# MAT 566: Characteristic Classes

**Problem Set 1**
**Due by Monday, 2/5, 5pm, in Math 3-111**
*(if you have not passed the orals yet)*

Problem (i) below and one of 1-C, 3-E, or 3-F from M&S.

You should also take a look at the other problems in Sections 1-3 and in Appendix A.

Problem (i): Let $R$ be a ring. Determine $H^*(\mathbb{RP}^n; R)$ as a graded vector space. In the case $R = \mathbb{Z}_2$, use Poincare Duality and induction to determine the ring structure.