Math 678 — Combinatorics II: Graph Theory
Spring 2019

BASIC INFORMATION

Instructor: Ben Salisbury, Associate Professor
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🏛 Pearce 211

Meeting Times: MWF 1–1:50pm in Pearce 123A

Office Hours: Wednesdays 10:00am–12:30pm, and by appointment

Course Text: J. A. Bondy and U. S. R. Murty, *Graph Theory*,
Graduate Texts in Mathematics, vol. 224, Springer, 2008.

Additional References: G. Chartrand and P. Zhang, *A First Course in Graph Theory*, Dover, New York, 2012.

D. West, *Introduction to Graph Theory*, Prentice Hall, Inc., Upper Saddle River, NJ, 1996.

TOPICS

Here is a list of sections to be covered throughout the semester:

Chapter	Topic	Sections
1	Graphs	1.1–1.5
2	Subgraphs	2.1–2.5
3	Connected Graphs	3.1–3.4
4	Trees	4.1–4.3
7	Flows in Networks	7.1–7.3
9	Connectivity	9.1, 9.3
10	Planar Graphs	10.1–10.3, 10.5
11	The Four-Color Problem	11.1–11.2
14	Vertex Colorings	14.1, 14.6, 14.7
16	Matchings	16.1–16.2

EXPECTATIONS

Homework. Homework will be assigned occasionally throughout the semester. Late homework will *not* be accepted. Moreover, homework must be completed using LaTeX. Templates will be uploaded to Blackboard for student use.

Exams. There will be one midterm exam on Friday, March 1, in class. The final exam will be on Wednesday, May 1, 12:00–1:50pm. Absolutely no make-up exams will be given without prior permission of the instructor. Validity of excuses is determined by the instructor. If an emergency happened on an exam day, a notice within 24 hours is required in order to make up the missed exam. No technology, besides a writing utensil, is allowed during any exam.

Presentation. Each student will be required to give a presentation on a topic (at least tangentially) related to graph theory. There will be a paper to accompany the presentation to be handed in on the day of the presentation. Suggestions for topics will be given in class, but other ideas for topics may be presented to the instructor for consideration. Each student needs to have their topic approved by the midterm exam.

Grading Breakdown.

Homework	Due roughly every two weeks	25%
Midterm Exam	Friday, March 1, 2019, in class	25%
Presentation	Given during the last week or two of classes	25%
Final Exam	Wednesday, May 1, 2019, 12pm–1:50pm	25%

Important: There are no make-ups for exams. In the event of an extreme emergency, an exception to this policy may be made. However, this exception is at the discretion of the instructor.

ADDITIONAL NOTES

- No attendance will be taken in class *but* you are responsible for knowing the material, assignments, and anything else presented and announced in class. While attendance in class is (theoretically) optional, be advised that your grade will most assuredly suffer from repeated absence from the lectures.
- Blackboard will be incorporated to some extent in this course. If you have an technical issue related to Blackboard, please contact the OIT Help Desk at (989) 774-3662, http://helpdesk.cmich.edu, or helpdesk@cmich.edu.
- CMU provides students with disabilities reasonable accommodation to participate in educational programs, activities, or services. Students with disabilities requiring accommodation to participate in class activities or meet course requirements should first register with the office of Student Disability Services (120 Park Library, telephone: 989-774-3018, TDD 989-774-2568), and then contact me as soon as possible.