

# Mathematics

# Careers

**M**athematics is one of the oldest and most fundamental sciences.

Mathematicians use mathematical theory, computational techniques, algorithms, and the latest computer technology to solve economic, scientific, engineering, physics, and business problems.

Applied mathematicians use theories and techniques, such as mathematical modeling and computational methods to formulate and solve practical problems in business, government and engineering. For example, they may analyze the most efficient way to schedule airline routes between cities, the effect and safety of new drugs, the aerodynamic characteristics of an experimental automobile, or the cost-effectiveness of alternate manufacturing processes.

Much of the work in applied mathematics is performed by individuals with titles other than mathematician. For example, engineers, computer scientists, physicists, and economists are among those who use mathematics extensively. Some professionals, including statisticians, actuaries, and operations research analysts are specialists in a particular branch of mathematics.

## Job Outlook

Employment of mathematicians is expected to increase by 22 percent during the 2008–18 decade, which is much faster than average for all occupations. Advancements in technology usually lead to expanding applications of mathematics, and more workers with knowledge of mathematics will be required in the future. In addition, mathematicians with experience in computer programming will better their job prospects in many occupations.

## Earnings

Median annual wages of mathematicians were \$95,150 in May 2008. The middle 50 percent earned between \$71,430 and \$119,480. The lowest 10 percent had earnings of less than \$53,570, while the highest 10 percent earned more than \$140,500. In March 2009, the average annual salary in the Federal Government was \$107,051 for mathematicians.

## Related Occupations

Other occupations that require extensive knowledge of mathematics or, in some cases, a degree in mathematics include the following:

- Computer network, systems, and database administrators
- Computer scientists
- Computer software engineers and computer programmers
- Computer systems analysts
- Engineers
- Personal financial advisors
- Teachers—postsecondary Teachers—preschool, kindergarten, elementary, middle, and secondary

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## Educational Opportunities in Math at LCCC

### *Associate of Science*

The associate of science is intended for students who wish to complete the first two or more years of a bachelor's degree program at LCCC in a program field such as mathematics. Students completing the associate of science degree may transfer with junior (or higher) standing to the four-year university or college of their choice.

Students may also select the associate of science degree if they wish to complete the first two or more years of a bachelor's degree program at LCCC in program fields such as biology, chemistry, computer science, engineering, general science, physics, pre-dentistry, pre-med, pre-optometry, pre-pharmacy, pre-veterinary, and sports medicine.

Students in the associate of science program may also select electives, or complement their curriculums, by choosing from courses in areas such as accounting, banking, finance, technical math, college math, calculus, statistics, algebra and differential equations.

## Related Educational Opportunity through LCCC's University Partnership

### **Ashland University**

#### *Bachelor of Science in Education – Early Childhood Licensure (Grades Pre K-3)*

The Ashland education program is based on current research, effective practice and dynamic collaborative relationships among Ashland faculty, pre-K through 12th-grade teachers and administrators. The program is implemented through diverse experiences in university classes, field/clinical experiences, model sites and professional development centers.

#### *Bachelor of Science in Education – Middle Childhood Licensure (Grades 4-9)*

The Ashland education program is based on current research, effective practice and dynamic collaborative relationships among Ashland faculty, pre-K through 12th-grade teachers and administrators. The program is implemented through diverse experiences in university classes, field/clinical experiences, model sites and professional development centers.

### **Kent State University**

#### *Bachelor of Business Administration – Business Management*

Kent's Business Administration (major in Business Management) degree provides students with credentials that are important to getting that first job in business as an entry-level manager or manager trainee. Organizations of all sizes and types depend on and need managers, including the small corner store, large department stores, accounting firms, retirement homes, manufacturing firms, specialty businesses, or larger international businesses. During a career in management, responsibilities can grow from those required of an entry-level manager to department manager to division manager and even to CEO. How far someone advances in management usually depends on training and this program provides perfect training for aspiring business managers as well as human relations skills and effort. Working with people is a primary focus of management professionals; therefore, excellent communication skills are essential to succeed. The program is designed so that approximately three years of this partnership is LCCC coursework and the final year (33 semester hours) is Kent coursework. Kent courses are taught by Kent faculty either in person or via distance learning. Students can complete the business degree with a business management major in its entirety on LCCC's campus.

