

MA 726: SPIN GEOMETRY

SPRING 2025

Official course name: MA 726 Differential Geometry, II.

Time and location: T/Th 12:30–1:45 PM in CGS 323.

Summary. The main topics for this class are as follows:

- Clifford algebras, spin groups.
- Spin structures in geometry.
- Dirac operators on spinor bundles.
- Characteristic classes and index theorems.
- Special topics (time permitting): Holonomy (Berger classification), Killing spinors, pure spinors, twistor theory.

Prerequisites. Students are assumed to be familiar with the theory of smooth manifolds at the level of MA 721 or equivalent. Please contact me if you have any questions.

Assessment. Your grade will be determined by weekly homework assignments and a final presentation given at the end of class. The homework will count for 70% of your grade (all equally weighted) and the final presentation is worth 30% of your grade.