

Course Information

Professor: Pramod N. Achar
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Office hours: Tues. 10:30am–12:00pm

If you cannot make it to my office hours, you may arrange to meet with me at another time by appointment.

Textbook. For much of the semester, we will be working from the book

J. E. Humphreys, *Reflection groups and Coxeter groups*, Cambridge Advanced Studies in Mathematics, no. 29, Cambridge University Press, Cambridge, 1990.

However, Humphreys does not cover as much material on Hecke algebras as I would like. A good reference for additional material on Hecke algebras is:

M. Geck and G. Pfeiffer, *Characters of finite Coxeter groups and Iwahori-Hecke algebras*, London Mathematical Society Monographs, New Series, no. 21, Oxford University Press, New York, 2000.

It is not necessary to buy the Geck-Pfeiffer book.

Course outline. A tentative list of topics for the semester is as follows:

Real reflection groups, Coxeter groups (Humphreys, Chap. 1, 2, 5)	3 weeks
Polynomial invariants (Humphreys, Chap. 3)	1 week
Introduction to Hecke algebras (Humphreys, Chap. 7)	2 weeks
Representations of Hecke algebras (Geck-Pfeiffer, Chap. 7–9)	3 weeks
Complex reflection groups & cyclotomic Hecke algebras (various original papers)	2–3 weeks
Student talks (see below)	2–3 weeks

Homework. Homework exercises will be assigned in more or less every class, but will only be due once every two weeks. All the homework exercises will be posted on the course webpage. It is likely that not every homework question will be graded.

Final Presentations. Towards the end of the semester, each student will select a topic to study a bit further and then present it to the class in a short talk (30–45 minutes). I will suggest possible topics for these talks over the course of the semester.

Exams. There will be no timed exams. In lieu of a final exam, you will each be asked to write a short exposition (2–5 pages) on the topic that you present to the class. These papers will be due at the scheduled time for the final exam: Saturday, December 10, 12:30pm.

Website. The course website is at <http://www.math.lsu.edu/~pramod/7290/>. All class materials will be posted on this page.

Grading. The final grade will be determined as follows:

Homework:	70%
Final presentation & paper:	30%