Math 1332.T40- Intro to Contemporary Mathematics  
Spring 2021 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

<table>
<thead>
<tr>
<th>Name</th>
<th>Office Hours</th>
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| Ms. Cynthia Bishop | Office: MCS 220B  
Monday & Wednesday: 9:00-11:00 am; 3:00-3:30 pm  
Tuesday & Thursday: 9:00-11:00 am  
Friday: 1:00-2:00 pm and by appointment |
| Phone: 325-486-5428 |                                             |
| Email: cynthia.bishop@angelo.edu |                                          |

Office hours may be in person or virtual through Blackboard Collaborate.

This class meets MWF 2:00 – 2:50 pm and TR 2:00 – 3:15 pm in MCS 215. You are expected to attend class every day, either in person or virtually.

Textbook: You do not need to purchase a textbook for this course. If you wish to have a reference textbook for addition help, you can purchase Excursions in Modern Mathematics, 9th edition, by Peter Tannenbaum.

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 prior to being allowed to take college level mathematics. 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.
- The course materials and lessons for the college level course and supplemental instruction will complement each other. In a way, each part of the T-Section reinforces and helps the other part.

Student Expectations: YOU are expected to...

- Attend class consistently and in a timely manner.
- Foster a learning environment by practicing common courtesy at all times.
- Be respectful to your classmates and your instructor.
- 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 utilizing the math lab tutors, meeting with the instructor, referring to outside text, etc.) to resolve questions.

Technology Requirements: All students need access to a computer (with reliable internet), a printer, and a scientific or graphing calculator. In order to submit homework via Gradescope, students must have access to a scanner or the ability to scan documents as a PDF with their phones.
Course Delivery

To maintain academic quality while accommodating social distancing needs this semester, this course will use a split delivery model that combines face-to-face teaching with remote instruction where needed. Here is the basic format for this semester:

- Our class is small enough to allow every student to attend every day.
- New content will be covered in class each day. Any time left at the end of class will be used to start homework.
- Students who attend class each day will not be required to watch videos or complete any remote instruction. Time outside of class will be used to complete assignments.
- Students who miss class due to illness or other reasons will check the Daily Content tab on Blackboard to see what they missed. Class will be live streamed via Blackboard Collaborate, so a student may still “attend” class virtually. A recording of class will be available if live streaming is not possible. Assignments will be posted, and worksheets and other homework assignments will be available for printing. It is the responsibility of the student to complete all assignments and upload them to Gradescope.
- For those choosing a fully online option for this semester: It is highly recommended that you live stream class each day. This allows you to “attend” class and ask questions on the chat as needed. If you are not able to live stream, the recording of the day’s class will be available on Blackboard Collaborate. All assignments and due dates will be available under the Daily Content tab in Blackboard.

Please refer to this Health and Safety web page ¹ for updated information about campus guidelines as they relate to the COVID-19 pandemic.

Math Lab: The Math Learning lab is available on campus that provide FREE math tutoring. Please utilize this great resource- no appointment is necessary. More information will be given via email and Blackboard.

Lecture Notes: It is your responsibility to print the lecture notes from Blackboard and bring them to class. Lecture notes will be bundled by test material and I will let you know when you need to have each set printed and brought to class. Notes and other class materials should be kept in a 3-ring binder.

Blackboard/Email:
- I plan to post notes, test reviews, and other documents on Blackboard. I will expect you to print these documents and bring them with you to class when I tell you to. I will also post grades and other important announcements on Blackboard.
- Blackboard can be accessed through RamPort or by visiting Blackboard.²
- I may send you information via email. It is your responsibility to regularly check your angelo.edu email account. All electronic correspondence will be sent to your ASU e-mail account unless other arrangements are made. I will do my best to respond to all emails by the next business day.

Calculators: All students will need a calculator. 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 the TI 30II S. It runs $10 - $15.
**Attendance:** Attendance will be taken daily and is worth 10% of your average in this course. It is important to attend class when you are healthy. If you miss class for any reason, there are two ways to be counted present in class: 1) Live stream the class from home. I will check in with you at some point during the class with a question. Failure to respond will result in an absence for that day. 2) Watch the recording of the class you missed and email me a copy of your filled-out lecture notes for the day by **3:15 pm the next class day.**

(For students choosing a fully remote option, attendance will be taken the same as stated above.)

Attendance Grade: Every student will start out with an attendance grade of 105. Three absences are allowed without point deductions. Beginning with your 4th absence, 5 points will be deducted from your attendance grade for each absence.

**Homework:** Homework will be assigned over every section. Daily work will consist of worksheets. All homework will be submitted through a program called Gradescope. We will be utilizing this resource to limit contact and enforce social distancing.

- Homework must be done legibly with all answers clearly visible.
- You must submit the actual worksheet. A handwritten version of the worksheet will not be accepted.
- When submitting your assignments, please make sure all submissions are in PDF form.
- Pages must be in the correct order, with proper orientation. Also, make sure all intended pages are included within the document BEFORE you submit.
- More information about Gradescope can be found on Blackboard.
- I will drop 4 homework/quiz grades at the end of the semester to help compensate for unavoidable circumstances.

