**Math 540: Introduction to Algebraic Topology I**

**Instructor:** Kristen Hendricks

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**Course Location and Time:** MW 1:40-3:00 over Zoom (via Canvas integration).

**Website:** www.math.rutgers.edu/~kh754/Math540.html

**Office Hours:** MW 3:30-4:30 over Zoom, or by (encouraged) appointment.

**Prerequisites:** Point-set topology and knowledge of abstract algebra (groups, rings, fields).

**Topics:** This is a standard first course in algebraic topology. We will cover the fundamental group, covering spaces, and singular, simplicial, and cellular homology and cohomology. Along the way we will prove some rather nice applications.

**Assignments:** Homework exercises for each week will be posted some time before the start of Monday's lecture, and the file will be shared in class. Registered students are expected to demonstrate having solved roughly half the homework exercises. (Acceptable methods of demonstrating this include handing in your written solutions, writing solutions in the class OneNote notebook, and coming to office hours and explaining your work.)

**Notes:** My lecture notes will be posted on canvas shortly after lecture, as will the Zoom recording from the lecture.

**Texts:**

The textbook for this course is A. Hatcher's *Algebraic Topology*, which is available for free on his website. It is a very friendly textbook; doing the reading before coming to lecture is advised. We will be covering roughly Chapters 0-3, excluding the special topics.

Other good books on the same material include:

J. P. May, *A Concise Course in Algebraic Topology*. Available at May's website.
W. Massey, *Algebraic Topology: An Introduction* and *A Basic Course in Algebraic Topology.*
J. Munkres, *Elements of Algebraic Topology* and *Topology*.
E. Spanier, *Algebraic Topology*.
A. Fomenko and D. Fuchs, *Homotopical Topology*. Available through Rutgers SpringerLink.