MATH 4400 Introduction to Number Theory, Fall 2020

Class Meetings: MWF 10:45-11:35 am online via Zoom. Link on Canvas Home Page.
Instructor: Leo Herr
Email: herr@math.utah.edu
Office Hours: Times and Zoom link on Canvas Home Page.
Text: Numbers, Groups, and Cryptography, by Gordan Savin

Course Information: Math 4400 Introduction to Number Theory is a 3-credit course.
Prerequisite Information: C or better in Math 2270 or Math 2250.
Course Description: Euclidean algorithm, elementary group and ring theory, chinese remainder theorem, modular arithmetic, frobenius, quadratics, zeta functions and Dirichlet L-series, Mersenne Primes, primality tests, roots of unity, cyclotomics, quadratic reciprocity, Fermat primes, sums of squares, Gaussian integers, Pell Equations, Dirichlet approximation, continued fractions, etc.

Canvas: Canvas will be used for posting course announcements, homework assignments, grades, files and any relevant supplementary material. You are also welcome to make use of the Canvas discussion board to discuss course problems or topics. You can access the Canvas page through CIS or by logging in at utah.instructure.com. Students should check the Canvas page regularly for course information and resources. Email notifications and correspondence may be sent to the student’s UMail address ([u-number]@utah.edu); this email account must be checked regularly.

Grading: The following are the grade components and the percentage each contributes to a student’s final grade:

- **Homework Assignments (40%)**: Homework is assigned each Friday due the following Friday at the start of class. Exceptions are possible, including occasional extensions. Homework can be on anything covered until the class before it is due. Students are expected to *stay ahead of class* in reading the text.

  Three of the problems will be selected for grading by the grader. The lowest homework score will be dropped. Homework must be scanned/photocopied and writing must be legible. Late homework is not accepted without a valid excuse.

- **Quizzes (30%)**: Quizzes will periodically be given to ensure proficiency in the material covered. They may take several forms, including in-class or at-home quizzes and group projects.

- **Final Exam (30%)**: A *comprehensive* exam will be given in the official time slot allocated for this class.
  
  Final Exam: Tuesday December 8, 2020: 10:30 am – 12:30 pm

  Students with university excused absences (band, debate, student government, intercollegiate athletics) should make alternate arrangements with me as soon as possible if the absence interferes with any course components.

  Final course letter grades will be determined according to the percentage earned in the class. Cutoffs may depend on the performance of the class as a whole.

Additional Resources

- **Tutoring Center & Computer Lab**: There is free tutoring in the T. Benny Rushing Mathematics Student Center (room 155, the lower level between JWB and LCB), as well as a computer lab. For more information see [http://www.math.utah.edu/undergrad/mathcenter.php](http://www.math.utah.edu/undergrad/mathcenter.php)

- **Private Tutoring**: ASUU Tutoring Center, 330 SSB. There is also a list of tutors at the math department office JWB 233.
Student Responsibilities: All students are expected to maintain professional behavior in the classroom setting, according to the Student Code, spelled out in the Student Handbook. Students have specific rights in the classroom as detailed in Article III of the Code. The Code also specifies proscribed conduct (Article XI) that involves cheating on tests, plagiarism, and/or collusion, as well as fraud, theft, etc. Students should read the Code carefully and know they are responsible for the content. According to Faculty Rules and Regulations, it is the faculty responsibility to enforce responsible classroom behaviors, and I will do so, beginning with verbal warnings and progressing to dismissal from and class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee. http://regulations.utah.edu/academics/6-400.php

ADA Statement: The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability & Access, 162 Olpin Union Building, 801-581-5020. CDA will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in alternative format with prior notification to the Center for Disability & Access.

Addressing Sexual Misconduct: Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veterans status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

Student Names and Personal Pronouns: Class rosters are provided to the instructor with the student’s legal name as well as Preferred first name (if previously entered by you in the Student Profile section of your CIS account). While CIS refers to this as merely a preference, I will honor you by referring to you with the name and pronoun that feels best for you in class, on papers, exams, group projects, etc. Please advise me of any name or pronoun changes (and update CIS) so I can help create a learning environment in which you, your name, and your pronoun will be respected. If you need assistance getting your preferred name on your UIDcard, please visit the LGBT Resource Center Room 409 in the Olpin Union Building, or email bpeacock@sa.utah.edu to schedule a time to drop by. The LGBT Resource Center hours are M-F 8am-5pm, and 8am-6pm on Tuesdays.

Wellness Statement: Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student’s ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness at www.wellness.utah.edu or 801-581-7776.

Safety Statement: The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit safeu.utah.edu.