

MATH 470, Winter 2008

Graduate Algebra

Instructor: Paul Goerss

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Office hours: MWF afternoons

Course Time: MWF Lunt 103 at 12Noon plus problem sessions.

Text: Lang *Algebra*

This is a three quarter course, with this second quarter covering the Galois theory, the theory of semi-simple rings, and basic representation theory of finite groups. Lang's book is intended as a reference; there are a number of other standard texts on reserve. The topics include but are not limited to:

1. Tensor products; adjoint functors
2. Fields, splitting fields, algebraically and separably closed fields
3. Galois groups; the main theorem of Galois theory
4. Basic applications: solvability, finite fields, etc.
5. Extension to non-finite situations
6. Matrix rings, semi-simple rings, Wederburn theory
7. Representations, characters
8. Character tables and their calculation

Homework: Homework will be collected roughly every other week, beginning Monday, January 21. In the alternate weeks we will have a problem sessions, date and time to be announced.

The Evaluation Component – Grades: In addition to the homework there will be a final, currently scheduled for Friday, March 21. The homework and final will have equal weight in the final grade.