MATHEMATICS

Mission and Structure

Mathematics while an exact science is also a creative art and a language essential to understanding our technological world. Our program emphasizes general training in the modes of reasoning and techniques of this science. Not only do we prepare students majoring in mathematics for a wide variety of careers, but we also provide training to students not majoring in mathematics.

Our mathematics curriculum is taught in a liberal arts setting where students are expected to examine the importance of mathematics in our world and our society. By learning mathematics in a liberal arts environment we prepare students not only to use mathematics to solve problems but also to consider the ethical and moral implications of the solutions they present.

The curriculum structure contains the four components:

1. foundation courses in Calculus, (Math 151, 152, 253), Linear Algebra, (Math 241), and Discrete Structures (Math 260).
2. course in computer programming (Comp 161 or equivalent).
3. completion of one of four possible tracks
   - Applied: Math 254, 301, 323
   - Statistics: Math 207, 339, 345
   - Graduate School Preparation: Math 301, 311, 317
   - Secondary Education: Math 207, 317, 339
4. a capstone experience in Mathematics Modeling, Math 330.

The mathematics program complements the general education curriculum of the college by providing:

1. tools used by other disciplines.
2. making connections between mathematics and the real world.

The mathematics program prepares students for rich professional lives (Monmouth College Statement of Purposes 1). The program endeavors to foster the discovery of connections between the discipline and larger patterns of meaning and understanding of our world (4B). We foster and promote intellectual inquiry and critical analysis by each student (7). We seek to develop creativity and skills in problem solving which are both written and orally communicated (8). We help students understand the methods of inquiry in the sciences and social sciences (9).
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<tr>
<th>Program Objectives / Outcomes</th>
<th>Most Relevant Course</th>
<th>Assessment Measures</th>
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<tbody>
<tr>
<td>1) To acquire a base knowledge in mathematics consisting of definitions, notations, concepts,</td>
<td>151, 152, 241</td>
<td>Final Exams</td>
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<td>and techniques associated with various areas of mathematics.</td>
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<td>2) To be able to apply mathematical techniques to solve problems.</td>
<td>152, 254, 330</td>
<td>Presentations and written projects</td>
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<td>3) To make connections between mathematics and the real world.</td>
<td>207, 254, 330</td>
<td>Written Projects</td>
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<td>4) To communicate mathematical ideas.</td>
<td>207, 253, 330</td>
<td>Project, Class Presentations</td>
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<td>5) To be able to reason formally in mathematics.</td>
<td>260, 301, 311, 317, 339</td>
<td>Exams, Final Exams &amp; Homework Assignments</td>
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<td>6) Overall assessment of the Math major.</td>
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<td>Transcript narrative and an exit interview.</td>
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General Yearly Timeline for the Department’s Assessment

Before or near the start of the Fall semester, the department will review last year’s assessment. At that time, we will review and make any changes to our Specific Assessment document. In our Specific Assessment document, we list exactly what we will assess for each outcome, the course, and a brief description of how we will do the assessment. The Specific Assessment document is an internal document.

The department maintains an “Assessment Course Booklet” in the Public Folders area. For each course in the major, the faculty member who regularly teaches the course has created a brief description of the course, current textbook used, brief comments about the course, and a syllabus. Some include past grade distributions. If a course is listed in the Specific Assessment document, then a detailed description of what is being assessed and assessment measure that will be used is included in the document.

At the end of each semester, faculty members who are teaching a course used in assessment will summarize their assessment for the semester.

Faculty who teach Math 330 will give the transcript narrative and exit interview and summarize the findings.

Summaries of the past year’s assessment will be discussed at the Fall meeting.