

APPLIED MATHEMATICS - BS, BIOLOGICAL SCIENCE EMPHASIS

The curriculum in the Bachelor of Science in Applied Mathematics with a Biological Science emphasis explores the application of analytical problem-solving tools to problems in biology, medicine and the environment.

Program Requirements

Biological Science Emphasis: Consult with departmental advisor.

First Year

		Semester Credit Hours
Fall		
BIOL 111	Introductory Biology I	4
CHEM 119	Fundamentals of Chemistry I	4
ENGL 104 or ENGL 103	Composition and Rhetoric or Introduction to Rhetoric and Composition	3
MATH 171	Calculus I	4
General Elective ^{1,4}		1
Semester Credit Hours		16

Spring

BIOL 112	Introductory Biology II	4
CHEM 120	Fundamentals of Chemistry II	4
ENGL 203 or ENGL 210	Writing About Literature or Technical and Professional Writing	3
MATH 172	Calculus II	4
General Elective ^{1,4}		1
Semester Credit Hours		16

Second Year

		Semester Credit Hours
Fall		
BIOL 200-470 (https://catalog.tamu.edu/undergraduate/course-descriptions/biol/)		3
CHEM 227 & CHEM 237	Organic Chemistry I and Organic Chemistry Laboratory	4
MATH 221	Several Variable Calculus	4
MATH 300	Foundations of Mathematics	3
Semester Credit Hours		14

Spring

BIOL 200-470 (https://catalog.tamu.edu/undergraduate/course-descriptions/biol/)		3
CHEM 228 & CHEM 238	Organic Chemistry II and Organic Chemistry Laboratory	4
MATH 308	Differential Equations	3
MATH 323	Linear Algebra	3
University Core Curriculum (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ^{2,5}		3
Semester Credit Hours		16

Third Year

		Semester Credit Hours
Fall		
BICH 410	Comprehensive Biochemistry I	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
STAT 312	Statistics for Biology	3
University Core Curriculum (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ²		3
Semester Credit Hours		16

Spring

MATH 411	Mathematical Probability	3
MATH 469	Introduction to Mathematical Biology	3
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	4
University Core Curriculum (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ²		3
Semester Credit Hours		13

Fourth Year

		Semester Credit Hours
Fall		
Select 6 hours from the following: ³		6
MATH 325	The Mathematics of Interest	
MATH 407-499 (https://catalog.tamu.edu/undergraduate/course-descriptions/math/)		
Select from one of the following:		4
CSC 110	Programming I	
CSC 111	Introduction to Computer Science Concepts and Programming	
CSC 206	Structured Programming in C	
University Core Curriculum (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ²		3
University Core Curriculum (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ²		3
Semester Credit Hours		16

Spring

MATH 442	Mathematical Modeling	3
Select 3 hours from the following:		3
MATH 325	The Mathematics of Interest	
MATH 407-499 (https://catalog.tamu.edu/undergraduate/course-descriptions/math/)		
University Core Curriculum (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ²		3
University Core Curriculum (https://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ²		3

General Elective ⁴	1
Semester Credit Hours	13
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. 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, 6 from Government/Political Science.

³ Select from MATH 325, MATH 407-499 (<https://catalog.tamu.edu/undergraduate/course-descriptions/math/>). One course must be a W or C course.

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 - 303 (<https://catalog.tamu.edu/undergraduate/course-descriptions/stat/>)).

⁵ PBSI 107 or SOCI 205 is recommended for Medical School.

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 Ds 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.