

Math 1332.T50

Introduction to Contemporary Mathematics



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: Paula Koca

Email: paula.koca@angelo.edu

Phone: 325-486-5437

Office: MCS 220L

Office Hours:

Monday: 8am-9am, 11am -1pm, 2-2:30 pm

Tuesday: 8am – 9:30am

Wednesday: 8am-9am, 11am -1pm

Thursday: 8am – 9:30am

Friday: 12:30pm -1pm

Note: When contacting me via email or phone, allow 24 hours for a response. I do not make it a habit to check email from home.

Course Information

Course Delivery

This is a face-to-face course with online components that students are expected to access in Blackboard.¹

What is a T-section?

- A T - Section is college credit bearing course paired with supplemental instruction for those students who are not TSI complete.
- T - Sections allow students to take their college level mathematics class (with supplemental instruction) 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.
- Learning communities are a great way to begin college life. We will heavily stress learning communities. 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 topic is very different from other topics) 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!

Course Content

1. **Mathematics of Voting:** Preference Ballots, Plurality, Borda, Runoff Voting, Pairwise Comparison, Rankings
 2. **Weighted Voting:** Weighted Voting, The Banzhaf Power Index
 3. **Apportionment and Sharing:** Fair-Division Games, Sealed Bids
 4. **Apportionment:** Apportionment, Hamilton's Apportionment
 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, Nearest Neighbor Algorithm
 7. **Networks:** Trees, Spanning Trees, Kruskal's Algorithm,
 8. **Math of Finance:** Percentages, Simple Interest, Compound Interest, Annuities
 9. **Mathematics of Symmetry:** Rigid Motions, Reflections, Rotations, Translations
 10. **Descriptive Statistics:** Data Summaries
 11. **Probability:** Random Experiments, Sample Spaces, Probabilities
- 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.

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: 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.

Required Texts and Materials

- Notebook paper
- Markers or Colored Pencils
- One 3-ring binder
- Printed Course Notes from Blackboard Course
- Suggested (but not required) Textbook: *Excursions in Modern Mathematics 9th ed.* by Peter Tannenbaum, Prentice Hall

Technology Requirements

For this class, you must have access to a computer, printer, webcam, and scanner.

Throughout the semester we will be using Blackboard Collaborate (which requires a web cam) and Gradescope.

Grading

Evaluation and Grades

Course grades will be determined as indicated in the table below.

Assessment	Percent of Total Grade
Homework/Quizzes	20%
Each Regular Exam (3)	20%
Final Exam	20%
Total	100%

Grading System

Course grades will be dependent upon completing course requirements and meeting the student learning outcomes. Assignments and grades will be posted on Blackboard.

The following grading scale is in use for this course:

- A = 90.00-100 %
- B = 80.00-89.99 %
- C = 70.00-79.99 %
- D = 60.00-69.99 %
- F = 0-59.99 %

Attendance Policy

In-class attendance will be taken daily. If you are tardy, it is *your* responsibility to let me know after class so I can change my records. Do not make tardiness a habit. Also, it is your responsibility to check for missed assignments on Blackboard when you are absent.

Drop Date

The last day to drop a class is Thursday, April 28, 2022.

Major Course Requirements

Exams

- We will have four exams where the fourth exam will be given on final exam day. The fourth exam (final exam) will not be cumulative unless you have missed an exam. The exact dates and coverage of these tests will be announced in class.
- There will be no make-up exams. Therefore, if you miss an exam, you will be required to take a comprehensive final exam which will count as the missed exam grade and the 4th exam. If you are ill on an exam day, please get a note from the clinic and call me immediately.
- Final Exam will be administered from 10:30am – 12:30pm on Tuesday, May 10, 2022.

Daily Work

- Daily work will consist of traditional homework problems assigned from the text book or worksheets supplied to students through blackboard.
- All paper homework will be scanned and uploaded to Gradescope, an online platform. More information regarding Gradescope is available in Blackboard. Please use standard size white notebook paper (line or unlined) for homework. Box in your answers and show all your work in an organized readable format. A paper with no work to support answers will receive a grade a grade of 0.
- The three lowest homework grades will be dropped at the end of the semester.
- **No late homework will be accepted.** The 3 dropped grades are meant to replace homework missed due to illness or emergency. Save them for when you are ill. Once they are used, any missing homework for any reason will be a zero.

