Syllabus for Math 1332 T08 Introduction to Contemporary Mathematics
J Montemayor
MCS 215 MWF @ 11:00 – 11:50 and TTh @ 11:00 – 12:15 PM

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
Juan Montemayor
Office: MCS 219 F
Phone #: 325 – 486 – 5438
Email: juan.montemayor@angelo.edu

Office Hours
Tentatively set as follows and may be slightly modified by the first day of class
MWF: 9:30–10:00 AM and 3:00 – 5:00 PM, TTh: 9:30 – 11:00 AM and 4:15 – 5:15 PM, F: 9:30–10:00 PM

Tentative Math Lab Hours
Located on the third floor of the library room C302
Monday – Thursday: 9:00 AM – 8:00 PM, Friday: 9:00 AM – 12:00 PM, and Sunday 4:00 – 8:00 PM

Notice
You are encouraged to be in attendance during each class meeting. No make-ups will be given for missed quizzes, homework assignments, or exams. If you leave early, come late, or leave the classroom during lecture, you may be counted absent for the day and your daily grade will be marked down.
There are four regularly scheduled exams plus a final exam. If you miss an exam, student must initiate the process of replacing missing exam. Student must start with a valid written excuse stating the reason for missing exam within two of the date of missed exam. If the excuse is deemed to be valid by the instructor, then a solution will be proposed by the instructor. In most cases but not all, the final exam grade will replace missed exam. The final exam may be more comprehensive than the final exam given to other students. If a valid excuse is not given or excuse is not approved, the grade for missed exam will become a zero.

Cell Phone Use
Use of cell phone in class is strongly discouraged. Put phone away when entering classroom. You may be asked to leave the class if you are seen making use of your cell phone in any manner. In case you have a need for your phone – emergencies – let me know and an exception will be made for that case. Making use of the phone in any matter will be considered to be a disruption to the class and you may be asked to leave the classroom. You will have to meet with instructor outside of class time to be allowed back into the classroom.

Important Dates
Exam I on Tues. Sept. 18
Exam IV on Thurs. Nov. 29
Exam II on Thurs. Oct. 11
Final Exam on Wed. Dec. 12 @ 10:30 AM
Exam III on Tues. Nov. 6
Drop Day on Thurs. Nov. 1

Textbook
Textbook: Excursions in Modern Mathematics 9th ed. by Peter Tannenbaum, Prentice Hall. No access code required. If you bought a book with an access code – it is not a waste, but will be used in this class. Homework will be done on your paper from textbook or from notes posted on blackboard.
**Grading Periods**
There will be five grading periods. Each of the first four grading period will consist of a daily grade and an exam. The last grading period will consist of the final exam and no daily grade. Each grading period will be worth 20% of the semester grade. More will be said in class about the grading process.

**Percentage**
Daily grade is 15% of each testing period. The exam makes up the remaining 85% of the grade for the grading period. The last grading period will have no daily grade and the final exam makes up the entire 100% of the grade for that grading period.

**Daily Grade**
You will be given six daily grades during of the first four grading periods. The lowest grade in each grading period will be dropped and the other five will be averaged to get a daily grade for the period. Daily grade consists of a quiz, a homework assignment, attendance and class participation. More will be discussed on the first day of class.

**Homework**
Each homework assignment is 40% of daily grade. Grading process will be discussed in-class. Homework cannot be turned in late but it can be turned in early or on time. No make-ups on missed assignments. I reserve the right to grade part or the entire homework assignment.

**Quizzes**
A quiz is worth 40% of the daily grade. You must be in class to get any credit on quiz. No make-ups on missed quizzes.

**Attendance and Class Participation**
Attendance is worth the remaining 20% of daily grade. You must be on time and not leave class early. **Leaving the classroom early or during lecture for any reason may decrease your daily grade. This part of daily grade is left entirely up to instructor.**

**Exams**
You will have four in class exams – all on either Tuesdays or Thursdays. This will give you a longer period of time to finish each exam. Prepare by studying material given in class – do not wait till the night before. No graphing calculators will be allowed. Your answers should always have algebraic work associated with them. No answer will be counted right if it appears that a numerical answer was obtained by guessing. There will be times that you will be asked to complete an assignment or a set of problems without the use of a calculator. Be able to do this.

