Instructor: Mario Barrientos  
Email: mario.barrientos@angelo.edu  
Phone: 325 486 5427  
Office: MCS 209  

Office Hours: M-F 8-11AM, or by appointment.  

Course Information  

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

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. No exam grades will be dropped. Exam dates are: July 13, July 20, July 27 and the final on Aug 5. All exams are mandatory.  

Evaluation and Grades  
Course grades will be determined as indicated in the table below.  

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Percent of Total Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>homework</td>
<td>20</td>
</tr>
<tr>
<td>EXAMS</td>
<td>80</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

Grading System  
Course grades will be dependent upon completing course requirements and meeting the student learning outcomes.
The following grading scale is in use for this course:

- A = 90.00-100 points
- B = 80.00-89.99 points
- C = 70.00-79.99 points
- D = 60.00-69.99 points
- F = 0-59.99 points

(Grades are not rounded up)

**General Policies Related to This Course**

All students are required to follow the policies and procedures presented in these documents:

- [Angelo State University Student Handbook](#)
- [Angelo State University Catalog](#)

**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 university’s [Statement of Academic Integrity](#).

**Accommodations for Students with Disabilities**

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.

Student Disability Services is located in the Office of Student Affairs, and is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability. It is the student’s responsibility to initiate such a request by contacting an employee of the Office of Student Affairs, in the Houston Harte University Center, Room 112, or contacting the department via email at [ADA@angelo.edu](mailto:ADA@angelo.edu). For more information about the application process and requirements, visit the [Student Disability Services website](#). The employee charged with the responsibility of reviewing and authorizing accommodation requests is:

Dallas Swafford  
Director of Student Disability Services  
Office of Student Affairs  
325-942-2047  
dallas.swafford@angelo.edu  
Houston Harte University Center, Room 112
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 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. See ASU Operating Policy 10.19 Student Absence for Observance of Religious Holy Day for more information.

Title IX at Angelo State University
The University prohibits discrimination based on sex, which includes pregnancy, sexual orientation, gender identity, and other types of Sexual Misconduct. Sexual Misconduct is a broad term encompassing all forms of gender-based harassment or discrimination including: sexual assault, sex-based discrimination, sexual exploitation, sexual harassment, public indecency, interpersonal violence (domestic violence and/or dating violence), and stalking. As a faculty member, I am a Responsible Employee meaning that I am obligated by law and ASU policy to report any allegations I am notified of to the Office of Title IX Compliance.

Students are encouraged to report any incidents of sexual misconduct directly to ASU’s Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator at:

Michelle Boone, J.D.
Director of Title IX Compliance/Title IX Coordinator
Mayer Administration Building, Room 210
325-942-2022
michelle.boone@angelo.edu

You may also file a report online 24/7 at www.angelo.edu/incident-form.

If you are wishing to speak to someone about an incident in confidence you may contact the University Health Clinic and Counseling Center at 325-942-2173 or the ASU Crisis Helpline at 325-486-6345.

For more information about Title IX in general you may visit www.angelo.edu/title-ix.

Course Schedule
All items contained in this syllabus are subject to change as the semester progresses. Students will be notified 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. 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

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
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

i [https://www.angelo.edu/student-handbook/](https://www.angelo.edu/student-handbook/)
ii [https://www.angelo.edu/catalogs/](https://www.angelo.edu/catalogs/)
iii [https://www.angelo.edu/student-handbook/community-policies/academic-integrity.php](https://www.angelo.edu/student-handbook/community-policies/academic-integrity.php)
iv [https://www.angelo.edu/services/disability-services/](https://www.angelo.edu/services/disability-services/)
v [https://www.angelo.edu/content/files/14197-op-1011-grading-procedures](https://www.angelo.edu/content/files/14197-op-1011-grading-procedures)
vi [https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of](https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of)