APPLIED AND COMPUTATIONAL MATHEMATICS CONCENTRATION, MATHEMATICAL SCIENCES (BS)

The concentration in Applied and Computational Mathematics is intended for any student who enjoys mathematics, problem solving, and applications to solving practical problems in business, government, and science. The concentration is intended especially for students seeking a career as quantitative analysts, computational scientists, and applied mathematicians, and for those thinking of continuing the study of applied or discrete mathematics at the graduate level.

Course Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Quarter Hours</th>
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<tbody>
<tr>
<td>CSC 242</td>
<td>INTRODUCTION TO COMPUTER SCIENCE II (or another approved computer science course)</td>
<td>4</td>
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Select three of the following: 12
- MAT 302 COMBINATORICS
- MAT 304 DIFFERENTIAL EQUATIONS
- MAT 384 MATHEMATICAL MODELING
- MAT 385 NUMERICAL ANALYSIS I

Select two additional courses from among the above and the following: 8
- MAT 335 REAL ANALYSIS I
- MAT 351 PROBABILITY AND STATISTICS I
- MAT 352 PROBABILITY AND STATISTICS II
- MAT 370 ADVANCED LINEAR ALGEBRA
- MAT 381 FOURIER ANALYSIS AND SPECIAL FUNCTIONS
- MAT 386 NUMERICAL ANALYSIS II

Select one additional course from among the above and the following: 4
- MAT 303 THEORY OF NUMBERS
- MAT 310 ABSTRACT ALGEBRA I
- MAT 311 ABSTRACT ALGEBRA II
- MAT 330 METHODS OF COMPUTATION AND THEORETICAL PHYSICS I
- MAT 331 METHODS OF COMPUTATION AND THEORETICAL PHYSICS II
- MAT 336 REAL ANALYSIS II
- MAT 337 COMPLEX ANALYSIS
- MAT 340 TOPOLOGY
- MAT 341 STATISTICAL METHODS USING SAS
- MAT 353 PROBABILITY AND STATISTICS III
- MAT 355 STOCHASTIC PROCESSES

MAT 387 OPERATIONS RESEARCH: LINEAR PROGRAMMING
MAT 388 OPERATIONS RESEARCH: OPTIMIZATION THEORY

Data Analysis requirement, which can be satisfied via one of the following:
- AP Statistics Credit (score of 3 or better)
- An applied statistics or data analysis course taken as one of the four Natural or Computer Science courses required for the BS
- One of the following electives: MAT 137, MAT 242, MAT 341, MAT 348, IT 223, PSY 240, BIO 260, ENV 260, OR SOC 279

Students interested in graduate study in applied mathematics are encouraged to take:

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<tr>
<td>MAT 335 &amp; MAT 336</td>
<td>REAL ANALYSIS I and REAL ANALYSIS II</td>
<td>8</td>
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<tr>
<td>MAT 370</td>
<td>ADVANCED LINEAR ALGEBRA</td>
<td>4</td>
</tr>
<tr>
<td>MAT 385 &amp; MAT 386</td>
<td>NUMERICAL ANALYSIS I and NUMERICAL ANALYSIS II</td>
<td>8</td>
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Open Electives

Open elective credit also is required to meet the minimum graduation requirement of 192 hours.