**Tests/Final Exam:** There will be three regular exams during the semester and a non-cumulative final exam. This semester all exams will be take home exams.

- Calculators and notes **are allowed** on exams.
- You may NOT work with classmates or others on the exam. It must be your work only.
- You may not utilize websites or apps such as PhotoMath during the exam.
- Exams must be uploaded to Gradescope by 3 pm on the due date. It is your responsibility to make sure the exam is uploaded correctly and is clearly legible.
- Failure to follow these guidelines will result in grade deduction on the exam.
- Exams 1-3 will be handed out in class (or emailed to students who are not in class) the day before they are due. The exams are scheduled for Fridays and will be due by 3 pm that day. It is your responsibility to upload your exam to **Gradescope by 3 pm on test days.**
  - Exam 1: Friday 2/19
  - Exam 2: Friday 3/19
  - Exam 3: Friday 4/16
- Class will not meet on 2/19, 3/19, and 4/16. This time is available to you to finish your exam.
- Exam 4 will be taken as our “final exam.” It will be handed out (or emailed) on Thursday 5/6 and will be due in Gradescope by **5:30 pm on Monday 5/10.** (Our final exam slot is Monday 5/10 from 3:30-5:30 pm.)
- If you miss an exam you will be required to take a COMPREHENSIVE final exam to replace it. If you are not able to take your exam at the scheduled time, you need to speak with me IN PERSON at least 2 days (48 hours) before the scheduled test time. All decisions regarding changes in testing will be made at my discretion.
Drop Date: Friday April 30th 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.

Binders: Organization is key in a math class! I strongly recommend that everyone purchase a three ring binder and a set of 8 tabs. Label the tabs with Test 1 Notes, Test 1 Assignments, Test 2 Notes, Test 2 Assignments, Test 3 Notes, Test 3 Assignments, Test 4 Notes, and Test 4 Assignments. Lecture notes can be printed from Blackboard and placed in the binder.

Grading: Grades will be determined as follows:

- Daily Assignments - 20%
- Exam 1-4 average - 70%
- Attendance – 10%

Final Grades: Final grades will be determined using the following scale

- A: 90% or above
- B: 80% - 89.9%
- C: 70% - 79.9%
- D: 60% - 69.9%
- F: Below 60%

Common Courtesy:

- Please silence 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 texting.
- 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.

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.

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
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 go to Title IX.

**Required Use of Masks/Facial Coverings by Students**

As a member of the Texas Tech University System, Angelo State University has adopted the mandatory Facial Covering Policy to ensure a safe and healthy classroom experience. Current research on the COVID-19 virus suggests there is a significant reduction in the potential for transmission of the virus from person to person by wearing a mask/facial covering that covers the nose and mouth areas. Therefore, in compliance with the university policy students in this class are required to wear a mask/facial covering before, during, and after class. Faculty members may also ask you to display your daily screening badge as a prerequisite to enter the classroom. You are also asked to maintain safe distancing practices to the best of your ability. For the safety of everyone, any student not appropriately wearing a mask/facial covering will be asked to leave the classroom immediately. The student will be responsible to make up any missed class content or work. Continued non-compliance with the Texas Tech University System Policy may result in disciplinary action through the Office of Student Conduct.

**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, & Multiplication
- 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>
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<tbody>
<tr>
<td>1</td>
<td>Syllabus, Basic Elements of an Election, Voting Methods, Integers</td>
</tr>
<tr>
<td>2</td>
<td>Weighted Voting, Banzoff Power, Solving Linear Equations, Fair Division</td>
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<tr>
<td>3</td>
<td>Sealed Bids, Absolute Value, Fractions</td>
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<tr>
<td>4</td>
<td>Apportionment, Hamilton’s Method, Exam 1 Review, EXAM 1</td>
</tr>
<tr>
<td>5</td>
<td>Order of Operations, Intro to Graph Theory, Euler’s Theorem</td>
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<tr>
<td>6</td>
<td>Eulerizing Graphs, Traveling Salesman Problem, Exponents, Hamilton Paths &amp; Circuits</td>
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<tr>
<td>7</td>
<td>Brute Force Algorithm, Nearest Neighbor Algorithm, Polynomials</td>
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<tr>
<td>8</td>
<td>Polynomials, Exam 2 Review, EXAM 2</td>
</tr>
<tr>
<td>9</td>
<td>Trees, Spanning Trees, Kruskal’s Algorithm, Math of Finance Intro, Simple Interest</td>
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<tr>
<td>10</td>
<td>Compound Interest, Factoring</td>
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<tr>
<td>11</td>
<td>Annuities , Math of Finance Overview, Translations</td>
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<tr>
<td>12</td>
<td>Reflections, Rotations, Exam 3 Review, EXAM 3</td>
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<tr>
<td>13</td>
<td>Frequency Tables , Graphs &amp; Charts, Statistics</td>
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<tr>
<td>14</td>
<td>Statistics, Radicals, Probability, Future Value Annuities</td>
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<tr>
<td>15</td>
<td>Math of Shopping, Exam 4 Review</td>
</tr>
<tr>
<td>16</td>
<td>EXAM 4 (Final Exam)</td>
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