Instructor: Mrs. Maliha J. Luqman
Email: mluqman@gmu.edu
Office Hours: MW 9:30-11:30AM (Zoom)
Please email if these don't work for you.
You are REQUIRED to attend at least one office hour during the semester.

Course Information:
Section: DL2 - 3 credits
Lectures: Videos (Blackboard)

Course Description

Course Prerequisites: A grade of C or better in MATH 105 or a passing score on the Math Placement Test. If you have not met the formal prerequisites for the course, you cannot stay in the course. Information on the Math Placement Test is available at https://science.gmu.edu/academics/departments-units/mathematical-sciences/mathematical-sciences-testing-center

Course Description and Objective:
Introduces ideas of discrete mathematics and combinatorial proof techniques including logic, number theory, mathematical induction, sets, graphs, trees, recursion and enumeration.

Textbooks and Materials

Text: Goodaire, Edgar G., Parmenter, Michael M.; Discrete Mathematics with Graph Theory, 3E Prentice-Hall, NJ, 2006; ISBN: 978-0-13-468955-5

Technology: ONLY scientific calculators will be allowed during exams. Two devices are required to take exams. At least one of them should have a camera and the other must have Lockdown Browser installed. You may purchase a webcam, use the built-in camera on your laptop, tablet or smartphone when logging in.

Assessments and Grading Scale

Posting of Grades: Student assignments will be evaluated within a week and posted to Blackboard one week after the assignment due date.

Grading Scale:

A	A-	B+	B	B-	C+	C	C-	D	F
93-100	90-92	87-89	83-86	80-82	77-79	73-76	70-72	60-69	0-59

There are 4 components that will determine your grade:

1. Attendance/Participation – 10%
2. Activity Sheets (12, will drop 2 lowest) – 10%
3. Exams (2 given in-class, about 1.5 hours each) – 25% x 2
4. Comprehensive Final Exam – 30%

Assessments

- **Attendance/Participation:** Math is an active sport, missing even one day can impair learning. Students are expected to be actively working on math while they are in class, i.e. watching videos. Have all supplies near you when class starts (pencil and paper). You will be assessed according to:
    - **Videos (5%):** Each week there will be several short videos. Some will contain video quizzes to ensure active participation. You may use your notes and/or textbook while answering these questions, but no online resources. Your lowest two weekly scores will be dropped at the end of the semester.
    - **Discussions (3%):** There will be discussion boards for each week pertaining to effective learning and applications to topics that we cover in class. The topics will be posted at the beginning of the semester so you can plan on which ones you would like to respond to. You are required to give a first response to *at least two* discussions and respond to *at least four* classmates (these not need be in the same discussions as your initial post but needs to be two different discussions). Your responses should be thoughtful in promoting our math community in this online environment.
    - **Office Hour Visit (2%)**: You are required to visit me at least once during office hours. If you have no questions and/or concerns, at least stop by for 10-15 minutes to introduce yourself.
- **Homework:** Though homework will not be graded, there will be suggested homework assignments per section. For college courses, expect to use the "2 for 1" rule, whereby you spend at least two hours for every one credit hour per week. Therefore, expect to spend 9 hours per week for lecture, studying and homework.
- **Weekly Activities:** Activities will be assigned and due according to the course schedule. All assignments are to be submitted in Gradescope by Sunday. Late assignments will not be accepted; however your two lowest scores will be dropped at the end of the semester. Your third lowest activity score can be *replaced* by submitting a copy of your notes (on the assigned dates).
- **Exams:** There will be two Zoom exams in addition to the comprehensive final. Exams make up the majority of your grade. Cheating of any form will not be tolerated. Exams will be conducted in-class. I allow an exam-swap policy, whereby if the grade on your Final Exam is higher than your lowest exam score, the lowest exam score will be replaced with your final. As a result, missing exams for non-emergency reasons results in a zero on the exam. Exam days and times will be determined via survey. Please refer to your other course schedules to determine which would be the best time for you.
- **Final Exam**: The final Zoom exam is comprehensive. The final exam is worth 30% of your grade. There will be no make-ups permitted for the final exam. The date is already set by the university, so please do not make other plans on the date of the final exam such as appointments, early vacation departures, family outings, etc. Such changes are not negotiable.
- **Extra Credit**: There will be NO extra credit assigned. Please do not ask.

Course Policies

Communication

I frequently send announcements through email via Blackboard announcements. You can refer to past announcements in Blackboard if you have trouble going through your email. Faculty, staff, and administrators communicate with students through their official GMU email accounts (@gmu.edu). Students are likewise required to use their Masonlive email accounts (@gmu.edu or @masonlive.gmu.edu) to communicate with instructors and other college personnel and should check their email accounts regularly. I will use Blackboard to post announcements, grades and other important information pertaining to the class. You can access this by going to mymason.gmu.edu and logging on using your NetID.

Instructors receive a significant number of emails from students over the course of the semester. To specifically identify the course in which the student is enrolled, all email from the student must include the course and section number (e.g., MATH 125 – DL2, Homework Question) in the subject of the email.

Additional Resources and Information

Academic Integrity: Violations of the honor code will not be tolerated.

Student members of the George Mason University community pledge not to cheat, plagiarize, steal, or lie in matters related to academic work.

