# Applied Mathematics — Data Science Option (DTSC)

The Applied Discrete Mathematics curriculum prepares students for graduate study in Mathematics or theoretical Computer Science, and for careers in fields supported by discrete mathematics. This includes graph theory, operations research, discrete optimization, computer science, communications, and information sciences. An Accelerated Bachelor's/Master's program leading to a Master's in Data Science is also available for students in this curriculum.

**Freshman**

| Fall | Hours | Spring | Hours |
|---|---|---|---|
| **MATH 1610 Calculus I** | **4** | **MATH 1620 Calculus II** | **4** |
| ENGL 1100 English Composition I | 3 | ENGL 1120 English Composition II | 3 |
| Core Social Science[2] | 3 | Core Science[4] | 4 |
| Core History | 3 | Core History or Literature[1] | 3 |
| Core Humanities | 3 | COMP 1220 Intro to Computing with Python ***or*** 1230 Intro to Computing with MATLAB | 2 |
| | **16** | | **16** |

**Sophomore**

| Fall | Hours | Spring | Hours |
|---|---|---|---|
| **MATH 2630 Calculus III** | **4** | **MATH 2650 Linear Differential Equations** | **3** |
| **MATH 2660 Topics In Linear Algebra** | **3** | **STAT 3600 Probability And Statistics I** | **3** |
| Core Literature | 3 | **MATH 3100 Intro To Adv Mathematics** | **3** |
| Core Science[4] | 4 | Core Social Science or Humanities[3] | 3 |
| COMP 1210 Fundamentals Of Computing I | 3 | COMP 2210 Fundamentals of Computing II | 4 |
| | **17** | | **16** |

**Junior**

| Fall | Hours | Spring | Hours |
|---|---|---|---|
| **STAT 3610 Probability And Statistics II** | **3** | **STAT 4000 Introduction to Data Science** | **3** |
| **MATH 5710 Linear Optimization** | **3** | **Data Science Elective[5]** | **3** |
| **MATH 5750 Introduction to Graph Theory** | **3** | Core Fine Arts | 3 |
| Core Social Science[2] | 3 | Interdisciplinary Elective[5] | 3 |
| Elective | 4 | Elective | 3 |
| | **16** | | **15** |

**Senior**

| Fall | Hours | Spring | Hours |
|---|---|---|---|
| **STAT 5000 Inter. Stat. for Data Sci.** | **3** | **Data Science Elective[5]** | **3** |
| **STAT 5600 Prob/Stat for Data Sci.** | **3** | **Math Elective[5]** | **3** |
| **Math Elective[5]** | **3** | Interdisciplinary Elective[5] | 3 |
| Interdisciplinary Elective[5] | 3 | Elective | 3 |
| | | UNIV 4AA0 Achieve the Creed[6] | 0 |
| | **12** | | **12** |

**Total Hours: 120**

1 Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and LIT sequence options, see the *Bulletin*.
2 Students who choose a HIST sequence other than HIST 1010 and HIST 1020 should talk to an advisor about CORE SOC SCI choices.
3 If a LIT sequence is chosen, this course must be a CORE SOC SCI. If a HIST sequence is chosen, this course must be a CORE HUMANITIES.
4 Core Science: One of the sequences PHYS 1600/PHYS 1610, BIOL 1020/BIOL 1030, CHEM 1030/CHEM 1040 with labs, or GEOS 1100/GEOS 1110.
5 For guidelines regarding Data Science electives, Math Electives, and Interdisciplinary Electives, see advisor.
6 This course must be taken the semester of graduation.