This timeline allows adequate time for late schedule changes. Exception requests are managed on a case-by-case basis for requests on shorter time frames. In instances when one of the CS departments may want to share an un-reviewed shell with a new instructor, the Distance Education department allows Division Deans to waive a recommended course review status allowing the course to be offered.*

   *We encourage the program to explore a regular cycle of self or peer reviews for online classes to help ensure that new faculty receiving copies of shared shells have a successful experience and that the SAC has confidence in the consistency of its online courses. Additionally, a collaborative effort could be formed with the Distance Education department to help address the specific needs of the CS program.*

   *Several departments utilize methods to mentor new online faculty through shadowing or team teaching in addition to the training offered through the Online Instructor Orientation (OIO). The OIO includes not only use of the D2L platform, but also addresses course design, accessibility, preparation to teach online, and provides instructors with the experience of being an online student. While the Distance Education department continues to explore modularization of faculty training, it also manages its staffing resources with available time and personnel.*

4. **Improved district-wide tutoring services should be available for CS students. Student Learning Center staff at Rock Creek are not able to support CS courses.**

   *During the program review, it was determined that tutoring is available at the Rock Creek Student Learning Center (SLC). Rock Creek does not the funding to have a dedicated lab for CS students like the one available at the Sylvania Campus.*

   *Danica Fierman, the RC SLC Coordinator, provided the following information: Computer Science support is provided at the RC SLC. It is not something students can expect to find all hours and all days. We have ensured that the appropriate programs are available on our computers (we needed to download a Web-based program that gives students access to what they need for many CS classes). Our Work Study student will continue next term. In addition, the CS tutor funded through the CS division should also be here next term. I think the question of CS student support in the SLC is a great one for exploring a larger question of what areas the SLC should support and who should fund*

*it. My overall approach has been to focus on gatekeeper subjects/courses that --hence our focus on math, reading, stats, sciences, basic computing... Accounting was already a subject we tutored when I started and because I've been able to find tutors who can both do accounting and math; I've been able to continue it.*

5. **Improved Linux system support and infrastructure. Neither TSS nor the Student Help Desk provide adequate support for Linux systems, and CS faculty address many support and system administration issues.**

*The following response is from Hank Schottland, TSS Division Manager: I'd like to set up a meeting to get a better handle on what kind of TSS support is wanted in this area. In general we focus on supporting desktop machines throughout the district, roughly 80% of which are PCs and the remainder are Macs. We have never been asked to support Linux desktop machines and so I'd be interested in learning more about the need.*

*The following response is from Andy Freed, TSS Manager: I can also add some info to recommendation 5 as well since I oversee the Student Help Desk, and we don't support any Linux distributions specifically (a challenge on its own given the variety of different options) or officially. The Student Help Desk gets calls from Linux users, but the vast majority of those calls are about support for Browser settings (Firefox & Chrome) or wireless connections. We have a couple staff who do their best to support Linux users, but we are unable to provide serious OS level support for any OS, not just Linux. For some perspective, here's a breakdown of our visitors to D2L by operating system.*

| *Operating System* | *% of sessions* |
|---|---|
| *Windows* | *66.30%* |
| *Macintosh* | *19.52%* |
| *iOS* | *7.83%* |
| *Android* | *4.74%* |
| *Chrome OS* | *0.93%* |
| *Linux* | *0.51%* |
| *Windows Phone* | *0.09%* |

*As you can see, we're talking about a very small number of users, easily surpassed by mobile users. We would be happy to discuss the changing needs of your department, but like many programs that have unique software or external content (e.g. publisher sites) needs, there is a limit to the support that we can provide as a team of less than 2 FT staff and a few casual/student employees.*

6. **Expanded student access to computer labs. Students need access to computer labs outside of class time in order to manage their course work.**

   *Please work with your division deans and TSS Campus Manager to ensure the Computer Resource Centers have the software needed so students are able to complete course work and have access to the computer labs outside of class time.*

7. **Improved ability to video record classroom sessions with full audio to support online learning. Distance Learning students, and online students in CLWEB courses, benefit from recorded sessions. Rock Creek and Sylvania have few rooms equipped with this capability, and making the recordings accessible to students with disabilities presents additional challenges.**

   *Please work with your division deans and Media Services to identify equipment and classrooms that will support recording lectures for your classes.*

8. **Increased schedule flexibility. CS needs to split lecture and lab sessions into separate CRNs to allow students greater flexibility in their schedule. This will require changes in faculty workload calculations and compensation.**

   *The RC campus routinely separates CRNs for lectures and labs in most of the sciences including Computer Science. Please work with your division deans to determine if there is something else needed in this area regarding increasing schedule flexibility.*

9. **Improved student access to textbooks. Textbook shortages prevent some students from having access to textbooks. A more responsive purchase process or expanded use of electronic textbooks (purchase or rental) is needed.**

