Math 1332.T20- Intro to Contemporary Mathematics
Spring 2020 Syllabus

Disclaimer: This syllabus is current and accurate as of its posting date, but will not be updated. For the most complete and up-to-date course information, contact the instructor.

Instructor Information
Name: Mrs. Autumn Hoover    Phone: 325-486-5431
email: autumn.hoover@angelo.edu    Office: MCS 220M

Office Hours: Monday/Wednesday: 9:30 – 12:00; 3:00 – 3:30
      Tuesday/Thursday: 8:30 – 9:30; 2:00 – 3:00
      Friday: None scheduled, but I am usually here by 9:30 or so.

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, or send me an email, to arrange for another time that is more convenient.

This class meets MWF 1:00 – 2:50 in MCS 212.

Textbook: Excursions in Modern Mathematics, 9th edition, by Peter Tannenbaum. You must have a copy of the textbook (a digital copy is fine), but you do not need and access code for MyMathLab.

What is a T-Section?
- A T-Section is 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 having to first spend a semester or two 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.

Student Expectations: YOU are expected to…
- Attend class consistently and arrive on time.
- Foster a learning environment by practicing common courtesy at all times.
- Pay attention fully during class.
- Complete each assignment by the specified due date.
- Maintain academic honesty.
- Work outside of class on homework, quizzes, and review materials to master concepts and adequately prepare for exams.
- Utilize, as needed, all available study-aid options (including visiting the math lab, meeting with the instructor, referring to outside text, etc.) to resolve questions.
- Keep all course materials, notes, worksheets, reviews, syllabus, etc. in a 3 ring binder and bring to class daily.
Math Lab: The Math Learning lab is available on campus and provides FREE math tutoring. Please utilize this great resource- no appointment is necessary.

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

Lecture Notes: It is your responsibility to print the lecture notes from Blackboard and bring them to class each day. Notes and other class materials should be kept in a 3-ring binder.

Blackboard/Email:

- I plan to post notes, test reviews, grades, important announcements and other documents on Blackboard. I will expect you to print the lecture notes and bring them with you to class daily.
- Blackboard can be accessed through RamPort or by visiting http://blackboard.angelo.edu.
- All electronic correspondence will be sent to your ASU e-mail account. It is your responsibility to regularly check your angelo.edu email account.

Calculators: All students will need a calculator. If you already have a graphing calculator, that will be sufficient. If you do not have a calculator, one that will work for this course is the TI 30II S. It runs $10 - $15.

Attendance: Attendance will be taken daily and is mandatory for the entire class period. Excessive absences are reported to the administration and play a definite role in suspension considerations. Remember that I can teach you more in one hour than you can learn on your own in several hours. So, for your own sake, attend every class!! Perfect attendance will result in 2 points added to your final course grade, 1-3 absences will result in 1 point. I count 3 tardies as an absence.

Homework: Homework will be assigned over every section. Daily work will consist of worksheets and/or textbook problem sets. Homework is due at the BEGINNING of class. I DO NOT ACCEPT LATE HOMEWORK.

- If you are going to miss class, you can send it to class with a friend or email me pictures of your assignments before class starts on the day the assignment is due. No late assignments will be accepted.
- If you need assistance with an assignment, see me for help before it is due.
- Homework assignments will be posted daily on blackboard, on the Homework assignment tab.
- I will drop 4 homework grades at the end of the semester to compensate for unavoidable circumstances.

Homework Guidelines:

- Fold your homework in half vertically with your name and row number visible on the outside.
- Box and/or highlight your answers.
- No spiral paper is allowed.
- Write legibly. If your answer cannot be read, it is wrong. Show all necessary work.
- Staple your work before folding it.
- You may use both sides of a sheet of paper.
- Points may be deducted if these standards are not followed.
Tests/Final Exam: There will be three regular exams during the semester and a non-cumulative final exam. If you leave the room during an exam, I may take your test and grade it AS IS! There will be no make-up exams. If you do miss an exam, get in touch with me immediately. You may be required to take a comprehensive final exam to replace the missing exam.

