

Math 109B—Introduction to Geometry and Topology

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Course Objective: Math 109b is the second of three courses in the 109 sequence, and is an introduction to geometry.

We begin by considering the differential geometry of curves in three-dimensional space, developing such concepts as arc length, curvature and torsion. A large part of Ma109b is dedicated to studying the differential geometry of surfaces in three-dimensional space. This includes both local and global properties.

Prerequisites: Ma 2 or equivalent, and Ma 108 must be taken previously or concurrently.

Text: Do Carmo, *Differential Geometry of Curves and Surfaces*, Prentice-Hall, 1976.

Grading Policy: Weekly homework (30%), a midterm (30%) and a final (40%).

Homework policy: Homework is due in the box outside the office at 4pm on Wednesdays. At most one late homework set will be accepted. Except in unusual circumstances, homework will not be accepted more than a week late. You should see the instructor in advance if it is necessary to turn in homework late.

Homework will be posted online every week except during the midterm and final. Sometimes the instructor may forget to post the homework—it is *your* responsibility to remind him.

Collaboration policy: You may discuss homework problems with other students, but solutions should be written up individually in your own words. Take-home exams must be your own work, with outside references properly attributed. Online sources may never be used as a reference.