MATH 432B/537: Elementary Number Theory Section 101, Fall 2002

Where: Geography 214
When: MWF 11:00 AM-12:00 noon
Instructor: Prof. Greg Martin
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Phone number: 822-4371
Course web page: http://www.math.ubc.ca/~gerg/Math432B
Textbook: Niven, Zuckerman, and Montgomery, An Introduction to the Theory of Numbers,
5th edition (Wiley).

The first few weeks will be spent covering essentially the material from MATH 312: divisibility, congruences, prime numbers, and similar foundations of number theory. Some of this material might already be familiar to you (congruences come up in courses on abstract algebra, for instance). Once we have this foundation, there are many different directions we could follow. Some topics I would like to cover include: finding roots of polynomial congruences; the Quadratic Reciprocity Theorem; writing numbers as sums of squares; arithmetic functions and Dirichlet series; Farey fractions and continued fractions; prime number estimates. I will also try to indicate the connections between these topics and other advanced areas of number theory (algebraic number theory, analytic number theory, diophantine approximation, etc.). This course will not require any particular background in number theory; indeed, the course really doesn't assume anything beyond high school mathematics, with the exception of mathematical induction. What is required is "mathematical sophistication", which certainly includes being able to understand and write proofs. I anticipate that the course will proceed at a fairly rapid pace.

Evaluation: The course mark will be based on several homework assignments (60% of the final mark) and a final exam (40% of the final mark). You are required to be present at the final exam; no makeup tests will be given. Non-attendance at an exam will result in a mark of zero being recorded. Unavoidable, documented medical emergencies are the only exception to this policy. Students are allowed to consult one another concerning the homework problems, but your submitted solutions must be written by you in your own words. If two students submit virtually identical answers to a question, both can be found guilty of plagiarism.