

**UNIVERSITY OF SAN FRANCISCO**  
**College of Arts and Sciences**

**MS in Computer Science—Program Assessment Plan**

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**Program Goals**

Students who complete the Masters of Science in Computer Science will be able to demonstrate:

1. An understanding of advanced topics in computer science, including software engineering, algorithms, artificial intelligence, programming languages, parallel computing, and low-level systems
2. The ability to design, implement and debug large-scale applications
3. The ability to evaluate and understand advanced research from computer science literature
4. Effective communication and team participation skills with respect to software development.

**Learning Outcomes**

\*\*Note: at this point, outcomes are restricted to those classes required of all MSCS students.

- Be able to describe and effectively apply modern software engineering principles on actual projects.
- Be able to design, prototype, implement and debug large-scale software projects, including developing and maintaining project timelines and meeting deadlines.
- Be able to effectively evaluate relevant literature in determining solutions and approaches for software development.
- Be able to explain developed solutions in both written and oral form.
- Be able to work effectively as a team and exhibit satisfactory group participation skills.

**Assessment Methods**

\*\*Note: MSCS students are required to take two classes: CS601 and CS690; other requirements are satisfied by electives. As a result, this assessment will focus on these classes. CS601: Object-oriented Software Development is typically taken at the beginning of a student's career, while CS690: Master's Project, is a capstone course typically taken in the final semester. Some outcomes are contained within both classes; this will allow us to longitudinally track student learning and make inferences about the effectiveness of the elective program in satisfying these outcomes.

**Curriculum Mapping**

- Outcome 1: CS601, CS690
- Outcome 2: CS601, CS690
- Outcome 3: CS690
- Outcome 4: CS690

## **Rubric**

- Outcome 1: Students in both CS601 and CS690 are asked to implement a large-scale project as a large portion of their grade. We will use the portion of the grade specifically linked to the satisfaction of this course objective as a metric.
- Outcome 2: As with outcome 1, this is a large portion of the students' grades in CS601 and CS690, so we will use the portion of the students' grades relevant to this objective. In both cases, the instructor will be asked to specifically and separately evaluate the portions of the project relevant to the outcome.
- Outcome 3: Students in CS690 are required to provide a written report documenting their project and give an oral presentation. Grades from these tasks will be used as a metric.
- Outcome 4: Students in CS690 are specifically required to work in groups, and will be evaluated on their group interaction both by the instructor and by each other.

## **Time Frame**

- May, 2009 - Assessment for CS601 in place. Department will have an initial meeting to determine if the rubrics are appropriate and if outcomes are being met.
- May, 2010. Initial assessment for CS690 in place. CS601 assessment continues. At this point we will have three semesters of data for CS601, which will allow us to make better determinations about how learning outcomes are being met in this course.
- May, 2011. Assessment for CS690 and CS601 continues. At this point, we will have two years of longitudinal data on students, which will allow us to make some conclusions about the overall effectiveness of the program at satisfying learning outcomes.

## **Who Will Do The Assessment?**

Assessment will happen at the end of each semester and will be managed by the instructors of the relevant courses.

## **Data Usage**

We plan to use this data to help reshape our curriculum, including deciding whether to make additional classes required, in deciding how to effectively monitor and place students entering the program with deficiencies, and how to best track student progress.