

Math 311 – Intro to Number Theory

Fall 2016; Section 502

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Course website. <http://math311.straub.link>

Office. ILB 313

Office phone. (251) 460-7262 (please use e-mail whenever possible)

Office hours. TR, 9:20-12:20pm, 1:50-2:30pm, or by appointment

however, no office hour Thursdays, 9:55-11:10am

Class schedule. TR, 4:30-5:45pm, in ILB 345.

Overview. This course is an introduction to classical number theory with a balance between theory and computation. Topics include mathematical induction, divisibility properties, properties of prime numbers, the theory of congruences, number theoretic functions, and continued fractions.

Textbook. *Elementary Number Theory*, by David M. Burton (McGraw Hill, 7th Ed., 2011)

Course format. Web-enhanced.

Pre-requisite. C or better in Calculus II (Math 126).

Grading

Exams. There will be three in-class midterm exams and a comprehensive final exam. Notes, books, calculators or computers are not allowed during any of the exams.

Our **tentative** exam schedule is:

- Midterm Exam 1: Tuesday, September 20
- Midterm Exam 2: Thursday, October 20
- Midterm Exam 3: Thursday, November 17
- Final Exam: Tuesday, December 6 — 3:30pm-5:30pm

Homework. Homework will be assigned weekly and graded. Homework that is turned in up to two days after the due date will receive half credit only, homework that is turned in more than two days after the due date will not be accepted.

Grades. Your grade will be based on the total sum of your scores on the midterm exams, homeworks, and the final exam.

- Midterm Exams: 55% in total (25% for the 2 best exams; 5% for the worst)
- Homework: 15%
- Final Exam: 30%

The resulting numerical score is then translated to your semester grade as follows:

[90, 100]: A, [80, 90): B, [70, 80): C, [60, 70): D, [0, 60): F.

Make-up policy. There will be no make-ups for missed midterms or homework assignments.

The lowest homework score will be dropped (and additional missed scores are dropped if a valid excuse is presented). If a midterm is missed and appropriate documentation (e.g. a doctor's note) is presented in a timely manner, then the corresponding exam score will be replaced with the final exam score. Otherwise, the score for the missed exam will be recorded as zero.

Online grades. Your grades will be posted to Sakai. Please check your grades weekly at <https://ecampus.southalabama.edu> and report any discrepancies within two weeks.

Dropping. The final drop date is Friday, October 21. Please speak with me (and/or your advisor) before making a final decision to drop. Ideally, talk to me as soon as you are getting behind, so I can help you complete the course successfully.

Course organization

Online material. This syllabus as well as relevant information and material for this course can be found at our course website.

Attendance. Attendance of all lectures is mandatory and roll will be taken. You are responsible for finding out what you missed on days when you were unable to attend.

Let X be the number of times you miss class without excuse throughout the semester.

- If $X \leq 3$, then your lowest homework score will be dropped.
- If $X > 6$, then your overall semester grade will be decreased by a full letter grade.

Students are expected to be on time in class. Frequent late arrivals of a student to the classroom will be considered a disruption and a penalty may be applied in this circumstance.

Cell phones and other electronic devices. The use of cell phones and other electronic devices, such as laptops, is not acceptable during lecture and is reserved for emergencies.

Tutoring lab. The department offers a tutoring lab in room ILB 235 to all students taking mathematics and statistics classes. There is no lab fee. Please check the bulletin board outside ILB 235 for details.

Dates of interest.

- Monday, September 5: Labor Day
- Thursday–Friday, October 6–7: Fall Break
- Friday, October 21: Last day to drop
- Tuesday–Sunday, November 22–27: Thanksgiving Holidays
- Friday, December 2: Last day of classes
- December 5–8: Final examinations

Further notices

Changes. Not all classes progress at the same rate. Thus course requirements and policies might have to be modified as circumstances dictate. You will be given notice if the course policies need to be changed.

Goals and objectives. The main objective of this course is to familiarize students with several number theoretic facts and techniques, and to help students experience both the pleasure of experimentation and the thrill of discovery. Moreover, students are expected to understand and construct proofs. By presenting a variety of accessible topics, the course not only gives an overview of the nature and utility of number theory, but also shows some of its beauty.

Academic disruption policy. The University of South Alabama's policy regarding Academic Disruption is found in *The Lowdown*, the student handbook:

<http://www.southalabama.edu/lowdown/academicdisruption.shtml>

Disruptive academic behavior is defined as individual or group conduct that interrupts or interferes with any educational activity or environment, infringes upon the rights and privileges of others, results in or threatens the destruction of property and/or is otherwise prejudicial to the maintenance of order in an academic environment.

Students are expected to be cordial, courteous and respectful of faculty members and fellow students.

Academic Conduct Policy. The University of South Alabama's policy regarding Student Academic Conduct Policy is found in *The Lowdown*:

<http://www.southalabama.edu/lowdown/academicconductpolicy.shtml>

The University of South Alabama is a community of scholars in which the ideals of freedom of inquiry, freedom of thought, freedom of expression, and freedom of the individual are sustained. The University is committed to supporting the exercise of any right guaranteed to individuals by the Constitution and the Code of Alabama and to educating students relative to their responsibilities.

Disability accommodations. In accordance with the Americans with Disabilities Act, students with bona fide disabilities will be afforded reasonable accommodations. The Office of Special Student Services (OSSS) will certify a disability and advise faculty members of reasonable accommodations. If you have a specific disability that qualifies you for academic accommodations, please notify the professor and provide certification from the Office of Special Student Services. OSSS is located at 5828 Old Shell Road at Jaguar Drive, (251-460-7212).

Online writing support. The University of South Alabama provides online writing tutoring services through SMARTHINKING, an online tutoring service, available at <http://services.smarthinking.com>.

Welcome to Number Theory!

...and please ask anytime if you have questions.