MONTGOMERY COLLEGE - Germantown Campus
Mathematics & Statistics Department
Course Syllabus

I.   Instructor Information

Professor: Zhou Dong
Email: Zhou.Dong@MontgomeryCollege.edu
Phone: (240) 567-7810
Office: HT 134 Germantown campus

Office Hours:

In-person office hours HT 134	MW 12:30 pm – 1:00 pm MW 2:45 pm – 3:15 pm
Appointment hours Virtual via Microsoft Teams	TR 9:30 am – 12:00 pm TR 2:00 pm – 3:00 pm
Click here to book an appointment	

II.   General Course Information

CMSC/MATH 207 - Introduction to Discrete Structures (Formerly CS256)
4 Semester Hours
An introduction to discrete structures as they relate to computer science. The course will stress computer science applications and will include relations, functions and algorithms, Naive Set Theory, combinatorics, logic, and mathematical induction.

PREREQUISITE:
ENGL101/ENGL101A or appropriate score on English assessment test, and MATH 182.

Spring 2022: CMSC207 CRN 36278 / MATH207 CRN 36277
Class Times: MW 1:00 pm – 2:40 pm
Classroom: HT 139
Microsoft Team: CMSC/MATH 207 Spring 2022

III.   Common Course Student Learning Outcomes

Upon course completion, a student will be able to:
- Apply the mathematical concepts studied to specific problems.
- Demonstrate various proof techniques.
- Apply logic skills to specific arguments.

IV.   Textbooks, Workbooks, and Supplies

Required materials for the course:
- *Discrete Mathematics with Applications* (5th edition), by Susanna Epp, Cengage Learning, 2019. (The ebook is available with WebAssign).

- *WebAssign Access Code* – for access to online homework and the ebook
  Class Key to enroll on WebAssign: **montgomerycollege 8773 4891**
- *Microsoft Teams and OneNote* – for course meetings, announcements and communication. MC students can download these programs for free from their [Microsoft 365 account accessed through MyMC](#). Class Team**:** [CMSC/MATH 207 Spring 2022](#)

While a calculator is not required for the course, you are allowed to use a basic four-function calculator on tests. No graphing or scientific calculators are allowed.

Requirements for remote instruction:
- New hardware specifications, for general and several specific programs, have been updated to help prepare students for online learning and ensure that all systems used will function properly. Please visit the [Hardware Specifications page](#) for the most up-to-date information.
- Cable service providers in the Montgomery County area (Comcast, RCN, and Verizon) are offering low-cost monthly internet service options to low-income residents. For eligibility requirements and additional information visit [Low-Cost Home Internet Access.](#)

V.   Course Requirements

A.   Exams
This course will have three unit exams and a final exam:

Exam	Date	Material covered
Exam 1	Monday 2/21 in class	Chapter 1, 10, 2, 3
Exam 2	Wednesday 4/6 in class	Chapter 4, 5, 6
Exam 3	Wednesday 5/4 in class	Chapter 7, 8, 9
Final Exam	Wednesday 5/11 12:30 pm – 2:30 pm	Cumulative

Unit exams each counts for 15% of the final course grade. The Final Exam counts for 25% of the final course grade.

B.   Reading Quizzes
Students are expected to read the corresponding sections of the textbook prior to each class meeting. Upon completion of the reading, students must take a reading quiz. All reading quizzes are open-book but students must complete the quizzes individually – no collaboration is allowed. Quizzes count for 15% of the final course grade.

C.   Homework
Students will complete weekly homework assignments on WebAssign. Homework assignments count for 15% of the final course grade.