Mason Honor Code is available at: https://oai.gmu.edu/mason-honor-code/

Disabilities and Accommodations: GMU is committed to ensure all students have an opportunity to pursue a college education regardless of the presence or absence of a disability. Information regarding the Office of Disability Services is available at ds.gmu.edu and if you require accommodations, please contact Disability Services to provide the appropriate documentation.

Tutoring Center: The Mathematics Tutoring Center is offering online tutoring services to students currently enrolled in undergraduate math courses at GMU. Details: http://math.gmu.edu/tutor-center.php

ITS Support Center: The ITS Support Center serves as the central point of contact for the university community for requesting IT support or information. Additional details and resources are located at https://its.gmu.edu/service/its-support-center/ Email support@gmu.edu or call 703-993-8870 for technical support.

Important Campus-wide Dates

Classes Begin	Monday, January 24
Last day to add	Monday, January 31
Last day to drop a class with a tuition refund	Monday, February 7
Last day to drop (50% refund)	Monday, February 14
Unrestricted Withdrawal Period (W on transcript)	February 15-March 1
Spring Break	March 14-20
Selective Withdrawal Period (W on transcript) • If you do not withdraw by this date and do not complete your assignments, your grade will be based on what you have submitted, this is usually an F. • Note a W does not contribute to your GPA, but does show on your transcript • You are limited to 3 withdrawals in your academic career	March 2-April 11
Final exam	TBD

Tentative Schedule

	Date	Sections and Topics:	Activities & Suggested Problems
Week 1	M: 01/24	2.1 Sets 2.2 Operations on Sets	2.1: 1, 3, 7, 10, 11 2.2: 2, 4, 10, 12a-d, 16, 17, 27 **Activity 1**
Week 2	M: 01/31	6.1 Principles of Inclusion-Exclusion 6.2 The Addition and Multiplication Rules	6.1: 1, 4, 6, 11, 22 6.2: 1, 5, 6, 7, 8, 16, 17 **Activity 2**
Week 3	M: 02/07	7.1 Permutations 7.2 Combinations	7.1: 1, 7, 8, 11, 15 7.2: 3, 7, 11, 14, 20, 25 **Activity 3**
Week 4	M: 02/14	7.3 Elementary Probability 7.4 Probability Theory	7.3: 4, 10, 12 7.4: 1, 2, 3, 6, 7, 15, 16, 17 **Activity 4**
Week 5	M: 02/21	**Exam 1 (TBD): 2.1-2.2, 6.1-6.2, 7.1-7.4** 0.1 Compound Statements 1.1 Truth Tables	0.1: 2a, b, g, j, 5 a-g, i, k, l, 6a, b, e-h 1.1: 1a-e, 2, 5, 6, 7, 8
Week 6	M: 02/28	1.2 The Algebra of Propositions 1.3 Logical Arguments	1.2: 2, 3, 4, 5a, c, e, g, 6 1.3: 1, 3, 4a, c, f, 5a, c, e, g, i, k **Activity 5**
Week 7	M: 03/07	2.3 Binary Relations 2.4 Equivalence Relations	2.3: 3, 7, 9a-e 2.4: 2, 3, 7, 11 **Activity 6**
Week 8	M: 03/14	3.1 Functions – Basic Terminology 3.2 Inverses & Composition	3.1: 1, 3, 13, 15, 25 3.2: 1, 3, 7a, b, 9a-d, 12, 19, 22 **Activity 7**
Week 9	M: 03/21	5.1 Mathematical Induction 5.2 Recursively Defined Sequences 5.3 Solving Recurrence Relations	5.1:1, 4a, d, f, 7a-e, 9e, h, 11, 12, 15 5.2: 1, 2a, 4, 6, 20, 26, 27, 40, 55 5.3: 1, 7, 17 **Activity 8**
Week 10	M: 03/28	**Exam 2 (TBD): 0.1, 1.1-1.3, 2.3-2.4, 3.1-3.2, 5.1-5.3** 9.1 Gentle Introduction to Graph Theory	9.1: 1, 2, 3, 5, 6
Week 11	M: 04/04	9.2 Definition and Basic Properties 9.3 Isomorphism	9.2:2, 3, 6, 14, 15, 21, 23, 26, 28, 35 9.3: 1-6, 10 **Activity 9**
Week 12	M: 04/11	10.1 Eulerian Circuits 10.2 Hamiltonian Cycles 10.4 Shortest Path Algorithms	10.1: 1, 3, 4, 7, 9-13, 17 10.2: 1, 2, 5, 9, 15, 23 10.4: 10, 14a-c **Activity 10**
Week 13	M: 04/18	12.1 Trees and their Properties 12.2 Spanning Trees 12.3 Minimal Spanning Trees	12.1: 1, 4, 6, 10, 21 12.2: 4-9 12.3: 1-2 **Activity 11**
Week 14	M: 04/25	13.1-13.2, Planar Graphs and Colorings	**Activity 12**
Week 15	M: 05/02	Mon-Tues: Review (on Zoom) **FINAL EXAM (TBD)**	

*****ITEMS ARE SUBJECT TO CHANGE AND WILL BE UPDATED ON BLACKBOARD ACCORDINGLY.*****