Course and contact information:

Course: CS 2312, Discrete Structures II

Semester: Fall 2020

Lectures: Tuesdays and Thursdays, 4:45-6

Discussion Sections (underline: beginning 14 September, attend the one you are registered for):

12:45-2 pm (Monday); 9-10:15 am (Wednesday); 12:45-2 pm (Friday)

Location: online

Piazza for discussions: piazza.com/gwu/fall2020/csci2312

If you have problems with Piazza, email team@piazza.com

Instructor:

Name: Poorvi L. Vora

GW E-mail: poorvi@gwu.edu

Remote office hours: Tuesdays, 12:45-2; Thursdays: 11-12:30

Office hours will be held at:
https://zoom.us/j/6056693556?pwd=RzNVZng0N0x6YzVKVVlQdnhVZXR6dz09

Undergraduate TA: Grant McClearn

Remote office hours: Mondays, 9:30-11:30 am

Office hours will be held at:

University Teaching Fellows or LAs:

- Oliver Broadrick

  Remote office hours: Fridays, 2-4 pm

  Office hours will be held at:

- Claire Furtick

  Remote office hours: TBD

  Office hours will be held at:

Graduate TAs: Shiva Omrani and Wei Guo will not hold office hours

Course prerequisites:

CSci 1311 (Discrete Structures I) or equivalent discrete mathematics; Math 1231/1221 or single-variable calculus.

Learning outcomes that state descriptions of behaviors or skills that students will be able to demonstrate at the end of the course or unit:

This is a required course for the BS in Computer Science.

1. Specific goals for the course
   1. specific outcomes of instruction, ex. The student will be able to explain the significance of current research about a particular topic:

      In this course, students will:

      1. Understand basic concepts in algebra and number theory: algebraic structures, properties of integers (e.g. divisibility, equivalence modulo m).
      2. Understand basic concepts in graph theory: coloring, planar graphs.
      3. Understand basic concepts in asymptotics
      4. Understand applications of discrete math, algebra and number theory concepts to problems in computing.
      5. Develop an understanding of how to read and construct valid mathematical statements, arguments (proofs) and understand mathematical statements (theorems).

   2. explicitly indicate which of the student outcomes listed below are addressed by the course: a, 3g2 (through the writing of proofs)

Note: here is the list of student outcomes:

*   a   an ability to apply knowledge of mathematics, science and engineering*
*   b   an ability to design and conduct experiments, as well as to analyze and interpret data*
*   c   an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability*
*   d   an ability to function on multidisciplinary teams*
*   e   an ability to identify, formulate, and solve engineering problems*
*   f   an understanding of professional and ethical responsibility*
*   g   an ability to communicate effectively (3g1 orally, 3g2 written)*
*   h   the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context*
*   i   a recognition of the need for, and an ability to engage in life-long learning*
*   j   a knowledge of contemporary issues*
*   k   an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.*

2. Brief list of topics to be covered
   1. Groups, rings, fields; proofs of simple properties
   2. Number theory: multiplicative inverses in rings; euclidean algorithms for gcd and inverses mod m
   3. Applications of number theory to encryption and decryption
   4. Elementary graph theory: coloring, planar graphs.
   5. Asymptotics.

Average amount of direct instruction or guided interaction with the instructor and average minimum amount of independent (out-of-class) learning expected per week:

Students will receive 150 minutes of lecture and 75 minutes of discussion instruction, and are expected to spend an additional 300 minutes (5 hours) studying on their own per week.

Required textbooks and/or other materials and recommended readings:

Susanna Epp, "Discrete Mathematics with Applications" and handouts and videos linked off course website.

For week-by-week schedule of topics to be presented see Piazza

The university will schedule the final exam.

Grading

HWs (25%), quizzes and participation in lectures and online on Piazza (20%), two tests and a final (55%).

You will often be assigned reading before class. There will be a short quiz at the beginning of each discussion session, a longer quiz at the end of each Thursday class, and a HW assigned most Thursdays due the following Tuesday. To be fair to students in all discussion section, TAs will not answer questions about the HW in any discussion section. Quizzes and HWs may cover any material that was taught in class the previous week, and can include questions on reading material even if assigned on the most recent weekend, and even if it was not taught in class.

