Contact Information

Instructor: Mario Barrientos
Office: MCS 209
Office Phone: (325) 486-5427
e-mail: mario.barrientos@angelo.edu
Office Hours: MWF 11AM-1PM, also T-TR 1PM to 3PM; or by appointment.

Textbook

Discrete Mathematics: Elementary and Beyond by L. Lovász and K. Vesztergombi

Grading

Homework: 10% of your grade
Quizzes: 10% of your grade
Exams: 80% of your grade (there will be four exams, each 20% of your total grade).

Grade Determination Criteria:
90-100 A; 80-89 B; 70-79 C; 60-69 D; 59 or below F

Attendance/Conduct

I keep a record of student attendance but your grade is not directly affected by absences, lateness, etc. Also, no cell phone use or eating is allowed in class.

Assignments

You will be assigned daily homework assignments which are generally due the next class day. I will not accept late assignments, however, I will drop two of your lowest homework grades. If you miss a test (an excused absence) I will replace the missing test grade with the final exam grade. I will only do this for one exam. Any other missing exams will be given a zero grade. Exam dates are: Feb 6, Mar 6, Apr 10, and the final on May 6. The final exam is mandatory.

Student Disability Services

ASU is committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs or activities of the university, or be subjected to discrimination by the university, as provided by the Americans with Disabilities Act of 1990 (ADA), the Americans with Disabilities Act Amendments of 2008 (ADAAA), and subsequent legislation.

The Office of Student Affairs is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability, and it is the student’s responsibility to initiate such a request by contacting:

Dallas Swafford
Director of Student Disability Services
Office of Student Affairs
325-942-2047
dallas.swafford@angelo.edu
Title IX
Angelo State University is committed to the safety and security of all students. If you or someone you know experience sexual harassment, sexual assault, domestic or dating violence, stalking, or discrimination, you may contact ASU’s Title IX Coordinator:

Michelle Boone
Director of Title IX Compliance
325-486-6357
michelle.boone@angelo.edu

Student Absence for Observance of Religious Holy Days
A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. The full details can be found in ASU Operating Policy OP 10.19 Observance of Religious Holy Days.

Incomplete Grade Policy
It is policy that incomplete grades be reserved for student illness or personal misfortune. Please contact faculty if you have serious illness or a personal misfortune that would keep you from completing course work. Documentation may be required. See ASU Operating Policy 10.11 Grading Procedures for more information.

Student Conduct Policies

Academic Integrity
Students are expected to maintain complete honesty and integrity in all work. Any student found guilty of any form of dishonesty in academic work is subject of disciplinary action and possible expulsion from ASU.

The College of Science and Engineering adheres to the Statement of Academic Integrity.

Plagiarism
Plagiarism is a serious topic covered in ASU’s Academic Integrity policy in the Student Handbook. Plagiarism is the action or practice of taking someone else’s work, idea, etc., and passing it off as one’s own. Plagiarism is literary theft.

In your discussions and/or your papers, it is unacceptable to copy word-for-word without quotation marks and the source of the quotation. It is expected that you will summarize or paraphrase ideas giving appropriate credit to the source both in the body of your paper and the reference list.

Papers are subject to be evaluated for originality via Turnitin. Resources to help you understand this policy better are available at the ASU Writing Center.

Copyright Policy
Students officially enrolled in this course should make only one printed copy of the given articles and/or chapters. You are expressly prohibited from distributing or reproducing any portion of course readings in printed or electronic form without written permission from the copyright holders or publishers.

General Policies Related to this Course
- All students are required to follow the policies and procedures presented in these documents:
In the event that the university is closed for a scheduled class time, whatever was scheduled for that day and/or whatever was due that day will be scheduled and/or due on the next scheduled class time.

- All electronic correspondence will be sent to your ASU e-mail account unless other arrangements are made.
- Feel free to come by my office at any time for help. I will definitely be near my office during my office hours (or there will be a note telling you when I will be back). If my office hours are not convenient for you, meet with me to arrange for another time that is more convenient.
- Good luck. I sincerely hope you do well in this course, and I strongly encourage you to use me as a resource outside of class to help you succeed.

All items contained in this syllabus are subject to change as the semester progresses. Students will be notified in advance of any changes.

Course Content


**Ch. 1 Let's Count** Sets and Subsets, Sequences, Permutations.

**Ch. 2, Combinatorial Tools** Induction, Inclusion-Exclusion.

**Ch. 3, Binomial Coefficients and Pascal's Triangle** Binomial Theorem.

**Ch. 4, Fibonacci Numbers** Identities, A formula for the Fibonacci numbers.

**Ch. 5, Combinatorial Probability** Events and Probabilities, Independence, The Law of Large Numbers.

**Ch. 6, Integers, Divisors, and Primes:** Divisibility, The history of the primes, Factorization, Fermat's Little Theorem, The Euclidean Algorithm, Primality testing.

**Ch. 7, Graphs** Paths and cycles, Hamilton Circuits.

**Ch. 8, Trees** How many trees are there? How to store a tree.

**Ch. 9, Finding the Optimum** Minimal spanning trees.

**Ch. 10 Matchings in Graphs** Matching Theorems.

**Ch. 11 Combinatorics in Geometry** Intersections, Counting Regions.

**Ch. 12 Euler's Formula** Planar Graphs, Formula for Polyhedra.

**Ch. 13 Coloring Maps and Graphs** Four Color Theorem.

**Ch. 14 Finite Geometries** Finite Affine and Projective Planes.

**Ch. 15, Cryptography** Classical Cryptography, Public Key Cryptography.

**Additional Topics; Arithmetic and Geometric Sequences**

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**Schedule (subject to revision)**

Topic
Set Theory
Set Theory
Counting
Counting
Counting Applications
Induction
Induction
The Fibonacci Sequence
The Golden Ratio
Arithmetic Sequences
Geometric Sequences
Introduction to Probability
Test 1
Combinatorial Probability
Combinatorial Probability
Conditional Probability
The Law of Large Numbers
Probability Mass Functions
Cumulative Distribution Functions
Expectation and Variance
Divisibility
The Fundamental Theorem of Arithmetic
The Euclidean Algorithm
Test 2
Introduction to Graph Theory
Euler’s Theorem
subgraphs
Trees
Trees
Graph Optimization Problems
Optimization (cont.)
Test 3
Bipartite Graphs
Graph Coloring
Modular Arithmetic
Affine Codes
RSA Public Encryption
Final Exam

1 Observance of Religious Holy Days: http://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of

2 Grading Procedures: http://www.angelo.edu/content/files/14197-op-1011-grading-procedures

3 Academic Integrity: http://www.angelo.edu/student-handbook/community-policies/academic-integrity.php

4 ASU Writing Center: http://www.angelo.edu/dept/writing_center/academic_honesty.php


6 University Catalog: http://www.angelo.edu/catalogs/