MAT 568
Differential Geometry I
Fall 2003

General Information

Instructor : Matthew Kudzin (Math Tower 2-118; 631-632-4422)

Office Hours : Monday and Wednesday, 9:00 -- 10:00 am, or by appointment

Class Times : Tuesday and Thursday, 12:50 -- 2:10 pm, in Old Chemistry 135

Textbooks

The required text is

- do Carmo, *Riemannian Geometry*

The following books are recommended

- Gallot, Hulin, & LaFontaine, *Riemannian Geometry*
- Spivak, *A Comprehensive Introduction to Differential Geometry*

The followings books are recommended for the section on curves and surfaces in R^3.

- do Carmo, *Differential Geometry of Curves and Surfaces*
- Millman & Parker, *Elements of Differential Geometry*
- O'Neill, *Elementary Differential Geometry*

Homework

> *Math is not a spectator sport.*
>   -- Herman Gluck

Each student registered for the class should submit solutions to *at least* two problems every week.

- Problem Set #1 - September 4, 2003
- Problem Set #2 - September 10, 2003 (modified September 12, 2003)
- Problem Set #3 - September 18, 2003
- Problem Set #4 - September 28, 2003
- Problem Set #5 - October 3, 2003
- Problem Set #6 - October 16, 2003

Here is a sampling of problems on differential topology. These problems are for your benefit, to make sure that you are comfortable with the basics of manifold theory. You do not need to turn them in, although you are welcome to if you want me to check your answers.

do Carmo, chapter 0: # 2, 4, 9, 12

Spivak, volume I, chapter 1: # 1, 9, 11
            chapter 2: # 3, 28, 33
            chapter 3: # 7, 12, 19

Also, some of you might be interested in looking at Theorem 1 of appendix A of Spivak, where he proves that a manifold is second countable if and only if it is paracompact.