

Applied Mathematics

Department of Mathematics and Statistics

Mathematics is a universal language. It is one which scientists use to express ideas and relationships concisely. It is a tool, which they use to investigate problems. As a mathematician, you will set up and analyze models of physical situations in order to deduce new information and predict results. You will find that mathematics contributes to the growth in knowledge in most areas. Your program at Missouri S&T will emphasize breadth in mathematics and depth in an associated area of application.

The Bachelor of Science in Applied Mathematics has the greatest flexibility of any technical degree at Missouri S&T. To assist you in deciding on how to tailor your degree, the department has defined six emphasis areas:

- Actuarial Science
- Algebra/Discrete Mathematics
- Applied Analysis
 - Physics or Engineering
- Computational Mathematics
- Statistics
- Secondary Education

The degree program requires a selection of mathematics courses aimed at developing your analytic and problem solving skills. Selected required science and engineering courses will expose you to the role of mathematics in a variety of fields.

The Department of Mathematics and Statistics provides critical support for Missouri S&T's mission as Missouri's premier technological research university. The department strives to maintain an environment that enhances the learning of mathematics and contributes to the vitality of mathematics as a living discipline through course offerings, seminars and colloquia, research, and public service.

The mathematics and statistics faculty are committed to maintaining high-quality instruction. We are heavily involved in incorporating modern technology into our curriculum. Since the beginning of Missouri S&T's assessment program, our undergraduate majors have performed quite well on national assessment examinations, with over half of our students in the top quartile. A number of our faculty and graduate teaching assistants have won outstanding teacher awards.

One of the most important aspects of any mathematics degree is the development of problem-solving and creative thinking abilities. Missouri S&T is committed to providing this for you!

Student Organizations

- Mathematical Association of America Student Chapter
- Kappa Mu Epsilon honorary society

Students at Missouri S&T also compete in the Missouri Collegiate Mathematics Competition as well as the William Lowell Putnam Competition.

Careers

Missouri S&T graduates with a B.S. in Applied Mathematics can be found in a wide variety of situations. Roughly a third of our graduates go on to pursue a graduate degree in either mathematics or a related field at such universities as Illinois, Wisconsin, California-Berkeley, Harvard, Iowa State, Duke, Tennessee, Rice, Cornell, and others; some continue at Missouri S&T for an advanced degree. Other graduates go into industry or teach at the high-school level. We have graduates teaching in Missouri high schools and many nearby states. Missouri S&T mathematics graduates can be found at Sandia National Labs, General Motors, Southwestern Bell, Boeing-McDonnell Douglas, Western Electric, Peabody Coal, Hallmark Cards, NASA (one graduate was an astronaut), the CIA, NSA, Caterpillar, Hughes Aircraft, and Phillips Petroleum, among others.

Co-op and Internship Availability

Cooperative Education (Co-op) is a structured educational strategy integrating classroom studies with learning through productive work experiences in a field related to your academic or career goals. It provides progressive experiences in integrating theory and practice.

Scholarship Information

Freshman scholarships are automatically awarded based on high school transcripts and ACT/SAT scores. Some may require a separate application. After the first year, all students (including transfer students) are eligible for departmental scholarship support based on academic performance and financial need.

Departmental Contact Information:

1-573-341-4641 202 Rolla Building
<http://math.mst.edu> math@mst.edu
Department Chair: Dr. Leon Hall, lmhall@mst.edu
Freshman Advisor: Dr. Ilene Morgan, imorgan@mst.edu

Faculty

Professors:

Leon M. Hall (Chair), Ph.D., University of Missouri - Rolla
 Martin Bohner, Ph.D., Ulm
 Wlodzimierz Charatonik, Ph.D., Warsaw
 Steve Clark, Ph.D., Tennessee
 Roman Dwilewicz, D.Sc., Warsaw
 Vy Le, Ph.D., Utah
 V.A. Samaranyake, Ph.D., Kansas State

Associate Professors:

Elvan Akin-Bohner, Ph.D., Nebraska
 David Grow, Ph.D., Nebraska
 E. Matt Insall, Ph.D., Houston
 Ilene Morgan, Ph.D., Penn State
 Robert Paige, Ph.D., Colorado State
 Robert Roe, Ph.D., Wyoming

Assistant Professors:

