

REPRESENTATION THEORY OF GROUPS, MATH 213B

RAPHAËL ROUQUIER

Winter 2019

MWF 9-9:50am, MS 6201

This course will be devoted to the representation theory of finite groups and finite-dimensional algebras.

Topics to be discussed:

- Classical theory of complex representations and characters of finite groups.
- Representations of symmetric groups.
- Representations of finite general linear groups over a finite field, introduction to the Deligne-Lusztig theory for general finite groups of Lie type.
- Modular representations of finite groups and finite-dimensional algebras: blocks, decomposition maps, defect groups, local methods.

References

D. Benson, Representations and cohomology (volume 1)

N. Jacobson, Basic algebra

S. Lang, Algebra

M. Linckelmann, The block theory of finite group algebras.

J.-P. Serre, Linear representations of finite groups

Office hours: by appointment

Projects

The course assessment will be based on a 20mn presentation of an assigned project. The presentations will be held during the period March 6-15. A list of possible projects will be provided on Monday February 4 and a preferred choice, as well as a second and third choice, will need to be sent to me by email by Wednesday February 6. An abstract of what you plan to do for the presentation will be due on Wednesday February 20. You may also suggest your own topic, which I will need to approve.