Math 1332 T section
Introduction to Contemporary Mathematics
Spring 2018

Instructor: Mrs. Autumn Hoover
Fax: (325) 942 – 2503
Office: MCS 220M
Office Phone: (325) 486-5431
e-mail: Autumn.Hoover@angelo.edu

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Mrs. Autumn Hoover</th>
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<tbody>
<tr>
<td>Office</td>
<td>MCS 220M</td>
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<td>(325) 486-5431</td>
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<td>Fax</td>
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<tr>
<td>Email</td>
<td><a href="mailto:Autumn.Hoover@angelo.edu">Autumn.Hoover@angelo.edu</a></td>
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Office Hours:

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
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<tbody>
<tr>
<td>Monday</td>
<td>8:30 – 9:00, 1:00 – 3:30</td>
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<tr>
<td>Tuesday</td>
<td>10:30 – 11:45</td>
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<tr>
<td>Wednesday</td>
<td>8:30 – 9:00, 1:00 – 3:30</td>
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<tr>
<td>Thursday</td>
<td>10:30 – 11:45</td>
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<tr>
<td>Friday</td>
<td>8:30 – 9:00</td>
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<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
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<tbody>
<tr>
<td></td>
<td>From 1/16 – 2/16</td>
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<tr>
<td></td>
<td>From 2/19 – 5/4</td>
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Textbook: Excursions in Modern Mathematics, 9ed. by Peter Tannenbaum.

Course Content: Refer to the attached Student Learning Outcomes and Content sheet for information on the topics covered in this course.

T - Section: A T - Section is a college credit bearing course paired with additional support for those students who are not TSI complete.

- T - Sections allow students to take their college level mathematics class (with additional support) immediately rather than spending semesters taking developmental mathematics courses first. This course design is ideal for students who have math deficiencies but, are willing to put forth the time and effort needed to complete the course satisfactorily.
- Learning communities are a great way to begin college life. You will work some problems in groups with each person in the group contributing their fair share to the effort. You will be asked at times to be peer tutors for others that are struggling. The nature of the material is such that each of you will find topics in which you excel and other topics in which you struggle. This is where peer tutoring will become very helpful!

Math Lab: The math learning lab is available on campus and provides free math tutoring. Please utilize this great resource – no appointment is required.

- MATH LAB – LIB C302
  - Monday – Thursday: 9:00 am – 8:00 pm
  - Friday: 9:00 am – 12:00 pm
  - Sunday: 4:00 pm – 8:00 pm

Blackboard/Email:

- I plan to post your daily assignments, class notes, class announcements and other documents on Blackboard. I will expect you to print these documents and bring them to class with you.
- Blackboard can be accessed through RamPort or by visiting Blackboard.
- I may send you information via email. It is your responsibility to regularly check your angelo.edu email account.

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.
- You will be marked absent if you are more than 10 minutes late or if you leave early. I will count three tardies as an absence.
- Perfect attendance will get you 2 points added to your final course grade, 1-2 absences will get you 1 point.
Homework:
- There will be daily assigned exercises from the textbook or handouts and will follow the Homework Guidelines attached to this syllabus.
- Homework is due at the BEGINNING of class and NO LATE HOMEWORK will be accepted for any reason, including absences. If you have trouble completing a homework assignment, see me for assistance before it is due.
- If you are absent, it is your responsibility to contact me or view Blackboard in order to get the new homework assignments.
- You may send your homework to class with a friend, scan or take a picture of it and email it to me or fax it to the office. They must be received prior to the beginning of class.
- I will drop 3 homework grades. This is the leeway you are given to allow for unavoidable absences. Do not waste them.

Exams:
- We will have three regular exams and a non-comprehensive final exam on Tuesday, May 8, 2018,
  - 8AM class: 8:00 – 10:00
  - 12:30 class: 1:00 – 3:00
- 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.
- You may take an exam early ONLY if I excuse the absence.
- If you leave the room during an exam, I may take your test and grade it AS IS!

Grading Scheme:

- Homework Average: 20%
- Exams (20% each): 60%
- Final Exam: 20%

The following determines how letter grades will be assigned in this course.

90 – 100 : A  
80 – 89: B  
70 – 79: C  
60 – 69: D  
Below 60: F

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.

Common Courtesy:
- Turn off all cell phones or any other electronic devices before entering the classroom. Place these items in your backpacks. I do not want to see them on your desk or in your laps. THIS MEANS NO TEXTING DURING CLASS! I reserve the right to ask you to leave class if I catch you on your phone.
- Please refrain from carrying on personal conversations once class has started. Be courteous to your peers when they are responding in class by listening to what they have to say.

Homework Guidelines for written work from the textbook:

- Fold your homework in half vertically with your name and row number visible on the outside.
- Please box and/or highlight your answers.
- No spiral paper is allowed.
- Write legibly. Clearly indicate the page number, problem number, and show all work in an organized manner. If your answer cannot be read, it’s WRONG. Your homework assignment should not look like scratch paper.
- STAPLE your work before folding it vertically.
- You CAN use both sides of a sheet of paper.

WARNING: POINTS MAY BE DEDUCTED IF THESE STANDARDS ARE NOT FOLLOWED!!
Drop Date:
Monday, April 2, 2018 is the last day to drop a course with a W or withdraw from ASU. However, unless you become TSI complete, you may not drop this course.

University Policies:

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. (OP 10.19 Student Absence for Observation of Religious Holy Days) You are still responsible for completing all course work missed on that day.

