

SYLLABUS
MATH-UA.248.001 THEORY OF NUMBERS

Weekly breakdown of topics covered

1. divisibility theory,
2. Euclidean algorithm,
3. congruences,
4. prime numbers,
5. Fermat's theorem,
6. applications to cryptography,
7. quadratic reciprocity,
8. classical number-theoretic functions,
9. primitive roots and sums of squares,
10. prime number theorem,
11. Diophantine equations,
12. continued fractions,
13. diophantine approximation,
14. transcendence of e and π .

Textbooks

1. Joseph H. Silverman, *A friendly introduction to Number Theory*.
2. David Burton, *Elementary Number Theory*.

Grading breakdown

1. Homework: 30%;
2. Midterm: 30%;
3. Final: 40%.