Tentative Test Dates:
- Test 1: Friday Feb. 7th
- Test 2: Friday March 6th
- Test 3: Wednesday April 8th
- Test 4 (Final Exam): Wednesday, May 6th 1:00 - 3:00 pm

Drop Date: Thursday March 26th is the last day to drop a class. Note: Students required to be in a T-section are not allowed to drop a T-section course per university policy.

Grading: Grades will be determined as follows:
- Homework & Quizzes- 20%
- Tests- 60% (20% each)
- Final Exam- 20%

Final Grades: Final grades will be determined using the following scale
- A: 90% or above
- B: 80% - 89%
- C: 70% - 79%
- D: 60% - 69%
- F: Below 60%

Common Courtesy:
- Please 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. 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.
- You are not given a grade in a college course; you EARN your grade. It is your responsibility to put in as much effort as it takes to earn this grade. This includes utilizing (as needed) all available study aid options (my office hours, the Math Lab, reading outside texts, etc.) to resolve any questions or concerns you might have about any aspect of the course.

What to do when you miss class:
- Email pictures of any assignments due the day you are going to be absent. They must be received by class time.
- If you email me and request the notes you missed, I will email them to you.
- Look under “Homework Assignments” in Blackboard and see what homework was assigned while you were out.
- Go to math lab or see me during office hours if you are having difficulty with the assignment.

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
University Policies:
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 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.

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.

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.

Student Learning Outcomes

1. **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. **Students will 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 social phenomena.

3. **Students will apply course material along with techniques and procedures covered in this course to solve problems and improve decision making.** 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. **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.
Course Content


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.

**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; solving basic linear equations
Subject Matter: (tentative schedule- subject to change)

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.

Tentative Course Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Syllabus, Basic Elements of an Election, Preference Schedules, Voting Methods</td>
</tr>
<tr>
<td>2</td>
<td>Voting Methods, Weighted Voting, Banzoff Power</td>
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<tr>
<td>3</td>
<td>Fair Division, Voting Review, Sealed Bids</td>
</tr>
<tr>
<td>4</td>
<td>Review, EXAM 1, Apportionment</td>
</tr>
<tr>
<td>5</td>
<td>Hamilton’s Method, Street-Routing Problems, Introduction to Graph Theory</td>
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<tr>
<td>6</td>
<td>Euler’s Theorem, Eulerizing Graphs, Traveling Salesman Problem</td>
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<tr>
<td>7</td>
<td>Hamilton Paths &amp; Circuits, Brute Force Algorithm, Nearest Neighbor Algorithm</td>
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<tr>
<td>8</td>
<td>Review, EXAM 2, Networks</td>
</tr>
<tr>
<td>9</td>
<td>Spanning Trees, Kruskal’s Algorithm, Math of Finance</td>
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<tr>
<td>10</td>
<td>Math of Finance</td>
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<tr>
<td>11</td>
<td>Math of Finance, Transformations</td>
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<tr>
<td>12</td>
<td>Math of Finance, Review, EXAM 3</td>
</tr>
<tr>
<td>13</td>
<td>Frequency Tables, Graphs &amp; Charts</td>
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<tr>
<td>14</td>
<td>Statistics, Future Value Annuities, Probability, Math of Shopping</td>
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<tr>
<td>15</td>
<td>Advanced Transformations, Review for Final Exam</td>
</tr>
<tr>
<td>16</td>
<td>FINAL EXAM Wednesday, May 6 at 1:00 – 3:00</td>
</tr>
</tbody>
</table>

*Please note that this schedule is tentative and subject to change.

**Algebra concepts will be dispersed throughout the semester.

2. [http://www.angelo.edu/catalogs/](http://www.angelo.edu/catalogs/)
3. [http://www.angelo.edu/incident-form](http://www.angelo.edu/incident-form)
4. [http://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of](http://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of)
5. [http://www.angelo.edu/content/files/14197-op-1011-grading-procedures](http://www.angelo.edu/content/files/14197-op-1011-grading-procedures)