

## MATH 409: Discrete Optimization – Spring 2024

**Lecture** MWF 2:30pm - 3:20pm in MEB 248

**Instructor:** Cynthia Vinzant (vinzant@uw.edu, PDL C-439)

**Instructor Office Hours:** MW 1:30 - 2:20pm in LOW 219

**Teaching Assistant:** Cameron Wright (wrightc8@uw.edu, PDL C-20)

**TA Office Hours:** Th 10:30am-12:30pm in PDL C-20

**Textbook:** There is no official textbook for the class, but written lecture notes and other suggested reading will be posted on the course website (and freely available).

**Course website:** <https://sites.math.washington.edu/~vinzant/teaching/409/>

**Prerequisite:** Prerequisite: a minimum grade of 2.0 in Math 407; and either a minimum grade of 2.0 in Math 300, or a minimum grade of 2.0 in Math 334. A good working knowledge of Math 208/308 (Linear Algebra) will also be helpful.

**Topics covered:** computational complexity, minimum spanning trees, shortest paths, max flow problems, min cost flow problems, matchings, traveling salesman problem, integrality of polytopes.

**Emails:** I will not respond to math questions via email. Please post questions (privately or publicly) on the Ed Discussion board.

**Homework:** There will be homework assignments due weekly on (most) Thursdays via Gradescope. You may discuss the problems with other students, but should write up solutions completely on your own. At the end of the quarter, the lowest homework grade will be dropped.

**Late homework submission:** GradeScope will accept submissions until the end of Sunday. Every student is allowed 5 late days (120 hours) in total without any prior approval. Submissions turned in late after this total has been reached will not receive credit. Except in extraordinary circumstances, no other late homework will be accepted.

**Exams:** There will be one midterm exam in class on **Wednesday, May 1**. The final exam will be cumulative, held **Tuesday, June 4, 2:30-4:20pm** in MEB 248. One single-sided page notes on standard letter paper will be allowed for the midterm and one double-sided page notes on standard letter paper will be allowed for the final exam. No other outside resources (notes, books, etc.) will be allowed.

**Grading:** Your grade for this class will be based on your scores on homeworks (30%), midterm (30%), and the final exam (40%). If your score on the final exam is higher than your score on the midterm, it will be used to replace your score on the midterm. If you get a total score of 50% or more in the course, you are guaranteed at least a 2.0.

**Academic Integrity:** The University takes academic integrity very seriously. Behaving with integrity is part of our responsibility to our shared learning community. If you are uncertain about if something is academic misconduct, ask me. Acts of academic misconduct may include but are not limited to cheating (working collaboratively on assignments/exams and discussion submissions, sharing answers and previewing exams) plagiarism (representing the work of others as your own without giving appropriate credit) and unauthorized collaboration (working with each other on assignments). Concerns about these or other behaviors prohibited by the Student Conduct Code will be referred for investigation and adjudication by (include information for specific campus office). Students found to have engaged in academic misconduct may receive a zero on the assignment (or other possible outcome).

**Access and Accommodations:** Your experience in this class is important to me. If you have already established accommodations with Disability Resources for Students (DRS), please communicate your approved accommodations to me at your earliest convenience so we can discuss your needs in this course.

If you have not yet established services through DRS, but have a temporary health condition or permanent disability that requires accommodations (conditions include but not limited to; mental health, attention-related, learning, vision, hearing, physical or health impacts), you are welcome to contact DRS at 206-543-8924 or [uwdrs@uw.edu](mailto:uwdrs@uw.edu) or [disability.uw.edu](http://disability.uw.edu). DRS offers resources and coordinates reasonable accommodations for students with disabilities and/or temporary health conditions. Reasonable accommodations are established through an interactive process between you, your instructor(s) and DRS. It is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law.

**Religious Accommodations:** Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW's policy, including more information about how to request an accommodation, is available at Religious Accommodations Policy. Accommodations must be requested within the first two weeks of this course using the Religious Accommodations Request form.