MATHEMATICS

PROGRAM OVERVIEW

Capital University's mathematics program combines a strong liberal arts tradition with a strong foundation in classic and contemporary mathematical topics. Mathematics majors typically begin their studies with a two-course sequence in calculus and mathematical proofs. Required courses at the intermediate level include linear algebra, abstract algebra, mathematical statistics, differential equations, and a third course in calculus. We offer additional electives in combinatorics, real analysis, and intermediate statistics, as well as requiring at least one programming course for the math majors. Our mathematics major with education licensure is intended for those who wish to pursue a license to teach mathematics in grades 7-12 in the schools of Ohio and is the combination of the math major requirements and the education department's requirements for Adolescent to Young Adult teacher licensure program, with the addition of required courses in college geometry and the history of mathematics. The department also offers minors in Computer Science, Computational Science, Data Science and Physics.

CAREERS AND PLACEMENT

Graduates of Capital's mathematics program have gone on to complete graduate degrees in mathematics or related disciplines such as computer science and engineering. Those who enter the workforce after graduation have found success in a variety of careers that require the ability to solve problems, including systems analysis, actuarial science, business analytics, data science, bioinformatics, research and development, teaching and quality control. Companies our graduates have found work at include AEP, Nationwide Children's hospital, Safe Auto, GE Lighting System, Huntington Bank, Chase Bank, Daytronic Corporation, IBM, AT&T, Battelle Memorial Institute, Cynergy, Sterling, and in both public and private school systems in the state of Ohio.

EXPERIENTIAL LEARNING

The university's location in the state capital allows majors to take advantage of the city's business and technological opportunities through internships and part-time employment while they are undergraduates. Many students work as laboratory supervisors or paid tutors or l on campus. During their junior and senior years, students participate in a departmental seminar that features students' research and presentations.

AS A GRADUATE, YOU WILL BE PREPARED TO:

- Solve problems using standard operations on fundamental mathematical objects while showing the connection to the mathematical ideas and theories behind these operations

- Formulate and analyze quantitative models to solve real world problems using mathematical and statistical techniques

- Apply technology to analyze data and solve mathematical problems

- Communicate quantitative ideas both orally and in writing to a range of audiences

- Identify, explain, and evaluate the ethical implications that arise from the quantitative models they develop and/or apply

WHAT ARE OUR GRADS DOING NOW?

- Secondary School Teacher
- Research & Development Manager
- Design Engineer
- Vice President and Controller
- Materials Manager
- Actuarial Work
- Computational Finance

Capital University

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Four-Year Sample Schedule of a Mathematics Major

Freshman Fall
16 credit hours
Calculus I - 4
College Reading & Writing - 3
Global Awareness - 3
First Year Seminar - 3
Electives - 3

Sophomore Fall
16 credit hours
Lab Science - 4
Religious Foundations &
the Bible - 3
Cultural Pluralism - 3
Electives - 6

Junior Fall
15 credit hours
Mathematical
Statistics - 3
Science &
Technology - 3
Social Science - 3
Electives - 6

Senior Fall
16 credit hours
Mathematics Elective - 3
Seminar - 1
Linear Algebra - 3
Electives - 9

Freshman Spring
14 credit hours
Calculus II - 4
Oral Communication - 3
Mathematical Proofs - 4
Electives - 3

Sophomore Spring
17 credit hours
Calculus III - 4
Lab Science - 4
Fine Arts - 3
Intro to Computational
Science - 3
Electives - 3

Junior Spring
16 credit hours
Abstract Algebra - 3
Humanities - 3
Seminar - 1
Electives - 9

Senior Spring
16 credit hours
Mathematics Elective - 3
Seminar - 1
Ethical Issues - 3
Differential Equations &
Dynamic Systems - 3
Electives - 6

Four-Year Sample Schedule of a Mathematics Major with Education Licensure

Freshman Fall
17 credit hours
Calculus I - 4
College Reading & Writing - 3
Global Awareness - 3
Foundations of the Education
Profession - 3
First Year Seminar - 3
Developing as a
Professional - 1

Sophomore Fall
17 credit hours
Educational Psychology - 4
Cultural Pluralism - 3
Linear Algebra - 3
Science & Technology - 3
Intro to Curriculum,
Instruction & Assessment - 4

Junior Fall
17 credit hours
Mathematical
Pedagogy - 4
Mathematical
Statistics - 3
Religious Foundations
& the Bible - 3
Lab Science - 4
Elective - 3

Senior Fall
12 credit hours
Senior Education Block - 12
(includes student teaching)

Freshman Spring
17 credit hours
Calculus II - 4
Oral Communication - 3
Mathematical Proofs - 4
Principles of Psychology - 3
Elective - 3

Sophomore Spring
14 credit hours
Calculus III - 4
Fine Arts - 3
College Geometry - 3
Intro to Exceptionalities
& Intervention - 4

Junior Spring
16 credit hours
Abstract Algebra - 3
History of
Mathematics - 3
Diverse School
Environments - 2
Lab Science - 4
Seminar - 1
Elective - 3

Senior Spring
17 credit hours
Humanities - 3
Ethical Issues - 3
Content Area Literacy - 4
Differential Equations &
Dynamic Systems - 3
Seminar - 1
Elective - 3

All courses subject to availability and
advisor approval. All undergraduates
must demonstrate that Signature
Learning goals have been met.

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