

## **PROBABILISTIC ASPECTS OF FINITE SIMPLE GROUPS, AND APPLICATIONS**

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The course will cover various probabilistic and asymptotic aspects of finite groups. The focus will be on simple groups, but there will be applications to general finite groups, permutation groups, and further afield to Fuchsian groups, representation varieties, word maps on groups, and growth in Cayley graphs.

1. Random generation of finite simple groups and maximal subgroups.
2. Random generation of arbitrary finite groups.
3. Representation varieties and character-theoretic methods.
4. Cayley graphs of simple groups: diameter, growth and applications.