

Math 533, Section 1  
Fall Semester 2009  
Prakash Belkale  
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**Class Meetings:** Lectures are held every Monday, Wednesday, and Friday from 9:00AM until 9:50 AM in Phillips 385.

**Prerequisites:** Math 381.

**Text:** The required text is “Elementary Number Theory” by David M. Burton, sixth edition.

**Grading:** There will be two in-class exams, homework, weekly quizzes and a final exam. The quizzes will be on Fridays and will be for the duration of 20 minutes. The final course grade will be determined (approximately) as follows: In-class exams 40%, Homework 10%, Quiz 10% and Final 40%.

**Exams:**

First Midterm Exam: 2 October (Friday)

Second Midterm Exam: 6 November (Friday)

Final Exam: 11 December, 8AM (Friday).

No makeup exams will be given.

**Homework:** Homework will be assigned (posted on my web page) each Wednesday and will be due Wednesday of the following week. No credit will be given for late homework.

**Office Hours:** Phillips 376, Monday, Wednesday, 1:30- 3:00PM or by appointment.

**Contacting Me:** My email address is [belkale@email.unc.edu](mailto:belkale@email.unc.edu) and my office phone number is 919-843-3917.

**Course Content:**

1. Background: Induction and Binomial theorem (Chapter 1).
2. Divisibility theory (Chapter 2).
3. Prime numbers (Chapter 3).
4. Congruences (Chapter 4), Fermat’s little theorem and Wilson’s theorem (Sections 5.3,5.4).
5. Number theoretic functions (Chapter 6).
6. Euler’s function, Euler’s generalisation of Fermat’s little theorem. Applications to cryptography (Chapter 7).
7. Primitive roots (Chapter 8).
8. The quadratic reciprocity law (Chapter 9).