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

Office Hours: MWF 8-9 AM, also 11-12AM, T-Tr 10AM -12noon or by appointment.

Course Information

Textbook


Student Learning Outcomes

1. The students will demonstrate factual knowledge including the mathematical notation and terminology used in this course. Students will read, interpret, and use the vocabulary, symbolism, and basic definitions used in a selection from the following topics: voting theory, apportionment, the mathematics of money, probability, statistics, graph theory, and geometry.

2. The students will be able to describe generalizations of mathematics to real-world situations. Students will be able to describe, for example, the role played by mathematics in the theory of voting. The students will be able to describe connections between mathematical concepts and natural and societal phenomena.

3. The students will apply the course material along with techniques and procedures covered in this course to solve various problems and improve decision making. The students will apply such topics related to statistics and probability to improve decision making through a broader understanding of mathematics. They will learn to analyze problems using mathematical ideas and symbolism and learn to obtain the appropriate resources required to better deal with such problems.

4. The students will develop specific skills, competencies, and thought processes sufficient to support further study or work in this field or related fields. Students will develop new approaches and algorithms for solving problems related to networking, scheduling and paths.
Course Delivery

Technology Requirements
To successfully complete this course, students need to have reliable internet access and the ability to scan and upload documents.

Communication
Faculty will respond to email and/or telephone messages within 24 hours during working hours Monday through Friday. Weekend messages may not be returned until Monday.

Written communication via email: All private communication will be done exclusively through your ASU email address. Check frequently for announcements and policy changes. In your emails to faculty, include the course name and section number in your subject line.

Grading

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>40</td>
</tr>
<tr>
<td>EXAMS</td>
<td>60</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)

Assignment and Activity Descriptions
Homework for this course will be done online via an online service (My Open Math). I will not accept late assignments; however, I will drop two of your lowest homework grades. If you miss a test (an official 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. All exams are in class exams with no notes. Exam dates are Sep 15, Oct 13, Nov 10, and the final on Dec 6.

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 to disciplinary action and possible expulsion from ASU.

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

Class Policies
I don’t allow the use of cell phones in class, also no eating is allowed in class.

This class is a face to face class, supplementary material will be posted in BlackBoard.

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. 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.

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. Resources to help you understand this policy better are available at the ASU Writing Center.
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
Angelo State University is committed to providing and strengthening an educational, working, and living environment where students, faculty, staff, and visitors are free from sex discrimination of any kind. In accordance with Title VII, Title IX, the Violence Against Women Act (VAWA), the Campus Sexual Violence Elimination Act (SaVE), and other federal and state laws, the University prohibits discrimination based on sex, which includes pregnancy, and other types of Sexual Misconduct. Sexual Misconduct is a broad term encompassing all forms of gender-based harassment or discrimination and unwelcome behavior of a sexual nature. The term includes sexual harassment, nonconsensual sexual contact, nonconsensual sexual intercourse, sexual assault, sexual exploitation, stalking, public indecency, interpersonal violence (domestic violence or dating violence), sexual violence, and any other misconduct based on sex.

You are encouraged to report any incidents involving sexual misconduct to the Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator, Michelle Miller, J.D. You may submit reports in the following manner:

Online: Incident Reporting Form
Face to Face: Mayer Administration Building, Room 210
Phone: 325-942-2022
Email: michelle.miller@angelo.edu

Note, as a faculty member at Angelo State, I am a mandatory reporter and must report incidents involving sexual misconduct to the Title IX Coordinator. Should you wish to speak to someone in confidence about an issue, you may contact the University Counseling Center (325-942-2371), the 24-Hour Crisis Helpline (325-486-6345), or the University Health Clinic (325-942-2171).

For more information about resources related to sexual misconduct, Title IX, or Angelo State’s policy please visit the Title IX website.

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.

Modifications to the Syllabus
This syllabus, including grade evaluation and course schedule, is subject to modification. In particular, the COVID-19 pandemic may require significant changes in course delivery and content on potentially short notice.

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

2 The Mathematics of Power: An Introduction to Weighted Voting, Banzhaf Power, Shapley-Shubik Power, Subsets and Permutations


5 The Mathematics of Getting Around: Street-Routing Problems, An Introduction to Graphs, Euler’s Theorems and Fleury’s Algorithm, Eulerizing and Semi-Eulerizing Graphs


7 The Mathematics of Networks: Networks and Trees, Spanning Trees, MSTs, and MaxSTs, Kruskal’s Algorithm

8 The Mathematics of Scheduling: An Introduction to Scheduling, Directed Graphs, Priority-List Scheduling, The Decreasing-Time Algorithm, Critical Paths and the Critical-Path Algorithm

10 Financial Mathematics: Percentages, Simple Interest, Compound Interest, Retirement Savings, Consumer Debt

11 The Mathematics of Symmetry: Rigid Motions, Reflections, Rotations, Translations, Glide Reflections, Symmetries and Symmetry Types, Patterns


14 Censuses, Surveys, Polls, and Studies: Enumeration, Measurement, Cause and Effect

15 Graphs, Charts, and Numbers: Graphs and Charts, Means, Medians, and Percentiles, Ranges and Standard Deviations

16 Probabilities, Odds, and Expectations: Sample Spaces and Events, The Multiplication Rule, Permutations, and Combinations, Probabilities and Odds, Expectations, Measuring Risk

17 The Mathematics of Normality: Approximately Normal Data Sets, Normal Curves and Normal Distributions, Modeling Approximately Normal Distributions, Normality in Random Events

Additional Algebraic Techniques:
- Order of Operations- numeric applications for PEMDAS with no variables.
- The Distributive Law
- Absolute Value- evaluating the absolute value of numbers as a distance from 0
- Exponent Rules- basic integer exponents (both positive and negative), along with the product rule, quotient rule, and power rule
- Simplifying Radicals- simplifying square roots and cube roots with simple variables under the radicals; will include both perfect squares/cubes and others that have to be factored out
- Polynomial Addition & Subtraction
- Polynomial Multiplication- both distributive property and FOIL are introduced
- Factoring by GCF- factoring polynomials strictly by greatest common factor
- Factoring Basic Trinomials- factoring trinomials with a leading coefficient of 1, or a GCF that lends a leading coefficient of 1
- Solving Linear Equations- determine if a number is a solution to an equation; then solving basic linear equations; no rational equations are covered.

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2. https://www.angelo.edu/catalogs/
4. https://www.angelo.edu/services/disability-services/
5. https://www.angelo.edu/content/files/14197-op-1011-grading-procedures
7. https://www.angelo.edu/dept/writing_center/academic_honesty.php
8. https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of
9. https://www.angelo.edu/incident-form
10. https://www.angelo.edu/title-ix
11. https://www.angelo.edu/services/title-ix/