**Sample Plan to Graduation for Computational Math Concentration (BS)**

**For mathematics students who declared major in Spring 2020 or after**

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|  | **Fall Semester** | **Spring Semester** |
| **Freshman Year** | Math 140 – 4 cr  CS 110 – 4 cr  English 101 – 3 cr  First Year Seminar – 4 cr | Math 141 – 4 cr  Math 260 – 3 cr  \*\* Physics 113 – 4 cr  English 102 – 3 cr |
| (15 credits) | (14 credits) |
| **Sophomore Year** | Math 242 – 4 cr  \* Math 291 – 3 cr  \*\* Physics 114 – 4 cr  Intermediate Seminar – 3 cr  General Education – 3 cr | \* Math 265 – 3 cr  Math 270 – 3 cr  \*\* Science Elective – 3 cr  General Education – 3 cr  General Education – 3 cr |
| (17 credits) | (15 credits) |
| **Junior Year †** | \* Math 314 – 3 cr  \* Math 425 – 3 cr  \*\* Science Elective – 3 cr  General Education – 3 cr  Elective – 3 cr | Math 345 – 3 cr  \* Math 426 – 3 cr  \*\* Science Elective – 3 cr  General Education – 3 cr  Elective – 3 cr |
| (15 credits) | (15 credits) |
| **Senior Year** | \* Math 447 – 3 cr  \*\*\* Math 420+ Elective – 3 cr  General Education – 3 cr  Math 360 (if you don’t take 450) or Elective – 3 cr  Elective – 3 cr | \* Math 448 – 3 cr  \*\*\* Math 300+ Elective – 3 cr  General Education – 3 cr  Math 450 (if you don’t take 360) or Elective – 3 cr  Elective – 3 cr |
| (15 credits) | (15 credits) |

\* - Class may be offered only once a year.

\*\* - For a Bachelor of Science degree, a student must take five science courses, including Physics 113 and 114. One of these courses can be a lab.

\*\*\* - At least one Math 300+ elective has to be either Math 360 or Math 450.

† - The Writing Proficiency Requirement (WPR) is recommended to be completed at 60-75 credits. Please consult the WPR website:

[www.umb.edu/academics/vpass/undergraduate\_studies/writing\_proficiency](http://www.umb.edu/academics/vpass/undergraduate_studies/writing_proficiency)

This course guide provides the detailed names of courses listed by number on the four-year plans.

It is not a comprehensive list of courses for your major, or a substitute for an advising appointment!

Consult with your faculty advisor when choosing courses, and check your degree audit regularly.

CS 110 – Introduction to Computing

Math 140 – Calculus I

Math 141 – Calculus II

Math 242 – Multivariable and Vector Calculus

Math 260 – Linear Algebra

Math 265 – Discrete Structures in Mathematics

Math 270 – Applied Ordinary Differential Equations

Math 291 – Mathematical Software

Math 314 – Introduction to Proofs

Math 345 – Probability and Statistics

Math 360 – Abstract Algebra I

Math 425 – Numerical Analysis

Math 426 – Numerical Linear Algebra

Math 447 – Probability Models

Math 448 – Computational Statistics

Math 450 – Real Analysis

Physics 113 & 181 – Fundamentals of Physics I Lecture & Lab

Physics 114 & 182 – Fundamentals of Physics II Lecture & Lab