Number theory
MATH-UA 248.001
Fall Semester 2014

Instructor: Sophie, Marques,
Office 519 CIWW,
Phone number (212) 998-3136,
Mail: marques@cims.nyu.edu
Office hours Wednesday 2:00–3:00 or by appointment.
Website: https://files.nyu.edu/sm5439/public/NT.html

Time and place: MW 3:30PM–4:45PM, CIWW 201. First class: Wednesday 3 September.

Exams: There will be one in-class midterm and a final. The midterm is scheduled for Wednesday 15 October during the class. According to the presently posted schedule, the final exam will take place on Wed. 12/17 4:00 PM 5:50 PM

Recitation Section: F 8:00AM–9:15AM WWH 201. Instructor: Edgar Costa. First meeting Friday 12 September.


Program: The core of the course is an introduction to the theory of number theory. We will follow the Jones’ book, Chapter 1 to 8 with some supplemental material (notes for the course available on my website). We will learn how to solve linear congruence equations and we will determine when a quadratic congruence equation is or not solvable characterizing the quadratic residues. We will study the ring \( \mathbb{Z}/n\mathbb{Z} \) and the structure of its units, leading us to introduce an arithmetic function, which will be the Euler function. We will also consider some other arithmetic functions underlying the special role of the Möbius function. Finally, we will study continued fraction and consider some non-linear diophantine equations.

Practical matters. I will make use of my website. In particular, problem sets will be posted there and not distributed in class. I plan to give weekly homework assignments, to be posted on Mondays and due to the next Monday during the class. There will be 4 quizzes during the semester. Grading will be based roughly 50% on the final, 30% on the midterm, 10% on the homework and 10% on the quizzes. The first problem set will be due on Monday 16 September.

Collaboration on homework is encouraged, but solutions are to be written up separately. If you do work with others, please write on your solution paper the names of your collaborators.