M392C: Riemannian Geometry

Professor: Dan Freed, RLM 9.162.

Lectures: Tuesday, Thursday 11:00–12:15, RLM 9.166.

Office Hours: Wednesdays 2:00–3:00. I strongly encourage you to take advantage of office hours throughout the semester.

Class Web site: `http://www.ma.utexas.edu/users/dafr/M392C`. Homeworks will be posted here, as will readings.

Texts: There are many texts on Riemannian geometry; I will follow none. A random selection: *Riemannian Geometry* by M. P. do Carmo, *A Comprehensive Course in Differential Geometry* by M. Spivak, *Riemannian Geometry and Geometric Analysis* by Jürgen Jost, *Riemannian Geometry* by Gallot-Julin-Lafontaine, *Riemannian Geometry* by Peter Petersen, *Comparison Theorems in Riemannian Geometry* by Cheeger-Ebin, *Riemannian Manifolds* by Jack Lee, etc. You will find it useful to have a text to supplement the lectures. I may also post notes. You will also have use for a more basic text such as Frank Warner's *Foundations of Differentiable Manifolds and Lie Groups* for some of the lectures.

Homework: I will post problem sets on the course website, and you can and should find plenty of problems of your own from the lectures. I urge you to immediately form study groups and to discuss the problems and lectures together, as well as individually. But you should not hand in the homeworks—come to office hours to discuss. If you want me to help organize a system for students to read each other's solutions, I'm happy to do so, but even happier if someone steps up to organize this!

Seminars: I encourage you to at least sample the weekly geometry seminars. The main Geometry Seminar is Thursdays at 3:30. Speakers are encouraged to be expository during the first part, and this usually makes that seminar more accessible. There is a regular Geometry and String Theory seminar on Wednesdays at 12:00, and an occasional GADGET lunch seminar Tuesdays at 12:30. There will also be a Perspectives in Geometry lecture series in the next few weeks; at least attend the first lecture. You shouldn't expect to understand everything at a research seminar, or even in some cases to understand very much. But only by attending seminars will you learn about a field: its problems, techniques, style, priorities, personality and personalities, etc. I cannot urge you strongly enough to sample all of our many departmental seminars.