MATH 125 Discrete Mathematics
Section 001, Fall 2020

Instructor: Gary dela Pena, Ph.D.

Contact Information:

- **Email**: gdelape2@gmu.edu (Subject line must contain: MATH 125-001)
- **Office Hours**: 3:00P-4:00P TR on Blackboard Collaborate Ultra (login at these times if you want to ask questions)
- **Discussion Board**: You can ask questions using the discussion board in Blackboard.

Prerequisites: A passing score on the Mathematics Placement Test or C or better in MATH 105 or MATH 108. Prerequisite enforced by registration system.

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

Textbook: Goodaire, Edgar G.; Parmenter, Michael M; L.; Discrete Mathematics with Graph Theory, 3E Prentice-Hall, N.J., 2006.

Grading : Your grade will be determined out of a possible 315 points:

Midterm Test (2)	160 points (80 points per test)
Final exam (1)	120 points
Worksheets (7)	35 points (5 points per worksheet)
Total	315 points

Grades will be assigned according to the following scale:

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

Tests: (2) midterm tests and a final Test. The coverage for each test is specified in the course schedule.

Although the course is offered online asynchronously, all tests are given on specific days, during a designated time period. If you are unable to take the exam at that time, you may request an alternate exam day and time, to be approved by the instructor. All requests for alternate days/times must be made two weeks before the scheduled test date.

- Midterm Test 1: October 1, 8:45P - 10:00P
- Midterm Test 2: November 5, 8:45P-10:00P
- Final Test: December 10, 7:30P-10:15P

These are the only dates and times that you are required to be in attendance. Please read the "Course Procedures and Guidelines" on how the tests will be administered and submitted. The coverage for each test is indicated in the course schedule. A test review will be posted one week before the scheduled date in blackboard. I will inform you when is it posted.

Worksheets: There will be a total of ten (10) worksheets. Please read the "Course Procedures and Guidelines" on how the worksheets will be administered and submitted. The posting and due dates of each worksheet is indicated in the course schedule. THERE IS NO MAKE-UP FOR WORKSHEETS. The three (3) lowest worksheet grades will be dropped. As an incentive, if you do all 10 worksheets, whatever extra points you earn will be added to your total score.

Homework: The homework problems are listed in the suggested problems column in the course schedule. While homework will neither be collected nor graded it is highly recommended that you complete all problems.

Makeup exams will only be given to students with an acceptable excuse. The only acceptable excuses are **religious holy day, family emergency, school sponsored event, job interviews, or sickness**. All absences require documentation. **All other absences will be given a zero for that test. No exceptions!**

Important Dates

August 31: is the last day you can add a class. If your name is not on my class roll then you cannot take this class.

September 8 Last day to drop with no tuition penalty.

September 15 Final Drop Deadline: Last day to drop with 50% tuition penalty.

September 29–October 28: Selective Withdrawal Period. If you stop attending classes and plan to withdraw from the course, it is your responsibility to withdraw from the course. You will not be able to withdraw yourself from the course after the above dates.

Students with Disabilities: If you have a documented learning disability or other condition that may affect academic performance you should:

1. Make sure this documentation is on file with Office for Disability Services (SUB I, Rm. 4205; 993-2474;http://ods.gmu.edu) to determine the accommodations you need; and
2. Inform me so we can discuss your accommodation needs.

Policy on Academic Dishonesty GMU is an Honor Code university; please see the Office for Academic Integrity for a full description of the code and the honor committee process. The principle of academic integrity is taken very seriously and violations are treated gravely. It is the responsibility of each student to ensure that other persons are not permitted access to answers to exams or quizzes or assignments which are required to be the sole work of each student. **IF A STUDENT IS SUSPECTED OF ACADEMIC DISHONESTY ON ANY EXAM OR QUIZ OR ASSIGNMENT REQUIRED TO BE THE SOLE WORK OF THE STUDENT, THE FOLLOWING PROCESS WILL APPLY**:

> At a minimum, a ZERO (0) on that exam or quiz or assignment and incident reported to the Honor committee.

See *academicintegrity.gmu.edu* for a copy of the Honor Code.

Obtaining Help: I will inform you at a later date if the Math Tutoring Center will be open during the fall semester.

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The following calendar gives a timetable for the course and the list of sections in the textbook, with suggested problems. **The schedule is subject to change**.

Units/Dates	Section	Suggested Problems
Unit 1	0.1 Compound Statements	2a, b, g, j, 5, a–g, I, k, l, 6a, b, e–h
	1.1 Truth Tables	1a–e, 2, 5, 6, 7, 8
Unit 2 (W1)	1.2 The Algebra of Propositions	2, 3, 4, 5a, c, e, g, 6
9/03–9/05	1.3 Logical Arguments	1, 3, 4a, c, f, 5a, c, e, g, I, k
Unit 3 (W2)	2.1 Sets	1, 3, 7, 10, 11
9/10–9/12	2.2 Operations on Sets	2, 4, 10, 12a–d, 16, 17, 27
Unit 4 (W3)	2.3 Binary Relations	3, 7, 9a–e
9/17 –9/19	2.4 Equivalence Relations	2, 3, 7, 11
Unit 5 (W4)	3.1 Basic Terminology	1, 3, 13, 15, 25
9/24–9/26	3.2 Inverses and Composition	1,3,7a, b, 9a–d, 12, 19, 22
10/01	**TEST 1**	Units 1–5
Unit 6 (W5)	5.2 Recursively Defined Sequences	1, 2a, 4, 6, 20, 26, 27, 40, 55
10/08-10/10	5.3 Solving Recurrence Relations; The Characteristic Polynomial	1, 7, 17
Unit 7 (W6)	6.1 The Principles of Inclusion–Exclusion	1, 4, 6, 11, 22
10/15–10/17	6.2 The Addition and Multiplication Rules	1, 5, 6, 7, 8, 16, 17
Unit 8 (W7)	7.1 Permutations	1, 7, 8, 11, 15
10/22–10/24	7.2 Combinations	3, 7, 11, 14, 20, 25
Unit 9 (W8)	7.3 Elementary Probability	4, 10, 12
10/29-10/31	7.4 Probability Theory	1, 2, 3, 6, 7, 15, 16, 17
Unit 10	9.1 A Gentle Introduction	1, 2, 3, 5, 6
	9.2 Definition and Basic Properties	2, 3,6, 14, 15, 21, 23, 26, 28, 35
11/05	**TEST 2**	Units 6–9
Unit 11 (W9)	9.3 Isomorphism	1—6, 10
11/12-11/14	10.1 Eulerian Circuits	1, 3, 4, 7, 9–13, 17
Unit 12 (W10)	10.2 Hamiltonian Cycles	1, 2, 5, 9, 15, 23
11/19-11/21	10.4 Shortest Path Algorithms	10, 14a, b, c
Unit 13	12.1 Trees and their Properties	1, 4, 6, 10, 21
	12.2 Spanning Trees	4–9
Unit 14	12.3 Minimal Spanning Trees	1–2
12/10	**FINAL TEST**	Units 1–14

Note: The first date in a unit is the date that the worksheet will be posted for that unit and the second date is when the worksheet is due for that unit. See posting and due times in 'Course Procedures and Guidelines'.