

MATHEMATICS - 5-YEAR BACHELOR OF ARTS AND MASTER OF SCIENCE IN MATHEMATICS

The combined degree program enables ambitious and academically talented mathematics majors at Texas A&M University to earn both a bachelor's degree and a master's degree within a period of five years after entering Texas A&M. The curriculum in the Bachelor of Arts in Mathematics 5-year combined program affords students to undertake a traditional liberal arts education in mathematics. Students in this program investigate a broad array of techniques in mathematics and pursue electives in related fields that demonstrate how mathematics is fundamental to the world at large. The degree is well suited for students interested in pursuing mathematics and some other area, and a minor field of study is required for this degree.

Among the various advantages of the program, upon its completion a student will be in an exceptionally strong position to enter:

- The professional industrial job marketplace;
- A career in secondary education;
- A doctoral program in mathematics, or in a related discipline, at Texas A&M or another university.

The related disciplines include computer science, engineering, physics, statistics, genetics, economics, business administration, education, and biology.

Eligibility for entering a doctoral program in one of these disciplines would depend in part on the undergraduate and graduate external options and areas of emphasis that were reflected in a student's individual degree plan.

Program Requirements

First Year

| | | Semester Credit Hours |
|---|---|-----------------------|
| 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/) ¹ | | 3 |
| Freshman Science elective ² | | 4 |
| General elective ^{3,4} | | 1 |
| Semester Credit Hours | | 15 |

Spring

| | | |
|------------------------------|---|---|
| MATH 172 | Calculus II | 4 |
| 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 | |
| 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 | | 16 |

Second Year

Fall

| | | |
|---|----------------------------|-----------|
| MATH 221 | Several Variable Calculus | 4 |
| MATH 300 | Foundations of Mathematics | 3 |
| STAT 211 | Principles of Statistics I | 3 |
| University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ¹ | | 3 |
| University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ¹ | | 3 |
| Semester Credit Hours | | 16 |

Spring

| | | |
|---|---|-----------|
| MATH 308 | Differential Equations | 3 |
| MATH 323 | Linear Algebra | 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/) ¹ | | 3 |
| Minor elective ⁵ | | 3 |
| Semester Credit Hours | | 15 |

Third Year

Fall

| | | |
|-------------------------------|--|-----------|
| 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 |
| Minor elective ⁵ | | 3 |
| General elective ⁴ | | 3 |
| Semester Credit Hours | | 13 |

Spring

| | | |
|---|-------------------|---|
| Select one of the following: | | 3 |
| MATH 415 | Modern Algebra I | |
| MATH 423 | Linear Algebra II | |
| MATH 433 | Applied Algebra | |
| Select 3 hours from the following: | | 3 |
| CSCE 210-470 (http://catalog.tamu.edu/undergraduate/course-descriptions/csce/) ⁶ | | |
| ISEN 320-430 (http://catalog.tamu.edu/undergraduate/course-descriptions/isen/) | | |
| MATH 403-499 (http://catalog.tamu.edu/undergraduate/course-descriptions/math/) | | |

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|--|-----------|
| STAT 335-482 (http://catalog.tamu.edu/undergraduate/course-descriptions/stat/) | |
| Minor electives ⁵ | 6 |
| General elective ⁴ | 3 |
| Semester Credit Hours | 15 |

Fourth Year

Fall

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| Select 6 hours from the following: ⁷ | 6 |
| MATH 603-628 (http://catalog.tamu.edu/undergraduate/course-descriptions/math/) | |
| MATH 630-639 (http://catalog.tamu.edu/undergraduate/course-descriptions/math/) | |
| MATH 641-644 (http://catalog.tamu.edu/undergraduate/course-descriptions/math/) | |
| MATH 647-684 (http://catalog.tamu.edu/undergraduate/course-descriptions/math/) | |
| University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) ¹ | 3 |
| Minor elective ⁵ | 3 |
| General elective ⁴ | 3 |
| Semester Credit Hours | 15 |

Spring

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|--|-----------|
| Select 3 hours from the following: | 3 |
| MATH 325 The Mathematics of Interest | |
| MATH 403-499 (http://catalog.tamu.edu/undergraduate/course-descriptions/math/) | |
| University Core Curriculum (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/) | 3 |
| Minor elective ³ | 3 |
| General elective ⁴ | 6 |
| Semester Credit Hours | 15 |

Total Semester Credit Hours 120

Fifth Year

Fall

| | | |
|------------------------------------|-----------|------------------------------|
| Graduate Degree ⁸ | 36 | Semester Credit Hours |
| Semester Credit Hours | 36 | |
| Total Semester Credit Hours | 36 | |

¹ Of the 21 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, 3 from social and behavioral sciences, 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, PHYS 207/PHYS 227. 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, PHYS 207/PHYS 227.

³ MATH 170 is highly recommended for math majors co-enrolled in MATH 150, 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, 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 109/ASTR 109, PHYS 119/ASTR 119, PHYS 201, PHYS 202, PHYS 205; STAT 201, STAT 301 - 303 (<http://catalog.tamu.edu/undergraduate/course-descriptions/stat/>);).

⁵ A 15-18-hour minor field of study should be chosen in conference with a departmental advisor.

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

⁷ This 6 hours will be applied towards both BA and MS degrees in Mathematics.

⁸ The overall program hours (156 hours) includes 36 hours for a non-thesis option or 32 hours for a thesis option (up to six of which are MATH 691). Up to six hours of graduate courses may double count. MATH 601 is prohibited for all graduate degree plans. Except for the MS teaching track, no distance class may be used on the degree plan nor may MATH 696 appear. For the MS teaching track, students must take four distance courses: MATH 629, MATH 645, MATH 646 and MATH 696. All five tracks require at least 24 credit hours of mathematics of which at most six may be undergraduate. Depending on the MS track, courses outside of mathematics may be required or optional. For additional information, reference the department website and select the track of interest.

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 (<http://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/>) courses 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.