DIFFERENTIAL GEOMETRY II
PROBLEMS FOR FINAL REPORTS
CHIN-LUNG WANG, 2013

1. The Newlander-Nirenberg theorem.

2. Existence of isothermal coordinates on surfaces.

3. Riemann-Roch theorem and Kodaira vanishing on Kähler manifolds.

4. Atiyah-Singer index theorem, the original proof.

5. Atiyah-Singer index theorem: Analytic index = Topological index.

6. Diameter and Ricci: Converse of Bonnet theorem.

7. Diameter and λ_1.

8. Minimal surfaces in S^3.

9. Xavier's theorem on complete minimal surfaces in R^3.

10. The Kazhdan-Warner problem on prescribing curvature on surfaces.

11. Topological theory of characteristic classes.

12. Morse theory and Lefschetz hyperplane theorem.

13. Bott periodicity for unitary groups.