

Spring 2-1-2018

# M 361.01: Discrete Optimization

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# M 361, Discrete Optimization, Spring 2018

## Contact information

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## 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.

## 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.

## Class schedule

MWF: 2:00-2:50 PM in MATH 103

## 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>).

## Practice problems

Practice problems will be posted to supplement the homework. These will not be collected but will help your understanding of the material. Exam material may also be drawn from these questions, so be sure to take the time to solve them.

## Worksheets

There will be weekly in-class worksheet 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.

## Midterm

There will be two in-class midterms. There are no makeup midterms. Midterms missed due to illness, etc (with proper documentation) will be replaced with the final exam grade.

## Final exam

The final exam is scheduled for 3:20-5:20 PM, Monday, May 7. The University does not permit early final exams. Schedule your travel plans accordingly!

## Grading

Your grade will be composed of: 35% homework/in-class assignments, 35% from midterms and 30% 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 Disability Services for Students. If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommason Center 154 or 406.243.2243. I will work with you and Disability Services to provide an appropriate modification.

## 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](http://life.umt.edu/vpsa/student_conduct.php) ([http://life.umt.edu/vpsa/student\\_conduct.php](http://life.umt.edu/vpsa/student_conduct.php)).

## Important dates

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

## 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.