INTRODUCTION TO NUMBER THEORY
CAS MA 341
SUMMER 1 2012

Instructor : Chan-Ho Kim (office : MCS250/ e-mail : chanho@bu.edu)
Office Hour : Monday/Tuesday/Thursday 5–6PM MCS 250
Lectures : Monday/Tuesday/Thursday 6–8:30PM PSY B41
Prerequisite : None. (MA 242 - Linear Algebra - is *not* required for this course.)
Textbook : Underwood Dudley, *Elementary Number Theory*, Second Edition, Dover, ISBN-10: 048646931X, ISBN-13: 978-0486469317
Official Description : Study of integers and basic results of number theory. Topics include Linear Diophantine equations, prime numbers and factorization, congruences, and quadratic reciprocity. 4 credits.
(Tentative) Lecture Schedule :

- 1st week (May 22 – May 26) :
  Overview, Intergers and Euclidean Algorithm,
  Prime Numbers and Unique Factorization
- 2nd week (May 27 – June 2) :
  Linear Diophantine Equations, Congruences, Linear Congruences
- 3rd week (June 3 – June 9) :
  Fermat's and Wilson's theorems, The Divisors of an Integer,
  Perfect Numbers, Mid-Term
- 4th week (June 10 – June 16) :
  Euler's theorem and Function, Primitive Roots
- 5th week (June 17 – June 23) :
  Cryptography, Quadratic congruences
- 6th week (June 24 – June 28) :
  the Quadratic Reciprocity Law and Its Applications, Final

Assignments : Problem solving is an essential part to learn mathematics. There will be weekly assignments. Late homeworks will not be accepted, but your bottom homework grade will be dropped. Please do not use this "chance" too early. Homework questions will be assigned each class and be collected by the following Thursday class. You should turn in all problems assigned the previous week. You are allowed (even encouraged!) to work together on homework questions. But each student must write up their own solutions, using their own words and notation.
Exams : There will be one midterm (June 7) and the comprehensive final (June 28). You are expected to take all exams at the scheduled time. Make-up exams are rarely given, and only in truly exceptional circumstances.
Worksheet/Diagnostic quiz/Feedback : There will be a worksheet each class and "feedback" at the end of the class.
Electronic Device: No electronic device is allowed to use in the class, including calculator, laptop, iSomething, and etc.
Grading Policy : Your final grade for the course will be determined according to the following scale:

- Assignments 40 %
- Mid term 20 %

- Final exam 30 %
- Class participation 10 %

Academic Honesty Policy : Given the sterling qualities of character to be found in each and every student at Boston University, it is certainly unnecessary to mention that plagiarism and cheating are not only dishonest and immoral, but are also against the policies of Boston University. Please keep in mind that, in the highly unlikely event that you do choose to plagiarize or cheat, you will be referred to the University Academic Standards Committee for disciplinary action. For details, see: `http://www.bu.edu/academics/resources/academic-conduct-code/`