

Applied Mathematics

Applied mathematics is the application of the theory and methods of mathematics to problems that arise within other disciplines of study.

What does applied mathematics include?

There are several branches of applied mathematics. These include areas such as optimization, discrete math, operations research, scientific computation, data science, probability and statistics, differential equations, and financial mathematics. Within each branch, there are many skills and topics of study and application.

What are some of the skills of an applied mathematician?

The study of applied mathematics leads students to develop skills in computation, problem solving, critical thinking, analysis, and mathematical modeling. Subsequent careers will require both deductive reasoning and also knowledge of an application area specifically related to the business or industry.

These skills will be strengthened through the completion of courses such as probability, mathematical modeling, numerical analysis, statistics, and differential equations.

What are some of the career possibilities?

Careers will include the application of mathematical equations, concepts, and also theories that apply to the solution of problems which might be in science, technology, engineering, business, and health care.

Applied mathematicians work in cryptography, finance, software development, government agencies, robotics, data science, actuarial science, operations research, computational biology, quantitative analysis, industrial research and development.

What is the difference between pure and applied mathematics?

While an applied mathematician solves problems that might occur in physics, engineering, biology, or finance, as examples, a pure mathematician is working to solve problems that occur within mathematics. A pure mathematician may develop theories or equations that may be used to solve problems encountered by an applied mathematician.

To gain understanding regarding the ways in which Applied Mathematics differs from Pure Mathematics, you might explore

[Applied Math vs. Pure Math: What Are the Differences? | Indeed.com](#)

[Math Careers | Pure and Applied Mathematics FAQ](#)

[Applied Math vs. Pure Math: What Are the Differences? | Indeed.com](#)

How is mathematics used in game development?

To view one example of how mathematics courses directly prepare students for a career as an applied mathematician, you might consider the following blog post about Game Development.

[Math for Game Development](#)

Career Profiles

To explore possible careers for students who major in mathematics, you might explore descriptions of careers using the skills obtained through the study of mathematics.

[We Use Math](#)

To gain insight into careers for mathematical sciences within business, industry, and government, you might explore the BIG Math Network

[Big Math Network](#)

Organizations for Mathematics

The Society for Industrial and Applied Mathematics (SIAM) is a good source of information for anyone interested in this area. The link below contains information related to careers in applied mathematics. You will find answers to questions including:

Where Can you make an impact?

What Kinds of Problems Might You Work on?

You will also discover resources regarding internships and jobs.

[Thinking of a Career in Applied Mathematics](#)

American Mathematical Society (AMS)

To gain a better understanding of what mathematicians do, you might explore

[What Do Mathematicians Do](#)

To view career profiles for mathematicians, you might explore the career page for the Mathematical Association of America (MAA)

[Career Profiles | Mathematical Association of America](#)

To view bios of current black mathematicians, use the Honorees and Circle of Excellence tabs on the site for Mathematically Gifted and Black

[Circle of Excellence - Mathematically Gifted & Black \(mathematicallygiftedandblack.com\)](http://mathematicallygiftedandblack.com)

To view resources for women in math, consider exploring the website for the Association for Women in Math (AWM)

[On Women in Math – Association for Women in Mathematics \(AWM\) \(awm-math.org\)](http://awm-math.org)

Data for Employment of Mathematicians

To view data regarding salaries for mathematicians, you might explore

[Mathematicians and Statisticians : Occupational Outlook Handbook.](#)

[Mathematician Salary | US News Best Jobs](#)

To view information regarding employers of mathematicians in New Jersey, consider viewing

[Employers of Mathematics majors in NJ](#)

To view information regarding employers of mathematicians in New York, consider viewing

[Employers of Mathematics majors in NY](#)

To view information regarding employers of mathematicians in Pennsylvania, consider viewing

[Employers of Mathematics majors in PA](#)