

## 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.

#### Applied mathematics and statistics students will...

- Study with our qualified, diverse faculty.
- Interact with accessible faculty who will prepare them for a diverse workforce.
- Be prepared for careers in business and industry.
- Be prepared to enter graduate school.
- Have an opportunity to work with the Applied Statistics Center to analyze real-world data sets.
- Have access to modern computer labs with mathematical and statistical software.
- Be encouraged to join the Math Club.
- Have the opportunity to work with faculty to present research results at conferences.

#### Career Planning

Career preparation is part of the mission of Southeast. 100% of programs offer our students an internship, study-abroad program, clinical opportunity, student teaching or research internship.

The Office of Career Services in Academic Hall 057 can provide students with 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

#### 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](http://semo.edu/transfercredit).

**To learn more**  
 Office of Admissions  
 (573) 651-2590  
[admissions@semo.edu](mailto:admissions@semo.edu)  
[semo.edu](http://semo.edu)

**To explore**  
 the College of Science,  
 Technology, Engineering and  
 Mathematics online, visit  
[semo.edu/stem](http://semo.edu/stem)

**For advising**  
 Center for Academic Advising  
[semo.edu/advising](http://semo.edu/advising)

**Mathematics: Applied Mathematics and Statistics Option****Bachelor of Science (BS)**

This is a guide based on the 2018-2019 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):<sup>1</sup>**

- \_\_\_ 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:<sup>2</sup>**

- \_\_\_ 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)

**University Studies Requirements** – some requirements may be fulfilled by coursework in major program

- Social and Behavioral Sciences – 3 hours
- Constitution requirement – 3 hours
- US History 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)

**SAMPLE FOUR-YEAR PLAN**

	Fall Semester		Spring Semester	
	Course #	Hrs	Course #	Hrs
<b>FIRST YEAR</b>	UI100	3	MA145	4
	EN100	3	MA223	3
	MA140	5	University Studies	3
	University Studies	3	University Studies	3
	University Studies	3	University Studies	3
	<b>Total</b>	<b>17</b>	<b>Total</b>	<b>16</b>
<b>SECOND YEAR</b>	MA138	3	MA250	3
	MA244	4	MA345	3
	University Studies	3	University Studies	3
	University Studies	3	University Studies	3
	University Studies	3	Elective	3
	<b>Total</b>	<b>16</b>	<b>Total</b>	<b>15</b>
<i>(summer courses are encouraged to avoid 18 hour semesters)</i>				
<b>THIRD YEAR</b>	MA523	3	Math elective <sup>1</sup>	3
	Math elective <sup>1</sup>	3	Math elective <sup>1</sup>	3
	Math elective <sup>1</sup>	3	Elective	3
	Elective	3	Elective	3
	Elective	3	Elective	2
	<b>Total</b>	<b>15</b>	<b>Total</b>	<b>14</b>
<b>FOURTH YEAR</b>	MA449	3	MA003	0
	Math elective <sup>1</sup>	3	Math elective <sup>2</sup>	3
	Elective	3	University Studies	3
	Elective	3	Elective	3
	Elective	3		
	<b>Total</b>	<b>15</b>	<b>Total</b>	<b>12</b>

**Degree requirements for all students:** a minimum of 120 credit hours, completion of University Studies program, completion of 39 senior division hours (300-599), Writing Proficiency Exam (WP003), and completion of the Measure of Academic Proficiency and Progress (MAP) at the senior level. Refer to the Undergraduate Bulletin or Degree Works for additional graduation requirements for your program.

Revised  
8/7/2018