

MAJOR PROGRAM ASSESSMENT PLAN

Applied Mathematics 0719

Department Mathematics (2010)

Student Learning Goals/Objectives	Courses Resulting in Outcomes/Goals	Activities Resulting in Outcomes/Goals	Assessment Measures/ Criteria/Rubrics	Timetable
<p>COMMENTS:</p> <p><i>What we expect students to be able to do.</i></p> <p><i>Some students may be too early in their program to have achieved a specific learning goal/objective. The assessment rubric will take this into account.</i></p>	<p>COMMENTS:</p> <p><i>Any courses in the Applied Mathematics Program in which students might do activities that would contribute to them achieving the goal/objective.</i></p>	<p>COMMENTS:</p> <p><i>This list is made from current teaching practice. It is not exhaustive or prescriptive.</i></p>	<p>COMMENTS:</p> <p><i>Ways in which student success of the program can be measured with respect to students achieving the goals/objectives. In some cases, this is a description of what instructors already do. We are introducing the concept of "student portfolio" during Fall 2010, which will help us implement effective assessment rubrics.</i></p>	<p>COMMENTS:</p> <p><i>The year, on a rotation basis, when the assessment will take place.</i></p> <p><i>Plans for collecting, evaluating and archiving student work.</i></p> <p><i>AMP students will maintain a portfolio with the information needed for the assessment under the guidance of their academic advisor.</i></p>
<p>1) Master the subject matter, which includes mastery of mathematical ideas as well as techniques.</p>	<p>All AMP courses contribute to this item.</p>	<p>Students are required to answer a series of questions in writing after each topic is covered in class. Special projects that require written work and oral presentations are often done depending on the instructor. All AMP students write a small thesis project in MAT 495, which is presented in at least one student event.</p>	<p>Grades from the final exams in AMP courses are a relative measure of mastery of the subject matter. We are developing a rubric to evaluate answers to some final problems to measure this goal item. The thesis project from the required capstone course MAT495 will be evaluated with a rubric that is being developed at the moment.</p>	<p>Year 1 (school year 2010-11). Advisors will collect the required information. Rubrics for evaluation are being developed.</p>

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2) Understand the nature of quantitative and qualitative reasoning.	All AMP courses contribute to the understanding qualitative reasoning. Qualitative reasoning is stressed primarily in courses that require Mathematical Modeling projects like MAT 241, 318, 319, 320, 381, 382, 383 and 495.	Students are required to solve computational/quantitative problems after each topic is covered. Special projects that require qualitative thinking are often assigned. All AMP students write a small thesis project in MAT 495,	We are developing rubrics to evaluate answers to some final problems, special projects and the thesis project from the required capstone course MAT495 to measure this goal item.	Year 2 (school year 2011-12). Advisors will collect the required information. Rubrics for evaluation are being developed
3) Master computer tools to experiment with mathematical concepts, implement mathematical models and analyze data.	Calculus I, II, and III computer labs and the 2 sequence course in computational tools introduce students to computers. Several upper division courses assign projects that use computers.	In the Calculus labs students are required to use Mathematica and the TI-84 calculator to experiment with Mathematical concepts. In the Computational Tools class students do projects all of which require the use of a variety of computer tools.	Grades in the final assessment for the Calculus labs and the Computational Tools course. We are developing rubrics for evaluating sample projects from these courses.	Year 3 (school year 2012-13). Advisors will collect the required information. Rubrics for evaluation are being developed.
4) Communicate his/her mathematical ideas and results, both orally and in writing, with clarity and precision, to experts as well as to non-experts in the field.	The Computer Tools sequence, and most upper division courses contain assignments that require writing reports and do presentations. In particular the capstone course MAT495 require students to write a thesis project and do oral presentations.	Students are assigned writing projects. The capstone course requires students to write a thesis project and to present it orally.	We are developing a rubric for evaluating how successful students are learning this particular goal/objective.	Year 4 (school year 2012-13). Advisors will collect the required information. Rubrics for evaluation are being developed.
5) Be able to relate mathematical ideas and techniques to other disciplines.	The Computer Tools sequence, and most upper division courses contain assignments that are highly multidisciplinary in nature. In particular, the capstone course MAT495 has a project that is multidisciplinary.	Students get assignments that relate mathematics and other disciplines.	We are developing a rubric for evaluating how successful students are learning this particular goal/objective.	Year 5 (school year 2012-13). Advisors will collect the required information. Rubrics for evaluation are being developed.