OFFICIAL SYLLABUS

Math 437 - Differential Geometry

Adopted Summer 2008 (Committee: Drs. C. Lu, J. Parish, A. Weyhaupt)

Catalog Description: Curves and surfaces in Euclidean 3-space from the perspective of classical differential geometry. Topics include: Frenet frames, fundamental surface forms, geodesics, and the Gauss-Bonnet theorem.

Prerequisite: Math 250 and Math 321.

Textbook: Differential Geometry of Curves and Surfaces, by Manfredo P. Do Carmo, 1976, Prentice Hall

Course Outline and Topics

Ch. 1: Curves

Sections: 2, 3, 4, 5, and one topic from 7

Ch. 2: Regular Surfaces

Sections: 2, 3 (no proofs), 4, 5

Ch. 3: The Geometry of the Gauss Map

Sections: 2, 3

Ch. 4: The Intrinsic Geometry of Surfaces

Sections: 2 (omitting conformal maps), 3 (up to the *theorema egregium*), 4 (up to Prop. 5), 5

If time permits, various global topics from Chapter 5 could be covered.

Any instructor should cover all of the material specified, additional sections are optional.