Math 1332.T09- Intro to Contemporary Mathematics- Fall 2019 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>
<th>Office</th>
<th>Phone</th>
<th>Email</th>
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<tbody>
<tr>
<td>Mrs. Codi Jaynes</td>
<td>Monday &amp; Wednesday 8:30 – 10:00 am &amp; 2:00 pm – 3:00 pm</td>
<td>MCS 220C</td>
<td>325-486-5446</td>
<td><a href="mailto:codi.jaynes@angelo.edu">codi.jaynes@angelo.edu</a> or by appointment</td>
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</table>

Office: Tuesday & Thursday 8:30 – 9:30 am & 1:00 – 2:00 pm
Phone: 325-486-5446
Email: codi.jaynes@angelo.edu or by appointment

This class meets MWF 11:00 – 11:50 am and TR 11:00 am – 12:15 pm in MCS 214.

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.
• 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.

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.
• 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.

Math Lab: The Math Learning lab is available on campus that provide FREE math tutoring. Please utilize this great resource- no appointment is necessary.

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

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 http://blackboard.angelo.edu.
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.

**Lecture Notes:** It is your responsibility to print the lecture notes from Blackboard and bring them to class each day. I strongly suggest keeping your notes and other class materials in a 3-ring binder.

**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 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!!*

**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

* If you are going to miss class, you can email me pictures of your paper assignments BEFORE CLASS STARTS on the day the assignment is due. No late assignments will be accepted.
* I will drop 5 daily grades at the end of the semester to help compensate for unavoidable circumstances.

**Exams/Final Exam:** There will be three regular exams during the semester and a non-cumulative final exam on Tuesday, December 10th from 10:30 am – 12:30 pm. 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, 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 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. Communication via email is not sufficient, unless you are ill. If this is the case, you must send me an official doctor’s note stating that you cannot come take the exam before the scheduled test time. All decisions regarding changes in testing will be made at my discretion.

Tentative exam dates are as follows: 9/19, 10/17, 11/14, and 12/10 (from 10:30 am – 12:30 pm)

**Grading:** Grades will be roughly determined as follows:

* Daily Grades- 20%
* Exams- 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. 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:

1. Angelo State University Student Handbook
2. Angelo State University Catalog

In the event that the university is closed for a scheduled class time, whatever was scheduled for that day and/or whatever was due that day will be scheduled and/or due on the next scheduled class time.

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.

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
Houston Harte University Center 112
325-942-2047
dallas.swafford@angelo.edu

Title IX

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. Sex discrimination, sexual misconduct, public indecency, interpersonal violence, sexual assault, sexual exploitation, sexual harassment, and stalking are not tolerated at ASU. As a faculty member, I am a Responsible Employee meaning that I will report any allegations I
am notified of to the Office of Title IX Compliance in order to connect students with resources and options in addressing
the allegations reported. You are encouraged to report any incidents to ASU’s Office of Title IX Compliance and the
Director of Title IX Compliance/Title IX Coordinator. You may do so by contacting:

Michelle Boone, J.D.

Director of Title IX Compliance/Title IX Coordinator

Mayer Administration Building, Room 200

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.

The Office of Title IX Compliance also provides accommodations related to pregnancy (such as communicating with your
professors regarding medically necessary absences, modifications required because of pregnancy, etc.). If you are
pregnant and need assistance or accommodations, please contact the Office of Title IX Compliance utilizing the
information above. For more information about Title IX in general you may visit www.angelo.edu/title-ix.

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 of 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

Textbook: *Excursions in Modern Mathematics*, 9th edition, by Peter Tannenbaum, Prentice Hall. The following chapters including the particular sections listed are covered.

1. **Mathematics of Voting**: Preference Ballots, Plurality, Borda, Runoff Voting, Pairwise Comparison, Rankings
2. **Weighted Voting**: The Banzhof 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

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, 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>
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<tr>
<td>4</td>
<td>Review, EXAM 1, Apportionment</td>
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<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, Rigid Motion</td>
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<tr>
<td>11</td>
<td>Math of Finance</td>
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<tr>
<td>12</td>
<td>Review, EXAM 3</td>
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<tr>
<td>13</td>
<td>Advanced Rigid Motion, Frequency Tables, Graphs &amp; Charts</td>
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<tr>
<td>14</td>
<td>Statistics, Future Value Annuities</td>
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<tr>
<td>15</td>
<td>Probability, Review for Final Exam</td>
</tr>
<tr>
<td>16</td>
<td>FINAL EXAM</td>
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</tbody>
</table>

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

**Algebra concepts will be dispersed throughout the semester.

http://www.angelo.edu/student-handbook/
http://www.angelo.edu/catalogs/
http://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of
http://www.angelo.edu/content/files/14197-op-1011-grading-procedures
http://www.angelo.edu/student-handbook/community-policies/academic-integrity.php
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