

**SYLLABUS**  
**MAT 690**  
**RTG SEMINAR**

This seminar is an integral part of the RTG program in mathematics and physics. Material will be taken from a variety of topics which lie at the interface of geometry and modern physical theories.

Typical examples are:

1. Classical mechanics and symplectic geometry
2. The theory of spinors
3. Topological quantum field theories and enumerative algebraic geometry
4. Relativity theory
5. Dualities and Mirror symmetry
6. Calibrations and M-theory

Each subject will be treated from both a mathematical and a physical perspective. The material will be elementary and introductory – this will be a learning seminar. When possible, the material will be built around lectures by visiting mathematicians and physicists.

Each session will entail long discussions which, we hope, will produce questions to be researched and answered at subsequent meetings.