Math 453D13 (MWF 11, 341 Altgeld) – Course Organization, Spring 2013

Instructor: Prof. Bruce Reznick, 327 Altgeld, 333–4284, reznick@math.uiuc.edu. My phone has voice mail and I frequently check and reply to my email, including weekends. Office hours are by appointment. I take them seriously, and they can usually be arranged within 24 hours. You are also encouraged to ask me questions immediately before, during (especially) and after 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. I’m terrible with names; don’t take it personally.

This course has a webpage:


There will be a “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:


Text and Syllabus: The text is Elementary Number Theory by James Strayer. I will cover the first five chapters for sure and as much of the rest of the book as seems reasonable. I will consider student preference in the choice of topics in the last month of the course. Be aware that (reading, understanding, constructing) proofs are an integral part of this course.

Homework Policy: Written homework will be assigned to be due weekly. 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. Collaboration in studying and working the homework is strongly encouraged! Collaboration without comprehension is a waste of time. 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.

Homework Content: Most homeworks will be a combination of various types of problems. (i) There will be computational exercises which are not graded and which you can do with the assistance of WolframAlpha. The purpose of these is for you to gain familiarity with some of the numerical techniques of the course. Easier versions of these questions may appear on exams, where you’ll have to do them by hand. (ii) There will be problems from the text. (iii) There will be old exam questions, marked by the rubric (E). (iv) There will be a few other questions that I just make up. At least one question per assignment will involve your number $N$. Each student in the class receives a different prime number between 150 and 400. Your job is to answer the question with this particular value of $N$. The reason for this is to allow people to work together on problems and yet have different answers.
Exam Policy: There will be three Hour Exams, at the usual intervals. Painful recent 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-note, and will resemble the homeworks. The Final Exam will be comprehensive, about twice as long as an Hour Exam, and somewhat harder. The Final must be held at the scheduled time: Monday May 6, from 7:00 – 10:00 pm.

Grading Policy: Keep in mind that I am grading your work, not you as a person. Each Hour Exam counts 20%, the Final Exam counts 40% and the Homework counts 20%. The lowest 20% is dropped. (Again, painful recent experiences cause me to state that 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 and anyone who scores 75% on the Final will pass. Experience shows that these exceptions rarely make a difference.

Philosophy: The purpose of this course is to introduce you to number theory, one of the most beautiful parts of mathematics; research in number theory is one of the strengths of the UIUC Department of Mathematics. It will be a privilege and a pleasure for me to spend the semester talking to you about this subject. 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 an active participant in this course. Let it get under your skin and visit your dreams. These are serious steps towards becoming a mathematician.