D.   Course Grade
The final course grade will be calculated as follows:

Category	Weight		Final Grading Scale	
Homework	15%		Overall Percentage	Final Grade
Quizzes	15%		90% - 100%	A

Exam 1	15%
Exam 2	15%
Exam 3	15%
Final Exam	25%
Total	100%

80% - 89%	B
70% - 79%	C
60% – 69%	D
< 60%	F

E.   Make-up Policy

It is expected that students take all quizzes/exams when scheduled. Once a quiz/exam has been given, its contents are assumed to be public knowledge. There are NO make-ups for quizzes/exams. Neither quizzes nor exams will be administered late. If you miss an exam, the 0% score will be replaced by your final exam score. If you do not miss any exams, your lowest exam score will be replaced by your final exam score if your final exam score is higher. No exam scores are dropped.

VI.   Student Code of Conduct

A.   Standards of College Behavior

Students are expected to adhere to the Montgomery College Student Code of Conduct: https://www.montgomerycollege.edu/_documents/policies-and-procedures/42001-student-code-of-conduct.pdf

B.   Academic Honesty

Students should refer to the Student Code of Conduct or the following excerpt for more details: https://www.montgomerycollege.edu/_documents/academics/support/learning-centers/writing-reading-learning-ctr-germantown/academic-dishonesty-and-how-it-is-handled.pdf

VII.   Honors Module

This class has an attached honors module for eligible students in addition to the above requirements. Enrollment is limited to 5 students who meet Honors Program eligibility standards. If you are interested in taking this as an honors class, you must meet with the instructor during the first two weeks of classes.

A.   Eligibility

- Completion of at least 12 Montgomery College credits
- Cumulative 3.4 grade point average or higher
- Grade of A or B in ENGL 101/011

Alternative criteria can be evaluated by the Honors Program Chair or a STEM Scholars Program coordinator. Contact the instructor for more information.

VIII. Collegewide Policies and Procedures

A.   Attendance Policy

Students are expected to attend all class sessions. Excessive absences may result in the student being dropped from the course.

B.   Withdrawal and Refund Dates

- Refund Drop Deadline – January 30, 2022
- No Grade Drop & Audit/Credit Deadline – February 13, 2022
- W Grade Drop Deadline – April 17, 2022

C.   Audit Policy

All students registered for audit are required to consult with the instructor before or during the first class session in which they are in audit status, and students are required to participate in all course activities unless otherwise agreed upon by the student and instructor at the time of consultation. Failure to consult with the instructor or to so par-ticipate may result in the grade of "W" being awarded. This action may be taken by the in-structor by changing the "AU" to "W" before the drop with "W" date.

D.   Disability Support Services

Any student who needs an accommodation due to a disability should make an appointment to see me during my office hours. In order to receive accom-modations, a letter from Disability Support Services (G-SA 189; R-CB 122; or TP/SS-ST 122) will be needed. Any student who may need assistance in the event of an emergency evacuation must identify to the Disability Support Services Office; guidelines for emergency evacuations for individuals with disabilities are found at:
http://www.montgomerycollege.edu/dss

E.   Veteran's Services

If you are a veteran or on active or reserve status and you are interested in infor-mation regarding opportunities, programs and/or services, please visit the Combat2Col-lege website at http://www.montgomerycollege.edu/combat2college

F.   Delayed Opening or Closing of the College

If a class can meet for 50% or more of its regularly scheduled meeting time OR if the class can meet for 50 minutes or more, it will meet. Montgomery College will always operate on its regular schedule unless otherwise announced. Depending on the nature of the incident, notifications of emergencies and changes to the College's operational status will be communicated through one or more communication methods including the College's website http://www.montgomerycollege.edu. For the most up-to-date information regarding College openings, closings, or emergencies, all students, faculty, and staff are encouraged to sign up for email and text alerts via Montgomery College ALERT. Registration information is available at http://www.montgomerycollege.edu/emergency.

G.   Communication

This course will use your official Montgomery College email address, Microsoft Teams, and Microsoft OneNote for communication. This course will NOT use Blackboard for communication.

