MATH 234B, WINTER 2003

DIFFERENTIAL GEOMETRY I

Course Outline

Instructor: Viktor Ginzburg
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Meetings: MWe 10:00-11:45, Kerr 289

Text: *Riemannian Geometry*
by Manfredo do Carmo
Second printing, Birkhäuser, 1993.

Exams: There will be one take-home midterm and a take-home final. Homework assignments will be an integral part of the course.

Syllabus. This is the second course in the geometry sequence. Some familiarity with differential manifolds and differential forms is a prerequisite for this course.

The topics to be covered in this course are Riemannian metrics, connections and parallel transport, geodesics, the exponential map, the curvature tensor, Jacobi fields, complete manifolds. At the end of this course we will discuss connections between Riemannian geometry and topology of manifolds (the Hadamard theorem and the Gauss–Bonnet theorem).