   *We recommend you research Open Educational Resources (OER) through the PCC library and TLC sessions. These resources are freely accessible, openly licensed documents and media that are useful for teaching, learning, and assessing. Some faculty at PCC are now using OER for class materials in lieu of using textbooks.*

   *In addition, Ken Brown, PCC Bookstore Manager, recommended the following: "CS historically has a very low sell though ratio relative to enrollment. The only exception to this is CS 160 with an average sell through of 57%. All of the other courses offered have a sell through ratio of less than 50%. We usually have excess inventory at the end of the prior term and we add to that with buyback and reorders. This is one discipline that we seldom are out of stock going into a term. We are also able to procure used copies fairly quickly. The larger issue regarding access to textbooks at the beginning of the term usually has to do with availability of financial aid. Any delays or problems with a student's Financial Aid may result in not being able to secure the materials at the*

*beginning of term. Fortunately, Financial Aid has mechanisms in place to reduce this problem."*

10. **Improved CS advising. Transfer requirements vary by institution, and many PCC advisors are not able to provide CS students with accurate advising information.**

    *Faculty have a critical role to play in advising students. PCC general advisors help students with course selection and help students determine which degree they would like to pursue. The Curriculum Office maintains Transfer Guides indicating how PCC's Computer Science courses transfer to various 4 year colleges and universities. When Computer Science faculty become aware of curriculum changes at 4-year public or private colleges and universities, it is helpful to let our Curriculum Office know this information.*

    *CS faculty were invited to send a representative to participate in the Professional Learning Communities program mapping work with PSU that was part of the recent Oregon Metro Connects grant. PCC CS faculty did not attend the two major PLC meetings, but we understand from the two PSU faculty that attended that collaboration is ongoing. We hope PCC faculty interests and concerns are in the program maps and agreements (which will include strategies for maintaining the currency of maps, and may include additional transfer requirements.)*

11. **Greater flexibility in software licensing. CS students often have capable personal computers, but lack some licensed software that is available on PCC lab and classroom computers. Negotiating software licenses that allow CS faculty to pre-configure virtual machines for student home use would increase student success and increase student access to course software.**

    *The following response is from Hank Schottland, TSS Division Manager: We have different kinds of software license agreements with different vendors - some allow unlimited use across the board, including home use, others are more restrictive. In the meeting suggested above (recommendation 5), we could talk about what specific apps are available in labs/classrooms but not for student home use, then I can research the current contracts and see what's permitted.*

12. **Improved support for mobile devices in PCC's online environment. CS has observed an increase in the use of mobile devices. Online course in the Desire2Learn environment are optimized for desktops (large monitor, mouse, keyboard, password security) rather than a mobile device (small display, touch interface, biometric or location based security).**

    *The following response is from Andy Freed, TSS Manager: Regarding Recommendation 12, I can only respond to what Distance Education has done to support the growth of*

*mobile access (which has doubled almost annually). Distance Education has been planning for the arrival of mobile users for several years, and has already adopted platforms and made decisions to support access by mobile users.*

***LMS***

*Desire2Learn (D2L), our learning management system, is available in either a desktop or mobile interface. The mobile interface isn't as fully featured as the desktop interface, but allows access to the most common tools (content, discussion, calendar, news, and grades). We still dissuade students from using mobile devices for quizzes and dropbox. These tools are however accessible from the "desktop" version on a mobile device. D2L also provides some actual mobile apps that are more focused on specific tasks; Assignment Grader for instructors, and ePortfolio for the small group piloting that tool/methodology. Both are currently used by a small group of users.*

***Content***

*Our Distance Learning template going back for several years was selected with both responsive design and accessibility in mind. The template is designed to fit whatever screen size you are on (unless you have selected content that is too large, like big screen shots, etc.), and is usable on desktops, tablets, and mobile phones. If content is not in our responsive template, or is in Word Doc or PDF, it will be awkward for students to access from a mobile device.*

***Other platforms***

*We also selected a streaming video platform that would support mobile devices (and captioning) via HTML5-based players. Videos hosted on Kaltura or on the PCC You Tube channel can be viewed on mobile devices using 3G or higher network speeds. This functionality is not available when content is hosted on the Spot server.*

*Blackboard Collaborate, our web conferencing tool, also has a mobile application for iOS, Android and Windows. The application works so well that we often steer students to use it over the Java-based desktop version. The mobile application is designed for participants, not presenters, so it cannot support video at this time.*

*In Distance Education, we are eager to help instructors explore the options for making their courses more mobile friendly. While there will no doubt be discussion over the "limited pedagogy" of a mobile interface, the fact remains that it is the primary screen for many of our students, and exploring a mobile-friendly modality goes hand-in-hand with many of our accessibility practices.*

## Closing

In closing, we want to again thank the Computer Science SAC for sharing the results of your program review with us. We appreciated learning more about the discipline of Computer Science, your challenges, successes and plans for the future. We look forward to supporting your on-going work on continuous program improvement.

Administrative Response submitted by Cheryl L. Scott, on behalf of the Deans of Instruction and Dean of Academic Affairs.

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