Program and Learning Outcomes and Assessments

Program: M.S. in Computer Science

Computer Science M.S. Assessment Indicators

1. Graduate Oral Exams
2. Graduate Projects
3. Graduate Theses
4. Computer Programs/Projects, Papers, Exams, and Presentations in Graduate Classes

Computer Science M.S. Program Outcomes

Program Outcome I:
To continue seeking external funding to provide additional support for faculty, graduate students, and computing infrastructure.

Assessment method:
At the end of each school year, we will evaluate our efforts to pursue external support.

Results:
We have been successful in encouraging faculty to pursue and secure external funding. In the last three years we have submitted more than ten grants resulting in almost $400,000 of external support for faculty, graduate students, and cyber infrastructure.

Action Plan for 2005-06 Based on Results:
We will continue to encourage faculty to pursue external funding to support their research and computing needs and will devote time in faculty meetings to identifying specific areas of focus for our program where we believe we can be most successful in obtaining external funding.

Program Outcome II:
To maintain an average of at least 5 M.S. graduates per year.

Assessment method:
We track the number graduates on an annual basis.

Results:
We are currently graduating at least 5 M.S. students each year.

Action Plan for 2005-06 Based on Results:
We will evaluate the progress of our current graduate students to make sure we are maintaining adequate throughput.
**Program Outcome III:**
To foster an environment supportive of research and scholarship among the faculty graduate students.

**Assessment method:**
We will measure and evaluate the scholarly activity of our faculty and graduate students at the end of each school year. We will look at technical report production, conference participation (attendance, paper submissions, and presentations), and journal articles submitted, published, or reviewed.

**Results:**
This is the first year for this outcome.

**Action Plan for 2005-06 Based on Results:**
We will define appropriate mechanisms for measuring our progress on this outcome.

**Program Outcome IV:**
To increase participation in SURGE, the 5-yr B.S./M.S. program, to an average of 2 students per year.

**Assessment method:**
We will track participation in the SURGE program from year-to-year.

**Results:**
This is the first year for this outcome.

**Action Plan for 2005-06 Based on Results:**
We will increase publicity of the SURGE program and will ask our advisors to inform our qualified undergraduates about it.

**Computer Science M.S. Student Learning Outcomes**

**Learning Outcome I:**
All M.S. candidates in Computer Science will be able to demonstrate a breadth of knowledge across the discipline and a depth of knowledge in their area(s) of interest.

**Assessment method:**
Each candidate’s knowledge is tested during his/her oral exam (course option), project presentation (project option), or thesis defense (thesis option). Candidates in all three options are asked both depth and breadth questions.

**Results:**
All students have successfully completed the breadth and depth components of their oral examination/presentation.
Action Plan for 2005-06 Based on Results:
The graduate faculty will review current and alternative evaluation procedures and will implement a more formal technique for documenting assessment of this outcome.

Learning Outcome II:
All M.S. candidates will demonstrate effective written and oral communication skills.

Assessment method:
All M.S. candidates will give oral presentations to both students and faculty during graduate student seminars and in multiple classes, will write and distribute abstracts of the presentations, and will write papers and literature surveys in multiple courses. Progress on this objective will be reviewed annually by the graduate faculty.

Results:
This is the first year for this learning outcome.

Action Plan for 2005-06 Based on Results:
We will be putting together a writing guide to distribute to the graduate students. We will also be starting a program through which graduate students will practice oral presentations and receive constructive feedback from faculty.

Learning Outcome III:
All M.S. candidates in Computer Science will demonstrate an ability to critically analyze and synthesize research in the discipline.

Assessment method:
This skill will be demonstrated through participation in reading groups and through the completion of literature surveys across multiple courses and for the thesis (if applicable).

Results:
This is the first year for this learning outcome.

Action Plan for 2005-06 Based on Results:
The graduate faculty will perform a review of courses requiring research analysis and synthesis to ensure that the M.S. students acquire sufficient research skills. We will discuss alternative ways to measure and evaluate performance in this area.

Process for Analyzing and Using Assessment Results

The graduate computer science faculty will review the assessments and make recommendations addressing identified weaknesses. These recommendations will be discussed and voted on, if necessary, during departmental faculty meetings.
Examples of Recent Assessments and Improvements

In regard to Program Outcome I, after a review of recent grant submissions, we decided that, given the size and experience of our faculty, our funding rate would be improved by focusing our graduate research program more tightly on a smaller number of research areas and by seeking collaborations with researchers at other institutions with established programs in those areas. We are currently pursuing external funding with collaborators at Duke University and Vanderbilt University.

In regard to Learning Outcome II, observed weakness in both oral and written skills led to the decision to provide structured guidance in writing and practice in presenting.