

MATHEMATICS

Math is the language of science and a vital part of both cutting-edge research and daily life. Contemporary mathematics investigates such basic concepts as space and number and also the formulation and analysis of mathematical models arising from applications. Mathematics has always had close relationships to the physical sciences and engineering. As the biological, social, and management sciences have become increasingly quantitative, the mathematical sciences have moved in new directions to support these fields.

Mathematicians teach in high schools and colleges, do research and teach at universities, and apply mathematics in business, industry, and government. Outside of education, mathematicians usually work in research and analytical positions, although they have become increasingly involved in management. Firms in the aerospace, communications, computer, defense, electronics, energy, finance, and insurance industries employ many mathematicians. In such employment, a mathematician typically serves either in a consulting capacity, giving advice on mathematical problems to engineers and scientists, or as a member of a research team composed of specialists in several fields. Among the qualities that he or she should possess are breadth of interests and outlook, the ability to think abstractly, and a keen interest in problem-solving.

An undergraduate specializing in mathematics will usually begin with calculus. All math majors take courses in differential equations, linear algebra, abstract algebra, analysis, computer programming, and statistics. The student's interests and future plans determine the remainder of the field of concentration.

Undergraduate degree options are available to prepare students for:

1. employment as an applied mathematician in industry, business or government;
2. employment as an actuary or financial analyst;
3. secondary school mathematics teaching; and
4. graduate study in mathematics, business or finance, law, medicine, or other areas.

Students choosing secondary school teaching complete all requirements for state certification as part of this program.

Many of the more challenging positions in mathematics require study beyond a bachelor's degree. For example, university faculty are required to hold a PhD, while teaching in a community college requires at least a master's degree and possibly a doctorate. Approximately 25 percent of the students receiving a bachelor's degree in mathematics go on to graduate work.