University of Montana – Department of Mathematical Sciences

Advising Worksheet (2019-2020 Catalog)
Combined Major in
Computer Science – Mathematical Sciences

Note that the UM Catalog is the ultimate authority regarding degree requirements. Please bring any mistakes on this worksheet immediately to the attention of both the Department of Computer Science and the Department of Mathematical Sciences.

Basic Information

Name:	Date:
Email:	ID#: 790
CS Advisor:	MS Advisor:
Catalog for Graduation:	

(A) General Education Requirements

☐ Fill out a General Education Worksheet

(B) Non-Math/CS Courses

(B.1) Science Requirement: Complete one of the following science sequences:

- BIOB 160N, 161N, 170N, 171N
- CHMY 141N, 142N, 143N, 144N
- PHSX 215N, 216N, 217N, 218N

Course	Title	Cr.	Term	Grade
		cr		
		cr		
		cr		
		cr		

(B.2) Public Speaking Requirement: Complete either COMX 111A (Introduction to Public Speaking) or COMX 242 (Argumentation).

Course	Title	Cr.	Term	Grade
		cr		

(B.3) Advanced College Writing Requirement: Either an Advanced College Writing course (e.g., CSCI 315E or M 429), or a senior thesis (CS 499 or M 499):

Course	Title	Cr.	Term	Grade
		cr		

(C) Core Math Courses

Course	Title	Cr.	Term	Grade
M 171	Calculus I (or M 181 Honors Calculus I)	4 cr		
M 172	Calculus II (or M 182 Honors Calculus II)	4 cr		
M 221	Introduction to Linear Algebra	4 cr		
M 273	Multivariable Calculus	4 cr		
M 307 or 225	Intro to Abstract Mathematics or Intro to Discrete Mathematics	3 cr		

(D) Core Computer Science Courses

Course	Title	Cr.	Term	Grade
CSCI 106	Careers in Computer Science	1 cr		
CSCI 135	Fundamentals of Computer Science I	3 cr		
CSCI 136	Fundamentals of Computer Science II	3 cr		
CSCI 205	Programming Languages with C/C+	3 cr		
CSCI 232	Data Structures and Algorithms	4 cr		
CSCI 332	Design and Analysis of Algorithms	3 cr		
CSCI 361	Computer Architecture	3 cr		

(E) Upper-Division Electives

Choose your elective courses in consultation with both your CS and your Math advisor. Keep the **400-Level Requirement** and the **Suggested Curricula** in mind (see (F) and (H) below).

Complete 12 credits from the following **M and STAT courses**: M 311, 325, 326, 361, 362, 381, 412, 414, 429, 431, 432, 439, 440, 445, 461, 462, 472, 473, 485 and STAT 341, 421, 422, 451, 452.

Course	Title	Cr.	Term	Grade
		cr		
		cr		
		cr		
		cr		

Complete 9 credits from the following **CSCI courses**: CSCI 315E, 323, 340, 390, 391, 394, 398, 411, 412, 426, 427, 441, 443, 444, 446, 447, 448, 451, 460, 464, 466, 477, 480, 490, 491, 494, 498, 499. A total of at most three of the nine credits may be in CSCI 398 or 498.

Course	Title	Cr.	Term	Grade
		cr		
		cr		
		cr		
		cr		

(F) 400-Level Requirement

The combined nine credits of Computer Science Electives and twelve credits of Mathematical Sciences Electives must include at least three 3– or 4–credit courses numbered 400 or above, with at least one chosen from each department (not including M 429 and STAT 451, 452).

(G) Some Other Important Requirements

- **Traditional Letter Grade Requirement:** All courses listed on this worksheet, including the courses under (B), must be completed with a traditional letter grade of C- or better. This is also the case for all courses taken to satisfy General Education Requirements.
- **GPA Requirement:** A cumulative GPA of 2.0 is required in each of the following categories:
  - All courses used to fulfill major requirements
  - All work attempted in the major (CSCI, M and STAT courses) at UM-Missoula
  - All work attempted at UM-Missoula
- **Upper-Division Credit Requirement:** At least 39 credits in upper-division courses (numbered 300 and above) are required.
- **Credit Limitation in the Major:** A maximum of 75 credits in computer science and mathematical sciences courses (CSCI, M and STAT courses) can be counted towards the 120 credits required for the combined major.

(H) Suggested Curricula

Students are encouraged to choose their Computer Science and Mathematical Sciences Electives according to one of the following curricula; these tracks are suggestions only and, as such, optional. Note that the suggested curricula do not include an Advanced College Writing Course.

- **Applied Math–Scientific Programming:** M 311, 412, 414, and one course chosen from M 381, 440, 472, 473 and STAT 341. Three courses chosen from CSCI 441, 444, 460, 477.
- **Combinatorics & Optimization–Artificial Intelligence:** M 361, 362, and two courses chosen from M 325, 414, 485 and STAT 341; and CSCI 446, 447, and 460.
- **Data Science (Big Data Analytics):** M 461, 462, and STAT 341, 451, and 452. Three courses chosen from CSCI 444, 447, 448, 464, and 480.

- **Statistics–Machine Learning:** STAT 341, 421, and two courses chosen from M 325, 362, 485 and STAT 422. Three courses chosen from CSCI 340, 444, 446, 447, and 451.
- **Algebra–Analysis:** M 381, 431, and two courses chosen from M 326, 432, 472, 473; CSCI 426, 460, and one other CSCI course.

Advising Highlights from the UM Catalog

Here is a small selection of particularly important rules from the 2019-2020 Catalog. For links to the requirements, visit http://hs.umt.edu/math/undergraduate/majors/advising/advising-highlights.php.

Credit Load

The maximum credit load is 21 credits per semester; the minimum full-time load for undergraduate students is 12 credits per semester. To earn 120 credits in 4 years, **students should take about 15-16 credits each semester**.

Requirements for the First Bachelor Degree

- 120 credits total are required for most B.A. degrees.
- **Credit/No Credit Grading** (CR/NCR):
  - A maximum of 18 "credit/no credit" credits are allowed.
  - Courses taken to satisfy General Education Requirements must be taken for traditional letter grade.
  - Courses required for the student's major or minor must be taken for traditional letter grade.
- **Residency Requirements:** Of the last 45 credits required for the degree, at least 30 must be earned from UM-Missoula.
- **Undergraduates in Graduate Courses:** only post-baccalaureates and seniors having a GPA of 3.0 or greater may, with consent of instructor, enroll in 500-level courses (for undergraduate credit).

Graduation:

- You must submit your **Graduation Application** nearly 2 semesters before your expected graduation date.
- Aim high! Look at the rules for **Graduation with Honors or High Honors**.