**Semester Letter Grade**
A semester average will be computed based on daily grades, take-home exams, and in class exams. An in-person explanation of the grading process will be given on first day in class.

100 – 90 is an A, 80-89 is a B, 70-79 is a C, 60 – 69 is a D, any average below 60 is an F.
Prerequisite
Basic arithmetic and reading skills are necessary to successfully complete this course. Be able to spend time analyzing word statements and develop a methodical approach to obtaining a solution of problems from given information.

Mathematics 1332 –T: An 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.

Course Content
Textbook: *Excursions in Modern Mathematics 9th ed.* by Peter Tannenbaum, Prentice Hall

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
10. Math of Finance: Percentages, Simple Interest, Compound Interest, Annuities
11. Mathematics of Symmetry: Rigid Motions, Reflections, Rotations Translations, Glide Reflections, Patterns
14. Descriptive Statistics: Graphical Methods, Variables, Data Summaries, Spread
15. Probability: Random Experiments, Sample Spaces, Permutations, Combinations, Equiprobable Spaces, Odds
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.
The subject matter listed below is tentative and subject to change and adaptation. For current updated information about course topics, contact instructor.

<table>
<thead>
<tr>
<th>Week(s)</th>
<th>Topics – topics of algebra as written on previous page will be discussed throughout the semester</th>
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| 1       | Chapter 1 Mathematics of voting  
Preference ballots, method of election  
majority, plurality, Borda-Count, and other methods as time permits |
| 2       | Finish topics from chapter 1, give out Chapter 1 test  
Begin chapter 2, the power of a player and weighted voting systems |
| 3       | Continue with chapter 2  
Weighted voting, types of voters and quotas, and power index of voter  
The Banzhaf Power Index, The Shapley-Shubik Power Index  
Give out Chapter 2 test  
Begin with chapter 3 – fair division games |
| 4       | Finish Chapter 3, fair-division and sharing,  
Give out Chapter 3 test |
| 5       | Begin with Chapter 4 – apportionment methods  
Review material (chapter tests) for first major exam  
First major exam  
Continue working with Chapter 4  
Give out chapter 4 test |
| 6       | Begin with chapter 5 material – basics of graphs, notation,  
Euler Circuit (and paths) Problems, Euler’s Theorems, Fleury’s Algorithm, Eulerizing Graphs  
Chapter 5 Exam – Concept of graphs |
| 7       | More on graph theory concepts,  
Euler paths and circuits Euler and Hamiltonian paths and circuits and common properties, differences  
Hamilton Paths and Circuits, Complete Graphs, Greedy and Nearest Neighbor Algorithms  
Chapter 6 test |
| 8       | Begin with chapter 7 – trees  
Basic concepts, properties, and definitions  
Trees, Spanning Trees, Kruskal’s Algorithm, Shortest Networks for Three or more points |
| 9       | Finish chapter 7, chapter 7 exam,  
General sequences, arithmetic, geometric, Fibonacci sequences, chapter test |
| 10      | Second major Exam  
Begin with chapter 10 |
| 11      | Finish chapter 10, chapter 10 test, |
| 13      | Reflections, translations, rotations, other motions |
| 13      | Golden Ratio, gnomons, Fractals |
| 14      | Measures of central tendency, Basic Probability and preliminary concepts of statistics |
| 15      | Statistics and concepts of a normal curve Normal curves and normal distribution Other topics of interest / review for final exam if time permits |
| 16      | Final exam |
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.

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 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.

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.

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1 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)
2 Grading Procedures: [http://www.angelo.edu/content/files/14197-op-1011-grading-procedures](http://www.angelo.edu/content/files/14197-op-1011-grading-procedures)
4 ASU Writing Center: [http://www.angelo.edu/dept/writing_center/academic_honesty.php](http://www.angelo.edu/dept/writing_center/academic_honesty.php)
6 University Catalog: [http://www.angelo.edu/catalogs/](http://www.angelo.edu/catalogs/)