College of Science
Bachelor of Science: Mathematics Major
Applied Discrete Mathematics Option
For students graduating in calendar year 2018

I. Curriculum for Liberal Education (30 credits): All courses used for the Curriculum for Liberal Education must be on the approved Curriculum for Liberal Education list. Each of Area 2 and Area 3 requires 6 hours. Area 4 requires a single six-hour sequence in Biology, Chemistry, Geosciences, Environmental Science or Physics. Mathematics majors must take either Path 1: Math 1205-1206 or PATH 2: Math 1225-1226 or the equivalent to satisfy the Area 5 requirement. The Area 6 requirement must be met with one 3-credit course, not three 1-credit courses.

Area 1: Writing and Discourse (6 credits) _____ 3 ( )
_____ 3 ( )

Area 2: Ideas, Cultural Traditions, and Values (6 credits) _____ 3 ( )
_____ 3 ( )

Area 3: Society and Human Behavior (6 credits) _____ 3 ( )
_____ 3 ( )

Area 4: Scientific Reasoning and Discovery (6 credits) _____ 3 ( )
_____ 3 ( )

Area 5: Quantitative and Symbolic Reasoning (either Path 1: Math 1205-1206 or PATH 2: Math 1225-1226)

Area 6: Creativity and Aesthetic Experience (3 credits) _____ 3 ( )

Area 7: Critical Issues in a Global Context (3 credits) _____ 3 ( )

Foreign Languages: The equivalent of three years of one _____ 3 ( )
foreign language in secondary school _____ 3 ( )

NOTE: Students who completed two years of a single foreign language in high school are strongly urged to complete the second semester (1106) of that foreign language very early in their program of study. Students who will be taking first and second semesters (1105-1106) of a foreign language are encouraged to schedule it in their freshman or sophomore years.

NOTE: Students who completed fewer than two years of a single foreign language in high school must complete six semester hours of one foreign language at the college level and these six credits do not count toward the 120 hours required to graduate in the College of Science.

II. Required Mathematics Courses (47 credits.)

A. Calculus and Vector Geometry

PATH 1: OR PATH 2:

MATH 1205 Calculus 3 ( ) MATH 1225 Calculus of a Single Variable I 4 ( )
MATH 1206 Calculus 3 ( ) MATH 1226 Calculus of a Single Variable II 4 ( )
MATH 1224 Vector Geometry 2 ( ) MATH 2204 Intro to Multivariable Calculus 3 ( )
MATH 2224 Multivariable Calculus 3 ( )

B. Linear Algebra, ODE's: **C. Intro Proofs/Algebra:**

MATH 2114 Introduction to Linear Algebra 3 ( ) MATH 3034 Intro. to Proofs 3 ( )
MATH 2214 Intro. to Differential Equations 3 ( ) MATH 3124 Modern Algebra 3 ( )
MATH 3144 Linear Algebra I 3 ( ) MATH 3134 Applied Combinatorics. 3 ( )

D. Advanced Calculus:

MATH 3214 Calc. of Several Variables 3 ( )
MATH 3224 Advanced Calculus 3 ( )

The following substitutions are allowed: MATH 4124 for MATH 3124, MATH 4225 for MATH 3224, MATH 4226 for MATH 3214.

E. 12 credit hours of 4000-Level Mathematics Courses, including MATH 4134, subject to the following restrictions:

1) At least one of the courses MATH 4124, 4144, 4175, 4176, 5114 must be included.
2) At most one of MATH 4044, 4334, and 4344 is allowed.
3) At most one of MATH 4564 and 4425 is allowed.
4) Students must petition the associate head for undergraduate studies to obtain permission to use MATH 4974, 4984, or 4994.
5) Any 4000-level math course listed under section VIII may NOT be used.

_____ 3 ( )   _____ 3 ( )   _____ 3 ( )   _____ 3 ( )

III.   Required Computer Science and Statistics Courses

CS 1114 (Introduction to Software Design)	3 ( )
CS 2114 (Software Design and Data Structures)	3 ( )
CS 2505 (Introduction to Computer Organization)	3 ( )
CS 3114 (Data Structures and Algorithms)	3 ( )
CS 4104 (Data and Algorithm Analysis)	3 ( )
STAT 4714 (Probability and Statistics for EE's)	3 ( )

IV.   Free Electives (sufficient to achieve the 120 credit graduation requirement)

_____ ( )( )	_____ ( )( )	_____ ( )( )
_____ ( )( )	_____ ( )( )	_____ ( )( )
_____ ( )( )	_____ ( )( )	_____ ( )( )
_____ ( )( )	_____ ( )( )	_____ ( )( )

V. Outcomes Assessment: Each student is required to participate in the department's Outcomes Assessment procedures as determined by each year's Undergraduate Program Committee and approved by the Head.

VI. Satisfactory progress toward the B.S. in Mathematics: Upon having attempted 36 semester credits, the student must have completed 12 credits of the University Curriculum for Liberal Education. Upon having attempted 72 credits (including transfer, advanced placement, advanced standing, credit by examination and course withdrawal), the student must have completed 24 credits of the University Curriculum for Liberal Education. In addition, satisfactory progress toward the B.S. in mathematics requires that:

1. Within the previous two semesters, the student must pass at least one mathematics course that is used in the in-major GPA calculation.
2. Upon having attempted 45 semester credits, students must have an in-major grade-point average of 2.2 or above.
3. **Path 1:** Upon having attempted 72 semester credits (including transfer, advanced placement, advanced standing, credit by examination, course withdrawal), students must have completed the following courses with grades of C- or better: Math 1205, 1206, 1224, 2224, 1114, 2214, and 3034 and not have taken any of these courses more than twice, including attempts ending in course withdrawal.
   Path 2: Upon having attempted 72 semester credits (including transfer, advanced placement, advanced standing, credit by examination, course withdrawal), students must have completed the following courses with grades of C- or better: Math 1225, 1226, 1114 or 2114, 2204, 2214, and 3034 and not have taken any of these courses more than twice, including attempts ending in course withdrawal.

VII. Minimum hours required for graduation: 120 semester credits.

VIII. Minimum GPA required for graduation: Students are required to have a 2.0 GPA and a 2.0 in-major GPA for graduation. All Mathematics courses count toward the in-major GPA for this option except MATH 1014, 1015, 1016, 1025, 1026, 1525, 1526, 1535, 1536, 1614, 1624, 2015, 2016, 2024, 2534, 2644, 3624, 4574, 4625, 4626, 4644, 4654, 4644.

NOTE: Please consult the course catalogue for prerequisite requirements.

NOTE: Successful completion of the listed CS courses with the addition of another CS course at or above the 3000 level (with a C or better in all but CS 4104) will fulfill the requirements for a minor in Computer Science.