

BACHELOR OF SCIENCE (B.S.) MAJOR IN APPLIED MATHEMATICS

**Minimum required: 120
semester credit hours**

General Requirements

1. The general education core curriculum courses are listed in the degree plan below along with the statewide component code number. See the General Education Core Curriculum (<http://mycatalog.txstate.edu/undergraduate/general-education-core-curriculum/>) section of this catalog for the Texas State requirements and options in the core curriculum, including Honors courses.
2. Students must complete a minimum of 36 advanced hours (3000 or 4000 level courses).
3. Students must select a minor from the approved list of Undergraduate Minors (<http://www.mycatalog.txstate.edu/undergraduate/minors/>).
4. Nine semester credit hours must be writing intensive (WI).
5. If two years of the same language are taken in high school, then no additional language hours will be required for the degree. In the absence of such high school language, two semesters of the same modern language must be taken at the college level.

Course Requirements

| | | Freshman | |
|--|-----------------------------|--|-----------|
| | First Semester Hours | Second Semester Hours | |
| US 1100 | 1 | MATH 2472 (TCCN MATH 2414) | 4 |
| ENG 1310 (Communication Component Code 010 [TCCN ENGL 1301]) | 3 | ENG 1320 (Communication Component Code 010 [TCCN ENGL 1302]) | 3 |
| POSI 2310 (Government/Political Science Component Code 070 [TCCN GOVT 2306]) | 3 | Life and Physical Sciences Component Code 030 (PHYS 1430 [TCCN 2425] is recommended.) | 3 |
| MATH 2471 (Mathematics Component Code 020 [TCCN 2413]) ¹ | 4 | American History Component Code 060 | 3 |
| COMM 1310 (Component Area Option Code 090/091) [TCCN SPCH 1311] | 3 | PHIL 1305 or 1320 (Language, Philosophy, and Culture Component Code 040 [TCCN PHIL 1301 or PHIL 2306]) | 3 |
| Social and Behavioral Sciences Component Code 080 | 3 | | |
| | 17 | | 16 |
| | | Sophomore | |
| | First Semester Hours | Second Semester Hours | |
| MATH 2393 (TCCN MATH 2315) | 3 | MATH 3305 | 3 |
| Minor | 3 | Minor | 3 |

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| Life and Physical Sciences Component Code 030 | 4 | CS 1428 (TCCN COSC 1437) | 4 |
| MATH 2358 (TCCN MATH 2305) | 3 | ENG Literature (Component Area Option Code 090/094) [TCCN ENGL 2322, ENGL 2323, ENGL 2332, ENGL 2333, ENGL 2327, ENGL 2328] | 3 |
| | | MATH 3323 | 3 |
| | 13 | | 16 |

| | | Junior | |
|---|-----------------------------|--|-----------|
| | First Semester Hours | Second Semester Hours | |
| ART 2313, DAN 2313, MU 2313, or TH 2313 (Creative Arts Component Code 050 [TCCN HUMA 1315]) | 3 | MATH 3376 or 3377 ² | 3 |
| MATH 3330 | 3 | MATH Advanced Elective | 3 |
| CS 2308 (TCCN COSC 2336) | 3 | Minor | 3 |
| Minor | 3 | POSI 2320 (Government/Political Science Component Code 070 [TCCN GOVT 2305]) | 3 |
| American History Component Code 060 | 3 | Electives | 3 |
| | 15 | | 15 |

| | | Senior | |
|-----------|-----------------------------|------------------------------|-----------|
| | First Semester Hours | Second Semester Hours | |
| MATH 3380 | 3 | MATH Advanced Elective | 3 |
| MATH 3383 | 3 | Minor | 3 |
| Minor | 3 | Electives | 7 |
| Electives | 3 | | |
| ENG 3303 | 3 | | |
| | 15 | | 13 |

Total Hours: 120

¹ Even though MATH 2471 is the first required mathematics course, some students will need to take courses numbered below 2471. Credit examinations in MATH 1315, MATH 2417, and MATH 2471 are available.

² Only one of MATH 3376 or MATH 3377 may be taken for credit. For this degree program, MATH 3376 is the preferred alternative.

MATH Advanced Electives

| Code | Title | Hours |
|------------|---|-------|
| ENGR 2301 | Statics | 3 |
| MATH 3348 | Deterministic Operations Research | 3 |
| MATH 3398 | Discrete Mathematics II | 3 |
| MATH 4305 | Probability and Statistics | 3 |
| MATH 4306 | Fourier Series and Boundary Value Problems | 3 |
| MATH 4307 | Modern Algebra | 3 |
| MATH 4315 | Analysis II | 3 |
| MATH 4327 | Introduction to Complex Analysis and Its Applications | 3 |
| MATH 4336 | Studies in Applied Mathematics | 3 |
| MATH 4337A | Topological Data Analysis | 3 |

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|------------|---|---|
| MATH 4337B | Research in Discrete Mathematics | 3 |
| MATH 4337C | Numerical Methods for Ordinary Differential Equations | 3 |
| MATH 4350 | Introduction to Combinatorics | 3 |
| MATH 4383 | Numerical Analysis II | 3 |
| MATH 4393 | Introduction to Finite Element Methods | 3 |