APPLIED MATHEMATICS - BS, ECONOMICS EMPHASIS

The curriculum in the Bachelor of Science in Applied Mathematics with an Economics emphasis explores the application of analytical problem-solving tools to challenges in business and financial industries. Students in the Economics emphasis investigate techniques in applied and pure mathematics and pursue electives in economics and finance that demonstrate how mathematics can be used to model economic and financial concerns.

A student completing this program is prepared to enter employment with analytical and quantitative tools relevant to modern financial markets. Coursework in the Economics emphasis prepares students to take actuarial exams necessary for employment in the actuarial industry. Furthermore, with the appropriate electives chosen, the student is prepared to enter quantitatively oriented graduate schools, including PhD programs in Applied Mathematics or Mathematics. A minor in business or economics is well suited to students in this program. All advising for this degree option is done through the Undergraduate Program Office in the Department of Mathematics.

Program Requirements

First Year

Fall		**Semester Credit Hours**
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 171	Calculus I [1]	4
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		3
Freshman Science elective [2]		4
General elective [4]		1
Semester Credit Hours	**15**

Spring | |
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ECON 202 | Principles of Economics | 3
MATH 172 | Calculus II [1] | 4
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3] | | 3
Freshman Science elective [2] | | 4
General elective [4] | | 1
| **Semester Credit Hours** | **15**

Second Year

Fall | |
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MATH 221 | Several Variable Calculus | 4
MATH 300 | Foundations of Mathematics | 3
STAT 211 | Principles of Statistics I | 3
Select one of the following: | | 4
CSCE 110 | Programming I |
CSCE 111 | Introduction to Computer Science Concepts and Programming |
CSCE 206 | Structured Programming in C |
| **Semester Credit Hours** | **14**

Spring | |
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MATH 308 | Differential Equations | 3
MATH 323 | Linear Algebra | 3
ECON 323 | Microeconomic Theory | 3
STAT 212 | Principles of Statistics II | 3
Select one of the following: | | 3-4
CSCE 110 | Programming I |
CSCE 111 | Introduction to Computer Science Concepts and Programming |
CSCE 120 | Program Design and Concepts |
CSCE 206 | Structured Programming in C |
| **Semester Credit Hours** | **15**

Third Year

Fall | |
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MATH 325 | The Mathematics of Interest | 3
MATH 409 | Analysis on the Real Line | 3
PHYS 206 & PHYS 226 | Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences | 4
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3] | | 3
| **Semester Credit Hours** | **13**

Spring | |
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MATH 411 or STAT 414 | Mathematical Probability or Mathematical Statistics I | 3
MATH 425 | The Mathematics of Contingent Claims | 3
Select one of the following: | | 4
OCNG 451 | Mathematical Modeling of Ocean Climate |
PHYS 207 & PHYS 227 | Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences |
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3] | | 3
General elective [4] | | 3
| **Semester Credit Hours** | **16**

Fourth Year

Fall | |
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MATH 407-499 (http://catalog.tamu.edu/undergraduate/course-descriptions/math/) | | 3
ECON 459 | Games and Economic Behavior (University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/)) [3] | 3
Select one of the following: | | 3
COMM 203 | Public Speaking |
COMM 205 | Communication for Technical Professions |
COMM 243 | Argumentation and Debate |

University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		3
General elective [4]		4
Semester Credit Hours		**16**
Spring		
ISEN 320 or ISEN 340	Operations Research I or Operations Research II	3
MATH 407-499 (http://catalog.tamu.edu/undergraduate/course-descriptions/math/)		3
ECMT 463	Introduction to Econometrics	3
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [3]		3
General elective [4]		3-4
Semester Credit Hours		**16**
Total Semester Credit Hours		**120**

[1] MATH 170 is highly recommended for math majors co-enrolled in MATH 150, MATH 151, MATH 152, MATH 171 or MATH 172.

[2] Select 4 hours from: ASTR 111, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117. The remaining 4 hours may be selected from: ASTR 111, ATMO 201/ATMO 202, BIOL 111, BIOL 112, CHEM 119, CHEM 120, CHEM 107/CHEM 117, GEOL 101/GEOL 102, OCNG 251/OCNG 252.

[3] Of the 18 hours shown as University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/), 3 must be from language, philosophy and culture, 3 from creative arts, 6 from American history, 6 from Government/Political Science.

[4] Select from any 100-499 course not used elsewhere, (except ALED 125; ASCC 102; ASTR 109/PHYS 109, ASTR 119/PHYS 119; BMEN 153; ISEN 101; KINE 199; LAND 101; MATH 102-148, MATH 151-168 (http://catalog.tamu.edu/undergraduate/course-descriptions/math/), MATH 304, MATH 309, MATH 311, MATH 365, MATH 366, MATH 367, MATH 375, MATH 376; PBSI 301; PHYS 201, PHYS 202, PHYS 205; STAT 201, STAT 301, STAT 302, STAT 303).

Maximum of 3 hours of MATH 300 or CSCE 222/ECEN 222 may be used in this degree program.

Maximum of 3 hours of MATH 411 or STAT 414 may be used in this degree program.

Maximum of 4 hours of MATH 417, MATH 437 or CSCE 442 may be used in this degree program.

If a grade of D or F is earned in any of the following courses, MATH 151/MATH 171, MATH 152/MATH 172, MATH 221/MATH 251/MATH 253, MATH 300, MATH 323 or MATH 308, this course must be immediately retaken and a grade of C or better earned. The department will allow at most two D's in upper-level (325-499) courses. If a third D is earned, one of the three courses in which a D was earned must be retaken and a grade of C or better earned.

Students desiring teacher certification should consult the requirements for certification before registering for electives.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity course (http://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/)s and 3 hours of Cultural Discourse (http://catalog.tamu.edu/undergraduate/general-information/degree-information/cultural-discourse-requirements/) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement. See academic advisor.