University policies

Use of Electronic Course Materials and Class Recordings

Students are encouraged to use electronic course materials, including recorded class sessions, for private personal use in connection with their academic program of study. Electronic course materials and recorded class sessions should not be shared or used for non-course related purposes unless express permission has been granted by the instructor. Students who impermissibly share any electronic course materials are subject to discipline under the Student Code of Conduct. Please contact the instructor if you have questions regarding what constitutes permissible or impermissible use of electronic course materials and/or recorded class sessions. Please contact Disability Support Services if you have questions or need assistance in accessing electronic course materials.

University policy on observance of religious holidays

In accordance with University policy, students should notify faculty during the first week of the semester of their intention to be absent from class on their day(s) of religious observance. For details and policy, see "Religious Holidays" at provost.gwu.edu/policies-procedures-and-guidelines

Academic Integrity Code

Academic Integrity is an integral part of the educational process, and GW takes these matters very seriously. Violations of academic integrity occur when students fail to cite research sources properly, engage in unauthorized collaboration, falsify data, and in other ways outlined in the Code of Academic Integrity. Students accused of academic integrity violations should contact the Office of Academic Integrity to learn more about their rights and options in the process. Outcomes can range from failure of assignment to expulsion from the University, including a transcript notation. The Office of Academic Integrity maintains a

permanent record of the violation.

More information is available from the Office of Academic Integrity at studentconduct.gwu.edu/academic-integrity. The University's "Guide of Academic Integrity in Online Learning Environments" is available at studentconduct.gwu.edu/guide-academic-integrity-online-learning-environments. Contact information: rights@gwu.edu or 202-994-6757.

See also: **The George Washington University Code of Academic Integrity** at:
https://studentconduct.gwu.edu/sites/studentconduct.gwu.edu/files/downloads/160912 Code of Academic Integrity - Final.pdf
and Academic Integrity Policy, Department of Computer Science GW at:
https://www.cs.seas.gwu.edu/academic-integrity-policy

Course specific instructions regarding collaboration:

All examinations, papers, and other graded work products and assignments are to be completed in conformance with The George Washington University Code of Academic Integrity. While you may study in groups, **you may not discuss HWs among yourselves. Each student is expected to work out the HW problems and write his or her own HW out independently. You may not look for HW answers anywhere other than in the text and in the notes and handouts provided in class or links provided on the course website. While you are encouraged to discuss the class material on Piazza, you may not discuss HW problems nor give out hints to the HW problems on Piazza.**

You may not collaborate with others on the final, the tests or the quizzes unless explicitly asked to work on a group quiz.

Any violations will be treated as violations of the Code of Academic Integrity.

Support for students outside the classroom

Virtual academic support
A full range of academic support is offered virtually in fall 2020. See coronavirus.gwu.edu/top-faqs for updates.

Tutoring and course review sessions are offered through Academic Commons in an online format. See academiccommons.gwu.edu/tutoring

Writing and research consultations are available online. See academiccommons.gwu.edu/writing-research-help

Coaching, offered through the Office of Student Success, is available in a virtual format. See studentsuccess.gwu.edu/academic-program-support

Academic Commons offers several short videos addressing different virtual learning strategies for the unique circumstances of the fall 2020 semester. See academiccommons.gwu.edu/study-skills. They also offer a variety of live virtual workshops to equip students with the tools they need to succeed in a virtual environment. See tinyurl.com/gw-virtual-learning

Disability Support Services (DSS) 202-994-8250

Any student who may need an accommodation based on the potential impact of a disability should contact Disability Support Services to establish eligibility and to coordinate reasonable accommodations. disabilitysupport.gwu.edu

Counseling and Psychological Services 202-994-5300

GW's Colonial Health Center offers counseling and psychological services, supporting mental health and personal development by collaborating directly with students to overcome challenges and difficulties that may interfere with academic, emotional, and personal success. healthcenter.gwu.edu/counseling-and-psychological-services

Safety and Security

- In an emergency: call GWPD 202-994-6111 or 911
- For situation-specific actions: review the Emergency Response Handbook at safety.gwu.edu/emergency-response-handbook
- In an active violence situation: Get Out, Hide Out, or Take Out. See go.gwu.edu/shooterpret
- Stay informed: safety.gwu.edu/stay-informed