MATH 8210 (TOPOLOGY OF MANIFOLDS) FALL 2015 SYLLABUS

Instructor: Mike Usher

Scheduled class meetings: MWF 10:10-11:00 in Boyd 326.

Office hours: By appointment, or whenever you find me there, in Boyd 447.

Textbook: *Differential Forms in Algebraic Topology*, by Bott and Tu. Springer GTM 82, 1995, ISBN 0387906134.
At various points you may also find useful John Lee's book *Introduction to Smooth manifolds* (Springer GTM 218) or the lecture notes that I wrote the last time that I taught the course, available on my webpage.

Subject matter: The course is intended to introduce smooth manifolds and cohomology. We'll start with standard definitions and constructions relating to smooth manifolds (atlases, partitions of unity, submanifolds, etc.). We'll then introduce de Rham cohomology following Bott and Tu, who give very transparent proofs of basic theorems such as the Mayer-Vietoris sequence and Poincaré duality. Other topics will include Thom forms, basic intersection theory, and the construction and relation of Cech and singular cohomology to de Rham cohomology.

Grading: Grades will be based on homeworks, which will likely be given every couple of weeks.

Prerequisites: Familiarity with singular homology (MATH 8200 is more than enough).

Academic honesty: As a University of Georgia student, you have agreed to abide by the University's academic honesty policy, "A Culture of Honesty," and the Student Honor Code. All academic work must meet the standards described in "A Culture of Honesty" found at: www.uga.edu/honesty. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. Questions related to course assignments and the academic honesty policy should be directed to the instructor.

Obligatory disclaimer: The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.