

Course Information

Course: COS 280 Discrete Mathematics II
Call #: 80095
Credit Hours: 4
Room: Luther Bonney 403
Day/Times: M/W 11:00 A.M.– 12:15 P.M.
Lab: W 9:30 A.M.– 10:20 A.M.in Luther Bonney 202
Prerequisites: Grade of C or higher in COS 160 and MAT 145.
Textbook: Epp, S. S. (2020). *Discrete Mathematics with Applications* (5th ed.).
Cengage. ISBN: 978-1-337-69419-3.

Instructor Information

Name: James Quinlan, Ph.D.
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Office Hours: M/W 1:00 P.M.- 2:00 P.M.

Course description

Discrete math is the mathematics of computing. This course lays the foundation for students to succeed in upper-level computer science courses, most of which require understanding of concepts from discrete mathematics. This course is designed for students to learn how to think logically and mathematically, as well as practice fundamental techniques for solving problems in computer science. Topics include: sequences, mathematical induction, recursion, set theory, graphs, trees, analysis of algorithms, and regular expressions.

Learning Outcomes

By the end of this course, students will be able to:

- Read, comprehend, and construct mathematical proof arguments.
 - Solve sequential, recursive, set and number theoretic problems.
 - Discuss graphs, trees, and finite-state machines relate to real-world computational problems.
 - Illustrate mathematical techniques for specifying, verifying, and analyzing computer algorithms.
 - Identify a variety of natural and relevant uses of discrete math in computer science (and the real world).
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Additional Resources

- *Discrete Mathematics and its Applications* by Kenneth H. Rosen: One of the most widely used textbooks for Discrete Mathematics (besides Epp). It covers a broad range of topics and provides clear explanations, examples, and exercises. The book is known for its accessible writing style and comprehensive coverage.

- *Concrete Mathematics: A Foundation for Computer Science* by Ronald L. Graham, Donald E. Knuth, and Oren Patashnik: This book is a bit more advanced and suited for students with advanced mathematical background, it's highly regarded for its deep exploration of mathematical concepts relevant to computer science. It's a great choice for students interested in the mathematical foundations of algorithms and computer programming.
- *Discrete Mathematics: An Open Introduction* by Oscar Levin: This textbook takes a more open and interactive approach. It's available for free online and covers the core topics of Discrete Mathematics. It includes exercises, examples, and interactive components that engage students in the learning process.
- *Mathematics for Computer Science* by Eric Lehman, F. Thomson Leighton, and Albert R. Meyer: While this textbook is not exclusively focused on Discrete Mathematics, it provides a strong foundation in mathematical concepts relevant to computer science. It covers discrete mathematics topics and more, making it a suitable resource for students interested in both discrete math and computer science.

Course Evaluation and Grading Policies

Attendance and Participation (10%)

Regular attendance and fully engaged participation is expected of all students. You should complete all assigned readings before each class session. I will post occasional reading quizzes to Brightspace. These quizzes will be due before the beginning of class.

Assignments (30%)

Weekly homework assignments will be due Monday by 11:59 PM (except for the L^AT_EX assignment due Saturday, 09/02/2023). Assignments must be prepared in L^AT_EX and submitted through Brightspace under the associated assignment. Submissions must be on time to be accepted. In recognition of the fact that there may be unforeseen circumstances that prevent you from submitting some assignments, I will drop the two lowest homework grades.

Project (10%)

You will explore a topic related to discrete mathematics, which may involve theoretical investigations, algorithm design, or applications in various domains. You will be required to present your findings in a comprehensive report, formatted using L^AT_EX.

Quizzes (20%)

Weekly quizzes will be given either in or outside of class on Brightspace. These will be announced at least one class prior and posted on Brightspace.

Exams (30%)

Both exams (Midterm and Final) will be cumulative, emphasizing material covered since the previous exam. If you cannot take an exam at the scheduled time because of illness or other problems, you must contact me through Brightspace beforehand to arrange a different time. Failure to make prior arrangements for a missed exam will result in a grade of 0 for the exam.

In summary, grades are based on the following weighted items:

Item	% Weight
Attendance/Participation	10%
Assignments	30%
Project	10%

Quizzes	20%
Exam	15%
Final exam	15%
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Total	100%

Grade Ranges

Letter grades are assigned based on the final percent using the interval values:

Grade	% bound
A	93 - 100
A-	90 - 92.9
B+	87 - 89.9
B	83 - 86.9
B-	80 - 82.9
C+	77 - 79.9
C	73 - 76.9
C-	70 - 72.9
D	60 - 69.9
F	<60

The grade, “I” (incomplete), can be given ONLY when a student, who is doing otherwise acceptable work (passing grade), is unable to complete a part of work (e.g., the final exam) because of documented illness or other conditions beyond the student’s control. In the latter case, the student must discuss with the instructor and complete an application form from the department before the part of work is due or as soon as the circumstances are known.

Student Success Tips

- attend all class meetings
- read the material before coming to class
- complete assignments by the due dates specified
- create a study and/or assignment schedule to stay on track
- read announcements
- communicate regularly with your instructor and peers
- read and respond to course email messages as needed
- access USM Online Student Resources

Important Dates

Labor Day (no classes)	September 2, 2024
Classes Begin	September 3, 2024
Deadline to drop without penalty	September 16, 2024
Fall Break (no classes)	October 14 & 15, 2024
Registration for Winter 2024-25 Begins	October 16, 2024
Deadline to drop for a grade of “W”	November 5, 2024
Veterans Day Observance (no classes)	November 11, 2024

Open Registration for Spring 2025 Begins	November 25, 2024
Thanksgiving Break	November 27 – Dec. 1, 2024
Last day of classes	December 13, 2024
Final Exams	December 14 – 20, 2024

Support Services

- **Request disability accommodations** | (207) 780-4706 | dsc-usm@maine.edu
- **Report interpersonal violence** | (207) 780-5767 | usm.titleix@maine.edu
- **Report on-campus emergencies and safety concerns** | (207) 780-5211 or your local police agency.
- **Get academic help** | mycampus.maine.edu/group/usm/learning-commons
- **Get technology help** | usm.maine.edu/computing/helpdesk
- **Meet with an academic advisor** | usm.maine.edu/advising

For USM’s most complete and current information on services available to students, as well as academic policies, use the QR Code to go to the Student Services and Policies Hub webpage.



Figure 1: <https://mycampus.maine.edu/group/usm/student-services-and-policies-hub>

Disclaimer

The syllabus is a statement of intent and serves as an implicit agreement between the instructor and the student. Every effort will be made to avoid changing the course schedule but the possibility exists that unforeseen events will make syllabus changes necessary. Remember to check Brightspace site often.
