

Syllabus for MA/CS 415G
Combinatorics and Graph Theory
Fall 2011

Course: MA415G/CS415G, Section 001, MWF 1:00–1:50 pm, CB 339.

Prerequisite: MA 213 or MA 322.

Instructor: Carl Lee.

Office: 967 Patterson Office Tower.

Mailbox: 715 Patterson Office Tower.

Phone: 257-1405 (or 257-3336 to leave a message).

Email: lee@ms.uky.edu (preferred method for reaching me).

Office Hours: MWF 9:00–9:50 am, and by appointment, since I realize that this time may not be convenient for everyone.

Text: John M. Harris, Jeffrey L. Hirst, and Michael J. Mossinghoff, *Combinatorics and Graph Theory*, Second Edition, Springer.

Course Web Page: <http://www.ms.uky.edu/~lee/ma415fa11/ma415fa11.html>.

Course Description: This is a basic course in graph theory and the theory of counting. Topics in graph theory will be drawn from introductory concepts; distance in graphs; trees; trails, circuits, paths, and cycles; planarity; colorings; matchings; and Ramsey theory. Topics in enumerative combinatorics will be drawn from binomial coefficients; multinomial coefficients; the pigeonhole principle; the principle of inclusion and exclusion; generating functions; and special numbers. Student learning outcomes include demonstrating knowledge and understanding of the concepts, theorems, proofs, and algorithms considered in the course, solving mathematical problems, and constructing and communicating proofs of theorems.

Attendance and Participation: Attendance is expected. This class is designed for active

involvement of the students. You will be actively supporting each other as you gain experience and understanding. Multiple ideas and points of view are important. You will benefit from hearing others' approaches to analysis and problem solving, and they will benefit from you. So attendance and active participation are expected. If you miss a class for any reason, please let me know the reason immediately—an email message will suffice. I will give you an opportunity to make up graded work missed due to an excused absence. Your absence will be excused if it is due to serious reason (such as illness, death in the family, or travel organized by UK—see the official list of excused absences in the “Student Right and Responsibilities,” Section 5.2.4.2, <http://www.uky.edu/StudentAffairs/Code/part2.html>).

Homework: There will be frequent homework assignments, usually assigned weekly, with specified due dates. The homework problems will have varying length and complexity. It is expected that you regularly read in detail the relevant sections in the textbook and complete all assigned work. It is fine to discuss the homework together, but you must write up your own solutions in your own words.

Exams: I am planning to have two in-class exams during the semester. Tentative dates: Friday, September 30 and Friday, November 4. However, I may decide to change the schedule in order to have a third exam sometime during the semester.

Final Exam: Tuesday, December 13, 8:00–10:00 am, in our regular room, CB 339, although I am open to discussing the possibility of a take-home final exam.

Grading Policy: Your course score will be based on on the following percentages:

50% Homework
30% In-Class Exams
20% Final Exam

If you are an undergraduate student, your letter grade will be determined according to the common 10% scale, rounded to the nearest percent:

90–100% A
80–89% B
70–79% C
60–69% D
0–59% E

If you are a graduate student, your letter grade will be determined according to the scale:

| | |
|---------|---|
| 90–100% | A |
| 80–89% | B |
| 70–79% | C |
| 0–69% | E |

You will receive information on your current grade after each of the exams. In particular, you will receive your midterm evaluation by the middle of the semester, Monday, October 18.

Accommodations Due to Disability: If you have a documented disability that requires academic accommodations, please see the instructor as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center (Room 2, Alumni Gym, 257-2754, email address jkarnes@email.uky.edu, <http://www.uky.edu/StudentAffairs/DisabilityResourceCenter>) for coordination of campus disability services available to students with disabilities.

Cheating and Plagiarism: Students are encouraged to discuss the course material together. Part of the work in class will be group work that will provide ample opportunity to exchange ideas and learn from each other. As mentioned above, discussing the homework assignments is permissible, but you must write up your solutions in your own words, and not simply copy someone else's work. Any kind of communication with other students during an exam will be considered cheating and prosecuted according to university regulations. Cheating and plagiarism can lead to significant penalties. See Sections 6.3 and 6.4 of *Student Rights and Responsibilities*, <http://www.uky.edu/StudentAffairs/Code/part2.html>.

Suggestions and Conflicts: Suggestions for improvement are welcome at any time. Any concern about the course should be brought first to my attention. Further recourse is available through the offices of the Mathematics Department Ombud and the Department Chair, both accessible from the Main Office in 715 Patterson Office Tower.

Important Dates:

August 23 — Tuesday — Last day a student may officially drop a course or cancel registration with the University Registrar for a full refund of fees

August 24 — Wednesday — First day of classes

August 30 — Tuesday — Last day to add a class for the 2010 Fall Semester

August 30 — Tuesday — Last day to officially withdraw from the University or reduce course load and receive an 80 percent refund

September 5 — Monday — Labor Day — Academic Holiday

September 14 — Wednesday — Last day to drop a course without it appearing on the student's transcript

September 21 — Wednesday — Last day to officially withdraw from the University or reduce course load and receive a 50 percent refund

October 17 — Monday — Midpoint of 2010 Fall Semester

November 4 — Friday — Last day to withdraw from the University or reduce course load. Students can withdraw or reduce course load after this date only for “urgent nonacademic reasons.”

November 23—26 — Wednesday through Saturday — Thanksgiving — Academic Holidays

December 9 — Friday — Last day of classes

December 13 — Tuesday — Final exam, 8:00–10:00 am, in our regular room