Math 311 – Intro to Number Theory
Fall 2020; Section 502

Instructor. Dr. Armin Straub
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    Email is the best way to get in touch with me. I strive to reply as soon as possible and definitely within 24 hours; if you don't hear back within 24 hours, please check the email address and contact me again (most likely, something went wrong).
Course website. http://math311.straub.link
Office. MSPB 313
Office phone. (251) 460-7262 (please use e-mail whenever possible)
Office hours. TR, 11:00am-1:15pm; TR, 5:45pm-6:30pm
    Held virtually using Zoom; please make an appointment by email at least 2 hours in advance.
Class schedule. TR, 4:30-5:45pm, in MSPB 345 (however, see COVID adjustments)

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)
    The textbook is a nice additional resource but is not required for the course.
Course format. Web-enhanced
Pre-requisite. C or better in Calculus II (Math 126)

Grading

Exams. There will be two midterm exams and a comprehensive final exam, which will be delivered online. Our **tentative** exam schedule is:

- Midterm Exam 1: Thursday, October 1   (postponed from 9/29 due to Sally)
- Midterm Exam 2: Tuesday, November 3
- Final Exam: Thursday, November 19

Homework. Regular homework is assigned and needs to be submitted online. You have an unlimited number of attempts (a 15% penalty applies if homework is submitted after the posted due date, unless an extension has been granted due to special circumstances). Only the best score is used for your grade. Most problems have a random component (which allows you to continue practicing throughout the semester without putting your scores at risk).
(The homework system is written by myself in the hope that you find it beneficial. Please help make it as useful as possible by letting me know about any issues!)
Grades. Your grade will be based on the total sum of your scores on the midterm exams, homework, and the final exam.

- Midterm Exams: 50% in total
- Homework: 20%
- 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.
Bonuses. You can earn bonus points by finding mathematical typos in the lecture notes, or by reporting mistakes in the homework system. Each bonus point is worth 1% towards a midterm exam.
Make-up policy. There will be no make-ups for missed midterm exams. If an exam 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. Homework scores are available on our course website. Exam grades will be posted to USAonline: `https://usaonline.southalabama.edu`

Dropping. The final drop date is Friday, October 23. 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. In particular, homework and sketches of each lecture will be posted there, as well as recordings covering key points.

COVID adjustments. In-person class meetings are restricted by university regulations. In our case, at most 12 students are allowed to attend each time.

- A schedule of upcoming class is posted on our course website. Some of the in-person class meetings will be replaced with online lectures (either held synchronously via Zoom or via prerecorded lectures).
- Attendance of in-person classes is not required.
- In order to attend an in-person meeting, you must sign up for a cohort by sending me an email. You may attend in-person meetings only on those days designated to your cohort, as reflected by the schedule. Cohort membership is first come, first served; if your cohort of choice is full, you will be able to sign up for another cohort.
- If you are signed up for a cohort and fail to attend without informing me in advance, you will be removed from the cohort. After three days, you may sign up again (but, if full, you might not be able to get back into the previous cohort).
- Lecture recordings will be posted which you can view at your own time. These replace the classes you cannot attend. The in-person meetings will be used mainly to keep sight of the big picture and to address any questions you have.
- You are expected to have viewed all relevant lecture recordings before attending an in-person class.
- In addition to during the in-person meetings, you will be able to ask questions during office hours which will be held virtually.
- Exams will be held online during the scheduled class times.

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.

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.

Additional Academic Course Policies. Information on Student Disability Services, Academic Disruption Policy and Class Demeanor, Student Academic Conduct Policy, Operational Disruptions, and other university policies are posted on USAonline.

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Welcome!

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