Akim Adekpedjou, Ph.D., South Carolina
 Xiaoming He, Ph.D., Virginia Tech
 Gayla Olbricht, Purdue
 John Singler, Ph.D., Virginia Tech
 Xuerong (Meggie) Wen, Ph.D., Minnesota
 Yanzhi Zhang, Ph.D., National University of Singapore

Associate Teaching Professor:

Stephanie Fitch, M.A., University of Texas at Austin
 Dee Leach, M.S., Santa Clara University

Assistant Teaching Professors:

Kimberly Kinder, M.S., University of Central Missouri
 Paul Runnion, M.S., University of Missouri - Rolla

Emeritus Faculty:

Tom Akers, M.S., University of Missouri - Rolla
 Lee Bain (Emeritus), Ph.D., Oklahoma State
 August Garver (Emeritus), M.S., Missouri School of Mines
 Glen Haddock (Emeritus), Ph.D., Oklahoma State
 Roger Hering (Emeritus), Ph.D., Southern Illinois
 Troy Hicks (Emeritus), Ph.D., Cincinnati
 W. Thomas Ingram (Emeritus), Ph.D., Auburn
 Mary Kirgan, M.S.T., University of Missouri – Rolla

Minor Programs

A minor in mathematics is available. The minor consists of at least 12 hours of approved mathematics/statistics courses at the **2xxx** level or higher (Computer Science 3200 may be substituted for one of these courses), 9 credit hours of which must be completed in residence at Missouri S&T, and passing all of them with at least a grade of "C". Further, at least 3 of the 12 hours must be at the **3xxx** level or higher. Finally, Math 3304 and Math 3329 cannot both be counted, Math 3103 and Math 3108 cannot both be counted, and at most one of Stat 3111, Stat 3113, Stat 3115 and Stat 3117 may be counted.

Students majoring in mathematics are also eligible to pursue a minor in bioinformatics.

Notes

Detailed information on course equivalencies, acceptable credits for elective coursework, grade requirements and prerequisites is available from Missouri S&T's Registrar's Office at <http://registrar.mst.edu>.

Bachelor of Science

Applied Mathematics 132 credit hours

The Applied Mathematics curriculum requires fifteen semester hours of technical electives in addition to basic courses in chemistry or biological sciences, physics, computer science, and economics. Two semesters of a foreign language, English 1160 or English 3560, and either History 1300, 1310, 1200, or Pol Sc 1200 are also required.

FIRST YEAR

	Credit
Math 1101-Intro to Math.....	1
Math 1208-Calculus w/Analytic Geometry I.....	5
Chemistry 1310, 1319 or Bio Sci 1113, 1219.....	5
Chemistry 1100-Lab Safety.....	1
English 1120-Exposition.....	3
Elective/History or Political Science.....	3
Electives/Foreign Language.....	8
Math 1221-Calculus II w/Analytic Geometry.....	5
Comp Sc 1570 or 1970 & 1980 or Comp Sc 1971 & 1981	3
	34

SECOND YEAR

Math 2222-Calculus III w/Analytic Geometry.....	4
Math 3108-Linear Algebra I.....	3
Stat 3115, 3117, or 5643.....	3
Physics 1111-General Physics I.....	4
Physics 1119-General Physics Lab.....	1
English 1160-Writing & Research.....	3
Math 3304-Elementary Differential Equations.....	3
Math 3109-Foundations of Mathematics.....	3
Econ 1100 or Econ 1200.....	3
Physics 2111-General Physics II.....	4
Physics 2119-General Physics Lab.....	1
Comp Sc 1200, 1510, or 3200.....	<u>3</u>
	35

THIRD YEAR

Math 4209-Advanced Calculus I.....	3
Math 4211-Advanced Calculus II.....	3
Elective/Technical.....	3
Elective/Technical.....	3
Elective/Literature.....	3
Elective/Literature.....	3
Elective/Math or Stat.....	3
Elective/Math or Stat.....	3
Elective/Free.....	3
Elective/Free.....	<u>3</u>
	30

FOURTH YEAR

Math 4096-Problem Solving-Pure Math.....	1
Math 4097-Problem Solving-Applied Math.....	1
Math 4098-Great Theorems in Mathematics.....	1
Elective/Math or Stat.....	3
Elective/Math or Stat.....	3
Elective/Technical.....	3
Elective/Technical.....	3
Elective/Technical.....	3
Elective/Free.....	3
Elective/Free.....	3
Elective/Free.....	3
Elective/Free.....	<u>3</u>
	33