

Math 651: Topology II

Spring 2020
CB 347, MWF 10-10:50

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Many fundamental questions in topology are very difficult to answer. For example, it can be difficult to determine if two topological spaces are homeomorphic. The idea of algebraic topology is to transform these questions to questions in algebra that may be easier to answer.

There are many ways to convert questions in topology to questions in algebra. This semester we will focus on the fundamental group and its applications. The main topics for this semester are:

- the fundamental group,
- covering spaces,
- the van Kampen theorem.

Text: *Introduction to Topological Manifolds* by Lee, second edition.

Alternative Texts: If you are interested in additional references the following texts may be helpful:

- *Topology* by Munkres, second edition.
- *Algebraic Topology* by Allen Hatcher. This book is available for **free** on the author's website.
- *Algebraic topology* by Edwin Spanier.
- *Algebraic topology* by Tammo tom Dieck.

Website: www.ms.uky.edu/~kate/teaching/s20_651.html.

Exams and Assignments: All exams and assignments should be neat, legible, and written in complete sentences.

Exams: There will be two exams during the semester. They are tentatively scheduled for:

Wednesday, February 26,
Wednesday, April 8.

If these dates change, an announcement will be made in class at least a week in advance.

Final Exam: The final exam for this course will be

Monday, May 4 at 1:00PM.

It will be cumulative.

Homework: Homework will usually be assigned each class and will be due **in class** weekly. Assignments and due dates will be posted on the course website.

Homework due dates are firm.

I will grade selected problems from each assignment and I will give partial credit. The lowest homework score will be dropped at the end of the semester.

I **strongly** encourage you to discuss assignments with other students, but your solutions must be written up independently. *Copying a written solution from another student and submitting it as your own will be considered cheating.* Please see the UK office of Academic Ombud Services website (www.uky.edu/Ombud) for information about plagiarism.

I am delighted to discuss homework. However, if you have questions don't wait until the day before the homework is due to come talk to me.

Grades: Final grades will be determined using the following distribution:

| | Percentage of course grade |
|------------|----------------------------|
| Final exam | 30 |
| Exam 1 | 20 |
| Exam 2 | 20 |
| Homework | 30 |

I will use the standard scale for assigning final grades.

Attendance: Class attendance is expected of all students. Two week's notices is expected for scheduled absences and notification should be as soon as possible after unexpected absences. Students may be asked to verify their absences in order for them to be considered excused.

Students are expected to withdraw from the class if more than 20% of the classes scheduled for the semester are missed (excused) per University policy.

Classroom Demeanor: Turn off all cell phones or other electronic devices prior to entering the classroom. An attitude of respect for and civility towards other students in the class and the instructor is expected at all times.

Accommodations due to disability: If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center (DRC). The DRC coordinates campus disability services available to students with disabilities. It is located on the corner of Rose Street and Huguelet Drive in the Multidisciplinary Science Building, Suite 407. You can reach them via phone at (859) 257-2754 and via email at drc@uky.edu. Their web address is <http://www.uky.edu/DisabilityResourceCenter>.

Non-Discrimination Statement and Title IX Information: Discrimination is prohibited at UK. If you experience an incident of discrimination we encourage you to report it to Institutional Equity & Equal Opportunity (IEEO) Office, 13 Main Building, (859) 257-8927.

Academic Integrity: Per University policy, students shall not plagiarize, cheat, or falsify or misuse academic records. Students are expected to adhere to University policy on cheating and plagiarism in all courses. The minimum penalty for a first offense is a zero on the assignment on which the offense occurred. If the offense is considered severe or the student has other academic offenses on their record, more serious penalties, up to suspension from the University may be imposed.

Plagiarism and cheating are serious breaches of academic conduct. Each student is advised to become familiar with the various forms of academic dishonesty as explained in the Code of Student Rights and Responsibilities. Complete information can be found at the following website: <http://www.uky.edu/Ombud>. A plea of ignorance is not acceptable as a defense against the charge of academic dishonesty. It is important that you review this information as all ideas borrowed from others need to be properly credited.

Senate Rules 6.3.1 (see <http://www.uky.edu/Faculty/Senate/> for the current set of Senate Rules) states that all academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research, or self-expression. In cases where students feel unsure about a question of plagiarism involving their work, they are obliged to consult their instructors on the matter before submission.

When students submit work purporting to be their own, but which in any way borrows ideas, organization, wording, or content from another source without appropriate acknowledgment of the fact, the students are guilty of plagiarism.

Plagiarism includes reproducing someone else's work (including, but not limited to a published article, a book, a website, computer code, or a paper from a friend) without clear attribution. Plagiarism also includes the practice of employing or allowing another person to alter or revise the work, which a student submits as his/her own, whoever that other person may be. Students may discuss assignments among themselves or with an instructor or tutor, but when the actual work is done, it must be done by the student, and the student alone.

When a student's assignment involves research in outside sources or information, the student must carefully acknowledge exactly what, where and how he/she has employed them. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate indication of its origin. Making simple changes while leaving the organization, content, and phraseology intact is plagiaristic. However, nothing in these Rules shall apply to those ideas, which are so generally and freely circulated as to be a part of the public domain.