

George Mason University
Department of Mathematical Sciences

Number Theory

Fall 2022

Course: MATH-301, section 001.

Total Credits: 3.

Purpose: An introduction to the theory and properties of the whole numbers. Presentation of classical proofs, appealing results and practical aspects, including prime numbers, factorization and Diophantine equations.

Prerequisites: Six hours of math at GMU. Two 3-credit math courses at GMU is sufficient. For precise information goto:

<https://catalog.gmu.edu/courses/math/> and look up “MATH 301”.

Times and Places: TR 12:00 noon – 1:15 pm Nguyen Engineering Building (ENGR) 1108.

Period: From August 22. to December 14.

Professor:

Geir Agnarsson
Exploratory Hall 4412
email: gagnarss@gmu.edu

Office-hours: TR 11:00 am – 12:00 noon, or by appointment.

Required Text: Kenneth H. Rosen, *Elementary Number Theory, and its applications*. Pearson, Addison Wesley, (2011), 6th edition.

Material: Chapters: 1, 3, 4, 6, 7, 9, 11, 13 if time allows.

Blackboard (Bb): All handouts for this class will be posted as pdf-files on the class Bb site. Please check this Bb site on a regular basis, since short announcements and additional info might be posted there as well.

Homework (HW): HW will be assigned every week on Thursdays. They are to be handed in the following Tuesday, in the beginning of the class by 12:00 noon. Together with the homework problems, there will be a collection of additional problems to be discussed in class, if necessary. The problems to be handed in for grading will be labeled *homework*, and the additional exercises will be labeled as *other*.

Examinations: There will be one midterm exam and a final exam. The midterm will cover the material up to that point in lecture, it will be one hour long. The final will serve as a 2nd midterm exam and will cover material from the midterm exam up to the last lecture. Both exams will take place in the classroom.

Midterm: Thursday, October 20, 12:15 - 1:15 pm, ENGR 1108.

Final: Thursday, December 8, 10:30 am - 11:30 pm, ENGR 1108.

Grading: The biggest number of the following:

- 1: HW 20% + MT 30% + FL 50%
- 2: HW 20% + MT 50% + FL 30%

Policy:

- Absence from an exam, without proper explanation, is an automatic zero on that exam.
- Make-up exams will be considered on an individual basis.

Collaboration: Needless to say, collaboration of any kind during an exam (quiz, midterm or final) is cheating. You are to abide by the GMU's Honor Code, see oai.gmu.edu/mason-honor-code/

During an exam you are not allowed to help anyone nor receive any help from anyone, except possibly from the exam proctor. You also cannot use any helping device, be it notebooks, text books, cheat-sheets or programmable calculators, unless otherwise clearly stated on the exam.

HOWEVER, healthy discussion about the homework problems among your classmates is allowed and encouraged! Be sure though, to write your own solutions.

Courtesy: Be courteous to your fellow classmate. During lectures be quiet and please turn off your cellular phones!

Geir Agnarsson
August 22, 2022