Let $S$ be a compact, smooth, orientable surface. The group of orientation-preserving self-diffeomorphisms of $S$, $\text{Diff}^+(S)$, is too large to conveniently study, so we instead pass to the quotient

$$\text{Mod}(S) = \text{Diff}^+(S)/\text{Diff}_0(S)$$

by factoring out the path component of the identity element. The resulting group – the mapping class group of $S$ – is both tractable to study, and encodes a great deal of information about the topology and geometry of $S$. Mapping class groups are ubiquitous, appearing in subjects as diverse as algebraic geometry, combinatorial group theory, symplectic geometry, dynamics and 3-manifold topology. The goal of this course is to introduce the tools that are used to study them, and to prove some fundamental results.

**Pre-requisites**

Part II Algebraic Topology is essential. Part II Riemann Surfaces is useful. Part III Algebraic Topology, taken concurrently, is useful.

**Literature**


**Additional support**

Three examples sheets will be provided and three associated examples classes will be given. There will be a one-hour revision class in the Easter Term.