General Info

Instructor: Professor David Grant, grant@colorado.edu

Office Hours: M 4-4:50, W 2-2:50, F 1-1:50 (or by appointment), in Math 303 (x2–7208).

Class Meetings: MWF 12:00–12:50 PM in ECCR 116.

Text: Marcus, Number Fields. (Springer)

Prerequisites. MATH 6110 and 6140, or instructor’s permission.

About the course.

Introduces number fields and completions, norms, discriminants and differentials, finiteness of the ideal class group, Dirichlet’s unit theorem, decomposition of prime ideals in extension fields, decomposition, and ramification groups.

Course requirements and grading.

There will be (lots of) weekly homework. You may work in groups, but each student must write up the homework separately, and attribute any help they have received. There will be two take home exams: one on chapters 1–4, and one on the rest of what we cover (this will be due in my office on May 9 at 7 pm). The homeworks count for one-third of your final grade, as does each exam.

Et Cetera:

The last day to drop a course without a fee or a “W” on your transcript is February 1. Also note that the last day for A&S students or non-degree candidates to drop a course without petitioning the Dean is March 23 (February 29 for all other students).

Please inform me as soon as possible should you need, due to your observance of a religious holiday, to miss a homework session or a class. Provided you notify me well in advance, every effort will be made to reach a reasonable accommodation.

If you qualify for accommodations because of a disability, please submit to me a letter from Disability Services in a timely manner so that your needs may be addressed. See www.Colorado.EDU/disabilityservices.

The University of Colorado at Boulder policy on Discrimination and Harassment, the University of Colorado policy on Sexual Harassment and the University of Colorado policy on Amorous Relationships apply to all students, staff and faculty. See http://www.colorado.edu/odh.

Further reading and resources

Other books that could be used for this course are “Algebraic Theory of Numbers” by Samuel (buy it, it’s cheap! Beautiful but spare), “Number Theory” by Borevich and Shararevich (terrific but out of print), “Algebraic Number Fields” by Janusz (complete but dry). A good next book would be Neukirch’s “Algebraic Number Theory.” For an alternative treatment, see Swinnerton-Dyer’s “A Brief Guide to Algebraic Number Theory.”