



### Department of Mathematics

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### College of Science

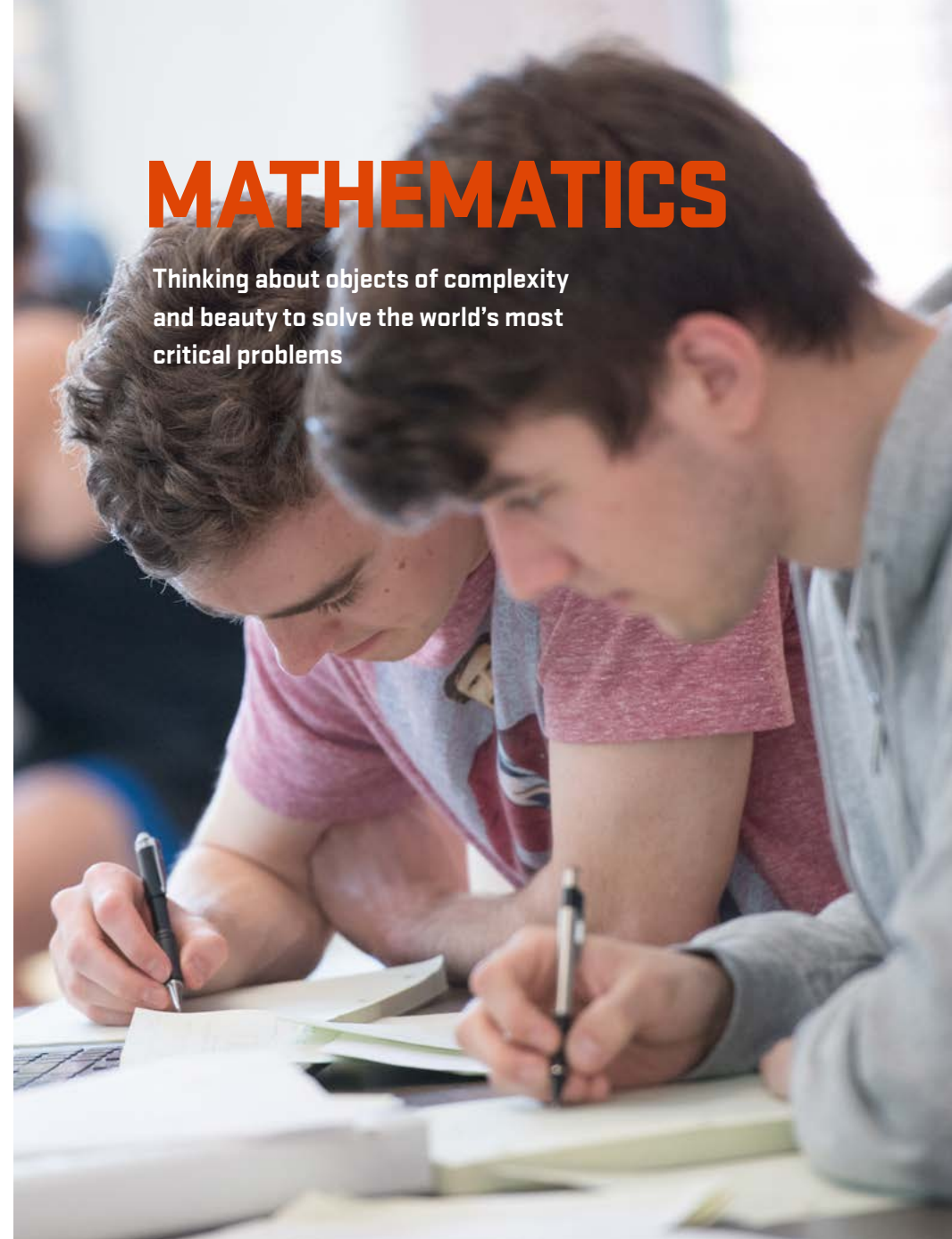
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This publication will be made available in an accessible alternative format upon request. Please contact the College of Science at 541-737-4811 or [science@oregonstate.edu](mailto:science@oregonstate.edu).

# MATHEMATICS

Thinking about objects of complexity and beauty to solve the world's most critical problems



**COLLEGE OF SCIENCE**  
ACADEMIC BROCHURE / 2020



## Where can mathematics take you?

The Department of Mathematics is a vibrant center for undergraduate and graduate level mathematics. It is home to many award-winning and outstanding researchers and teachers.

Our faculty frequently engage in interdisciplinary research and work towards solutions for today's pressing applied and theoretical problems, such as the transport of contaminants in the Earth's subsurface and the modeling and analysis of biological systems.

