# Math 407: Introduction to the Theory of Numbers
# Math 574: Number Theory
# Spring 2018

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Course web page: www.math.binghamton.edu/mazur/teach/40718/40718.html

**Office Hours: M, F 12:00-1:00; T 1:40-2:40** . Also by appointment.

**Textbook:**
*Elementary Number Theory*, by James K. Strayer.

**Additional Textbook:**
*Elementary Number Theory*, by Underwood Dudley.

**This course is a 4-credit course, which means that in addition to the scheduled lectures, students are expected to do at least 9.5 hours of course-related work each week during the semester. This includes things like: completing assigned readings and homeworks, studying for quizzes and examinations, and other tasks that must be completed to earn credit in the course.**

**Course content:** This is a first course in elementary number theory. Our main goal is to understand the fundamental theorems about prime numbers and divisibility of integers. Although the mathematical prerequisites for the course are few, there will be many proofs done in class, and you will also need to prove results on your own in the homework and provide (simpler) proofs on exams. The core topics covered are divisibility, prime numbers, congruences, the theorems of Fermat, Euler, and Wilson, primitive roots for primes, the law of quadratic reciprocity, and continued fractions. Additional topics (not covered in the textbooks) may be discussed in class.

**Homework and Classwork:** Homework will be assigned regularly. Assignments and corresponding due dates will be posted on the course web page. Solutions will be collected but usually will not be graded; solutions will be discussed at the beginning of each class according to the interests of the students. While attempts to solve homework problems will not directly affect grading, they provide the best way to learn the material

and to prepare for exams. The number of homeworks attempted and the quality of the attempts will be considered as a factor in determining your course grade if you are a borderline case. Quizzess will be given frequently.

**Tests:** There will be two tests and the final exam. In addition, there will be quizzes given at least once a week. **No make-up tests or quizzes unless there are some extraordinary circumastances. Any such circumstances should be well documented and communicated to your instructor ahead of time.**

**Any request for special accomodation (for example, from the Services for Students with Disabilities (SSD)) has to be communicated to your instructor ahead of time (ideally at the beginning of the semester). .**
**Dates of the tests:**

- Thursday, March 15
- Thursday, April 26

**Date of the final exam:** TBA.

**Grading Policy:** The final grade will be based on the test scores, the final exam and the quizzes weighted as follows: each in-class test 20% , the final 45% and the total for all quizzes, homework, and classwork 15%.

**Academic Honesty:** All students are expected to adhere to the Student Academic Honesty Code.

**Final Remarks:** You are responsible for attending class, behaving in class, taking class notes, doing homework problems, asking for and coming in for help, etc.; in the end, you are responsible for your success in this class so work hard!

Students are expected to attend every scheduled class. Instructors have the right to deny a student the privilege of taking the final examination or of receiving credit for the course, or may prescribe other academic penalties if the student misses more than 25 percent of the total class sessions. Excessive tardiness may count as absence. [University Bulletin]

Late arrivals, early departures, cell phone conversations, eating, or drinking in class are not appropriate. It is your responsibility to keep informed of all announcements, syllabus adjustments, or policy changes made during scheduled classes and/or posted on course web-page.

**Both class attendance and systematic work on the homework problems are crucial for the success in this class.**

**All the above information is tentative. I reserve the right to make reasonable changes if I find it necessary.**