MATH 2305: Discrete Math 1, Spring 2018

Contact Information

**Instructor:** Trey Smith  
**Office:** MCS 219A  
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**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

*Discrete Mathematics* by L. Lovasz, J. Pelikan, K. Vesztergombi; Springer

Course Outline

The following is a tentative weekly schedule. The instructor reserves the right to modify the dates and content if needed.

1. Set Theory, Counting  
2. Counting  
3. Induction  
4. The Fibonacci Sequence, The Golden Ratio  
5. Sequences, Test 1 (**Thursday, Feb. 15th**)
6. Arithmetic and Geometric Sequences  
7. Probability  
8. Probability  
9. Law of Large Numbers, Test 2 (**Thursday, Mar. 22nd**)
10. Probability Mass Functions, Cumulative Distribution Functions  
11. Expectation and Variance  
12. Divisibility, The Fundamental Theorem of Arithmetic  
13. The Euclidean Algorithm  
14. Modular Arithmetic and Applications, Test 3 (**Thursday, Apr. 26th**)
15. Review  
16. Final Exam (**Tuesday, May 8th, 1:00-3:00**)

Blackboard

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

Grading System

The base course grade will be the average of three exams. The final course grade will be the base course grade if the final exam grade is between 60% and 89%. If a grade of 59% or less is scored on the final exam, the overall grade will be one letter grade less than the base grade. If a grade of 90% or more is scored on the final exam, the overall grade will be one letter grade better than the base grade.

Homework Policy

Homework sets will be assigned most days and will be due at the beginning of the next class day unless there is an exam on that day. The homework will be used as bonus points for the three exams.
No late assignments will be accepted for any reason. If you have trouble completing a homework assignment, please see me for assistance.

**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>

**Exams**
There will be three mid-semester exams. Your base grade will be the average of the three exam scores. Additionally, there will be a comprehensive final exam. The way in which the final exam grade impacts the course grade is explained above under the heading *Grading System.*

**Attendance**
Attendance will be taken regularly. Please inform me of any absences prior to the absence whenever possible.

**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
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 completing course work. Documentation may be required. See ASU Operating Policy 10.11 Grading Procedures iii 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 iv.

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 v.
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\(^\text{vi}\)
  - Angelo State University Catalog\(^\text{vii}\)

- 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 2305 – Discrete Math 1

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, set theory, combinatorics, probability, and graph theory.

2. **Students will demonstrate knowledge of fundamental principles used in counting and problem solving.** Students will demonstrate the ability to read and comprehend combinatoric methods applied to problems in probability and counting. 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 probability 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 fundamental concepts of graph theory, induction, probability, and combinatorics, at a level necessary for more advanced mathematics courses such as Discrete Mathematics 2 and Probability & Statistics.
i Blackboard Link: http://blackboard.angelo.edu
ii Observance of Religious Holy Days: http://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of
iii Grading Procedures: http://www.angelo.edu/content/files/14197-op-1011-grading-procedures
iv Academic Integrity: http://www.angelo.edu/student-handbook/community-policies/academic-integrity.php
v ASU Writing Center: http://www.angelo.edu/dept/writing_center/academic_honesty.php
vi University Catalog: http://www.angelo.edu/catalogs/