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Prerequisites

- Bachelor’s degree in mathematics
- General mathematical maturity
- Familiarity with Blackboard

Textbook

(ISBN: 978-1-118-20448-1)

Course Content

May include but is not limited to *Propositional Logic, Quantifiers, Naïve Set Theory, Functions, Infinite Sets and Cardinals, Well-ordered Sets, and the Axiom of Choice.*

Course Structure and Progress

The course is divided into modules. Each module consists of some reading assignment(s), 1-2 homework assignments, and a project. Assignments and projects will be due on Mondays at 11:59pm. You are welcome to work through the material as quickly as you wish and turn assignments in ahead of time. **Late submissions will not be accepted.**

Grading System

Your grade will be determined as a percentage based on your total points earned out of 1775 possible points in the course.

- Homework Assignments (10, 100 points each): 1000 points
- Projects (5, 150 points each): 750 points
- Introduction Discussion Forum Post: 25 points

Final grades will be based on a standard 10-point grading scale (A is 90%+, B is 80-89.99%, C is 70-79.99%, D is 60-69.99%, F is below 60%).
**Homework**
Homework assignments and their due dates will be posted in Blackboard. To receive credit, you must justify your answers and write legibly. Homework solutions should be typed or neatly written and will be turned in via Blackboard (as a pdf, scanned, or an extremely clear picture of each page).

**Projects**
Each module has an associated project. A given project might be a more difficult or in-depth assignment covering the module content, or it might cover an interesting topic related to the module content. Projects will be turned in on. Keep in mind that since projects are more in-depth or involve a writing assignment, you may need to start them early.

**Student Responsibilities**
The student is solely responsible for:
- *Maintaining academic honesty.*
- *Completing all reading assignments.* Homework assignments will rely on information contained in the reading.
- *Completing each assignment by the specified due date.*
- *Being proactive about their grade in this course.* This includes utilizing (as needed) all available study aid options (emailing professor, reading outside sources, using the discussion board, etc.) to resolve any questions or concerns you might have about any aspect of the course.

**Getting Help**
Always ask for help if you need it!
- Feel free to email me with any questions that you have. I will do my best to check email frequently during regular business hours and to answer emails within one business day.
- Contact your peers through the discussion board in Blackboard! We are a learning community, and you are encouraged to help each other, although any work you turn in must be solely your own.

**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 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 vi
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.

Course Outline
The following is a tentative outline of due dates for the course. I reserve the right to change the material, sequence, and/or due dates. Students will be notified in advance of any change that is made.

Week 1: Orientation Module, Logic
Week 2: Logic; Homework 1 due
Week 3: Logic; Homework 2 due
Week 4: Set Theory: Project 1 due
Week 5: Set Theory and Functions; Homework 3 due
Week 6: Set Theory and Functions; Homework 4 due
Week 7: Functions; Project 2 due
Week 8: Functions and Counting Infinite Sets; Homework 5 due
Week 9: Functions and Counting Infinite Sets; Homework 6 due
Week 10: Infinite Cardinals/Infinity; Project 3 due
Week 11: Infinite Cardinals/Infinity; Homework 7 due
Week 12: Infinite Cardinals/Infinity; Homework 8 due
Week 13: Well-ordered Sets; Project 4 due
Week 14: Well-ordered Sets, Axiom of Choice; Homework 9 due
Week 15: Well-ordered Sets, Axiom of Choice; Project 5 due

Student Learning Outcomes

1. Students will demonstrate factual knowledge including the mathematical notation and terminology used in this course. Students will demonstrate the ability to read, interpret, and use the vocabulary, symbolism, and basic definitions of foundations of mathematics, including logical connectives, quantifiers, set theory, and functions.

2. Students will describe the fundamental principles including the laws and theorems arising from concepts covered in this course. Students will be able to identify and use theorems from logic and set theory. Students will demonstrate an understanding of the Continuum Hypothesis and the Axiom of Choice.

3. Students will apply course material along with procedures and techniques covered in this course to solve problems. Students will apply definitions, theorems, and techniques from logic, set theory, and functions to solve problems in logic and set theory including cardinality.
4. Students will develop specific skills, competencies, and thought processes sufficient to support further study or work in the field of education. Students will acquire a level of proficiency in the fundamental concepts and applications necessary for further study or teaching mathematics.

i Blackboard: 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/