

MATH 7321: TOPOLOGY 3 SPRING 2021

Instructor information.

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- Pronouns: he, him, his
- Website: knudsen.sites.northeastern.edu/teaching
- Office hours: W 2:30 (for now)

Course description. This is a course in classical algebraic topology and its applications. Here are some possible topics.

- Homotopy groups
- Fibrations and fiber bundles
- Loop spaces
- Whitehead, Hurewicz, and Freudenthal theorems
- Classifying spaces
- Eilenberg–MacLane spaces
- Spectral sequences
- Characteristic classes
- Cohomology operations
- Bott periodicity

Assignments and grading.

- Grades will be based on homework (60%) and a final exam (40%).
- No late homework without prior permission.
- Collaboration is encouraged on homework (please credit collaborators) and forbidden on exams.
- Homework is to be typeset in Latex and submitted by email.

Resources. Lectures will draw from some of the following texts. Lecture notes and further materials will be posted to the course website.

- Bredon, *Topology and Geometry*
- Hatcher, *Algebraic Topology* (<https://pi.math.cornell.edu/~hatcher/AT/AT.pdf>)
- Husemoller, *Fibre Bundles*
- McCleary, *A User's Guide to Spectral Sequences*
- Milnor and Stasheff, *Characteristic Classes*
- May, *A Concise Course in Algebraic Topology*
- Mosher and Tangora, *Cohomology Operations and Applications in Homotopy Theory*
- Spanier, *Algebraic Topology*
- Strom, *Modern Classical Homotopy Theory*

- Whitehead, *Elements of Homotopy Theory*

Academic integrity. The NU Academic Integrity Policy can be found on the website of the Office of Student Conduct and Conflict Resolution (OSCCR). Plagiarism is a form of cheating that involves presenting the words or work of others as one's own, and it is a violation of the academic integrity policy. We will work together in this class to make sure the boundaries of shared and independent work are clear for every assignment. Please always consult with me if you have any questions about how to include or reference materials from other sources in any assignment.

Masks and physical distancing. Because of the necessary distancing imposed by COVID-19, we will have fewer occasions on campus to create and enjoy in-person spaces for learning and growth. In order for us to preserve the opportunities offered by class meetings, students and instructors in the classroom must at all times follow the mandatory campus protocols for COVID-19 safety, including the following.

- Masks must be worn by students and instructors in classrooms and all other buildings.
- Six feet of distance must be maintained between persons.
- Students may come to class each week only on the days indicated by their Student Hub plan.
- Students must adhere to campus self-monitoring and testing protocols and should not come to class if they have any symptoms of illness.

For the sake of all our safety, if you come to class without a mask, I will direct you to the closest building where you can obtain one, after which you may return to class. If you are not able or willing to wear a mask, you may not be present in the classroom. If you come to class on a day on which you are not scheduled to be in the classroom, I will ask you to leave. In the unlikely event that any member of the class is unable or unwilling to comply with these mandatory safety precautions, the class will not be able to take place.

Hybrid NUflex classes. Hybrid NUflex classes offer a great deal of flexibility because they can be accessed remotely as well as on-ground. Unlike in online classes, students enrolled in Hybrid NUflex classes should expect to meet in their scheduled class sequences. Students should expect to spend time on preparation, synchronous class attendance, and assignments. You may attend a Hybrid NUflex class in person or virtually; your semester may include a combination of these forms of attendance. If you are attending a Hybrid NUflex class virtually, here are some things to do before class begins.

- To the best of your ability, find a location free from distractions to attend your class.
- To the best of your ability, ensure that you have adequate internet capacity to complete assigned tasks, download materials, and participate online. If at any time you do not have adequate internet access, let your instructor know. If you have a temporary technical problem, please call the Help desk at 617-373-4357, or email them at help@northeastern.edu.
- Gather materials (headset, pens, paper, textbooks).
- Login early to test your camera and microphone.
- Follow the guidelines for online etiquette and participation set by your instructor.

- Your instructor will let you know whether a class is being recorded. Recording of classes, in whole or in part, is at the discretion of the instructor and with students' permission.

Title IX protections and resources. Title IX of the Education Amendments of 1972 protects individuals from sex or gender-based discrimination, including discrimination based on gender-identity, in educational programs and activities that receive federal funding. Any NU community member who has experienced such discrimination, sexual assault, relationship violence, stalking, coercion, and/or sexual harassment, is encouraged to seek help. Confidential support and guidance can be found through University Health and Counseling Services, the Northeastern Center for Spirituality, Dialogue, and Service, and the Office of Prevention and Education at Northeastern (OPEN). Note that faculty members are considered *responsible employees* at Northeastern University, meaning they are required to report all allegations of sex or gender-based discrimination to the Title IX Coordinator. For additional information and assistance please see the Office of Institutional Diversity and Inclusion webpage.