APPLIED MATHEMATICS - 5-YEAR BACHELOR OF SCIENCE AND MASTER OF SCIENCE IN ECONOMICS

This combination 5-year program is uniquely designed to open doors for high-achieving undergraduate students to simultaneously pursue a Bachelor of Science in Applied Mathematics, Economics emphasis, and a Master of Science in Economics non-thesis option.

This innovative program equips students with a powerful blend of economic expertise and mathematical prowess, enabling them to cultivate a profound understanding of analytical theory and the technical skills essential for logical reasoning in economic modeling and financial analysis.

Upon completion of this program, students emerge as well-prepared professionals poised for immediate entry into careers spanning government, industry, and business. Students are equipped to work as consultants in domains such as finance, business strategy, international trade, and investment, showcasing their ability to navigate complex economic landscapes. Moreover, this program lays a robust foundation for those aspiring to pursue PhD programs in economics, finance, or related fields, placing a strong emphasis on quantitative analyses as they embark on their academic journeys.

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 (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [2]		3
Freshman Science elective [3]		4
General elective [4]		1
	Semester Credit Hours	**15**
Spring		
ECON 202	Principles of Economics	3
MATH 172	Calculus II [1]	4
University Core Curriculum (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [2]		3
Freshman Science elective [3]		4
General elective [4]		1
	Semester Credit Hours	**15**
Second Year		
Fall		
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		
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		
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 (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [2]		3
	Semester Credit Hours	**13**
Spring		
ECON 203	Principles of Economics	3
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 (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [2]		3
	Semester Credit Hours	**16**
Fourth Year		
Fall		
ECON 607 or ECMT 673	Foundations of Microeconomic Theory [5] or Economic Analytics	3
MATH 407-499 (https://catalog.tamu.edu/undergraduate/course-descriptions/math/)		3
MATH 437	Principles of Numerical Analysis	4
Select one of the following:		3

COMM 203	Public Speaking	
COMM 205	Communication for Technical Professions	
COMM 243	Argumentation and Debate	
University Core Curriculum (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [2]		3
Semester Credit Hours		**16**
Spring		
ECMT 463	Introduction to Econometrics	3
MATH 407-499 (https://catalog.tamu.edu/undergraduate/course-descriptions/math/)		3
ECON 611 or ECMT 674	Foundations of Macroeconomic Theory [5] or Economic Forecasting	3
University Core Curriculum (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) [2]		3
General elective [4]		3-4
Semester Credit Hours		**16**
Fifth Year		
Fall		
ECON 607 or ECMT 673	Foundations of Microeconomic Theory or Economic Analytics	3
ECON 675	Capstone for Financial Economics/Financial Econometrics	3
ECON/ECMT electives [6]		6
Semester Credit Hours		**12**
Spring		
ECON 611 or ECMT 674	Foundations of Macroeconomic Theory or Economic Forecasting	3
ECON/ECMT electives [6]		9
Semester Credit Hours		**12**
Summer		
ECON 684	Professional Internship [7]	6
Semester Credit Hours		**6**
Total Semester Credit Hours		**150**

[1] MATH 170 is highly recommended for math majors co-enrolled in MATH 150, MATH 151, MATH 152, MATH 171 or MATH 172. MATH 200 is also highly recommended for math majors co-enrolled in MATH 151, MATH 152, MATH 171 or MATH 172.

[2] Of the 18 hours shown as University Core Curriculum (https://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, and 6 from Government/Political Science.

[3] 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.

[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; KINE 199; LAND 101; MATH 102-148, MATH 151-168 (https://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).

[5] These hours will be applied towards the BS Applied Mathematics and MS Economics degrees.

[6] Economics graduate advisor will assist with the graduate course electives.

[7] Students may participate in an ECON 684 or enroll for two courses during the summer immediately following completion of their final Spring semester Bachelor course requirements.

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 (https://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/)s and 3 hours of Cultural Discourse (https://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.

This program includes a total of 156 hours, which up to 6 hours may be applied toward both the Bachelor of Science in Applied Mathematics and the Master of Science in Economics (Non-Thesis Option).