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

- If you have any simpler needs (like needing me to speak louder, needing to sit in a certain location, needing a larger font, etc.), let me know immediately.

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

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 to 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:

- Angelo State University Student Handbook
- Angelo State University Catalog

Mathematics 1332 – An Introduction to Contemporary Mathematics

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 Content

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

1. **Mathematics of Voting:** Preference Ballots, Plurality, Borda, Runoff Voting, Pairwise Comparison, Rankings
2. **Weighted Voting:** The Banzhaf Power Index, The Shapley-Shubik Power Index
4. **Apportionment:** Various methods including Hamilton’s, Jefferson’s, Adam’s, and Webster’s; The Alabama Paradox
5. **Euler Paths and Circuits:** Euler Circuit Problems, Graphs, Euler’s Theorems, Fleury’s Algorithm, Eulerizing Graphs
6. **The Traveling Salesman Problem:** Hamilton Paths and Circuits, Complete Graphs, Greedy and Nearest Neighbor Algorithms
7. **Networks:** Trees, Spanning Trees, Kruskal’s Algorithm, Shortest Networks for Three or more points
8. **Scheduling:** Directed Graphs, Priority Lists, The Decreasing Time Algorithm, Critical Paths, Independent Tasks
9. **Fibonacci Numbers and the Golden Ratio:** Fibonacci Numbers, The Golden Ratio, Gnomons, Spiral Growth
10. **Math of Finance:** Percentages, Simple Interest, Compound Interest, Annuities
11. **Mathematics of Symmetry:** Rigid Motions, Reflections, Rotations, Translations, Glide Reflections, Patterns
12. **Fractals:** The Koch Snowflake, The Sierpinski Gasket, Chaos, The Mandelbrot Set
13. **Collecting Data:** Sampling, Random Sampling, The Capture-Recapture Method, Clinical Studies
14. **Descriptive Statistics:** Graphical Methods, Variables, Data Summaries, Spread
15. **Probability:** Random Experiments, Sample Spaces, Permutations, Combinations, Equiprobable Spaces, Odds
16. **Normal Distributions:** Approximately Normal Distributions, Normal Curves, Distributions of Random Events, Statistical Inference.
The subject matter schedule listed below is tentative, and subject to change and adaptation. For current, updated information about course topics, contact the instructor or see Blackboard.

Spring 2018 TR
Course day  Topic

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<tr>
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<tbody>
<tr>
<td>1</td>
<td>Syllabus; Basic Elements of an Election, Preference Schedules</td>
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<tr>
<td>2</td>
<td>Voting Methods: Plurality, Borda, Plurality with Elimination, Pairwise Comparisons</td>
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<td>3</td>
<td>Weighted Voting</td>
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<tr>
<td>4</td>
<td>Banzoff Power; Fair Division Games</td>
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<td>5</td>
<td>Fair Division Games; Sealed Bids</td>
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<td>6</td>
<td>Sealed Bids; Apportionment</td>
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<tr>
<td>7</td>
<td>Review</td>
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<td>8</td>
<td>Test 1 (2/8/2018)</td>
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<td>9</td>
<td>Hamilton’s Method; Street-Routing Problems; Introduction to Graphs</td>
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<td>10</td>
<td>Introduction to Graphs; Euler’s Theorem</td>
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<tr>
<td>11</td>
<td>Euler’s Theorem; Eulerizing Graphs; Traveling Salesman Problem</td>
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<td>12</td>
<td>Hamilton Paths &amp; Circuits; Brute Force Algorithm</td>
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<td>13</td>
<td>Nearest Neighbor Algorithm; Networks and Trees</td>
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<td>14</td>
<td>Spanning Trees; Kruskal’s Algorithm</td>
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<td>15</td>
<td>Review</td>
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<tr>
<td>16</td>
<td>Test 2 (3/8/2018)</td>
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<tr>
<td>17</td>
<td>Math of Finance Definitions; Math of Finance Packet 1: Simple Interest, Compound Interest</td>
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<tr>
<td>18</td>
<td>Math of Finance (Packet 1): Simple Interest, Compound Interest</td>
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<td>19</td>
<td>Math of Finance (Annuities Packet)</td>
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<td>20</td>
<td>Math of Finance (Annuities Packet)</td>
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<tr>
<td>21</td>
<td>Rigid Motions- Translations, Reflections, Rotations</td>
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<td>22</td>
<td>Math of Finance (Packet 2)</td>
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<td>23</td>
<td>Review</td>
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<tr>
<td>24</td>
<td>Test 3 (4/12/2018)</td>
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<td>25</td>
<td>Frequency Tables; Graphs and Charts</td>
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<td>26</td>
<td>Means, Medians and Percentiles; Ranges and Standard Deviation</td>
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<tr>
<td>27</td>
<td>Ranges and Standard Deviation; Future Value Annuities; Advanced Transformations</td>
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<td>28</td>
<td>Math of Shopping</td>
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<td>29</td>
<td>Probability; Core Assessment; IDEA</td>
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<tr>
<td>30</td>
<td>Review for Final Exam</td>
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<tr>
<td>31</td>
<td>Final Exam Tuesday, May 8th, 2018</td>
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8:00 Class: 8:00-10:00
12:30 Class: 1:00-3:00

1 [http://blackboard.angelo.edu](http://blackboard.angelo.edu)
2 [http://www.angelo.edu/opmanual/](http://www.angelo.edu/opmanual/)