

APPLIED MATHEMATICS - BS, CRYPTOGRAPHY EMPHASIS

Program Requirements

First Year

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

Spring

ECON 202 Principles of Economics or ECON 203 or Principles of Economics	3
MATH 172 Calculus II	4
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ¹	3
Freshman Science elective ²	4
General elective ^{3,4}	1
Semester Credit Hours	15

Second Year

	Semester Credit Hours
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

CSCE 120 Program Design and Concepts	3
MATH 308 Differential Equations	3
MATH 323 Linear Algebra	3
STAT 212 Principles of Statistics II	3
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ¹	3
Semester Credit Hours	15

Third Year

	Semester Credit Hours
Fall	
MATH 409 Analysis on the Real Line	3
MATH 470 Communications and Cryptography	3

PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	4
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University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ¹	3
General Elective ⁴	1

Semester Credit Hours 14

	Semester Credit Hours
Spring	
MATH 415 Modern Algebra I ⁵ or MATH 433 or Applied Algebra	3
MATH 471 Communications and Cryptography II	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/) ¹	3
General elective ⁴	3

Semester Credit Hours 16

Fourth Year

	Semester Credit Hours
Fall	
MATH 427 Introduction to Number Theory or MATH 431 or Structures and Methods of Combinatorics	3

MATH 472 Elliptic Curve Cryptography	3
Select 3 hours from the following:	3
CSCE 210-470 (http://catalog.tamu.edu/undergraduate/course-descriptions/csce/) ⁶	

ISEN 320 Operations Research I	
ISEN 340 Operations Research II	
MATH 325 The Mathematics of Interest	

MATH 407-499 (http://catalog.tamu.edu/undergraduate/course-descriptions/math/)	
STAT 335-482 (http://catalog.tamu.edu/undergraduate/course-descriptions/stat/)	

Select one of the following:	3
COMM 203 Public Speaking (Select one of the following:)	

COMM 205 Communication for Technical Professions	
COMM 243 Argumentation and Debate (Elective)	

General elective ⁴	3
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Semester Credit Hours 15

	Semester Credit Hours
Spring	
MATH 411 Mathematical Probability	3
MATH 437 Principles of Numerical Analysis	4
Select 3 hours from the following:	3

CSCE 210-470 (http://catalog.tamu.edu/undergraduate/course-descriptions/csce/) ⁶	
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MATH 325 The Mathematics of Interest	
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MATH 407-499 (http://catalog.tamu.edu/undergraduate/course-descriptions/math/)	
Select 3 hours from the following:	3
CSCE 210-470 (http://catalog.tamu.edu/undergraduate/course-descriptions/csce/) ⁶	
ISEN 320 Operations Research I	
ISEN 340 Operations Research II	
MATH 325 The Mathematics of Interest	
MATH 407-499 (http://catalog.tamu.edu/undergraduate/course-descriptions/math/)	
STAT 335-482 (http://catalog.tamu.edu/undergraduate/course-descriptions/stat/)	
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ¹	3
Semester Credit Hours	16
Total Semester Credit Hours	120

¹ 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; and 6 from Government/Political Science.

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 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.

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 (<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 301-303 (<http://catalog.tamu.edu/undergraduate/course-descriptions/stat/>)).

⁵ MATH 433 is only offered in spring semesters.

⁶ Except CSCE 222/ECEN 222, CSCE 285, CSCE 289, CSCE 291, CSCE 402.

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 grades of D 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.