

Master of Science with a Major in Computer Science

Assessment Committee: Dr. Robert Reynolds, Dr. Thaeer Jayyousi, Dr. Loren Schwiebert, Stephanie Chastain, and Olubukola Akintoroye

Dear Computer Science Master's students and Supporters:

In our mission to continuously improve the Computer Science M.S. program over the past year, the Department of Computer Science Assessment Committee collected information about the ongoing M.S. educational activities in our Department. The period over which the data used in this report was collected spanned from 9/1/2015 to 8/31/2016. Further data collection activities for Fall 2016 and Winter 2017 are currently underway. This task could only have been done with the full cooperation of Faculty, Lecturers, Part-Time Instructors, Graduate Teaching Assistants, Students, and Staff.

The data was collected in regard to four important Program Learning Outcomes (PLO) that were identified by our Faculty. They are:

1. (PLO 1) The ability to analyze a problem, identify, and define the computing requirements appropriate to its solution, and to produce a corresponding implementation.
2. (PLO 2) The ability to understand the fundamental questions relevant to state-of-the-art research in a selected sub-discipline as presented in CSC 7000 level courses.
3. (PLO3) The ability to advance the field in the core subject areas through the production of new software, algorithms, and models as documented in peer-reviewed publications in the field.
4. (PLO4) The ability to pursue lifelong learning activities that will allow them to successfully adapt to evolving technologies throughout their professional careers.

The information used to assess the accomplishments of students in the M.S. program come from the following requirements that all students need to satisfy in order to receive their degree. The analysis of the resultant data produced the following observations with regard to each of the PLOs mentioned above:

1. (PLO 1) This outcome was assessed using the results from CSC 6500 (Programming Languages and Automata) and CSC 6580 (Algorithms) given in the fall of 2015 and the

Winter of 2016. Altogether 68.9% of the M.S. students who took the two courses in the fall received a “B” or better. This outcome approaches the standard for the Department which was set to 70%. In the 2016 winter term 74% of the students achieved a “B” or better. This met the standard of 70% and slightly exceeded it.

This failure to meet the expectations of the Department in the fall meant that some students taking the courses did not have sufficient background in their B.S. courses to compete successfully at the Masters level when they arrived on campus. This result suggested that the Graduate Committee, which is in charge of the admittance of students into the program, needs to pay more attention to the quality of the programs from which students are coming, along with their performance in related courses in their Bachelor’s program. If a candidate is seen to lack sufficient background in an area, prerequisites should be required and enforced. This policy was enforced at the start of the 2016 winter term.

The fact that the Department’s expectations were exceeded in the 2016 winter term suggested that the new policy was successful. The long term impact will be observed in the fall of 2016.

2. (PLO 2) This outcome was assessed in the Fall of 2015 using the results of two selected CSC 7000 level courses. Those courses were CSC 7430 (Electronic Commerce) and CSC 7825 (Machine Learning). They were selected due to the high number of Master’s level students who took each. In the 2016 winter term the selected courses based upon their popularity with M.S. students were CSC 7800 (Artificial Intelligence II) and Advanced Database Systems (CSC 7110). Both of these courses were follow up courses to courses offered in the fall.

In the fall of 2015 around 86% of the M.S. students who took the two courses received a “B” or better. This greatly exceeded the standard expectation of 70% set for this PLO. In the winter term 80% of the Masters students taking the two courses received a “B” or better. This also greatly exceeded the standard expectations for this PLO.

Given the results of the assessment it was decided that no new action plan need to be taken based upon this PLO. Four different sub-disciplines were tested in the fall and the winter terms. Future samples will be taken from other sub-disciplines as well in order to assure uniformity across the board.

3. (PLO 3) This PLO was assessed using student papers produced in the CSC 8990 student seminar, along with M.S. Theses, and papers published by Masters level student in peer reviewed journal and conference publication.

In the fall of 2015 only the results of the CSC 8990 Graduate Seminar were available. Based upon the results from that course, 97% of the Masters students who participated in the course received a “B” or better. This result strongly exceeded expectations. Likewise, in the winter of 2016, 91% of the Masters students in CSC 8990 received a “B” or better. This again strongly exceeded expectations.

While the results overall were above expectations, the number of students participating in research related activities that led to M.S. theses and related publication was lower than expected. Beginning in the winter of 2016 the faculty were encouraged to recruit Masters level students in their sub-field who were interested in actively pursuing research in their sub-areas.

To that end the Associate Dean of Research in the College of Engineering, Simon Ng, was invited to address a Faculty meeting with regard to the increased recruitment of Masters level students.

4. (PLO 4) This PLO was added in the fall of 2015 which was too late to begin its assessment during this period. It will be assessed beginning in the fall of 2016.

In summary, two key issues for improvement were identified in the current assessment period:

1. First, more attention needs to be paid to the program background of incoming Masters students by the Department in order to ensure their success and retention.
2. Second, Faculty need to increase their efforts to recruit additional Masters level students in their research areas and encourage their involvement in research through the production of new software, papers, and theses. Faculty need to identify programs that are likely to provide such students and actively recruit them.

Action plans were put in place by the fall Of 2016 to support these initiatives.

With great appreciation for all of our students, and program supporters,

Dr. Robert G. Reynolds, Thaer Jayyousi, Loren Schwiebert (Interim Chair), Stephanie Chastain (advising staff), and Olubukola Akintoroye (student assistant).

