

Math 417 C3M MWF 10 – 345 Altgeld Course Organization Spring 2019

Instructor: Prof. Bruce Reznick, 327 Altgeld, 333–4284, reznick@illinois.edu. My phone has voice mail and I frequently check and reply to my email, including weekends. Office hours will be organized according to your availability. You are also encouraged to ask me questions immediately before or (especially) during class. I enjoy answering questions by email, so that I can post the (anonymized) question and my answer on the webpage (see below) for all to see. This will also be a requirement (see below). I’m terrible with names; don’t take it personally. It will be a privilege and a pleasure for me to spend the semester talking and listening to each and every one of you.

I will do my best to be constantly “present” in 345 Altgeld, and request the same of you.

This page will have “class diary” summarizing the class day by day, providing links to handouts, and containing my responses to all questions sent to me by email. I also have an ongoing page of useful mathematical links, to which you are invited to contribute.

<http://www.math.uiuc.edu/~reznick/math417F17.html>

<http://www.math.uiuc.edu/~reznick/F17links.html>

Text and Syllabus: The text is *A first course in abstract algebra* by John B. Fraleigh. This will be supplemented with free resources, including

<http://www.math.uiowa.edu/~goodman/algebrabook.dir/algebrabook.html>

Let me know if you find something else useful on line and I can share with the class. The goal of Math 417 is to study groups and rings. These are mathematical objects abstracted from examples such as the integers mod n , permutations and symmetries and polynomials. Material will be taken from chapters one through four of the text, but I don’t expect to cover it all. This class is an experimental section (offered once before), dedicated to the interests of math majors who do not intend to go to graduate school in mathematics and the amount we cover will depend on how well I can explain it. **Your feedback is essential!** There will be some ungraded active learning worksheets during the semester. These will often highlight homework questions which seemed to be difficulty.

Homework Policy: It is an implicit assignment to read ahead in the textbook before class. This will make my lectures more comprehensible! Check the course webpage regularly. Written homework will be assigned to be due weekly. The class will vote on the day. Please staple or paper-clip your homework sheets (no folding over corners), and consider writing more than one draft. You are expected to spell correctly and write complete, grammatical sentences when possible in this and all your University assignments. Homework solutions will be distributed when the assignment is due. No late homework is accepted, but the lowest two homework scores (possibly zero) will be omitted in computing your homework average. In rare instances, you may be excused from an assignment, but the dropped scores are intended to cover ordinary illnesses, weddings, etc.

A phone and e-mail list will be distributed once the class stabilizes. It is my policy not to give specific homework help on pending problems. But if you ask a question in class or in email, I can further explain to *everybody* the underlying mathematics.

Collaboration in studying and working the homework is strongly encouraged! Collaboration without comprehension is a waste of time. You may be able to find websites which help you understand the material in this class. Don’t copy homework solutions from online sources. (I know how to google!).

Homework Content: Most homeworks will be a combination of various types of problems. (i) There will be problems from the text with the answer in the back. These will be corrected but will not count in the homework grade. (ii) There may be problems from the text which do not have the answers in the back or easily accessible via google. (iii) There will be exam-type questions, marked by the rubric (\mathcal{E}). (iv) There will be a few other questions that might be too long for a test, or involve too much computation, but which are fun to work out. I have a homework grader, but I will also read all homeworks and make out the grades.

Exam Policy: There will be three Hour Exams, at the usual intervals. Painful experiences cause me to remind you that the dates of exams are not subject to individual negotiations. You will need serious documentation in order to qualify for a makeup exam! All exams will be closed-book and closed-notes (except for one 3 x 5 card; blanks will be provided), and will resemble the homeworks. The Final Exam is comprehensive, and twice as long as (and somewhat harder than) the Hour Exams. The Final must be held at the scheduled time: Monday, May 3, 1:30-4:30 p.m.

Participation: I've been doing this for the last few years and this activity has proved popular. A small portion of the grade is the easiest to achieve. Send me at least five emails during the semester (at least a week apart) with questions about material from the lectures or the reading from the book (but **not** the homework or exams). The reason for this is that math students tend to be both somewhat shy and somewhat reluctant to admit publicly when they don't understand something. Your questions are of great value to me in helping structure my explanations in class. Put "417 Class Participation" in the subject line!

Grading Policy: Each Hour Exam counts 20%, the Final Exam counts 40%, the Homework counts 15% and the Participation counts 5%. The lowest 20% is dropped. (A missed exam **cannot** be dropped from the computation of the grade.) All grades are numerical. The highest possible grade cutoffs are: A/B – 90%, B/C – 80 %, C/D – 70%, D/F – 60%, by which I mean "A-/B+", etc. I will try to keep you posted on any curving as the semester progresses. There are two exceptions to the numerical grading: anyone who takes all Hour Exams and scores 96% on the Final gets an A of some kind and anyone who scores 75% on the Final will pass. My experience is that these exceptions rarely make a difference. **Always keep in mind that I am grading your work, I am not evaluating you as a person.**

Philosophy: When I was an undergrad math major, abstract algebra was the math area that took me the longest to "get", but once I did, I really enjoyed it. I look forward to helping you "get" abstract algebra as well. A course is designed for its students, not its instructor. Education is not a zero-sum game when done correctly. I do not consider you my adversaries, and hope the feeling will be mutual. Become active, not passive in Math 417: the more you put in, the more you will get out. Let the ideas of this course get under your skin and visit your dreams. These are serious steps towards understanding.