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## Representations of Groups

MATH-410\*

The course is devoted to the classical theory of characters of finite groups and their applications to the theory of linear representations.

**Textbook:** *Representations and Characters of Groups*, 2nd Edition  
by James & M. Liebeck (Cambridge University Press)

**Prerequisite:** MATH-310 *or* 314\* *or* permission of the instructor.

**Instructor:** D. Pollack

**Evaluation:**

Examination	30%
Mid-term test	20%
Exercises	50%

**Outline:**

- Reducible and irreducible representations
- The character of a representation
- Schur's Lemma
- Orthogonality relations for characters
- Decomposition of the regular representation
- Canonical decomposition of a representation
- Representations of abelian groups
- Tensor product of two representations
- Symmetric square and alternating square
- Group algebra. Representations and modules
- Induced representations
- The character of an induced representation