



# Graduate Academic Learning Compact

## Mathematical Science

### Program Mission Statement

The mission of the graduate program 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 prepare students for high-level quantitative careers and for discipline-related Ph.D. programs. Our courses are designed to immerse students in graduate-level mathematics and statistics and to promote independent thinking in students. We strive to instill in students who interact with us an appreciation for the power of mathematics and statistics and a desire to be lifelong learners and practitioners in mathematics or statistics. Graduate Faculty are to engage in research projects that yield new results in their areas of expertise or that apply their knowledge to solve problems of interest to scholars in other disciplines. Graduate Faculty are also to be involved in meaningful professional service to the university and the disciplines regionally, nationally, and internationally. All of our endeavors will be subject to self-reflection designed to maximize their effectiveness.

### Student Learning Outcomes

#### Graduates will be able to:

##### Content/Discipline Knowledge

- 1. Solve pure and applied mathematics problems by
  - a. recognizing and applying principles of abstract mathematics to solve complex problems.
  - b. recognizing and applying principles of applied mathematics to solve complex problems.
  - c. composing coherent and correct proofs
  - d. creating mathematical models to solve problems

##### Independent Learning/Scholarship

- Be able to conduct independent investigations that enhance and extend course content.

##### Content/Discipline Knowledge

- 2. Solve statistics and computer problems by
  - a. Recognizing and applying principles from statistics to solve theoretical and applied problems
  - b. Recognizing and applying techniques of computer science to solve applied problems.

##### Communication (Optional)

- Gain experience in communicating mathematics to an audience of peers and/or professors.

##### Knowledge of Literature of Discipline

- Have read articles and chapters in books in addition to readings from course texts.

##### Professional Skills

- Be prepared to enter high-level quantitative careers and/or Ph. D. programs.

### Assessment Approaches

1. Assignments and exam questions that directly link to program-level expected learning outcomes and are scored using established criteria.
2. Projects in various courses scored using established criteria.
3. Presentations in the Graduate Seminar, Student presentations required and conducted by individual instructor.
4. Journal articles review conducted by individual instructor.

5. Oral defense of a written Thesis, or Oral Presentation non-thesis option assessed using department rubric.
6. Written thesis assessed by department rubric.
7. Comprehensive exams questions assessed in the same manner as exam questions.

it is now clear that the fluid nature of the times courses are taken prevents reasonable conclusions to be drawn from 1 - 4. Instead the focus of assessment is 5 - 7. These items are done when students have finished their coursework.