IX.   Schedule

Week	Date	Topic
1	Mon 1/24	**Chapter 1: Speaking Mathematically** 1.1: Variables
	Wed 1/26	1.2: The Language of Sets 1.3: The Language of Relations and Functions 1.4: The Language of Graphs
2	Mon 1/31	**Chapter 10: Theory of Graphs and Trees** 10.1: Trails, Paths, and Circuits 10.4: Trees: Examples and Basic Properties
	Wed 2/02	10.5: Rooted Trees 10.6: Spanning Trees and a Shortest Path Algorithm
3	Mon 2/07	**Chapter 2: The Logic of Compound Statements** 2.1: Logical Form and Logical Equivalence 2.2: Conditional Statements
	Wed 2/09	2.3: Valid and Invalid Arguments 2.4: Application: Digital Logic Circuits 2.5: Application: Number Systems and Circuits for Addition
4	Mon 2/14	**Chapter 3: The Logic of Quantified Statements** 3.1: Predicates and Quantified Statements I 3.2: Predicates and Quantified Statements II
	Wed 2/16	3.3: Statements with Multiple Quantifiers 3.4: Arguments with Quantified Statements
5	**Mon 2/21**	**Exam 1 (Ch. 1, 2, 3, 10)**
	Wed 2/23	**Chapter 4: Elementary Number Theory and Methods of Proof**
6	Mon 2/28	4.1: Direct Proof and Counterexample I: Introduction 4.2: Direct Proof and Counterexample II: Writing Advice 4.3: Direct Proof and Counterexample III: Rational Numbers 4.4: Direct Proof and Counterexample IV: Divisibility
	Wed 3/02	4.5: Direct Proof and Counterexample V: Division into Cases and the Quotient-Remainder Theorem 4.6: Direct Proof and Counterexample VI: Floor and Ceiling
7	Mon 3/07	4.7: Indirect Argument: Contradiction and Contraposition 4.8: Indirect Argument: Two Famous Theorems 4.10: Application: Algorithms

	Wed 3/09	**Chapter 5: Sequences, Mathematical Induction, and Recursion** 5.1: Sequences
8		*Spring Break*
9	Mon 3/21	5.2: Mathematical Induction I: Proving Formulas 5.3: Mathematical Induction II: Applications
	Wed 3/23	5.4: Strong Mathematical Induction and the Well-Ordering Principle for the Integers 5.6: Defining Sequences Recursively
10	Mon 3/28	5.7: Solving Recurrence Relations by Iteration 5.8: Second-Order Linear Homogeneous Recurrence Relations with Constant Coefficients 5.9: General Recursive Definitions and Structural Induction
	Wed 3/30	**Chapter 6: Set Theory** 6.1: Set Theory: Definitions and the Element Method of Proof 6.2: Properties of Sets
11	Mon 4/04	6.3: Disproofs and Algebraic Proofs 6.4: Boolean Algebras, Russell's Paradox, and the Halting Problem
	Wed 4/06	**Exam 2 (Ch. 4, 5, 6)**
12	Mon 4/11	**Chapter 7: Properties of Functions** 7.1: Functions Defined on General Sets 7.2: One-to-One, Onto, and Inverse Functions
	Wed 4/13	7.3: Composition of Functions 7.4: Cardinality with Applications to Computability
13	Mon 4/18	**Chapter 8: Properties of Relations** 8.1: Relations on Sets 8.2: Reflexivity, Symmetry, and Transitivity
	Wed 4/20	8.3: Equivalence Relations 8.4: Modular Arithmetic with Applications to Cryptography 8.5: Partial Order Relations
14	Mon 4/25	**Chapter 9: Counting and Probability** 9.1: Introduction 9.2: Possibility Trees and the Multiplication Rule
	Wed 4/27	9.3: Counting Elements of Disjoint Sets: The Addition Rule 9.4: The Pigeonhole Principle
15	Mon 5/02	9.5: Counting Subsets of a Set: Combinations 9.6: r-Combinations with Repetition Allowed
	Wed 5/04	**Exam 3 (Ch. 7, 8, 9)**
	Wed 5/11	**Final Exam (12:30 pm - 2:30 pm)**

The professor reserves the right to make changes to this syllabus.

Last Updated July 28, 2024