Syllabus for Math 639/494
Topics in Topology and Geometry/Topics in Pure Math
Professor Rebecca Goldin

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Office hours: Tues/Thurs, 3:30-4:30pm in Science& Tech I, 222B and occasionally by appt.
Text: Differential Topology, by Guillemin and Pollack. Prentice Hall 1974. Other texts will be recommended as the semester goes on, depending on interest.
Final Exam: Scheduled for Tuesday, May 10, 4:30-7:15pm. There is a possibility it will be take-home instead of in-class.

General Information: This course will be an introduction to Differential Topology, with the viewpoint of manifolds sitting in Euclidean space. Over the semester we will emphasize many fundamental concepts and constructions, such as manifolds, smooth maps, transversality, and (time permitting) the algebra one can associate with differentiable manifolds. While there is an intuitive base to differential topology, one main objective in the course is for students to become comfortable with the formalism as well.

Prerequisites: Students must be comfortable with proofs, having completed the equivalent of MATH 315 with a B or better. They must have also taken Linear Algebra and earned a B or better. Students are *not* required to have had Topology previously. There is no difference in prerequisites for graduate students rather than undergraduates.

Basic course requirements: For both undergraduates and graduates, problem sets play a large role in doing well in this course. The main reason is that the material is best understood by doing good problems, and many of the important theorems are encountered in the problems in our text. These problem sets prepare students for more advanced material, and give them the time and structure to absorb the ideas and formalism. Most of the problems will be from the text, though I may supplement with other problems. Students are **encouraged** to work on problem sets together; however, each student must write up her or his problem set independently. There will be one midterm exam and a final exam.

Undergraduate Grades:
    Participation (coming to class, trying hard problem sets): 10%
    Problem sets: 50%
    Midterm exam: 20%
    Final exam: 20%

Graduate Grades
    Problem sets: 50%
    Midterm exam: 25%
    Final exam: 25%