

Mathematics 666, MWF 12:00, E 206

Lecturer: Alexander Hulpke, Weber 206B

Office Hours: TBA

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WWW: <http://www.math.colostate.edu/~hulpke/lectures/m666>

Topics. M666 is a course on representation theory which is to some extent a continuation of group theory. We will cover primarily representation theory and character theory (this is the theory of homomorphisms from a group into matrix groups) of finite groups, and – time permitting – extension theory and group cohomology.

If you are interested to work in algebra or combinatorics, or need to work with groups, these are topics you likely will find interesting and useful.

Grades. will be based on homework and course participation; there will be roughly one homework sheet per week.

Prerequisites: In general, you should have taken the M566 or an equivalent course. (There also are a handful of facts from 567 we shall need, but these can be simply taken as given.) In fact we will formally require little material beyond 369 and 466, but proceed at the pace of a 600-level mathematics course.

Textbook: You are not required to have any particular textbook. Three books (each of them nice in their own way) are:

- K.Lux & H. Pahlings: Representations of Groups, Cambridge (Probably the most ambitious one. Also covers modular theory in detail.)
- G.James & M. Liebeck: Representations and Characters of Groups, Cambridge (Slightly more expensive, much more explanatory text and examples. Least coverage).
- I.M.Isaacs: Character Theory of Finite Groups, Dover (compact, cheap, few examples)

Computer use. In some of the homework exercises, we will use the program GAP (to avoid having to do lengthy calculations by hand. You won't be examined about the use of the program.). This program is installed on the Mathematics computers, or you can download it from the links on the course web page.

Academic Integrity. This course will adhere to the CSU Academic Integrity Policy as found on the Student' Responsibilities page of the CSU General Catalog and in the Student Conduct Code.

At a minimum, violations will result in a grading penalty in this course and a report to the Office of Student Resolution Center.

Disabilities. If you are a student who will need accommodations in this class due to a disability or chronic health condition, please provide me the SDC (Student Disability Center) accommodation letter. If you do not already have these accommodation letters please contact the SDC as soon as possible to initiate the process of setting up accommodations. The SDC is located on the room 121 of the TILT building. You can reach them by phone at 970-491-6385 or visit www.disabilitycenter.colostate.edu.

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I wish you success with this course and all the best for the coming semester.