### **The University of Akron**

#### *Bachelor of Science in Accounting*

The accounting curriculum in the George W. Daverio School of Accountancy is designed to prepare the student for professional service, including sitting for professional examinations, and pursuing advanced study. The functions of accountancy are essential to the decision-making process in commerce, industry, and government. There are exceptional opportunities for professional advancement regardless of the career path and type of institution a graduate may choose. The three major fields for accountants are public accounting, private (corporate) accounting, and governmental accounting. Whether one pursues a career in public, private, or governmental accounting, the mastery of accounting concepts and procedures, and the study of accounting standards and ethics, are essential. The program is designed so that approximately three years of this partnership is LCCC coursework and one year (36 semester hours) is Akron coursework. Akron courses are taught by The University of Akron faculty either in person or via distance learning. Students can complete the degree in accounting in its entirety on LCCC's campus.

### **Ohio University**

#### *Master of Science in Engineering – Engineering Management*

The Russ College of Engineering offers a graduate program of study with an emphasis in engineering management. The degree conferred is a master of science in engineering. This program is designed for, but not limited to, individuals holding undergraduate degrees in engineering, chemistry, physics, or other technical degrees.

You will develop the appropriate skills for the management of technology-based companies. The program includes courses emphasizing the skills required of technology managers including coursework in information technology, supply chain management, finance, and statistics.

### **The University of Toledo**

#### *Bachelor of Science –*

#### *Major in Computer Science and Engineering*

The Computer Science and Engineering (CSE) is an interdisciplinary field, which deals with the design, construction, operation, and maintenance of computing hardware and software. In this program, students explore the interaction between modern computer science and related technologies that have evolved the mathematical and design principles of engineering into the development of modern computing system. This is an accredited BSCSE degree program offered through the University Partnership on LCCC's campus. The degree is offered by The University of Toledo's Department of Electrical Engineering and Computer Science (EECS).

#### *Bachelor of Science – Major in Computer Science and Engineering Technology*

The program in Computer Science and Engineering Technology (CSET) includes hardware and software aspects of both computer design and computer applications. Computer design emphasizes the structure of computers and requires expertise in computational applications, digital design, microcomputer systems and computer architectures. Computer applications emphasizes the use of computer software in engineering technology and requires both low-level and high-level programming techniques, the use of mathematical algorithms, and a general knowledge of computer operating systems. The CSET program provides students with an in-depth understanding of computer hardware and software at the machine and system level.

## About Lorain County Community College

Lorain County Community College continues to experience enrollment growth because attending LCCC is the most economical way to reach educational goals that help graduates become valuable players in the future economic growth of the county and region. Because of the variety and quality of learning opportunities LCCC provides, enrollment has grown 78 percent since 2000.

Lorain County Community College, which opened in 1963, is one of Ohio's leading colleges delivering credit programs at its Elyria campus and outreach centers in downtown Elyria, Lorain, Wellington and Brunswick. Plus more than 200 courses are offered via distance-learning education options, and the Associate of Arts degree can be completed entirely online.

Students can choose from more than 80 educational programs. Students can complete the first half — and sometimes more — of a bachelor's degree through LCCC's University Partnership, which brings eight universities to the LCCC campus offering 40 bachelor's and master's degree programs. Students can upgrade, retrain and improve current life skills.

In addition to providing a great education for those who enter college with aspirations of a degree, LCCC helps those who have changed their career goals, who want to broaden their horizons, and who want to return to work. LCCC provides learning and training for those who want to move up but find they need new or improved skills for the kind of professional opportunities they seek.

LCCC faculty is recognized locally and nationally for their work as professors and in other areas. They all have advanced degrees and real world experience and understand their primary responsibility at LCCC is to teach classes.

LCCC is fully accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools, which is the regional accrediting authority for Ohio colleges and universities. Since opening its doors, LCCC has served more than 300,000 people. More than six million students enroll annually in credit courses at America's community colleges, representing about 46 percent of all students in higher education and about 56 percent of all first-time college entrants.



**Lorain County  
Community College**



**The University  
Partnership**

*of Lorain County Community College*

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