

MSU Departmental Assessment Report Fall 2013

Department: Computer Science

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Degrees/Majors/Options Offered by Department

- B.S.
 - Professional Option
 - Interdisciplinary Option
- M.S.
- Ph.D.

Computer Science Assessment Report – What happened in AY 2013

During the past year, the department collected the following information:

1. Course evaluation summaries for Fall Semester 2012 and Spring Semester 2013 courses.
2. A graduating senior survey summary, constructed by Carolyn Plumb, conducted in April 2013.
3. A custom designed, graduating senior exam that graduating seniors took at the end of Fall 2012 and Spring 2013. The exam is designed to measure how well our graduating seniors are meeting our expected program outcomes.
4. Portfolios from students taking the professional option capstone (CSCI 468, Compilers) and interdisciplinary option capstone (CSCI 483, Interdisciplinary Project). These portfolios provide evidence about how well students are meeting our expected program outcomes.
5. Information that shows how faculty incorporated change recommendations from a year ago into AY 2012-2013 courses.

This information was distributed to all CS faculty and staff in advance of our annual retreat on August 19, 2013. Recommendations were then formulated at a departmental meeting on August 29, 2013.

Changes Based on Custom Exam Performance in AY 2013:

The desired performance level on the following questions was not achieved by our Fall 2012 and Spring 2013 graduating seniors:

- Question 1 (mergesort) – This was also a weakness each year 2010 - 2012.
- Question 2 (quicksort) – This was also a weakness each year 2010 - 2012.

The desired performance level was borderline on:

- Question 7 (volunteering)
- Question 8 (professional development)

Therefore, we identify Question 1 and Question 2 as having deficient performance. At a departmental meeting on August 29, 2013, the faculty discussed these questions and decided to proceed with the following recommendations. The first three are continuing recommendations from 2012.

- Time complexity and statement counts will have graded assignments in CSCI 132, CSCI 232 and CSCI 468 during the upcoming year.
- Recurrence relations will have graded assignments in CSCI 232 and CSCI 246 during the upcoming year.

- All instructors are aware that these topics (time complexity, statement counts, and recurrence relations) are difficult for our students and will incorporate them when relevant in undergraduate courses.
- Students in CSCI 481 will be provided with a study sheet that lists the types of potential topics that might occur and includes practice questions.

At the end of the academic year, relevant instructors will be solicited to provide specific examples of how these items were addressed.

The CS faculty decided that the one-time borderline performance on questions 7 and 8 is most likely due to students not fully understanding how to develop the estimates. The instructions will be modified to provide students with (1) more concrete examples of each type of activity and (2) a methodology to produce an estimate.

Changes Based on Portfolio Performance in AY 2013:

The desired performance level on the following indicators was not achieved by our Spring 2013 seniors:

- Indicator 2, Teamwork (Interdisciplinary Option)
- Indicator 4, Technical Writing (Professional Option Students) – Also 2012

At a departmental meeting on August 29th, the faculty as a whole discussed these results and made the following recommendations:

- Teamwork. Students in 482/482 were asked to complete their capstone projects individually last year because only 3 students were enrolled. In 2013, 10 students are enrolled and will be asked to work in pairs.
- Technical Writing. The compilers instructor was asked to incorporate a small (1-2 pages), meaningful writing assignment into the compilers portfolio requirements last year so that the technical writing skills of the professional option B.S. students could be evaluated. The instructor forgot and promised to do so in the Spring 2014 offering.

Other Significant Changes:

- To better help students in our lower division classes succeed, we have remodeled EPS 254 into a desirable, collaborative 24/7 student success center. Although the remodel is still in progress, GTAs, Sonderegger recipients, upper division students and members of our AWC and ACM clubs are collectively providing approximately 50 hours per week of tutoring.
- To better serve students who wish to explore CS as a potential major and minor but do not have much prior experience, we have introduced a new course, CSCI 107, The Joy and Beauty of Computing. The course is being piloted at MSU during Fall 2013 and will be team-taught at Bozeman High in Spring 2014 as a dual enrollment course.