Course Information for **Math 453: Elementary Theory of Numbers**
Section B13/B14, Spring 2019

Number theory is the study of the integers and their properties. It is one of the oldest branches of mathematics, and also one of the largest, with numerous open problems and many deep ideas. This course is an introduction to some of the fundamental ideas in number theory.

In this rigorous mathematical course, you will study and write proofs. Thus you are expected to know how to properly write a mathematical argument, and you should be familiar with standard proof techniques such as induction and proof by contradiction. The official prerequisite is Math 241, but it is recommended that you have already taken a proof-based course, like Math 347.

Class time: 9:00-9:50AM MWF in 241 Altgeld Hall
Textbook: *Elementary Number Theory*, by James K. Strayer, 2002
Prerequisite: MATH 241 or equivalent.

Instructor: Siegfred Baluyot
Email: sbaluyot@illinois.edu
Office hours: Mondays 3:00-4:00 PM and Thursdays 4:30-5:30 PM, or by appointment, in 230 Illini Hall

Grading policy

Homework	14%
Midterm Exams	$3 \times 17\%$
Final Exam (**comprehensive**)	35%

Homework

There will be weekly homework assignments, to be **turned in on Fridays** at the beginning of class. Late homework will not be accepted. You are encouraged to discuss homework problems with your classmates, but you must write your solutions in your own words. Make sure your solutions are clear and organized, and include all the necessary details. Merely writing down the answer without showing any work will receive little or no credit. Your lowest homework score will be dropped.

Midterm exam schedule

Midterm exams will be during class time, in our classroom. Make sure your solutions are clear and organized, and include all the necessary details. Merely writing down the answer without showing any work will receive little or no credit.

Midterm 1 Monday, February 11
Midterm 2 Friday, March 8
Midterm 3 Wednesday, April 10

Covered topics
(All chapters are from *Elementary Number Theory* by James K. Strayer, **2002**)

Divisibility and Factorization	Chapter 1
Congruences	Chapter 2
Arithmetic Functions	Chapter 3
Quadratic Residues	Chapter 4
Primitive Roots	Chapter 5
additional topics	(TBA)

Study tips

This course is challenging and requires time commitment. Proficiency will be achieved only through hard work, massive problem solving, and active participation in class discussions. Please take advantage of my office hours.