

MATH 376 Graph Theory

Syllabus

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| Instructor: | Dr. Colin Starr | Office Hours: | MW 9-10AM and 1-2PM |
| Office: | Ford 213 | | TTh 1-2PM |
| Office Phone: | (503) 370-6419 | | F 9-10AM |
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Required Text: *Introduction to Graph Theory, Second Edition*, by Douglas B. West.

Goals: This is an introduction to Graph Theory, the study of abstract properties of “networks.” It is a young subject (as subjects in mathematics go) ideally suited for exploration and discovery. Problems in Graph Theory tend to be easy to state and understand even when they are extremely difficult to solve.

1. Students will become familiar with the concepts, methods, and terminology of Graph Theory. Specifically, students will work with the following: directed and undirected graphs, trees, matchings, connectivity, graph coloring, planar graphs, and some more specialized topics we will choose together.
2. Students will learn techniques of Discrete Mathematics appropriate to proving theorems in Graph Theory.
3. Students will learn how Graph Theory can be applied to solve problems.

Assessment: Your grade will be computed as follows:

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| Quizzes: | 10% |
| Homework: | 30% |
| Exams: | 2@ 20% each |
| Final Presentation: | 20% |

Quizzes: We will have an enormous amount of vocabulary in this course. To help keep you up to speed, we will have a short vocabulary quiz to each Tuesday. Each quiz will be cumulative.

Homework: I will assign homework from the textbook weekly. I encourage you to work together on the homework in groups of whatever size you find most productive. However, please be aware that **your write-up must be your own**. Please use the `\usepackage{setspace}` `\doublespacing` options in your preamble to give me enough room for comments. You may use the `\vspace*{2in}` command to leave space and draw in pictures by hand. Also, please use a 12-point font and use a printer that does not print faded text! The course website has a homework template you can use.

Midterm Exam: There will be one midterm exam worth 20% of your grade. It will be a take-home exam so you have plenty of time to think about how to solve the problems. The midterm is tentatively scheduled for the week of March 5.

The take-home final, also worth 20% of your grade, will be due at our scheduled final exam time, which ends at 11:00 AM on Friday, May 5.

Final Presentation: I will provide a list of suggested topics and resources for some additional topics in Graph Theory. You will team up with a classmate and research the topic, preparing a Beamer presentation to be given during the last few days of class. Each presentation is to be about 30 minutes.

Attendance at the Math Department Colloquium: According to math department policy, since you are enrolled in a 300-level mathematics course, you are required to attend at least 3 mathematics department colloquium talks. Although there is no set number of points attached to this component, it is one of the factors that can determine the difference in +/- grades. (For example, Student A with 90% and no colloquia attended might get an A-, while Student B with 90% and 3 colloquia attended might get an A.)

Please note: Written responses to all questions must be in complete sentences. I expect correct use of grammar, spelling, and punctuation; your grade will reflect this! I also expect your work to be neat.

Special Needs: If you have special needs (e.g., for a documented disability), it is your responsibility to approach me at least a day in advance of the need for accommodation. To receive accommodation, you must

be registered with Disability Services; this office is located in Bishop Health Center in Baxter Hall. (Phone: (503) 370-6471.)

Cheating: Cheating will not be tolerated. The minimum penalty for cheating is a 0 on the assignment and a formal notification to the dean. I encourage you to work together on your homework, but your final write-up **must** be your own. **NOTE:** It is your responsibility to avoid even the **appearance** of cheating. See the website below for the Willamette policy on cheating and plagiarism.

http://www.willamette.edu/cla/catalog/resources/policies/plagiarism_cheating.php

Classroom Comportment: We will all make mistakes, and these are an essential part of learning. The classroom environment must be tolerant and welcoming so that everyone feels free to contribute without fear of ridicule or harassment. Treat everyone with respect, and we can all learn from each other.

General Info: Please take advantage of my office hours. I can't help you if you won't come see me! The times above are times I will be in my office (or nearby), but you may stop by any time during the day. If I am there and have the time, I will help you. Also: Red Vines.