APPLIED MATHEMATICS - BS, CRYPTOGRAPHY EMPHASIS

Program Requirements

First Year
Fall
ENGL 104 or ENGL 103 Composition and Rhetoric 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/) 3
Freshman Science elective  2  4
General elective  3,4  1
Semester Credit Hours  15

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

Third Year
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
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) 3
General Elective  4  1
Semester Credit Hours  14

Spring
MATH 415 or MATH 433 Modern Algebra I 5 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 4
University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) 3
General elective  4  3
Semester Credit Hours  16

Fourth Year
Fall
MATH 427 or MATH 431 Introduction to Number Theory 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
Semester Credit Hours  15

Spring
MATH 411 Mathematical Probability 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
MATH 325 The Mathematics of Interest
MATH 407-499 (http://catalog.tamu.edu/undergraduate/course-descriptions/math/)
Semester Credit Hours  15
Select 3 hours from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCE 210-470</td>
<td>(<a href="http://catalog.tamu.edu/undergraduate/course-descriptions/csce/">http://catalog.tamu.edu/undergraduate/course-descriptions/csce/</a>)</td>
<td>6</td>
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<tr>
<td>ISEN 320</td>
<td>Operations Research I</td>
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</tr>
<tr>
<td>ISEN 340</td>
<td>Operations Research II</td>
<td></td>
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<tr>
<td>MATH 325</td>
<td>The Mathematics of Interest</td>
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<td>MATH 407-499</td>
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University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/)  
General elective

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<thead>
<tr>
<th>Semester Credit Hours</th>
<th>Total Semester Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>16</td>
<td>120</td>
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</tbody>
</table>

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

5. MATH 433 is only offered in Spring semesters.


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.