MATH 3305: Discrete Math 2, Spring 2018

Contact Information
Instructor: Trey Smith
Office: MCS 219A
Office Phone: (325) 486-5441
e-mail: trey.smith@angelo.edu

Office Hours:
10:00 – 11:00 a.m., 2:00 – 3:00 p.m. MWF;
10:00 – 11:00 a.m., 1:00 – 2:00 p.m., TR;
or by appointment

Textbook
none

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
See Anticipated Weekly Schedule below.

Grading System
There will be several homework assignments and quizzes. Your grade will be the average of those grades subject to the following two adjustments:
1. The three lowest homework and/or quiz grades will be dropped.
2. The cumulative final exam will change grade only if you score less than 60% on the final, in which case your grade will drop by one letter grade; or you score more than or equal to 90%, in which case your grade will be raised by one letter grade.

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
Homework will be assigned nearly every class. The homework will always be due on the Tuesday following the assignment date. Additionally, a quiz associated to those assignments may be given on that Tuesday as well. The three lowest homework/quiz grades will be dropped. No late homework will be accepted, and no makeup quizzes will be given.

Exams
There will be a comprehensive Final Exam on Tuesday, May 8, 10:30 a.m. – 12:30 p.m. Your course grade will drop by a letter grade if your final exam grade is less than 60%, and it will be raised by a letter grade if your final exam grade is equal to or greater than 90%. Otherwise, your course grade will be the average of your homework/quiz grade.
**Attendance**
Attendance will be taken regularly. Please inform me of any absences prior to the absence whenever possible. Note that a missed day may result in a homework or quiz grade of 0.

**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]ii.

**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
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.
All items contained in this syllabus are subject to change as the semester progresses. Students will be notified in advance of any changes.

Mathematics 3305 – Discrete Math 2
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 Outline

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

1. Cardinality, Counting
2. Occupancy Problems, Sampling
3. Pigeonhole Principle, Designs
4. Modular Arithmetic and Applications
5. Algorithms
6. Graphs, Chromatic Numbers, Chromatic Polynomials
7. Edge Colorings, Applications
8. Kuratowski’s Theorem, Konig’s Theorem
9. Trees, Planar Codes
10. Hamilton and Euler Circuits, Dirac’s Theorem
11. Ramsey’s Theorem, Relations
12. Finite Groups and Fields
13. Finite Groups and Fields
14. Error Correcting Codes
15. Review
16. Final Exam (Tuesday, May 8th, 10:30-12:30)
Blackboard Link: http://blackboard.angelo.edu
Observance of Religious Holy Days: http://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of
Grading Procedures: http://www.angelo.edu/content/files/14197-op-1011-grading-procedures
Academic Integrity: http://www.angelo.edu/student-handbook/community-policies/academic-integrity.php
ASU Writing Center: http://www.angelo.edu/dept/writing_center/academic_honesty.php
University Catalog: http://www.angelo.edu/catalogs/