

# MATHEMATICS

## ACADEMIC PROGRAM INFORMATION



"While the major provides an excellent education in mathematics, the professors at Centre go above and beyond, transforming curious minds into critical thinkers. The math faculty are some of the most compassionate and positive professors on campus.

Majoring in math has prepared me to be a problem solver for life, and has allowed me to discover a passion for statistics that I never knew I had."

### **BRYCE ROWLAND**

Centre Class of 2017

Mathematics Major

THE STUDY OF MATHEMATICS TRANSFORMS THE MIND AND DEVELOPS A CREATIVE AND EFFICIENT INTELLECT. AT CENTRE COLLEGE, THE PROFESSORS HAVE A PASSION FOR TEACHING MATHEMATICS. WE ENJOY EXPLORING NEW IDEAS WITH CENTRE STUDENTS, AND TOGETHER, WE SOLVE INTERESTING PROBLEMS WITH A BLEND OF CLASSICAL TECHNIQUES AND THE LATEST TECHNOLOGIES. OUR STUDENTS MASTER CENTRAL CONCEPTS IN MATHEMATICS AND IN THE PROCESS LEARN TO THINK PRECISELY AND TO CLEARLY ARTICULATE THEIR IDEAS.

### **WHAT ARE THE BASICS OF A MATHEMATICS MAJOR?**

The Centre College mathematics major begins by establishing a firm foundation in calculus and linear algebra during the student's first two years. Students may then choose from a broad range of courses that include the more theoretical studies of algebra, analysis, and complex analysis, as well as the more applicable areas of differential equations, probability, and statistics.

Class sizes are small — usually between 20 and 30 students in classes through the sophomore year, and often smaller in upper-level courses. Depending on student and faculty interest, the mathematics program offers courses in special topics. Two recent examples of special topics courses are **Logic** and **Stochastic Modeling**.

Centre's mathematics faculty are readily accessible. Their office doors are always open, and they can provide excellent

advice about schedules, goals, and future careers. Each year advanced mathematics majors have worked with professors on independent studies or research projects, while others have participated in internships. There are many opportunities for you to learn and discover mathematics at Centre, and (as a Centre student) you'll want to plug into as many of them as you can.

### **HOW SUCCESSFUL ARE MATHEMATICS GRADUATES?**

A major in mathematics provides solid preparation for interesting and fulfilling careers in research, teaching, industry, and government. Centre College is proud of the outstanding academic quality of its mathematics majors. Year after year, our graduates move into a variety of interesting jobs (actuary, investment banker, engineer, physician, and school teacher, to name a few) and into prominent graduate programs. Many of them combine their mathematics interests with other major fields; we have students double-majoring with mathematics in such varied fields as chemistry, computer science, economics, English, music, physics, and romance languages. Most say that their mathematics major helps them in their other field of study.

### **ARE THERE STUDENT MATHEMATICS ORGANIZATIONS?**

Centre is home to one of the first student chapters of the Mathematics Association of America. Centre also has a chapter of the national mathematics honor society Pi Mu Epsilon. Our math club is an active group, hosting at least one activity per month including Casino Night, Estimathon, Mathematical Relay Race, guest speakers, and the annual croquet grudge match versus the chemists. This popular organization is a wonderful way for students to create, organize, and get involved with activities that are affiliated with mathematics.

## WHAT ARE SOME CAREER OPPORTUNITIES?

Career opportunities are constantly expanding for students majoring in mathematics. Recent Centre math graduates are in such diverse positions as:

- actuaries at Humana and Mercer
- auditor for the U.S. Department of Agriculture
- college professor
- economist at Research Triangle Institute
- mechanical engineer at Ford Motor Company
- physician
- programmer and analyst at Federal Express
- research assistant at Oak Ridge National Lab
- secondary school teacher
- software engineer at Google
- technical problem solver at Epic

Additionally, many mathematics graduates have chosen to attend graduate programs in a variety of disciplines, including:

- analytics at University of Texas, North Carolina State
- architecture at Notre Dame
- computer science at Carnegie Mellon, University of Kentucky
- economics at Princeton, University of Illinois
- law at Harvard and Berkeley
- mathematical biology at Oxford
- mathematics at Dartmouth, North Carolina State, Purdue, University of Illinois, University of Louisville, Washington University at St. Louis
- mechanical engineering at Washington University at St. Louis
- operations research at Columbia
- physics at Georgia Tech
- statistics at Purdue, University of Illinois, University of Kentucky, University of Virginia

## WHO ARE THE MATHEMATICS FACULTY?

Centre's mathematics faculty have a variety of teaching and research interests, ranging from the theory of codes and messages, to finding patterns in numbers, to the mathematics of logic and computers. They enjoy working with students and getting to know them better. They often meet with students to put their heads together, to solve challenging mathematics problems, and to share notes and ideas. These professors have accomplished records in mathematical research, teaching, and leadership. Several members of the mathematics program have published papers co-written with students.

**JEFFREY HEATH**, Associate Professor of Mathematics, investigates problems in sports analytics.

**JOEL KILTY**, Associate Professor of Mathematics, studies the behavior of partial differential equations on domains with corners and non-smooth edges.

**MICHAEL LAMAR**, Assistant Professor of Mathematics, works on unsupervised learning algorithms for finding structure in high dimensional data.

**ALEX MCALLISTER**, Stodghill Professor of Mathematics, Science and Mathematics Division Chair, investigates questions in computability theory and in the history of mathematics.

**SARAH MURRAY**, Associate Professor of Education, studies professional development models for mathematics education.

**PRAYAT POUDEL**, Assistant Professor of Mathematics, investigates problems in low-dimensional topology and knot theory.

**ELLEN SWANSON**, Assistant Professor of Mathematics, applies mathematical techniques and theory in order to better understand physical behavior.

**ZHEXIU TU**, Visiting Assistant Professor of Mathematics, works on problems in matroid representations and combinatorics.

**LESLEY WIGLESWORTH**, Associate Professor of Mathematics, studies problems in pure and applied graph theory.

**JOHN WILSON**, Stodghill Professor of Mathematics, enjoys working with students in the area of public key cryptography.

## VISIT CENTRE

The best way to judge Centre is to tour the campus, attend a class, talk to the professors and students, and spend the night in a residence hall. We invite you to visit and encourage you to contact the Admission Office if you have any questions.

## FOR FURTHER INFORMATION ABOUT THE MATHEMATICS PROGRAM AT CENTRE, CONTACT:

Lesley Wiglesworth, Program Chair  
600 West Walnut Street  
Danville, Kentucky 40422  
859.238.5917  
[lesley.wiglesworth@centre.edu](mailto:lesley.wiglesworth@centre.edu)

## TO COMMUNICATE DIRECTLY WITH A CENTRE STUDENT MAJORING IN MATHEMATICS, CONTACT:

Gabriella Elias  
[gabriella.elias@centre.edu](mailto:gabriella.elias@centre.edu)

## MATHEMATICS WEB PAGE

[www.centre.edu/academics/majors-minors/mathematics](http://www.centre.edu/academics/majors-minors/mathematics)