### Student Success

Professional advisors are available to help students make academic decisions that best support their personal goals and abilities. Students can consult them for help selecting courses and for guidance about navigating university policies. For current course requirements, refer to the OSU General Catalog online ([catalog.oregonstate.edu](http://catalog.oregonstate.edu)).

For information about careers and graduate programs, contact the department.

### Focusing your degree

- **Applied and Computational Mathematics** is tailored for those interested in applied mathematics, scientific computation or engineering, preparing students for jobs in industry or government labs.
- **Mathematical Biology Option** will teach students how to use mathematics to solve problems in the biological sciences. This specialization will equip students for jobs in the biotech and pharmaceutical industries as well as research institutes.
- **Statistics Option** prepares students for careers in data analysis, economics, financial engineering or environmental studies as well as for graduate study in statistics.
- **Secondary Teaching Emphasis** provides the necessary mathematics background and prerequisites for subsequent certification to teach mathematics and science at the secondary level.

## Endless opportunities

Mathematics students are well prepared for graduate school and careers in industry or research where mathematics plays a pivotal role. Grounding in pure or abstract mathematics gives students the analytical and problem-solving skills that industry demands. Applied mathematics and mathematical models are used extensively worldwide to address problems in engineering, business, computer science as well as the natural and social sciences.

Mathematics majors interested in careers in financial and actuarial industries can also pursue a minor in Actuarial Science. Many of our students continue their studies at top graduate schools in mathematics and other STEM fields.

## Student activities

- The **OSU Math Club** sponsors lectures, discussions and mathematics-centered activities for students.
- The **Association for Women in Mathematics** is a student organization that encourages women to pursue active careers in the mathematical sciences.
- The **Actuarial Science Club** promotes the actuarial profession, the actuarial preparatory track, internships and job opportunities.
- The Oregon State University chapter of the **Society for Industrial & Applied Mathematics** welcomes anyone interested in applied mathematics and its applications to industry.

The Mathematics Department offers the opportunity for majors to compete in national contests, such as the Putnam, Virginia Tech and COMAP competitions. Students can participate in study abroad programs as well as in our Research Experiences for Undergraduates summer program. Look for more information on the department website.

The **Mathematics and Statistics Learning Center** is a free resource providing help for lower-division mathematics courses. It also serves as a friendly gathering place for mathematics majors.



## Sample curriculum

### YEAR ONE

Calculus  
Physics  
General course: The Politics of  
Developing Nations  
Approved physical or  
biological science courses

### YEAR TWO

Calculus  
Linear Algebra  
General course: Race, Space  
& Difference  
*Study abroad*

### YEAR THREE

Advanced Calculus  
Linear Algebra  
Abstract Algebra  
Discrete Math  
Mathematical Modeling,  
Fundamental Concepts of  
Topology or Non-Euclidean  
Geometry  
General course: Appearance,  
Power & Society  
*Summer research*

### YEAR FOUR

Students can plan their  
senior year to give breadth  
and depth in 6 areas of  
mathematics: Algebra and  
Number Theory, Analysis,  
Applied Mathematics,  
Geometry and Topology,  
Numerical Analysis,  
Probability.

## Recent graduates work as:

- Insurance managers
- Actuaries
- Investment entrepreneurs
- Systems engineers  
and analysts
- System and application  
software managers  
for the US Air Force
- Mathematics teachers
- Financial mathematicians
- Research biomathematicians  
at OHSU
- Computer scientists
- Electrical engineers
- Tax accountants
- Robotics experts

## What can you do with a degree in Mathematics?

**Anything!** A mathematics degree can lead you to wide-ranging fields from research and education, Internet start-ups and biotech companies and even to baseball analytics for a major league team.

The renowned polymath Benjamin Franklin once said, “No employment can be managed without arithmetic, no mechanical invention without geometry.” Today Franklin’s 18th-century statement is truer than ever.

If you have a love and talent for the rigors and curiosities of mathematics, then the world is yours. According to several national surveys:

- Math majors routinely receive the highest scores on graduate entrance exams, such as the LSAT and GMAT.
- Math majors earn high starting salaries.
- Math majors report high levels of job satisfaction.

## Graduates that are career ready

Mathematics students gain the knowledge and skills to excel in their chosen careers from day one to ensure their future success. Our students learn an array of mathematical theories, concepts and areas from nationally recognized faculty, who specialize in topics ranging from topology and applied mathematics to mathematical biology and actuarial sciences. Months before graduation, Megan Tucker ('20) landed a job as a technical writer with Amazon Web Services in Washington, where she will work to improve user experience, create documentation and conceptual information.



Rachel Legard '19 graduated to work as an analyst at Deloitte.



Jesse Rodriguez '18 is doing a Ph.D. in plasma physics at Stanford.



Megan Tucker '20 is heading to Amazon Web Services