

Mathematics Program Learning Outcomes

Mission

The Mathematics Department is dedicated to the preparation of students for graduate study, careers in teaching, scientific computing, and technology-related industry. While offering basic grounding in the classical areas of mathematics, the curriculum emphasizes applied mathematics and its constantly evolving role in analyzing and solving problems in fields ranging from economics to aerodynamics and the environment.

Learning outcomes

Graduates of the Mathematics Department will:

1. Acquire fundamental grounding in core mathematical skills and knowledge
2. Acquire transferable skills requiring problem-solving, synthesis and persistence
3. Become knowledgeable about ethical issues in the field of mathematics
4. Value the beauty and aesthetics inherent in mathematics
5. Qualify to teach mathematics at the secondary school level or pursue other related career paths
6. Be prepared to pursue advanced degrees

Mathematics Program Mission Statement

Mathematics is a universal language, a part of the common base of knowledge through which people of different ethnicities, nationalities, and cultures can communicate.

While acknowledging that some students may never make specific use of all of the mathematical techniques learned in our courses, and others will use very few techniques, we also recognize that mathematics has historically been a central part of the liberal arts. The educated person studies mathematics for the discipline it brings to one's thinking and because knowledge of mathematics enables one to better comprehend an increasingly technological world and to understand those who speak the scientific languages of nature and technology.

In our liberal arts mathematics courses for non-majors, we emphasize basic skills, as well as applications of mathematics in various career areas. An underlying philosophy of our teaching is that students enjoy more and derive more benefit from that which is fun, and well as from that which they clearly see a need to investigate.

In all of our courses we try to foster an appreciation of the beauty of mathematics and to demonstrate the nature of human searching for patterns and order in the world.

By upholding certain standards while remaining sympathetic to the difficulty many students have in mathematics, we stress ethics and disciplined study, as well as humanity.

In small classes and directed studies, we encourage students to take on increased responsibility for their own education, to seek knowledge actively, rather than to receive it passively.

Those who major in mathematics may not spend their lives as professional mathematicians, so we teach skills and attitudes which are transferable, which will serve students well in any situation requiring problem-solving, synthesis and persistence. We encourage students to wonder and ask not only "how?" but also "why?" At the same time, we provide a solid grounding in core mathematical skills and knowledge, to enable those who are singularly motivated to pursue graduate studies.

Many ULV mathematics majors are motivated to serve society through teaching, while others have taken technical positions in industry. Many mathematics majors also seek a second area of concentration. Recent graduates have done significant course work in biology, computer science, economics, physics, and even psychology.

In consideration of the diverse group of students at our University and in the mathematics program, we actively seek to fit our instructional and assessment methods to the needs of the individual student. The department attempts to recruit and maintain a diverse faculty. The mathematics major, as well as the teaching credential program, are reviewed each year to keep the programs current and consistent with national and state guidelines.

Mathematics Program Assessment Plan

The goal of the assessment plan of the Mathematics Program is to provide faculty with on-going and meaningful information to help improve learning outcomes. The following assessment procedures are used:

1. Senior Comprehensive Exams

A two-hour exam, based on a test developed by Kalamazoo College, is administered to every senior. A passing score must be achieved in order for the student to graduate. All graduating seniors must also take the GRE Subject Exam in mathematics.

2. Senior Projects

Senior projects, culminating capstone experiences, are evaluated by a rubric for grading of individual students, and aggregated across students for program level assessment.

3. Alumni Survey

Alumni are surveyed every five years for their feedback, academic and employment status.

4. Focus Groups

Focus groups are conducted periodically to assess opinions and needs of current students.

5. Outside review

Every five years outside experts/colleagues are invited to examine the program review document, provide feedback, and make recommendations.