

**MAT 566: Differential Topology
Spring 2015**

Problem Set 1

Due on Tuesday, 02/10, by 5pm, in Math 3-111

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 1-4 and in Appendix A.

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