

MTH 960 - Course Syllabus - Fall 2021

- Instructor:** The instructor for the course is Teena Gerhardt (teena@math.msu.edu).
- Class Meetings:** For at least the first few weeks of class, this course will meet online, via Zoom. The class meets Tuesdays and Thursday, 10:20-11:40am Eastern Time. The Zoom information is:
- LINK: *****
PASSWORD: *****
- Later in the semester, depending on public health conditions, we may switch to in-person meetings. Our classroom will be Wells Hall A316.
- Office Hours:** Office hours will be by appointment. Please reach out via email to schedule a time to meet! At least for the first few weeks of the semester, office hours will be held online. Depending on public health conditions, later in the semester it may be the case that office hour meetings can be scheduled for either in-person or online.
- Textbook:** We won't follow any one book very closely, but here are some resources that could be useful:
- Hatcher, *Algebraic Topology* – Available for free here:
<https://pi.math.cornell.edu/~hatcher/AT/AT.pdf>
Chapters 3 and 4
- May, *A Concise Course in Algebra Topology* – Available for free here:
<https://www.math.uchicago.edu/~may/CONCISE/ConciseRevised.pdf>
- Technology:** This course requires internet access as well as access to Zoom and D2L.
- Course Website:** The course site is hosted on D2L (<https://d2l.msu.edu>). For students who miss one of the synchronous course meetings, class notes and/or videos will be posted on the D2L site.
- Course Description:** This is a second course in Algebraic Topology. The course will start with a study of cohomology, covering topics including universal coefficients, the cup product, the Kunneth Theorem, and Poincaré Duality. The second major unit of the course will be on homotopy theory. Topics that will be covered include Whitehead's Theorem, the Hurewicz Theorem, Eilenberg-MacLane spaces, stable homotopy groups, spectra, and representability.
- Homework/Exams:** There will be some suggested problems throughout the semester, but these will not be collected or graded. There will be no exams in this course.

Presentations:

Each student will make a roughly 30-minute presentation to the class at some point during the semester, on a topic related to the material in the course. A list of potential presentation topics can be found on D2L (and will be expanded throughout the semester), although if you have topic ideas that are not on the list please feel free to suggest them. Please aim to pick a presentation topic by November 1st, so that we can schedule the presentations. If you would like to present earlier in the semester, that can also be arranged.

Course recordings:

Online meetings of this course will be recorded. The recordings will be available via D2L to students registered for this class. Recordings may not be reproduced, shared with those not in the class, or uploaded to other online environments. If we transition to in-person meetings later in the semester, we will try to record those meetings as well.