Grading

Your grade will be determined using your homework/quiz grade, two tests and a comprehensive final exam. The homework/quiz grade will count as 30% of your final grade while the two regular tests will count as 35% each (subject to the impact of the final exam). The final exam will serve to determine your final grade in the following way; if your final exam is a 90 or better, you will gain a letter grade, if the final exam is 60 or less, you will drop a letter grade.

Homework

You will be assigned homework every class period. The next class, the homework will either be collected, or you will be given a quiz based on the homework material. Additionally, regular student presentations will be assigned and assessed.

Attendance

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

Calculators

Calculators will generally not be allowed during exams.

Course Outline

The following is a tentative weekly outline of the material to be covered. I reserve the right to change the material and/or sequence.

1. Set Theory
2. Cardinality, Functions, Images, Inverse Images
3. Topologies
5. Bases
6. Introduction to Topological Properties, Second Countability
7. Review, Test 1 (2.28)
8. Homeomorphisms
9. Separation Axioms
10. Compactness
11. Connectedness
12. Subspaces and Product Spaces
13. Metric Spaces
15. Course Review
16. Final Exam (5.7, 10:30-12:30)

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
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. (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

Mathematics 4351 – Topology

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 topology including set,
cardinality, topology, open, closed, neighborhood, function, limit point, base, 
homeomorphism, connectedness, compactness, convergence, and metric.

2. **The students will describe the fundamental principles including the theorems arising from the concepts covered in this course.** Students will identify and apply definitions and theorems to various topological spaces, functions and sets. This will include applying theorems related to various separation axioms, closure, connectedness, compactness, continuity, and homeomorphisms.

3. **The students will apply the definitions, theorems and techniques covered in this course to further study or work in this or related fields.** Students will use the reasoning, techniques and factual information from this course to prove theorems related to metric spaces, topologies, and various properties. Students will demonstrate this through written assignments and oral presentations.

3. **Students will solve problems in this and related fields using techniques and procedures covered in this course.** Students will demonstrate a level of proficiency in solving mathematical problems through the acquisition of logical, theoretical, and manipulative techniques. These techniques include inference, deduction, and research skills obtained through exposure to various theorems and their respective proofs.

**Course Content**

**Textbook:** *None*

1. **Preliminary Topics:** Sets, relations, functions, images, inverse images.

2. **Topological Spaces:** Open sets, closed sets, neighborhoods, closure, interior, limit points, bases.

3. **Subspaces and Continuity:** Subspaces, Continuity, Homeomorphisms, The Topology of $\mathbb{R}^n$.

4. **Product Spaces:** Finite Products and Projections

5. **Connectedness:** Connected Spaces, Continuous Images of Connected Spaces.

6. **Compactness:** Compact Spaces, Properties of Compact Spaces.

7. **Separation Properties:** $T_0$, $T_1$, $T_2$, Regular, Normal

8. **Metric Spaces:** The Metric Topology, Properties of Metric Spaces.