

Mathematics: Applied Mathematics and Statistics Option

Bachelor of Science (BS)

Applied Mathematics and Statistics Option

The Bachelor of Science in Mathematics with an option in applied mathematics and statistics gives students the opportunity to focus in statistics, industrial mathematics or computational mathematics.

The core of this program is composed of calculus, discrete mathematics, probability and statistics, which complement the theoretical and applied components chosen by students. During the first two years of the program, students gain a solid background in mathematics.

Becoming Career Ready...

/ Qualified, diverse faculty work closely with students preparing them for a variety of careers in business and industry.

/ Applied Mathematics and Statistics graduates are actively being recruited by engineering and computer companies, banking, science and financial consulting firms, as well as biomedical and imaging enterprises. Applied Mathematics and Statistics graduates are also prepared to enter graduate school. Examples of job titles include math instructor, actuary, database administrator, financial analyst, logistician, mathematician and statistician.

/ Students have access to modern computer labs with mathematical and statistical software. The program allows for great flexibility in choosing courses from chemistry, computer science, engineering & technology or physics to complement the mathematics and statistics courses. The Applied Mathematics Statistics major makes a great double major with another STEM major. Students are also encouraged to join the Math Club.

/ 100% of Southeast programs offer real-world experience. Applied Mathematics and Statistics students earn this experience through working with the Applied Statistics Center to analyze real-world data sets and by internship opportunities with corporations in metropolitan areas such as St. Louis and Memphis. Students also have the opportunity to work with faculty to present research results at conferences.

/ The path to a successful career starts with you! You can maximize your career development by working closely with Career Services and Southeast faculty – they are here to help you connect your passions, interests and skills to jobs and opportunities in the field. Career Services provides professional career counseling and coaching, resume critiques, practice interviews, job search strategies, career events, networking opportunities and more.

Internship and Employment Opportunities of Recent Graduates:

- Boeing
- MasterCard
- Visa
- Johns Hopkins School of Public Health
- All-State Insurance

Special Options with Mathematics

Southeast offers a Master of Natural Science in Mathematics.

Transfer and Dual Credit Students

If you have dual credit or transfer credit, please visit our transfer course equivalencies guide at semo.edu/transfercredit.

To learn more
 Office of Admissions
 (573) 651-2590
admissions@semo.edu
semo.edu

To explore
 the College of Science,
 Technology, Engineering and
 Mathematics online, visit
semo.edu/stem

For advising
 Center for Academic Advising
semo.edu/advising

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This is a guide based on the 2019-2020 Undergraduate Bulletin and is subject to change. The time it takes to earn a degree will vary based on several factors such as dual enrollment, remediation, and summer enrollment. Students will meet with an academic advisor each semester and use Degree Works to monitor their individual progress.

CURRICULUM CHECKLIST

Mathematics: Applied Mathematics and Statistics Option – 49 hours – no minor required

- ___ MA003 Math Major Field Achievement Test (0)
- ___ MA138 Discrete Mathematics I (3)
- ___ MA140 Analytic Geometry & Calculus I (5)
- ___ MA145 Analytic Geometry & Calculus II (4)
- ___ MA223 Elem Probability & Statistics (3)
- ___ MA244 Analytic Geometry & Calculus III (4)
- ___ MA250 Foundations of Math (3)
- ___ MA345 Linear Algebra (3)
- ___ MA449 Mathematical Problem Solving (3)
- ___ MA523 Probability & Statistics I (3)

Choose 15 Hours From (include at least 3 MA courses):¹

- ___ CH311 Foundations of Physical Chemistry (4)
- ___ CH312 Advanced Physical Chemistry (3)
- ___ CS345 Discrete Structures II (3)
- ___ EP261 Engineering Mechanics Statics (3)
- ___ EP262 Engineering Mechanics Dynamics (3)
- ___ EP361 Thermal Analysis (3)
- ___ EP372 Signals & Systems (3)
- ___ EP374 Control Systems (3)
- ___ MA334 Mathematical Programming (3)
- ___ MA338 Discrete Math II (3)
- ___ MA350 Differential Equations I (3)
- ___ MA423 Statistical Analysis for Forensic Science (3)
- ___ MA425 Applied Regression Analysis (3)
- ___ MA445 Modern Algebra (3)
- ___ MA464 Mathematical Cryptography (3)
- ___ MA524 Probability & Statistics II (3)
- ___ MA545 Linear Algebra & Matrices (3)
- ___ MA546 Advanced Calculus I (3)
- ___ MA547 Advanced Calculus II (3)
- ___ MA550 Differential Equations II (3)
- ___ MA575 Time Series & Forecasting (3)
- ___ MA580 Experimental Design & Analysis of Variance (3)
- ___ MA585 Introduction to Life Contingencies (3)
- ___ PH341 Optics (3)
- ___ PH370 Mechanics (3)
- ___ PH371 Electromagnetics (3)
- ___ PH570 Mathematical Physics (3)

Choose 3 Hours From:²

- ___ MA524 Probability & Statistics II (3)
- ___ MA532 Foundations of Geometry (3)
- ___ MA545 Linear Algebra & Matrices (3)
- ___ MA547 Advanced Calculus II (3)
- ___ MA548 Enumerative Combinatorics (3)
- ___ MA549 Graph Theory (3)
- ___ MA550 Differential Equations II (3)
- ___ MA575 Time Series & Forecasting (3)
- ___ MA585 Introduction to Life Contingencies (3)

General Education Requirements – some requirements may be fulfilled by coursework in major program

- Social and Behavioral Sciences – 6 hours
- Constitution Requirement – 3 hours
- Written Communication – 6 hours
- Oral Communication – 3 hours
- Natural Sciences – 7 hours (from two disciplines, one to include a lab)
- Mathematics – 3 hours
- Humanities & Fine Arts – 9 hours (from at least two disciplines)
- Additional requirements – 5 hours (to include UI100 for native students)
- Civics examination

SAMPLE FOUR-YEAR PLAN

	Fall Semester		Spring Semester	
	Course #	Hrs	Course #	Hrs
FIRST YEAR	UI100	3	MA138	3
	EN100	3	MA145	4
	MA140	5	General Education	3
	General Education	3	General Education	3
	General Education	3	General Education	3
	Total	17	Total	16
SECOND YEAR	MA244	4	MA223	3
	MA250	3	MA345	3
	General Education	3	General Education	3
	General Education	3	General Education	3
	General Education	3	Elective	3
	Total	16	Total	15
THIRD YEAR	MA523	3	Math elective ¹	3
	Math elective ¹	3	Math elective ¹	3
	Math elective ¹	3	Elective	3
	Elective	3	Elective	3
	Elective	3	Elective	2
	Total	15	Total	14
FOURTH YEAR	MA449	3	MA003	0
	Math elective ¹	3	Math elective ²	3
	Elective	3	General Education	3
	Elective	3	Elective	3
	Elective	3	Elective	3
	Total	15	Total	12

Degree requirements for all students: a minimum of 120 credit hours, completion of the General Education program, completion of 39 senior division hours (300-599), and the Writing Proficiency Exam (WP003).

Refer to the Undergraduate Bulletin or Degree Works for additional graduation requirements for your program.

Revised
4/29/2019