



# Academic Learning Compact

## Mathematics

### Program Mission Statement

The mission of the Department of Mathematics and Statistics is to provide an excellent education for students in mathematics and statistics, to focus scholarly efforts on expanding our knowledge of those two disciplines, and to participate in activities that promote mathematics and statistics in relevant ways. Our programs are designed to provide majors and graduate students with the background necessary to pursue quantitative careers in mathematics or statistics as well as the background to pursue more advanced degrees. We also strive to provide students in General Education mathematics courses with substantive skills in quantitative and abstract reasoning and in the use of mathematics and statistics as computational and analytical tools.

Our courses are designed to educate in an appealing and thought-provoking manner. We strive to instill our students with an appreciation for the power of mathematics and statistics as well as a desire to be lifelong learners. Department faculty are encouraged to engage in research projects that either yield new results in their areas of expertise or that apply to problems of interest to scholars in other disciplines. Department faculty are also encouraged to be involved in meaningful professional service to the university and the disciplines regionally, nationally, and internationally. In addition, all of our endeavors are subject to self-reflection in an effort to maximize their effectiveness.

### Student Learning Outcomes

#### Graduates will be able

##### Content/Discipline-Specific Knowledge/Skills

- Recognize and apply principles of abstract mathematics to solve abstract algebra problems and advanced calculus problems
- Recognize and apply principles of applied mathematics to solve calculus problems, differential equations problems and probability problems
- Compose coherent and correct proofs

##### Communication Skills

- Explain mathematics verbally
- Explain mathematics in writing
- Write coherent and correct proofs and solutions to problems

##### Critical Thinking Skills

- Recognize connections within mathematics in order to solve problems in one area of mathematics using techniques from other areas of mathematics
- Solve complex mathematics problems.
- Create and use mathematical models

### Assessment Approaches

We used embedded assessment in relevant required major and elective courses during the academic year (MAA 4211, MAA 4212, MAA 4402, MAS 4301, MAD 4401). Course instructors graded final exam questions to assess content and critical thinking skills. We used the capstone paper and capstone presentation to assess writing and oral communication. Two professors read each paper and assessed it via a rubric developed by the department. Faculty also listened to and using a department rubric evaluated student presentations. The chair collected the data. The chair compiled this information and produced the report below.

For each category using embedded assessment, the total number of answers in each category (3, 2, 1) was computed. Then the percentages for each category were computed.