

**Fall 2016**  
**TOPOLOGY I; MATH 683; 3 CREDITS**  
**Prerequisite: MAT 251 and 330**

Text Book:

(required)

*Introduction to Topology* (second edition), by Gamelin/Greene;

Recommended:

*Topology*, by James Munkres;

*Foundation of Topology*, by Wayne Patty.

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**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 space 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  $\mathbb{R}^w$
- 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 October 5, 2016	100 points
Second test on Wednesday November 16, 2016	100 points
Final exam on Wednesday December 14, 2016 (at 10:10 am)	100 points
Total possible points	500

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 or quizzes 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 November 4, 2016, 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.
6. **Academic Misconduct:** Academic integrity is a legitimate concern for every member of the campus community; all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility and professionalism. By choosing to join the UNLV community, students accept the expectations of the Student Academic Misconduct Policy and are encouraged when faced with choices to always take the ethical path. Students enrolling in UNLV assume the obligation to conduct themselves in a manner compatible with UNLV's function as an educational institution. An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another, from the Internet or any source, without proper citation of the sources. See the Student Academic Misconduct Policy (approved December 9, 2005) located at:  
<https://www.unlv.edu/studentconduct/student-conduct>
7. **Copyright:** The University requires all members of the University Community to familiarize themselves **with** and to follow copyright and fair use requirements. **You are individually and solely responsible for violations of copyright and fair use laws. The university will neither protect nor defend you nor assume any responsibility for employee or student violations of fair use laws.** Violations of copyright laws could

subject you to federal and state civil penalties and criminal liability, as well as disciplinary action under University policies. Additional information can be found at: <http://www.unlv.edu/provost/copyright>.

8. **Disability Resource Center (DRC):** The UNLV Disability Resource Center (SSC-A 143, <http://drc.unlv.edu/>, 702-895-0866) provides resources for students with disabilities. If you feel that you have a disability, please make an appointment with a Disabilities Specialist at the DRC to discuss what options may be available to you. If you are registered with the UNLV Disability Resource Center, bring your Academic Accommodation Plan from the DRC to the instructor during office hours so that you may work together to develop strategies for implementing the accommodations to meet both your needs and the requirements of the course. Any information you provide is private and will be treated as such. To maintain the confidentiality of your request, please do not approach the instructor in front of others to discuss your accommodation needs.
9. **Religious Holidays Policy:** Any student missing class quizzes, examinations, or any other class or lab work because of observance of religious holidays shall be given an opportunity during that semester to make up missed work. The make-up will apply to the religious holiday absence only. It shall be the responsibility of the student to notify the instructor within the first 14 calendar days of the course for fall and spring courses (excepting modular courses), or within the first 7 calendar days of the course for summer and modular courses, of his or her intention to participate in religious holidays which do not fall on state holidays or periods of class recess. For additional information, please visit: <http://catalog.unlv.edu/content.php?catoid=6&navoid=531>.
10. **Transparency in Learning and Teaching:** The University encourages application of the transparency method of constructing assignments for student success. Please see these two links for further information:  
<https://www.unlv.edu/provost/teachingandlearning>  
<https://www.unlv.edu/provost/transparency>
11. **Incomplete Grades:** The grade of I—Incomplete—can be granted when a student has satisfactorily completed three-fourths of course work for that semester/session but for reason(s) beyond the student’s control, and acceptable to the instructor, cannot complete the last part of the course, and the instructor believes that the student can finish the course without repeating it. The incomplete work must be made up before the end of the following regular semester for undergraduate courses. Graduate students receiving “I” grades in 500-, 600-, or 700-level courses have up to one calendar year to complete the work, at the discretion of the instructor. If course requirements are not completed within the time indicated, a grade of F will be recorded and the GPA will be adjusted accordingly. Students who are fulfilling an Incomplete do not register for the course but make individual arrangements with the instructor who assigned the I grade.
12. **Tutoring and Coaching:** The Academic Success Center (ASC) provides tutoring, academic success coaching and other academic assistance for all UNLV undergraduate students. For information regarding tutoring subjects, tutoring times, and other ASC

programs and services, visit <http://www.unlv.edu/asc> or call 702-895- 3177. The ASC building is located across from the Student Services Complex (SSC). Academic success coaching is located on the second floor of the SSC (ASC Coaching Spot). Drop-in tutoring is located on the second floor of the Lied Library and College of Engineering TEB second floor.

13. **UNLV Writing Center:** One-on- one or small group assistance with writing is available free of charge to UNLV students at the Writing Center, located in CDC-3-301. Although walk-in consultations are sometimes available, students with appointments will receive priority assistance. Appointments may be made in person or by calling 702-895-3908. The student's Rebel ID Card, a copy of the assignment (if possible), and two copies of any writing to be reviewed are requested for the consultation. More information can be found at: <http://writingcenter.unlv.edu/>.
14. **Rebelmail:** By policy, faculty and staff should e-mail students' Rebelmail accounts only. Rebelmail is UNLV's official e-mail system for students. It is one of the primary ways students receive official university communication such as information about deadlines, major campus events, and announcements. All UNLV students receive a Rebelmail account after they have been admitted to the university. Students' e-mail prefixes are listed on class rosters. The suffix is always **@unlv.nevada.edu**. **Emailing within WebCampus is acceptable.**
15. **Library Resources:** Students may consult with a librarian on research needs. For this class, the subject librarian is [https://www.library.unlv.edu/contact/librarians\\_by\\_subject](https://www.library.unlv.edu/contact/librarians_by_subject). UNLV Libraries provides resources to support students' access to information. Discovery, access, and use of information are vital skills for academic work and for successful post-college life. Access library resources and ask questions at <https://www.library.unlv.edu/>.
16. **Final Examinations:** The University requires that final exams given at the end of a course occur at the time and on the day specified in the final exam schedule. See the schedule at: <http://www.unlv.edu/registrar/calendars>.