Discrete Mathematics 2
Spring 2019

Course no. 3305.010
Instructor Trey Smith
Time TBA
Location TBA
Office MCS 219A
Office Hours MTWRF: 10:00-11:00, 2:00-3:00
Others by Appointment
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Grading Your grade will be determined by averaging all of your quiz and homework grades. I will throw out three of the lowest of your homework or quiz grades. There will also be a comprehensive final worth 100 points. The final will modify your grade as follows:

90 or better on the final will improve your overall grade by a letter grade.
60 or worse will worsen your overall grade by a letter grade. A score between 60 and 90 will not change your overall grade.

Attendance Regular class attendance is expected. There will be no make-up for missed homework or quizzes, so a missed day may result in a zero.

Calculators Calculators may be allowed on quizzes depending on the material and the whim of the instructor.

General 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
Office of Student Affairs
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. (http://www.angelo.edu/opmanual/ -- OP 10.19)

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

Student Learning Outcomes

1. **Students will demonstrate factual knowledge of the mathematical notation and terminology used in this course.** Students will demonstrate the ability to read, interpret, and use the vocabulary and methods related to weak and strong induction, algorithms, combinatorics, probability, graph theory, and decision trees.

2. **Students will demonstrate knowledge of fundamental principles used in decision making and problem solving.** Students will demonstrate the ability to read and comprehend combinatoric methods applied to problems in decision making and graph theory. Students will also demonstrate the ability to apply combinatoric methods as well as weak and strong induction to develop algorithms and basic mathematical proofs.

3. **Students will apply course material along with techniques and procedures covered in this course to solve problems.** Students will use the knowledge gained in this course to determine appropriate techniques for specific problems in decision theory, and graph theory and to develop and apply algorithms to those 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 acquire proficiency in the fundamental concepts of graph theory, induction, and combinatorics, at a level necessary for more advanced mathematics courses such as Numerical Analysis, and Probability & Statistics.

Course Content

http://www.math.ucsd.edu/~ebender/CombText/index.html
Most of the course material will be drawn from this book. Supplemental material will be taken from a variety of sources.

Course Outline

This is a tentative schedule for this course. I reserve the right to modify the content or order.

1. Intro to Combinatorics
2. Combinatorics
3. Ordering Subsets, Complexity
4. Functions
5. The Pigeonhole Principle
6. Graphs
7. Edge Colorings, Applications
8. Kuratowski’s Theorem, Koenig’s Theorem
9. Introduction to Trees
10. Planar Codes, Circuits
11. Hamilton and Euler Circuits, Dirac’s Theorem
12. Ramsey’s Theorem, Relations
13. Turing Machines
14. Finite Fields and Error Correcting Codes
15. Review
16. Final TBA