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M 361.01: Discrete Optimization

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M 361 – Discrete Optimization, Spring 2022

Contact information

- Instructor: Cory Palmer
- Office: 004E MATH
- E-mail: cory.palmer@umontana.edu
- Office hours: Friday 1:30-3 PM

Course description

Introduction to discrete optimization and modeling techniques with applications. Topics from combinatorics and graph theory, including enumeration, graph algorithms, matching problems and networks.

Learning outcomes

1. To learn techniques of discrete optimization and their applications;
2. To understand applications such as graph algorithms, minimum spanning trees, graph coloring, and matching theory;
3. To be able to develop appropriate mathematical models for “real-world” problems and find solutions using the techniques above.

Textbook

Discrete Mathematics – Elementary and Beyond by Lovász, Pelikán, Vesztergombi. We will cover chapters 7-14 and selected topics from the remaining chapters as time permits.

Homework

Homework will be assigned (roughly) every week. You may work in groups on the homework, but be sure to write up your own answers. Late homework will only be given partial credit and may not be given feedback. As a courtesy for unforeseen circumstances one homework grade will be dropped. Homework missed due to illness, etc (with proper documentation) will also be dropped. Homework will be graded both on correctness and clearness of arguments. Work that is too difficult to read may be marked off. Homework will be submitted online through [gradescope](https://gradescope.com) (<https://gradescope.com>).

Worksheet/Projects

There will be weekly in-class worksheet/projects assignments. I will organize the class into groups to work on these assignments. Completed worksheets will be due on gradescope roughly a week after they are assigned. Part of your grade on these assignments is participation, so it is important that you attend class regularly.

Written work

Written work (homework and worksheets/projects) must be typewritten. Typesetting in LaTeX is not mandatory, but highly recommended.

Final exam

The final exam is scheduled for 10:10-12:10 AM, Thursday, May 12. The University does not permit early final exams. Schedule your travel plans accordingly!

Grading

Your grade will be composed of: 40% homework, 40% worksheet/projects and 20% final exam. Letter grades and +/-s will be assigned according to the standard scale.

Class website

Homework assignments, practice problems, and assigned readings will be posted to Moodle. Check it regularly! Graded work will appear on gradescope.

Accommodations

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and the Office for Disability Equity (ODE). If you anticipate or experience barriers based on disability, please contact the ODE at: (406) 243-2243, ode@umontana.edu, or visit www.umt.edu/disability for more information. Retroactive accommodation requests will not be honored, so please, do not delay. As your instructor, I will work with you and the ODE to implement an effective accommodation, and you are welcome to contact me privately if you wish.

Academic honesty

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. You can find it in the [A to Z Index](#) on the UM home page.

Registration deadlines

Full registration deadlines can be found online on the [registrar calendar](#) (<http://www.umt.edu/registrar/calendar.php>).

COVID-19

- Mask use is required within the classroom or laboratory.
- If you feel sick and/or are exhibiting COVID-19 symptoms, please don't come to class and contact the Curry Health Center at (406) 243-4330.
- If you are required to isolate or quarantine, you will receive support in the class to ensure continued academic progress.
- UM recommends students get the COVID-19 vaccine. Please direct your questions or concerns about vaccines to Curry Health Center.
- Where social distancing (maintaining consistent 6 feet between individuals) is not possible, specific seating arrangements will be used to support contact tracing efforts.
- Class attendance and seating will be recorded to support contact tracing efforts.
- Drinking liquids and eating food is discouraged within the classroom.