College of Science, Department of Mathematics
Bachelor of Science in Mathematics,**Applied Discrete Mathematics Option**
For student date of entry under UG Catalog **2021-2022**

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**I. Pathways General Education Requirements (47 credits)**

**Concept 1: Discourse**.
(1f) Foundational Discourse (6 credits).

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| | 3 | | | 3 | |

(1a) Advanced or Applied Discourse (3 credits).

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| | 3 | |

**Concept 2: Critical Thinking in the Humanities** (6 credits).

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| | 3 | | | 3 | |

**Concept 3: Reasoning in the Social Sciences** (6 credits).

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|---|---|---|---|---|---|
| | 3 | | | 3 | |

**Concept 4: Reasoning in the Natural Sciences** (6 credits).

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| | 3 | | | 3 | |

**Concept 5: Quantitative and Computational Thinking**.
(5f) Foundational Quantitative and Computational Thinking (8 credits).

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|---|---|---|---|---|---|
| MATH 1225: Calculus of a Single Variable* | 4 | | MATH 1226: Calculus of a Single Variable* | 4 | |

(5a) Advanced or Applied Quantitative and Computational Thinking (3 credits).

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| MATH 2214: Intro Diff Equations* | 3 | |

**Concept 6: Critique and Practice in Design and the Arts** (6 credits = [3 in design + 3 in arts] or [6 in integrated design and arts]).

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| | 3 | | | 3 | |

**Concept 7: Critical Analysis of Identity and Equity in the United States** (3 credits).

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| | 3 | |

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**II. Mathematics Bachelor of Science Core Courses (21 credits)**

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|---|---|---|---|---|
| MATH 2114: Introduction to Linear Algebra* | 3 | | | |
| Multi-D Calculus: 6 credits from – <br>    MATH 2204 Intro Multivariable Calculus* <br>    MATH 2214 Intro Diff Equations* <br>    MATH 3214 Calculus of Several Variables* | 3 | | 3 | |
| MATH 3034: Introduction to Proofs* | 3 | | | |
| MATH 3144: Linear Algebra I* | 3 | | | |
| MATH 3224: Advanced Calculus* | 3 | | | |
| Computer Programming 3 credits from – <br>    MATH 1454 Intro to Math Problem-Solving* <br>    MATH 3054 Programming for Math* <br>    CS 1044 Intro Prog in C <br>    CS 1114 Intro to Software Design | 3 | | | |

 **\*Some courses listed on this checksheet may have prerequisites and/or corequisites; please consult the University Course Catalog or check with your advisor.**

### III. Required Courses Specific to the Applied Discrete Mathematics Option (21 credits)

**Mathematics**

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|---|---|
| MATH 3124: Modern Algebra* | 3 |
| MATH 3134: Applied Combinatorics* | 3 |

**Computer Science and Statistics**

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|---|---|
| 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 |
| Statistics; 3 credits from – <br> STAT 4105 Theoretical Statistics* <br> STAT 4705 Statistics for Engr* <br> STAT 4714 Prob & Stat for EE* | 3 |

### IV. Restricted Electives (12 credits)

**4000-level Math**

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|---|---|---|---|
| | 3 | | 3 |
| | 3 | | 3 |

1) At least two courses from 4124*, 4134*, 4144*, 4175*, 4176*, 5114*, 5454*, 5464* must be included.
2) At most one of 4044* and 4334* is allowed.
3) At most one of 4425* and 4564* is allowed.
4) 4574*, 4625*, 4626*, 4644*, 4654*, and 4664* may not be used.
5) Students must petition the Associate Chair to use 4974, 4984, or 4994.
6) Courses that do not count toward the in-major GPA may not be used.

### V. Free Electives (Sufficient to achieve the 120 credit graduation requirement)

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**\*Some courses listed on this checksheet may have prerequisites and/or corequisites; please consult the University Course Catalog or check with your advisor.**

## VI. 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 Chair.

## VII. Minimum Hours Required for Graduation

120 Credits

## VIII. Foreign Language Requirement

Students who did not successfully complete at least two years of a single foreign, classical, or sign language during high school must successfully complete six credit hours of a single foreign, classical, or sign language at the college level. Courses taken to meet this requirement do not count toward the hours required for graduation. Please consult the Undergraduate Catalog for details.

## IX. Satisfactory Progress to Degree

Upon having attempted 36 semester credits, the student must have completed 12 credits of the Pathways General Education Requirements. 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 Pathways General Education Requirements. 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 GPA of 2.2 or above.

3) Upon having attempted 72 semester credits (including transfer, advanced placement, advanced standing, credit by examination, and course withdrawal), students must have completed the following courses with grades of C- or better: MATH 1225, 1226, 2114, 2204, 2214, and 3034, and not have taken any of these courses more than twice, including attempts ending in course withdrawal.

## X. Minimum GPA Required for Graduation

Students are required to have a 2.0 GPA and a 2.0 in-major GPA for Graduation. In-major GPA for this option is computed using all MATH courses with the exception of MATH 1014, 1015, 1016, 1025, 1026, 1524, 1525, 1526, 1535, 1536, 1614, 1624, 2004, 2015, 2016, 2024, 2534, 2644, 3624, 4574, 4625, 4626, 4644, 4654, 4664.