MATH 1332T
An Introduction to Contemporary Mathematics

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Office: MCS 220H

Office Hours: MWF 10:00 AM – 11:00 AM, MCS 220 H; TR 1:00 PM – 2:00 PM, 4:00 PM – 5:00 PM, MCS 220H; W 11:00 AM – 12:00 PM, MCS 220H, M 1:00 PM – 3:00 PM in Math Lab, LiB 330

Course Information

Course Description
A survey of ideas in contemporary mathematics. Topics may include graphs and networks, theory of elections and apportionment, statistics, and mathematical models. Recommended for students who wish to satisfy their core mathematics requirement but do not plan to take additional mathematics coursework.

Prerequisite and Co-requisite Courses
Completion of Mathematics Texas Success Initiative (TSI)

Student Learning Outcomes
Upon completion of this course, students will be able to:

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: basic algebraic techniques, 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. Students will develop basic algebraic skills necessary for the support of their academic careers.

**Additional Algebraic Techniques:**

A. Order of Operations- numeric applications for PEMDAS with no variables.
B. The Distributive Law
C. Absolute Value- evaluating the absolute value of numbers as a distance from 0
D. Exponent Rules- basic integer exponents (both positive and negative), along with the product rule, quotient rule, and power rule
E. 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
F. Polynomial Addition & Subtraction
G. Polynomial Multiplication- both distributive property and FOIL are introduced
H. Factoring by GCF- factoring polynomials strictly by greatest common factor
I. Factoring Basic Trinomials- factoring trinomials with a leading coefficient of 1, or a GCF that lends a leading coefficient of 1
J. Solving Linear Equations- determine if a number is a solution to an equation; then solving basic linear equations; no rational equations are covered.

**Course Delivery**

This is a face-to-face course with learning resources and supplemental materials posted in Blackboard.

**Required Texts and Materials**

Excursions in Modern Mathematics 9th ed. by Peter Tannenbaum, Prentice Hall.

**Technology Requirements**

To successfully complete this course, students need to have access to Blackboard.
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>20</td>
</tr>
<tr>
<td>Test 1</td>
<td>20</td>
</tr>
<tr>
<td>Test 2</td>
<td>20</td>
</tr>
<tr>
<td>Test 3</td>
<td>20</td>
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<tr>
<td>Test 4 (Final Exam)</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
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</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 = 89.5 - 100 points
- B = 79.5 – 89.5 points
- C = 69.5 – 79.5 points
- D = 59.5 – 69.5 points
- F = 0-59.5 points

Assignment and Activity Descriptions

Homework Policy
- There will be assigned exercises from the textbook and/or handouts.
- Homework is due at the BEGINNING of class. If you have trouble completing a homework assignment, seek assistance BEFORE it is due. If you are going to be
absent, send your work with a classmate, send via email, or bring by my office before class.

- I will drop 3 homework grades. This is the leeway you are given to allow for unforeseen circumstances.

Exams

- We will have three regular tests and a non-comprehensive final exam. Your final exam will be on December 12, 2019 from 8:00 AM to 10:00 AM.
- If you miss an exam, you need to get in touch with me immediately! You may be required to take a comprehensive final exam to compensate for the missing exam. If you know prior to the test that you will be absent, let me know and we can make arrangements.
- If you leave the room during an exam, I may determine that your test time is complete and grade it as is.

Attendance

- Class attendance will be taken daily.
- Absences are reported to the administration and play an important role in suspension considerations.
- You are expected to attend all scheduled class meetings, arrive on time, and stay for the entire class period.
- Perfect attendance will get you 2 points added to your final course grade, 1-2 absences will get you 1 point.

Calculators

You will be allowed to use calculators in this class. You do not need to go buy an expensive calculator. If you already have a graphing calculator, that will be sufficient. If you do not have a calculator, an inexpensive one that will work for this course is a TI 30II S. It runs $10-$15. Please note that you will not be allowed to use an online calculator for tests. I highly recommend that you use an allowable calculator for all your work so that you are well practiced with that calculator’s input procedures.

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. 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 Boone, J.D. You may submit reports in the following manner:

Online: www.angelo.edu/incident-form
Face to face: Mayer Administration Building, Room 210
Phone: 325-942-2022
Email: michelle.boone@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: www.angelo.edu/title-ix.

Course Schedule

The table below indicates the expected schedule of sections that will be discussed on the date listed. However, changes to this schedule may occur and will be posted in Blackboard announcements.

