General Topology / Introduction to Topology
Math 5304-001 / Math 4303-001
Fall 2012

Time: TR 2:00 – 3:20 PM
Classroom: Trimble Hall 21
Instructor: Prof. Barbara Shipman
Office: Pickard Hall 437
Office Hours: MW 2:30—3:30 PM, TR 3:30—4 PM, and by appointment.
Phone: (817) 272-2606
E-mail: bshipman@uta.edu
Website: www.uta.edu/faculty/shipman From this website, go to Math 5304/4303 at the Student Center. Check the course schedule for the weekly homework and timeline.

Prerequisites: Solid foundations, at the undergraduate level, in real analysis (Math 3335), multi-dimensional calculus, set theory, and proof.


Here is optional reference that you may find useful:

Differences between Math 5304 and Math 4303:
While the class meetings for these two courses will be the same, the homework for Math 5304 will include more problems, and problems that consider the material in more depth, than the work for Math 4303. In addition, the quizzes and take-home final for Math 5304 will be at a higher level than for Math 4303. For additional challenge, students in 4303 are welcome to work on the assignments for 5304 as well!

Course Content:
We will study most of the material in the first eight chapters of the textbook, in as much scope and depth as time permits. Here is an outline of the topics:

2: Topological spaces
3: Producing new topological spaces from basic ones
4: Connectedness and compactness
5: Cell complexes of topological spaces
6: Topology of compact surfaces
7: Homotopy and the fundamental group
8: Special role of the circle in topology

Learning Outcomes: On completion of the course, students should be able to

- analyze conceptually and computationally the foundational principles of general topology listed in the course outline, both in concrete examples and in abstract formulations, and
- provide an array of interesting and relevant examples to illustrate and explain each major concept of the course.
Seminar-Style Class: This course will be conducted in a seminar style in which you will take an active part in the development and explanations of the material. Bring your textbook, and your work on the homework problems, to every class. We will analyze the material, ask questions about it, add to it, and view it through illustrative examples in a collaborative seminar setting.

Attendance and Class Participation: You are expected to attend every class meeting. I will record attendance at 2:00 when class begins. During class, you may be asked to explain your solution to a homework problem or recall a definition or idea from the previous course material. At each class meeting, you will receive a score of 2, 1, or 0 for the day, according to the following point scheme: 2 points for arriving on time and being present, well-prepared, and engaged during the full class period; at most 1 point for arriving late or leaving at any time before the class is over, or for being unprepared during class discussions; 0 points for missing the class. You are responsible for keeping informed of all discussions and announcements made in class.

Homework: Homework will be assigned each class day, as posted on the online schedule. You should work diligently on these problems and keep your well-written and complete solutions organized in a notebook. During class, you should be prepared to discuss your work on any of the previously-assigned homework problems and contribute meaningful insight on them. Office hours are available for questions.

Quizzes: There will be six quizzes based on the weekly homework and class material; they are scheduled on the dates listed below. In taking the quizzes, you may use the textbook, your personal class notes, and your work on the homework. Each quiz may contain questions related to any problem assigned prior to the quiz. Only your best five quiz scores will count towards your grade. A missed quiz cannot be made up. If you miss one quiz, then you may use that score (0) as the lowest one to drop.

Take-home Final: There will be a comprehensive take-home final exam. It is due at the date and time listed below.

Expectations for Out-of-Class Study: Beyond the time required to attend the class meetings, you should spend at least an additional 10 hours per week on activities for this course, including studying class notes and the assigned sections of the textbook, completing homework assignments, and preparing for the quizzes and final exam.

Grading: Your work will be graded on correctness, completeness, and clarity.

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Class preparation and participation</td>
<td>15%</td>
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<tr>
<td>Five best (of six) quizzes</td>
<td>55%</td>
</tr>
<tr>
<td>Take-home final:</td>
<td>30%</td>
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<tr>
<td>Course average</td>
<td>100%</td>
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Your final grade is based on your course average. A course average of 90% or above guarantees an A; 80% or above guarantees at least a B, 70% or above guarantees at least a C, and 60% or above guarantees at least a D. Students are expected to keep track of their performance throughout the semester and seek guidance from available sources (including the instructor) if their performance drops below satisfactory levels.
Schedule of Important Dates:
As the instructor for this course, I may need to adjust this schedule as the course progresses, to better fit students’ needs. In case there is any change to the schedule, you will be notified as soon as possible.

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>Aug 23</td>
<td>First class</td>
</tr>
<tr>
<td>Sep 06 (Thu)</td>
<td>Quiz 1</td>
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<tr>
<td>Sep 20 (Thu)</td>
<td>Quiz 2</td>
</tr>
<tr>
<td>Oct 09 (Tue)</td>
<td>Quiz 3</td>
</tr>
<tr>
<td>Oct 25 (Thu)</td>
<td>Quiz 4</td>
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<td>Oct 31</td>
<td>Last day to drop a class</td>
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<tr>
<td>Nov 08 (Thu)</td>
<td>Quiz 5</td>
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<tr>
<td>Nov 27 (Tue)</td>
<td>Quiz 6</td>
</tr>
<tr>
<td>Dec 04</td>
<td>Last class</td>
</tr>
<tr>
<td>Dec 11 (Tue)</td>
<td>Take-home Final due at 2:00 PM</td>
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Policies of the University of Texas at Arlington:

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (http://wwweb.uta.edu/ses/fao).

Americans with Disabilities Act: The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the Americans with Disabilities Act (ADA). All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Academic Integrity: All students enrolled in this course are expected to adhere to the UT Arlington Honor Code:

*I pledge, on my honor, to uphold UT Arlington’s tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence. I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

Instructors may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System Regents’ Rule 50101, §2.2, suspected violations of university’s standards for academic integrity (including the Honor Code) will
be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student’s suspension or expulsion from the University.

**Student Support Services:** UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at www.uta.edu/resources.

**Electronic Communication:** UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php.

**Student Feedback Survey:** At the end of each term, students enrolled in classes categorized as lecture, seminar, or laboratory shall be directed to complete a Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student’s feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit http://www.uta.edu/sfs.

**Final Review Week:** A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; instructors may give assignments that have a completion date during or following this week *only if specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except make-up tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled, and instructors may introduce new concepts as appropriate.

**Student Disruption:** The University reserves the right to impose disciplinary action for an infraction of University policies. This includes engagement in conduct, alone or with others, that obstructs, disrupts, or interferes with any function of class activities.