School of Mathematics

Course 224 - Geometry 2008-09
(SF Mathematics
SF Theoretical Physics
JS Two-Subject Moderatorship )

Lecturer: Prof. D. J. Simms

Requirements/prerequisites:

Duration: 24 weeks

Number of lectures per week: 3 including tutorials

Assessment:

End-of-year Examination: 3-hour end of year exam

Description:

- **Multilinear algebra**
  - Tensor product; Wedge product; Volume forms; Hodge star operator.

- **Multivariable calculus**
  - Derivative as a linear operator; Equality of mixed partials; Inverse function theorem; Implicit function theorem.

- **Introduction to manifolds**
  - Differential forms; Poincare lemma and Stokes theorem; Gaussian curvature.

November 12, 2008