



# Assessment Form

**Department:** Computer & Mathematical Sciences

**Degree Program:** Applied Mathematics [2006-2007]

**Learning Outcome Goal:** *(one per form)*

Graduates will have experience with a variety of technological tools in math settings.

**Assessment Procedure** *(Include identification of who is responsible for conducting this assessment and the date on which it was completed):*

**Indirect Assessment (Pre-Assessment):**

In Applied Math (AM) committee discussions of this learning outcome, several faculty reported using Computer Algebra Systems (CAS) in upper level math courses such as Numerical Methods, Differential Equations, and Math Modeling. The faculty assumed students had no prior knowledge of a CAS and invested class time to teach the necessary software skills. These type problems were not being assigned in each class and so every student was not gaining experience with a CAS. Other faculty expressed interest in assigning problems utilizing a CAS if students had prior experience.

These discussions are reflected in the committee minutes of February 15, 2006, March 29, 2006, and January 26, 2007.

**Direct Assesment (Post-Assessment):**

At the end of spring 2008, the Math 2301 instructor will provide random samples of relevant work to the committee for review.

Beginning in fall 2008, students in math courses at the 2000-level or higher will be expected to use technology skills to complete assignments, as appropriate. Faculty teaching Math 3301, 3308, 4301, 4304 and 4315 will report on course assignments that utilize technology and whether or not the prior preparation of students was sufficient. Specifically, faculty in these courses will provide random samples of relevant student work to the committee at the end of fall 2008.

The entire AM committee will be responsible for reviewing the samples and the AM chair will report their findings in writing to the CMS department in spring 2009. This report will also be available to the entire committee in a shared electronic folder (on the Y-drive).

**Assessment Results** *(Be as specific as possible):*

Indirect Assessment Result: Problems utilizing a CAS were not being experienced by every student in this program. The CS II requirement in the program was not meeting these needs and the full course syllabus in CS II would not allow this learning outcome to be added to the course.

Direct Assessment Result: This will be determined after the Direct Assessment Procedure is completed.

Use of Results: (Include dates of actions taken).

CSII was replaced with a new required course Math 2301 (*Introduction to Computational Mathematics*) that was proposed and developed in spring 2007. Students in this course will gain experience with a variety of mathematical software like MatLab, Mathematica or Maple for use in math settings. The course is being offered for the first time in spring 2008.

These discussions are reflected in the committee minutes of March 29, 2006, January 26, 2007, and February 16, 2007.

Meeting Notes (*List dates of meetings when assessments results were reviewed and analyzed and decisions made regarding how results could be used to improve program quality. Beginning in 2008, the attached meeting notes template should to record what took place at all assessment meetings. Meeting notes are to be maintained by the Department.*)

Meeting dates: February 15, 2006; March 29, 2006; January 26, 2007; February 16, 2007.