Math 439: Differential Geometry of Curves and Surfaces

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Differential Geometry is one of the central areas of the modern Mathematics. It provides a standard language for the Theoretical Physics and has many applications in Engineering and Computer Science. The course is the first introduction to this exciting subject. On the simplest examples of curves and surfaces in $\mathbb{R}^3$ we will examine several fundamental concepts such as moving frames, curvatures, covariant derivatives, parallel transport, geodesics etc.

Prerequisites: The only prerequisite is the knowledge of the basic concepts of multivariable Calculus (Math 221/251/253).

Textbook *Differential Geometry of Curves and Surfaces* by Manfredo Do Carmo, Prentice Hall, 1976