Fall 2021
TOPOLOGY I; MATH 483/683; 3 CREDITS
Prerequisite: MATH 283

Instructor:	E. Salehi; Ph D. in mathematics from the University of Washington (1985)		
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Text Book:	
(required)	The second edition of *Topology,* by James Munkres;
Recommended:	Foundation of Topology, by Wayne Patty.

TOPICS TO BE DISCUSSED: This course is an introduction to Topology, which is the study of continuity and the properties that are preserved by continuous functions that have continuous inverses. Topics would include: Fundamental concepts of sets, functions, relations, Cartesian products, finite sets, countable and uncountable sets, axiom of choice, well-ordered sets, basis for a topology, ordered and product topologies, continuous functions, metric topology, connected and compact spaces, countability and separation axioms, Urysohn Lemma, Tietze extension theorem.

COURSE OBJECTIVE: The emphasis is on understanding the basic concepts upon which the real, complex, and functional analysis are founded. The course familiarizes students with the basic concepts such as Topological spaces, compactness and connectedness, countability and separation axioms, and their applications in analysis. The emphasize would be on problem solving through which, the students will improve their mathematical logic and reasoning skills.

Upon successful completion of this course, students will be able to

- ▶ express the basic concepts of topology both orally and in writing and apply them to certain topological spaces;
- ▶ recognize the basic topological properties;
- ▶ state the main theorems and apply them in solving problems;
- ▶ identify the basic properties of a given topological space, whether the apace is Hausdorff, regular, normal, connected, ... and so forth;
- ▶ articulate different characterization of topological concepts. For example, compactness in a metric spaces;
- ▶ distinguish the three product, uniform and box topologies of $\mathbb{R}^\omega$;
- ▶ improve their ability to reason mathematically and understand logical arguments;
- ▶ produce counter-examples that fail certain hypothesis and conclusions;

Furthermore, they will be prepared for other proof oriented courses such as Real and Complex Analysis as well as a more advanced course in topology.

HOMEWORK: Homework will be assigned at each class meeting, due the following class meeting. Five problems from each assignment will be graded at two points per problem, all work must be shown to receive any credit. Collaboration for homework and class preparation is highly encouraged.

TEST AND GRADING POLICY: There will two (50-minutes) tests, and a comprehensive final.

Homework assignments will be collected unannounced	200 points
First test on Wednesday September 29, 2021	100 points
Second test on Wednesday November 10, 2021	100 points
Final exam on Wednesday December 8, 2021 (at 8:00 am)	200 points
Total possible points	600

90% and higher receives A- and A.
80% - 90% receives B- , B, and B+.
70% - 80% receives C- , C, and C+.
60% - 70% receives D- , D, and D+.
Below 60% of total will receive F.

IMPORTANT:

1. During the tests, graphing calculators are not allowed.
2. No make up tests will be given.
3. Homework will be assigned at each class meeting, due the following class meeting.
4. Final date to drop or withdraw from classes, or change from credit to audit is Friday October 29, 2021, no drop will be allowed after this date.
5. Learning Enhancement Services (LES) houses Disability Services, Tutoring Services, and Learning Strategies. If you have a documented disability that may require assistance, you will need to contact Disability Services for coordination in your academic accommodations. LES is located in the Reynolds Student Services Complex (SSC), Room 137. The phone is 895-0866, or 895-0652.
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   See the Student Academic Misconduct Policy (approved December 9, 2005) located at: http://studentconduct.unlv.edu/misconduct/policy.html.
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