Math 151A, Fall 2020
Topology in the Time of Covid

Contact Details
Instructor: Professor Ruth Charney
Office: 304 Goldsmith
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Email: charney@brandeis.edu
Note: I will not be on campus most days. The best way to contact me outside of class time is by email.

Meeting Times
All classes and office hours will take place live via Zoom. The link to the Zoom meeting is posted on LATTE, the Brandeis learning management system: http://latte.brandeis.edu. Login using your UNET ID and password. In addition, classes will be recorded and links to the recordings will be posted on LATTE.

Classes
Monday and Wednesday, 10:00-11:30 am
(plus Thurs, Sept 10, a Brandeis Monday)

Office Hours
TBA

Course Description

Textbook:
Algebraic Topology, by Allen Hatcher, Chapters 0-2, available for free from Allen Hatcher’s webpage: http://pi.math.cornell.edu/~hatcher/#ATI

Other References:
Topology, by James Munkres
A Basic Course in Algebraic Topology, by William Massey

Learning Goals:
This course is an introduction to algebraic topology. We will cover the material in Chapters 0-2 of Hatcher’s book, including CW-complexes, fundamental groups, covering spaces, and homology theory. The goal of the course is to familiarize students with basic concepts, terminology, and techniques in algebraic topology. Students will get experience using a combination of geometric and algebraic arguments to establish topological properties of spaces.
Prerequisites
I will assume familiarity with basic concepts of point-set topology as well as undergraduate-level algebra (especially group theory). Topics covered in Hatcher’s Chapter 0 would also be useful, though we will review these as needed.

Structure of Classes
Classes will be held live on Zoom. You are encouraged to ask questions during class and/or to submit questions after class via LATTE. Class time will include:
1. (10-15 min) Discuss questions and review material from the previous class.
2. (50-55 min) Lecture on new material.
3. (20 min) Group presentations of homework problems.

Course Requirements and Evaluation

Homework
Homework is the most important aspect of this course. The goal of homework is to help you absorb the concepts discussed in lectures and to improve your problem solving skills. You may discuss homework problems with other students in the class. However, I highly recommend that you spend time thinking about the problems on your own before discussing them with others, and I strongly advise against searching for solutions on the web. Struggling with a problem is not a waste of time; it is the best way to improve your understanding of the material! If you are stuck on a problem, I would be happy to offer hints.

There will be homework assigned approximately once per week with a specified due date. Homework may be hand-written or typed (I suggest LaTeX) and must be turned in on LATTE. In addition, the class will be divided into groups and each group will be responsible for presenting the solution to one of the homework problems to the whole class. It is the responsibility of each group to schedule meetings outside of class time. This is an opportunity to get to know some of your classmates. You may also discuss other homework problems with your group if you so choose, but everyone must write up and turn in their own solutions to all of the homework problems by the assigned date, before the presentations.

In light of the reduced time allotted for lectures, students will also be expected to spend some time outside of class reading new material from the textbook. Success in this four-credit course is based on the expectation that students will spend a minimum of nine hours of study time per week on assignments and preparation for class.

Final Exam
There will be a take-home final exam during the exam period at the end of term.

Grading
Grades will be based on the following.

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<thead>
<tr>
<th>Component</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Homework</td>
<td>75%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
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**Academic Integrity**

Every member of the University community is expected to maintain the highest standards of academic integrity. A student shall not submit work that is falsified or is not the result of the student's own effort. Infringement of academic honesty by a student subjects that student to serious penalties, which may include failure on the assignment, failure in the course, suspension from the University or other sanctions (see section 20 of R&R). Please consult Brandeis University Rights and Responsibilities for all policies and procedures related to academic integrity. Students may be required to submit work to TurnItIn.com software to verify originality. A student who is in doubt regarding standards of academic honesty as they apply to a specific course or assignment should consult the faculty member responsible for that course or assignment before submitting the work. Allegations of alleged academic dishonesty will be forwarded to the Department of Student Rights and Community Standards. Citation and research assistance can be found at Brandeis Library Guides - Citing Sources (https://guides.library.brandeis.edu/c.php?g=301723).

**Essential Resources**

**Accommodations**

Brandeis seeks to welcome and include all students. If you are a student who needs accommodations as outlined in an accommodations letter, I want to support you. In order to provide test accommodations, I need the letter more than 48 hours in advance. I want to provide your accommodations, but cannot do so retroactively. If you have questions about documenting a disability of requesting accommodations, please contact Student Accessibility Support (SAS https://www.brandeis.edu/accessibility/) at 781.736.3470 or access@brandeis.edu.

**Library**

The Brandeis Library collections and staff offer resources and services to support Brandeis students, faculty and staff. These include workshops, consultations, collaboration, materials and instruction on emerging trends in technologies such as machine learning, emerging trends in research such as data visualization, and emerging trends in scholarship such as open access. Librarians at the Circulation Desk, Research Help Desk, Archives & Special Collections, Sound & Image Media Studios, MakerLab, AutomationLab, and Digital Scholarship Lab are available to help you. https://www.brandeis.edu/library/about/index.html

**Student Support**

Brandeis University is committed to supporting all our students so they can thrive. The following resources are available to help with the many academic and non-academic factors that contribute to student success (finances, health, food supply, housing, mental health counseling, academic advising, physical and social activities, etc.). Please explore the many links on this Support at Brandeis page (https://www.brandeis.edu/support/undergraduate-students/browse.html) to find out more about the resources that Brandeis provides to help you and your classmates to achieve success.