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic or Module</th>
<th>Activities</th>
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</thead>
<tbody>
<tr>
<td>8/27</td>
<td>Module 1</td>
<td>Syllabus, Basic Elements of an Election, Preference Schedules</td>
</tr>
<tr>
<td>8/29</td>
<td>Module 1</td>
<td>Voting Methods: Plurality, Borda, Plurality with Elimination, Pairwise Comparisons</td>
</tr>
<tr>
<td>9/3</td>
<td>Module 2</td>
<td>Weighted Voting</td>
</tr>
<tr>
<td>9/5</td>
<td>Module 2/3</td>
<td>Banzoff Power; Fair Division Games</td>
</tr>
<tr>
<td>9/10</td>
<td>Module 3</td>
<td>Fair Division Games; Sealed Bids</td>
</tr>
<tr>
<td>9/12</td>
<td>Module 3/4</td>
<td>Sealed Bids; Apportionment</td>
</tr>
<tr>
<td>9/17</td>
<td></td>
<td>Review</td>
</tr>
<tr>
<td>9/19</td>
<td></td>
<td>Test 1</td>
</tr>
<tr>
<td>9/24</td>
<td>Module 4/5</td>
<td>Hamilton’s Method; Street-Routing Problems; Introduction to Graphs</td>
</tr>
<tr>
<td>9/26</td>
<td>Module 5</td>
<td>Introduction to Graphs; Euler’s Theorem</td>
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<tr>
<td>10/1</td>
<td>Module 5/6</td>
<td>Euler’s Theorem; Eulerizing Graphs; Traveling Salesman Problem</td>
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<tr>
<td>10/3</td>
<td>Module 6</td>
<td>Hamilton Paths &amp; Circuits; Brute Force Algorithm</td>
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<tr>
<td>10/8</td>
<td>Module 6/7</td>
<td>Nearest Neighbor Algorithm; Networks and Trees</td>
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<tr>
<td>10/10</td>
<td>Module 7</td>
<td>Spanning Trees; Kruskal’s Algorithm</td>
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<tr>
<td>10/15</td>
<td></td>
<td>Review</td>
</tr>
<tr>
<td>10/17</td>
<td></td>
<td>Test 2</td>
</tr>
<tr>
<td>10/22</td>
<td>Module 10</td>
<td>Math of Finance Definitions; Math of Finance Packet 1: Simple Interest, Compound Interest</td>
</tr>
<tr>
<td>10/24</td>
<td>Module 10</td>
<td>Math of Finance Packet 1: Simple Interest Compound Interest</td>
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<tr>
<td>10/29</td>
<td>Module 10</td>
<td>Math of Finance Annuities Packet</td>
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<tr>
<td>10/31</td>
<td>Module 10</td>
<td>Math of Finance Annuities Packet</td>
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<tr>
<td>11/5</td>
<td>Module 11</td>
<td>Rigid Motions – Translations, Reflections, Rotations</td>
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<tr>
<td>11/7</td>
<td>Module 10</td>
<td>Math of Finance Packet 2</td>
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<tr>
<td>11/12</td>
<td></td>
<td>Review</td>
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<tr>
<td>Date</td>
<td>Module</td>
<td>Topic</td>
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<td>11/14</td>
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<td>Test 3</td>
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<tr>
<td>11/19</td>
<td>Module 15</td>
<td>Frequency Tables; Graphs and Charts</td>
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<tr>
<td>11/21</td>
<td>Module 15</td>
<td>Means, Medians and Percentile; Ranges and Standard Deviation</td>
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<tr>
<td>11/26</td>
<td>Module 16</td>
<td>Ranges and Standard Deviation; Future Value Annuities; Advanced Transformations</td>
</tr>
<tr>
<td>12/3</td>
<td>Module 16</td>
<td>Probability</td>
</tr>
<tr>
<td>12/5</td>
<td>Module 16</td>
<td>Probability; IDEA, Review for Final Exam</td>
</tr>
<tr>
<td>12/12</td>
<td></td>
<td>Test 4 (Final Exam)</td>
</tr>
</tbody>
</table>

1. [https://www.angelo.edu/student-handbook/](https://www.angelo.edu/student-handbook/)
2. [https://www.angelo.edu/catalogs/](https://www.angelo.edu/catalogs/)
4. [https://www.angelo.edu/services/disability-services/](https://www.angelo.edu/services/disability-services/)
5. [https://www.angelo.edu/content/files/14197-op-1011-grading-procedures](https://www.angelo.edu/content/files/14197-op-1011-grading-procedures)
7. [https://www.angelo.edu/dept/writing_center/academic_honesty.php](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](https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of)