MATH 1332: An Introduction to Contemporary Mathematics, Fall 2018

Contact Information
Instructor: Susan Whitaker
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Office Phone: (325) 486-5439
e-mail: Susan.Whitaker@angelo.edu
Office Hours: 9:00 – 11:00 a.m., MTWRF; or by appointment

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

Blackboard
This course has an associated Blackboard page where you will have access to grades, assignments, videos, handouts, and other course-related items.

Course Content

Textbook:
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. Math of Finance: Percentages, Simple Interest, Compound Interest, Annuities
9. Mathematics of Symmetry: Rigid Motions, Reflections, Rotations Translations, Glide Reflections, Patterns
10. Descriptive Statistics: Graphical Methods, Variables, Data Summaries, Spread
11. Probability: Random Experiments, Sample Spaces, Permutations, Combinations, Equiprobable Spaces, Odds

Additional Algebraic Techniques:
A. Order of Operations- numeric applications for PEMDAS with no variables.
B. The Distributive Law
C. Absolute Value- evaluating the absolute value of numbers as a distance from 0
D. Exponent Rules- basic integer exponents (both positive and negative), along with the product rule, quotient rule, and power rule
E. 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
F. Polynomial Addition & Subtraction
G. Polynomial Multiplication- both distributive property and FOIL are introduced
H. Factoring by GCF- factoring polynomials strictly by greatest common factor
I. Factoring Basic Trinomials- factoring trinomials with a leading coefficient of 1, or a GCF that lends a leading coefficient of 1
J. Solving Linear Equations- determine if a number is a solution to an equation; then solving basic linear equations; no rational equations are covered.

**Grading System**
The final average will be determined according to the weights in the table that follows.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Date</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test 1</td>
<td>9/20</td>
<td>20%</td>
</tr>
<tr>
<td>Test 2</td>
<td>10/18</td>
<td>20%</td>
</tr>
<tr>
<td>Test 3</td>
<td>11/15</td>
<td>20%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>12/13</td>
<td>20%</td>
</tr>
<tr>
<td>Homework</td>
<td>Most Days</td>
<td>20%</td>
</tr>
</tbody>
</table>

**Grading Policy**
To determine the average needed to ensure that you obtain the grade that you want in this course, consult the table that follows.

<table>
<thead>
<tr>
<th>Average</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>89.5 and above</td>
<td>A</td>
</tr>
<tr>
<td>79.5 to 89.5</td>
<td>B</td>
</tr>
<tr>
<td>69.5 to 79.5</td>
<td>C</td>
</tr>
<tr>
<td>59.5 to 69.5</td>
<td>D</td>
</tr>
<tr>
<td>below 59.5</td>
<td>F</td>
</tr>
</tbody>
</table>

**Homework Policy**
- There will be daily assigned exercises from the textbook or handouts and will follow the Homework Guidelines attached to this syllabus. There will also be assignments available through MyMathLab.
- 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 December 13, 2018 from 10:30 AM – 12:30 PM.
- 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!

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.
• Perfect attendance will get you 2 points added to your final course grade, 1-2 absences will get you 1 point.

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.

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

<table>
<thead>
<tr>
<th>MATH LAB – LIB C302</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday – Thursday:</td>
<td>9:00 am – 8:00 pm</td>
</tr>
<tr>
<td>Friday:</td>
<td>9:00 am – 12:00 pm</td>
</tr>
<tr>
<td>Sunday:</td>
<td>4:00 pm – 8:00 pm</td>
</tr>
</tbody>
</table>

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.

Student Responsibilities
The student is solely responsible for:
• Completing each assignment by the specified due date.
• Obtaining assignments and other materials for classes from which they are absent.
• Utilizing, as needed, all available study-aid options (including meeting with the instructor, referring to outside texts, etc.) to resolve any questions that they might have regarding homework, course material, etc.
• Realizing from the beginning of the course the grade that they may need or want to graduate, maintain a scholarship, stay in athletics, etc. … and give as much effort as it takes to obtain this grade.

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:**

1. Fold your homework in half vertically with your first and last names visible on the outside.
2. Please box and/or highlight your answers. Work questions in numeric order.
3. 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.
4. STAPLE your work before folding it vertically or write your name on every page.
5. You CAN use both sides of a sheet of paper.

**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**

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

**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. The full details can be found in ASU Operating Policy OP 10.19 [Observance of Religious Holy Days](#).

**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
- 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.
- All electronic correspondence will be sent to your ASU e-mail account unless other arrangements are made.
- 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 to arrange for another time that is more convenient.
- Good luck. I sincerely hope you do well in this course, and I strongly encourage you to use me as a resource outside of class to help you succeed.
All items contained in this syllabus are subject to change as the semester progresses. Students will be notified in advance of any changes.

Math 1332 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: 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.

Anticipated Daily Schedule

The table below indicates the expected sections that will be discussed on the date listed. Student should refer to Blackboard announcements for changes or additions to this schedule.

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

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1 Blackboard page [http://blackboard.angelo.edu](http://blackboard.angelo.edu)

2 Observance of Religious Holy Days: [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)

3 Grading Procedures: [http://www.angelo.edu/content/files/14197-op-1011-grading-procedures](http://www.angelo.edu/content/files/14197-op-1011-grading-procedures)


5 ASU Writing Center: [http://www.angelo.edu/dept/writing_center/academic_honesty.php](http://www.angelo.edu/dept/writing_center/academic_honesty.php)


7 University Catalog: [http://www.angelo.edu/catalogs/](http://www.angelo.edu/catalogs/)