Weekly Check-In Quizzes

- A weekly check-in quiz will be completed each week in Blackboard. No late quizzes will be accepted.

Use of Blackboard

- Handouts will be placed on Blackboard for you to print as necessary.

Use of Calculators

- All students will need a calculator. We will discuss the type of calculator needed on the first day of class.

Class Rules

- Arrive on time and remain entire class period. We will take a break of 5-7 minutes between the lecture and the supplemental portion of the class.

- Cell phones are to be turned off during class and must be placed in backpacks below desk during exams.
- No talking while I am talking – this is disruptive to your fellow students.
- No food or drinks in classrooms unless absolutely necessary (due to illness). If you do need a drink, please be sure it has a cover to prevent spills.
- During supplemental section, all students are to be focused on working problems in their groups. Discussions not math related, could result in a grade of zero on that day's assignment.
- All students are to be respectful and courteous to each other.

Math Lab

There is a free math lab where you can do your homework and get help with it. It is located on the third floor of the library in room C302. Math Lab Hours can be found at this location on the Angelo State University website: http://www.angelo.edu/dept/mathematics/lab_hours.php

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](#)²
- [Angelo State University Catalog](#)³

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](#).⁴

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](#).⁵ 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](#)⁶ for more information.

Plagiarism

Plagiarism is a serious topic covered in ASU's [Academic Integrity policy](#)⁷ 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](#).⁸

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](#)⁹ 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](#)¹⁰

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](#).¹¹

Information About COVID-19

Please refer to ASU's [COVID-19 \(Coronavirus\) Updates](#)¹² web page for current information about campus guidelines and safety standards as they relate to the COVID-19 pandemic.

Modifications to the Syllabus

This syllabus, including grade evaluation and course schedule, is subject to modification on potentially short notice based on developing circumstances.

Course Schedule

Week	Material Covered	Algebra Concepts
1	Syllabus, Basic Elements of an Election, Preference Schedules, Voting Methods	Extra Practice Worksheets for Integer $+$, $-$, \times , \div
2	Voting Methods, Weighted Voting, Banzoff Power	Solving Linear Equations
3	Fair Division, Voting Review, Sealed Bids	Absolute Value
4	Review, Exam 1	
5	Apportionment, Hamilton's Method, Street-Routing Problems, Intro to Graph Theory	Order of Operations
6	Euler's Theorem, Eulerizing Graphs, Traveling Salesman Problem	Extra Practice Worksheet for Fractions
7	Hamilton Paths and Circuits, Brute Force Algorithm, Nearest Neighbor Algorithm	Exponent Rules
8	Review, Exam 2, Networks	
9	Spanning Trees, Kruskal's Algorithm, Math of Finance	Polynomial Addition & Subtraction
10	Math of Finance, Rigid Motion	Distributive Law & Polynomial Multiplication
11	Math of Finance	Factoring by GCF
12	Review, Exam 3, Advanced Rigid Motions	
13	Frequency Tables, Graphs and Charts	Factoring Basic Trinomials
14	Statistics, Future Value Annuities	Simplifying Radicals
15	Probability, Review	Simplifying Radicals
16	FINAL EXAM	

¹ <https://blackboard.angelo.edu/>

² <https://www.angelo.edu/current-students/student-handbook/>

³ <https://www.angelo.edu/academics/catalog/>

⁴ : <https://www.angelo.edu/live/files/27603-student-handbook-2020-21#page=97>

⁵ <https://www.angelo.edu/current-students/disability-services/>

⁶ <https://angelo.policystat.com/policy/10659448/latest/>

⁷ <https://www.angelo.edu/live/files/27603-student-handbook-2020-21#page=97>

⁸ https://www.angelo.edu/current-students/writing-center/academic_honesty.php

⁹ <https://angelo.policystat.com/policy/10659368/latest/>

¹⁰ <https://www.angelo.edu/incident-form>

¹¹ <https://www.angelo.edu/title-ix>

¹² <https://www.angelo.edu/covid-19/>