

Math 5020 Syllabus

Local Field Theory

Course: Math 5020 Local Field Theory

Lecture: Section 001, M 11:05am-12:30pm, F 11:05am-12:10pm in room MONT 101

Instructor: Brandon Alberts

Office Hours: M 2pm-3pm, TuTh 10am-11:30am or by appointment in room MONT 125

Contact: HuskyCT messages or email: brandon.alberts“at”uconn.edu. Please allow up to 24 hours for me to respond, especially for scheduling a meeting.

Course Description: An introduction to the theory of local fields. We will introduce the p-adic numbers and their corresponding topology, build up the basic results in the subject, and use them to answer various problems in number theory. Some topics that I plan to address (given I have enough time): p-adic numbers, local-to-global principles, local Kronecker-Weber theorem, higher ramification groups.

Prerequisites: Graduate Algebra Sequence (MATH 5210, MATH 5211)

Required Materials: There are no required materials. I recommend the textbook “p-adic Numbers: An Introduction” by Gouvea, which I will be using as my primary reference. I will also use many of Conrad’s notes as reference.

Grades: This is a graduate level topics course, you get out of it what you put in. I know you would be better served working with your advisor, other faculty, and your peers on research projects than spending time on biweekly homework assignments or studying for exams.

Of course, I’m too young of a professor to feel comfortable not requiring anything in a course. Sometime after February 1st, I want you to make an appointment to come tell me about what you are doing in this graduate program. Some things I would be interested in hearing from you:

- How far along are you in the graduate program? If you have an advisor, who are they?
- What has your teaching experience been like here? What have you really enjoyed teaching (or really not enjoyed)?
- If you are working on a research project, what is it? I would especially like to hear a 10-15 minute spiel describing your research. Do you know if local field theory shows up in your work?
- What are you hoping to get out of this course?
- And of course, any and all questions about local fields!

You are welcome to bring a friend, bring a lunch, whatever. We can meet in my office, the lounge, a cafe, etc. I want to get to know each of you as mathematicians, and possibly tailor the course a little bit to your interests. Meeting with me and having a conversation is all I ask for an A.