

**MATH 392, FALL 2014**  
**HOMOTOPY TYPE THEORY**

ANDREW J. BLUMBERG

SYLLABUS

- **Text:** Homotopy type theory: Univalent foundations of mathematics
- **Instructor:** Andrew J. Blumberg  
RLM 10.160  
blumberg@math.utexas.edu
- **Office hours:** By appointment.
- **Overview:** The goal of the class is to introduce students to “homotopy type theory”, a new approach to the foundations of mathematics that integrates ideas from type theory and homotopy theory. Independently proposed by Awodey-Warren and Voevodsky around 2006, homotopy type theory has seen a flurry of interest recently and is under active development. This class will review the foundational developments that preceded the introduction of homotopy type theory, and will then attempt to develop enough material to prepare students for research in the area. No prior knowledge of homotopy theory or type theory is assumed.
- **Prerequisites:** Mathematical maturity and a willingness to work hard.
- **Grading policy:** The final grade will be determined based on homework assignments and a final project. Plus/minus letter grades will be assigned.
- **Homework policies:** Homework will be assigned weekly, and due in class the following week.

Some of the homework problems will involve programming exercises using either Scheme or Coq. I encourage working in groups to solve the homework problems.
- **Attendance:** I expect that students will attend all classes.
- **Class web site:** Handouts, homework, and other miscellaneous announcements will be posted to the class website at:  
<http://math.utexas.edu/~blumberg/math392.html>
- **Students with disabilities:** The University of Texas at Austin provides upon request appropriate academic accommodations for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471-6259, 471-6441 TTY.