COLLEGE OF SCIENCE, TECHNOLOGY AND AGRICULTURE

# Mathematics: Actuarial Science Option

SOUTHEAST MISSOURI STATE UNIVERSITY · 1873

**Bachelor of Science (BS)**

Actuarial Science Option

Actuarial science includes the study of areas such as mathematics, probability, statistics, finance, and economics. An actuary applies these areas of study to assess risk in business and industrial settings. The most common areas studied are insurance and finance.

## Actuarial science students will...

- Interact with statistics and actuarial faculty with diverse backgrounds.
- Be exposed to practical projects in actuarial risk, financial time series, and regression modeling.
- Have a strong foundation in calculus and probability.
- Be prepared for professional examinations. Curriculum guidance and study sessions are part of the program core.
- Have access to modern computer labs with mathematical and statistical software.
- Be encouraged to join Math Club.
- Learn how to use software to model and predict risk behaviors.
- Enroll in business courses, which is a unique feature of this program.
- Have opportunities to intern with corporations in metropolitan areas such as St. Louis and Memphis.

## Career Planning

Career preparation is part of the mission of Southeast. In fact, more than 90% of Southeast students participate in internships, clinical opportunities, student teaching, research assistantships, and study abroad.

Professional career counselors are available for all students. The Office of Career Services in Academic Hall 057 can provide students with professional career counseling, resume critiques, practice interviews, job search strategies, career events, networking opportunities, and more.

| Demonstrated Career Proficiency is a Requirement of all Southeast Students | | |
|---|---|---|
| CL001/CL002 | First Semester | Complete the FOCUS2 assessment and develop a Career Action Plan. |
| CL003 | Junior Year | Students gain information about career planning and job searching resources. |
| CL004 | Senior Year | Students demonstrate advanced proficiency by identifying a position in their field, developing a cover letter, and tailoring a resume for the position. Materials are critiqued to ensure preparedness for a successful job search. |

## Internship and Employment Opportunities of Recent Graduates

- New York Stock Exchange
- The Hartford
- State Farm
- Lockton Companies

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

**To explore the College of Science, Technology and Agriculture online, visit www.semo.edu/costa**

**For advising**
**College of Science, Technology and Agriculture Advising Center**
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Degree Map 2015-2016

This is a guide based on the 2015-2016 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 DegreeWorks to monitor their individual progress.

## CURRICULUM CHECKLIST

**Mathematics: Actuarial Science Option – 73-74 hours – No minor required**

___ MA 003 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)
___ MA345 Linear Algebra (3)
___ MA375 Theory of Interest (3)
___ MA385 Financial Mathematics (3)
___ MA425 Applied Regression Analysis (3)
___ MA523 Probability & Statistics I (3)
___ MA524 Probability & Statistics II (3)
___ MA526 Actuarial Seminar (3)
___ MA575 Time Series and Forecasting (3)
___ MA585 Introduction to Life Contingencies (3)
___ AC221 Principles of Accounting I (3)
___ AC222 Principles of Accounting II (3)
___ EC215 Principles of Microeconomics (3)
___ EC225 Principles of Macroeconomics (3)
___ FI361 Financial Management (3)
___ FI362 Advanced Financial Management (3)

***Choose one of the following: 3-4 Hours***

___ CS155 Computer Science I (4)
___ CS177 Programming for Scientists and Engineers (3)

***Choose 6 hours from the following:***

___ EC351 Applied Economic Models (3)
___ EC490 Business Forecasting (3)
___ FI351 Principles of Insurance (3)
___ FI368 Investments (3)
___ MA350 Differential Equations I (3)
___ MA525 Actuarial Modeling (3)
___ MA546 Advanced Calculus I (3)
___ MA550 Differential Equations II (3)
___ MA580 Experimental Design and Analysis of Variance (3)

**University Studies Requirements (not already listed above):**
UI100 First Year Seminar, EN100 English Composition, Artistic Expression, Literary Expression, Oral Expression, Written Expression, Behavioral Systems, Living Systems, Physical Systems, Development of a Major Civilization, Political Systems, Social Systems, and two IU/UI3XXs and one IU/UI4XX.

## SAMPLE FOUR-YEAR PLAN

| | Fall Semester | | Spring Semester | |
|---|---|---|---|---|
| | Course # | Hrs | Course # | Hrs |
| FIRST YEAR | UI100 | 3 | AC222 | 3 |
| | EN100 | 3 | MA145 | 4 |
| | AC221 | 3 | MA223 | 3 |
| | MA140 | 5 | Living Systems | 3 |
| | Behavioral Systems | 3 | Written Expression | 3 |
| | **Total** | **17** | **Total** | **16** |
| SECOND YEAR | EC215 | 3 | EC225 | 3 |
| | MA138 | 3 | MA250 | 3 |
| | MA244 | 4 | MA345 | 3 |
| | MA375 | 3 | MA385 | 3 |
| | Literary Expression | 3 | Oral Expression | 3 |
| | **Total** | **16** | **Total** | **15** |
| | *(summer courses are encouraged to avoid 18 hour semesters)* | | | |
| THIRD YEAR | MA523 | 3 | FI361 | 3 |
| | Computer Programming[1] | 3 | MA524 | 3 |
| | Major elective[2] | 3 | MA526 | 3 |
| | Physical Systems | 3 | MA585 | 3 |
| | IU/UI3xx | 3 | Political Systems | 3 |
| | **Total** | **15** | **Total** | **15** |
| FOURTH YEAR | FI362 | 3 | MA003 | 0 |
| | MA425 | 3 | MA575 | 3 |
| | Major elective[2] | 3 | Artistic Expression | 3 |
| | Social Systems | 3 | Develop of a Major Civ | 3 |
| | IU/UI3xx | 3 | UI4xx | 3 |
| | **Total** | **15** | **Total** | **15** |

[1]Select one: CS155 or CS177

[2]Major Electives include two of the following courses:MA350, MA525, MA546, MA550, MA580, EC351, EC490, FI351 or FI368.

***Degree requirements for all students:*** *a minimum of 120 credit hours, completion of University Studies program, career proficiencies (CL001-004), Writing Proficiency Exam (WP003), and completion of the Measure of Academic Proficiency and Progress (MAPP) at the senior level.*

*Refer to the Undergraduate Bulletin or DegreeWorks for additional graduation requirements (i.e. minimum GPA and coursework) for your program of study.*

*Revised 8/13/2015*


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