Spring 2019 Math 215C: Riemannian geometry

The following is a rough and tentative schedule of the course. The schedule may change as we go along.

- **Week 1**: Introduction. Review of smooth manifold.


- **Week 3**: Levi–Civita connections. Curvature.


- **Week 6**: Completeness. Hopf–Rinow theorem. Space of constant curvature.

- **Week 7**: Jacobi fields. Hadamard’s theorem.

- **Week 8**: Bonnet–Myers. Rauch comparison.

- **Week 9**: The sphere theorem.

- **Week 10**: Applications to general relativity. Fundamental theorem of general relativity. Penrose’s incompleteness theorem.