

CSCI 246: Discrete Structures

Spring 2024 Syllabus

Lectures: MWF: 2:10 - 3:00 pm, Romney 008

Instructor: Dr. Brendan Mumey
Email: brendan.mumey@montana.edu
Office hours: W: 12:30 - 2:00 pm,
F: 1:00 - 2:00 pm, other times by appointment (email me)
NAH 253B

Grader: Jack Ruder
Email: jackruder@montana.edu
Office hours: W: 11:00 - 1:00 pm
Student Success Center, Barnard Hall 259

Help center: Student Success Center, Barnard Hall 259
<https://www.cs.montana.edu/student-success-center.html>

Catalog Description: This course covers logic, discrete probability, recurrence relations, Boolean algebra, sets, relations, counting, functions, maps, Big-O notation, proof techniques including induction, and proof by contradiction.

Textbook: *Connecting Discrete Mathematics and Computer Science* by David Liben-Nowell.
A free PDF version of the book is available here:
<https://cs.carleton.edu/faculty/dln/book/>

The physical book is about \$80 and is available in the bookstore, if you prefer that.

Course materials:

Google drive (homework, lecture schedule):

<https://drive.google.com/drive/folders/1ZtvZVvdu2woWcyEuKXheL115l0al-Yoe?usp=sharing>

Brightspace (grades, announcements): <https://ecat.montana.edu/d2l/home/785708>

Recorded Lectures:

<https://montana.hosted.panopto.com/Panopto/Pages/Sessions/List.aspx?folderID=ca1d077e-7498-41f1-8434-b0fa01521963>

Homework

Homework will be assigned throughout the semester. Homework needs to be legible (points will be deducted if not). You may work with one partner on the homework.

If you want to learn a nice computer science oriented typesetting program, I recommend trying *latex* (a free web-based version is available at overleaf.com).

Gradescope.com will be used for homework submission. If you work with a partner, you must submit as a team. You should be able to sign in with your MSU NetID.

Group Problems

Once a week (Wed), I will give the class some problems to work in groups. At the beginning of the semester, you will form groups to work together on the assigned problems. I will then circulate in class to help you with the problems and you will get a group point for each problem you've solved correctly.

Grading Scheme

Group problems	10%
Homework	45%
Exams 1-3	45% (15% each)

Note: Exam 3 is 2:00 - 3:50 pm, Monday, May 6 (finals week)

You must contact me at least one week beforehand if you need to take an exam early.

Course Outcomes

At the end of the course, students will:

- Be able to use formal proof techniques, including mathematical induction and proof by contradiction
- Understand algorithmic complexity and be able to use it to compare different program designs for a problem
- Solve problems that use logic, sets, and functions
- Solve problems using Boolean algebra
- Solve problems that use permutations and combinations
- Solve problems that use discrete probability
- Solve problems that use basic graph theory

Academic Conduct Please conduct yourself in a professional and honorable way. Plagiarism and other forms of academic misconduct will have consequences