M 485, Graph Theory, Fall 2017

Contact information
- Instructor: Cory Palmer
- Office: 004E MATH
- E-mail: cory.palmer@umontana.edu
- Office hours: TBA

Course description
Theory and applications of graphs. Topics chosen from trees, matchings, connectivity, coloring, planarity, Ramsey theory, random graphs, combinatorial designs and matroid theory.

Textbook
A First Course in Graph Theory by Chartrand and Zhang. We will cover most chapters 1-2, 4-10. There may also be supplementary readings from other sources. These will be provided to the students as needed.

Class schedule
MWF: 12:00-12:50 PM in MATH 108

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).

LaTeX
Written work must be typeset in LaTeX. For those students who have not used LaTeX, I will organize a short tutorial and give a template file. Fortunately, the subject of graph theory is not notation intensive and is therefore a great place to start learning LaTeX.

Practice problems
Practice problems will be posted to supplement the homework. These will not be collected but will help your understanding of the material.

Midterm
There will be three 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 8:00-10:00 AM, Tuesday, December 19. The University does not permit early final exams. Schedule your travel plans accordingly!

Graduate increment

Graduate students in this course are expected to show a deeper understanding of the material. Homework and exams will include alternative (or additional) problems intended to test this.

Grading

Your grade will be composed of: 30% homework/in-class assignments, 45% from three in-class midterms and 25% 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://www.umt.edu/safety/policies/).

Important dates

Last day to drop or change grading option via Cyberbear: September 11. Last day to drop or change grading option via paper form: November 2. Full registration deadlines can be found online on the registrar calendar (http://www.umt.edu/registrar/calendar.php).

Learning outcomes

1. Explain the basic concepts, terminology, and notation of graph theory;
2. Explore in depth several graph-theoretic themes;
3. Explain the basic applications of graph theory;
4. Construct and present mathematical proofs at the level of sophistication of a 400-level math course.