

**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