B.S. APPLIED and COMPUTATIONAL MATHEMATICS

EMPHASIS in ECONOMICS, FINANCE, and ACTUARIAL SCIENCE

Program Requirements

Support Courses (22-24 units)
Math 100W ..........................................................Technical Writing Workshop
Econ 1A ..................................................Principles of Econ: Macroeconomics
Econ 1B ..................................................Principles of Econ: Microeconomics
Math 50 ......................................................Scientific Computing I
or 109 .....................................................Mathematical Software
or CS 46A ................................................Intro to Programming
or CS 49C ................................................Programming in C
or CS 49J ................................................Programming in Java
Econ 101 ..................................................Microeconmic Analysis
Econ 102 ..................................................Macroeconomic Analysis
Bus 2 190 ................................................Quantitative Business Analysis

Required Lower Division Courses (13-15 units)
Math 30 or 30P, 31, 32 ........................................Calculus I, II, III
Math 42 ..................................................Discrete Mathematics

Required Upper Division Courses (24 units)
Math 129A ..................................................Linear Algebra I
Math 133A ..................................................Ordinary Differential Equations
Math 143C ................................................Numerical Analysis & Scientific Computing
Math 161A ................................................Applied Statistics I
Math 161B ................................................Applied Statistics II
Math 163 ..................................................Probability Theory
Math 177 ..................................................Linear and Nonlinear Optimization
or ISE 170 ................................................Operations Research
Math 178 ..................................................Mathematical Modeling

Elective Upper Division Courses (9-10 units)
Choose from the following:
Math 131A ................................................Intro to Analysis
or Math 132 ................................................Advanced Calculus
Econ 103 ..................................................Intro to Econometrics
Econ 104 ..................................................Mathematical Methods for Economics
Econ 106 ..................................................Managerial Economics
Econ 138 ..................................................Business & Economic Forecasting
Econ 139 ..................................................Principles of Investments
Bus 170 ..................................................Fundamentals of Finance
Bus 172A ................................................Investment Analysis
Bus 172B ................................................Portfolio Management
ISE 167 ..................................................System Simulation

Total units required for degree ................. 120

This program is designed for students who want to become actuaries and for students who want a program that integrates business, economics, and mathematics. Actuaries are trained to analyze risk and are typically employed by insurance companies, banks, the government, and companies that handle retirement funds.

For information concerning a career in actuarial science, see http://beanactuary.org

Notes

1. To enroll in mathematics course, a student must have obtained a C- or better in each of its prerequisite courses. A grade of C- or better is required in all courses counted toward the major.

2. All upper division math courses, except 100W, 101, 105, 106, 107A, 107B, and 123 will be included in the major GPA, whether they are used to satisfy the requirements of the major or not.

3. Transfer students should see an advisor to file a course equivalency form for courses being transferred.

4. Students are expected to consult the SJSU Catalog for course descriptions, prerequisites, restrictions on enrollments for credit, and other university policies.

5. If a student wishes to pursue this degree but is not enrolled in this major, the student must submit a Change of Major Form with the Department Office (MH 308). The approved form must then be filed with the Student Services Center.

6. Prerequisite Listing for courses taught by other departments:
   Econ 101: Econ 1B
   Econ 102: Econ 1A
   Econ 103: Econ 3 or Math 161A
   Econ 104: Econ 1A; Econ 1B; and (Math 71 or Math 31)
   Econ 106: Econ 1B
   Econ 138: Econ 1A; Econ 1B; and Math 161A
   Econ 139: Econ 1A; and Econ 1B
   Bus 170: Bus 20N; Bus 21; Econ 1A; Econ 1B; and Math 161A
   Bus 172A: Bus 172A; and Math 100W or Bus 2100W
   Bus 172B: Bus 90, or Math 42 and Math 161A
   ISE 167: CS 46A or CS 49; and ISE 170; and Math 161A or ISE 130
   ISE 170: ISE 130 or Math 161A; and Math 129A

Computing Facilities

The department maintains a computer laboratory for student use to support course work in the department. Students may use the computer lab either by registering for one unit of lab or by paying a semester fee. There is also a Macintosh lab serving classes for future K-12 teachers of mathematics. It is equipped with 20 iMacs. All computers in the department are networked.

For More Information
Department of Mathematics
San Jose State University
One Washington Square
San Jose, CA 95192-0103
www.math.sjsu.edu

SJSU does not discriminate on the basis of race, color, religion, national-origin, sex, sexual orientation, marital status, pregnancy, age, disability, disabled veteran's or Vietnam veteran's status. This policy applies to all SJSU student, faculty and staff programs and activities. Questions regarding this policy should be directed to the Office of Equal Opportunity, Administration Room 112, (408) 924-1115.

03/08
Sample Program for
BSACM – Emphasis in Economics, Finance, and Actuarial Science

**Freshman Year**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Units</th>
<th>Spring</th>
<th>Units</th>
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<tbody>
<tr>
<td>GE A1 Oral Communication</td>
<td>3</td>
<td>Math 31</td>
<td>4</td>
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<tr>
<td>GE A2 English 1A *</td>
<td>3</td>
<td>Math 42</td>
<td>3</td>
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<tr>
<td>GE A3 Philosophy 57º</td>
<td>3</td>
<td>GE C3 English 1B</td>
<td>3</td>
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<tr>
<td>GE B4 Math 30 or 30P **+</td>
<td>3 – 5</td>
<td>GE B2 Life Science</td>
<td>3</td>
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<tr>
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<td>Physical Education</td>
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<td><strong>13-15</strong></td>
<td><strong>Total</strong></td>
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**Sophomore Year**

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<tbody>
<tr>
<td>Math 32</td>
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<td>3</td>
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<td>Math 129A</td>
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<td>Math 143C</td>
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<td>Math 50 or Math 109 or CS 46A  or CS 49C or CS 49J</td>
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<td>GE D1 Econ 1B</td>
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<td>GE Area E</td>
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<tr>
<td>GE Areas D2 &amp; F</td>
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**Junior Year**

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<tbody>
<tr>
<td>Math 161A</td>
<td>3</td>
<td>Math 161B</td>
<td>3</td>
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<tr>
<td>Math 178</td>
<td>3</td>
<td>Math 177 or ISE 170</td>
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<tr>
<td>Econ 101</td>
<td>3</td>
<td>Econ 102</td>
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<tr>
<td>GE Area B1 &amp; B4</td>
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<td>GE Area C2</td>
<td>3</td>
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<td>GE Area C1</td>
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<td>GE Area Z Math 100W *</td>
<td>3</td>
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<td><strong>Total</strong></td>
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**Senior Year**

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<tr>
<td>Bus2 190</td>
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<td>GE Area V</td>
<td>3</td>
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<td>GE Areas R &amp; S</td>
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<td>Free electives</td>
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<td><strong>Total</strong></td>
<td><strong>11-17</strong></td>
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*Requires a placement exam. See the Schedule of Classes for test dates and further explanation.

+ Requires satisfaction of the ELM requirement.

º Recommended course for GE A3.