Mathematics (MTH)

Alan Alewine, PhD, Professor of Mathematics
jaalewine@mckendree.edu; (618) 537-6931

Heather Dye, PhD, Associate Professor of Mathematics
hadye@mckendree.edu; (618) 537-6932

Dennis Ryan, PhD, Professor of Mathematics
dryan@mckendree.edu; (618) 537-6937

- **BA, General Track: 48 credit hours**
- **BA, Secondary Education Track: 40 credit hours**
- **BS, Financial and Actuarial Sciences Track: 53-58 credit hours**
- **BS, General Track: Minimum of 60 credit hours**
- **Minor: 18 credit hours**
- **Major/Minor GPA required for graduation: 2.25**
- **All courses for the major/minor must be completed with a grade of a C- or better.**

PROGRAM REQUIREMENTS:

- **Complete mathematics core requirements**
- **Capstone: Seminar in Mathematics (MTH 490) or Internship in Mathematics (MTH 470)**

Description of Major: Mathematics is the science of quantity, change, structure, and space. While solving problems culled from a broad body of knowledge, mathematics majors will develop rigorous analytical abilities and sharpen their oral and written communication skills.

Student Learning Outcomes
Students will:
• Use standard mathematical techniques to solve problems.
• Apply standard proof techniques in the verification of mathematical truth.
• Gain proficiency in using analytical software.
• Effectively communicate mathematics in both oral and written forms.

Degree Preparation: The mathematics degree prepares students for a wide variety of careers, including careers in teaching, private industry, government agencies, actuarial science, and law. Students interested in attending graduate school in mathematics or statistics should seek advice from the full-time mathematicians. In addition, upon finishing the financial and actuarial sciences track, a graduate should be prepared to immediately seek employment with a variety of companies and/or to take the first two actuarial exams.

To major in mathematics, students must complete the core requirements, plus additional requirements listed under one of the following tracks: general, secondary education, financial and actuarial sciences.

MATHEMATICS CORE REQUIREMENTS	**28 crs.**
MTH 210 CALCULUS I	(4)

MTH 211	CALCULUS II	(4)
MTH 212	CALCULUS III	(4)
MTH 300	TRANSITION TO ADVANCED MATHEMATICS	(3)
MTH 340	PROBABILITY	(3)
MTH 341	APPLIED STATISTICS	(4)
MTH 360	LINEAR ALGEBRA	(3)
MTH 490	SEMINAR IN MATHEMATICS	(3)

BACHELOR OF ARTS: GENERAL TRACK **51 crs.**

Complete the core requirements, plus the following:

MTH 392	INTRODUCTION TO ANALYSIS	(3)
MTH 393	MODERN ALGEBRA I	(3)
MTH 490	SEMINAR IN MATHEMATICS	(3)
CSI 130	INTRODUCTION TO COMPUTING I	(4)
CSI 230	INTRODUCTION TO COMPUTING II	(4)

TWO COURSES FROM THE FOLLOWING

MTH 301	COLLEGE GEOMETRY	(3)
MTH 320	FINANCIAL MATHEMATICS	(3)
MTH 343	NUMBER THEORY	(3)
MTH 366	NUMERICAL ANALYSIS	(3)
MTH 370	DIFFERENTIAL EQUATIONS AND MODELING	(3)
MTH 372	PARTIAL DIFFERENTIAL EQUATIONS	(3)
MTH 375	DISCRETE MODELS	(3)
MTH 376	GRAPH THEORY	(3)
MTH 394	MODERN ALGEBRA II	(3)

RECOMMENDED ELECTIVES

PHI 204	LOGIC	(3)
PWR 360	INTERDISCIPLINARY PROFESSIONAL AND TECHNICAL WRITING (W)	(3)

BACHELOR OF SCIENCE: GENERAL TRACK **60-68 crs.**

Same as above for Bachelor of Arts in addition to one of the following two options:

1. Four science courses from at least two of the following sciences: biology, chemistry (except CHE 100) and physics (except PHY 101).

2. Four business courses including ACC 230 and ECO 211, but not including BUS 310.

BACHELOR OF ARTS: SECONDARY EDUCATION TRACK **40 crs.**

Complete the core requirements, plus the following:

MTH 301	COLLEGE GEOMETRY	(3)

MTH 375	DISCRETE MODELS	(3)
MTH 392	INTRODUCTION TO ANALYSIS	(3)
MTH 393	MODERN ALGEBRA I	(3)

For a list of professional education program requirements, see the secondary education section under "School of Education."

BACHELOR OF SCIENCE:
FINANCIAL AND ACTUARIAL SCIENCES TRACK **53-58 crs.**

Complete the core requirements, plus the following:

MTH 320	FINANCIAL MATHEMATICS	(3)
MTH 375	DISCRETE MODELS	(3)
MTH 470	INTERNSHIP IN MATHEMATICS	(3-8)
or		
MTH 490	SEMINAR IN MATHEMATICS	(3)
CSI 130	INTRODUCTION TO COMPUTING I	(4)
ACC 205	PRINCIPLES OF FINANCIAL ACCOUNTING	(3)
ACC 230	PRINCIPLES OF MANAGERIAL ACCOUNTING	(3)
ECO 211	PRINCIPLES OF MICROECONOMICS	(3)
ECO 212	PRINCIPLES OF MACROECONOMICS	(3)
FIN 308	PRINCIPLES OF BUSINESS FINANCE	(3)

RECOMMENDED ELECTIVES

CSI 230	INTRODUCTION TO COMPUTING II	(4)
CSI 260	EVENT DRIVEN PROGRAMMING	(3)
PWR 360	INTERDISCIPLINARY PROFESSIONAL AND TECHNICAL WRITING (W)	(3)

MATHEMATICS MINOR REQUIREMENTS **18 crs.**

MTH 210	CALCULUS I	(4)
MTH 211	CALCULUS II	(4)
MTH 212	CALCULUS III	(4)
	TWO ADDITIONAL UPPER LEVEL MATHEMATICS COURSES	(6)