

**MONTGOMERY COLLEGE - Germantown Campus**  
**Mathematics & Statistics Department**  
**Course Syllabus**

## I. Instructor Information

Professor: Zhou Dong

Email: [Zhou.Dong@MontgomeryCollege.edu](mailto:Zhou.Dong@MontgomeryCollege.edu)

<sup>1</sup>Phone: (240) 567-7810

<sup>2</sup>Office: HT 134

Office Hours:

Drop-in virtual office hours	MWF 10:30am – 11:00 am
<a href="#">Click here to join the drop-in office hours</a>	
Appointment hours	TR 9:30 am – 11:00 am and 1:00 pm – 2:00 pm
<a href="#">Click here to book an appointment</a>	

Learning Assistant: Benjamin Schreyer

Email: [bschreye@montgomerycollege.edu](mailto:bschreye@montgomerycollege.edu)

Weekly study sessions: TBA

## 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 2021: CMSC207 CRN 33353 / MATH207 CRN 33354

Class Times: MW 1:00 pm – 2:40 pm

[Teams meeting link for class meetings](#)

## 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.

<sup>1</sup> If you call, please leave a message.

<sup>2</sup> I will not be available in my office during Remote Instruction. Virtual class meetings and office hours held online via Microsoft Teams. Best way to reach me during Remote Instruction is to message me on Microsoft Teams.

## 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 2561 0378**
- *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](#). **Teams code: wa51b43**

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	Exam Window	Material covered
Exam 1	Tuesday, 2/23, 12:01 am – 11:59 pm	Chapter 1, 10, 2, 3
Exam 2	Thursday, 4/8, 12:01 am – 11:59 pm	Chapter 4, 5, 6
Exam 3	Thursday, 5/6, 12:01 am – 11:59 pm	Chapter 7, 8, 9
Final Exam	Wednesday, 5/12, 12:01 am – 11:59 pm	Cumulative

All exams are open-book and open-notes, but students must complete the exams individually – no collaboration is allowed and consultation of any resources other than the textbook and the students own notes (e.g. websites, other books) are not allowed.

All exams are timed. Exams 1, 2, and 3 will be 1 hour and 40 minutes (100 minutes). The Final Exam will be 2 hours (120 minutes). Students must complete the exams within the specified exam window.

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 have practice problems available through WebAssign and may use any resources to help them complete the practice problems. WebAssign will grade the practice problems for feedback purposes only. The WebAssign graded practice problems will NOT count towards the final course grade.

Weekly homework assignments based on the practice problems will be collected and graded by the instructor. The instructor graded homework assignments count for 15% of the final course grade.

**D. Course Grade**

The final course grade will be calculated as follows:

Category	Weight
Homework	15%
Quizzes	15%
Exam 1	15%
Exam 2	15%
Exam 3	15%
Final Exam	25%
Total	100%

Final Grading Scale	
Overall Percentage	Final Grade
90% - 100%	A
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**

The exams and quizzes in this course are open-notes and open-book. However, they are individual - no collaboration is allowed on any quiz or exam. 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 3.2 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 31, 2021
- No Grade Drop & Audit/Credit Deadline – February 14, 2021
- W Grade Drop Deadline – April 18, 2021

### 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 participate may result in the grade of “W” being awarded. This action may be taken by the instructor 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 accommodations, 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 information regarding opportunities, programs and/or services, please visit the Combat2College 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

Date	Topic
Mon 1/25	<b>Chapter 1: Speaking Mathematically</b> 1.1: Variables
Wed 1/27	1.2: The Language of Sets 1.3: The Language of Relations and Functions 1.4: The Language of Graphs
Mon 2/01	<b>Chapter 10: Theory of Graphs and Trees</b> 10.1: Trails, Paths, and Circuits 10.4: Trees: Examples and Basic Properties
Wed 2/03	10.5: Rooted Trees 10.6: Spanning Trees and a Shortest Path Algorithm
Mon 2/08	<b>Chapter 2: The Logic of Compound Statements</b> 2.1: Logical Form and Logical Equivalence 2.2: Conditional Statements
Wed 2/10	2.3: Valid and Invalid Arguments 2.4: Application: Digital Logic Circuits 2.5: Application: Number Systems and Circuits for Addition
Mon 2/15	<b>Chapter 3: The Logic of Quantified Statements</b> 3.1: Predicates and Quantified Statements I 3.2: Predicates and Quantified Statements II
Wed 2/17	3.3: Statements with Multiple Quantifiers 3.4: Arguments with Quantified Statements
Mon 2/22	<b>Review Day for Exam 1 (Ch. 1, 2, 3, 10)</b>
<b>Tue 2/23</b>	<b>Exam 1 (12:01 am - 11:59 pm)</b>

Wed 2/24	<b>Chapter 4: Elementary Number Theory and Methods of Proof</b>
Mon 3/01	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 3/03	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
Mon 3/08	4.7: Indirect Argument: Contradiction and Contraposition 4.8: Indirect Argument: Two Famous Theorems 4.10: Application: Algorithms
Wed 3/10	<b>Chapter 5: Sequences, Mathematical Induction, and Recursion</b> 5.1: Sequences
<i>Spring Break</i>	
Mon 3/22	5.2: Mathematical Induction I: Proving Formulas 5.3: Mathematical Induction II: Applications
Wed 3/24	5.4: Strong Mathematical Induction and the Well-Ordering Principle for the Integers 5.6: Defining Sequences Recursively
Mon 3/29	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 3/31	<b>Chapter 6: Set Theory</b> 6.1: Set Theory: Definitions and the Element Method of Proof 6.2: Properties of Sets
Mon 4/05	6.3: Disproofs and Algebraic Proofs 6.4: Boolean Algebras, Russell's Paradox, and the Halting Problem
Wed 4/07	<b>Review for Midterm Exam 2 (Ch. 4, 5, 6)</b>
<b>Thu 4/08</b>	<b>Exam 2 (12:01 am - 11:59 pm)</b>
Mon 4/12	<b>Chapter 7: Properties of Functions</b> 7.1: Functions Defined on General Sets 7.2: One-to-One, Onto, and Inverse Functions
Wed 4/14	7.3: Composition of Functions 7.4: Cardinality with Applications to Computability
Mon 4/19	<b>Chapter 8: Properties of Relations</b> 8.1: Relations on Sets 8.2: Reflexivity, Symmetry, and Transitivity
Wed 4/21	8.3: Equivalence Relations 8.4: Modular Arithmetic with Applications to Cryptography 8.5: Partial Order Relations

	<b>Chapter 9: Counting and Probability</b>
Mon 4/26	9.1: Introduction 9.2: Possibility Trees and the Multiplication Rule
Wed 4/28	9.3: Counting Elements of Disjoint Sets: The Addition Rule 9.4: The Pigeonhole Principle
Mon 5/03	9.5: Counting Subsets of a Set: Combinations 9.6: r-Combinations with Repetition Allowed
Wed 5/05	<b>Review Day for Exam 3 (Ch. 7, 8, 9)</b>
<b>Thu 5/06</b>	<b>Exam 3 (12:01 am - 11:59 pm)</b>
<b>Wed 5/12</b>	<b>Final Exam (12:01 am - 11:59 pm)</b>

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

*Last Updated June 28, 2021*