

Instructor: Dr. Emily Marshall
email: marshall@arcadia.edu

Office: 329 Boyer Hall
Office Hours: By appointment

Course Meeting: MWF 1:30 - 2:35 PM, Boyer Hall 109

Text: *Combinatorics and Graph Theory, Second Edition.* Harris, Hirst, and Mossinghoff, Springer New York, NY

Pre-requisite: MA225 or MA226: Transition to Higher Mathematics

Overview of the course: The course introduces students to two areas of discrete mathematics: graph theory and combinatorics. Graph theory is the study of simple structures called graphs which are general models of connections between objects. The field has a range of applications to areas such as chemistry, biology, computer science, and engineering. By the end of the course, students will be able to identify certain families of graphs, describe many structural properties of graphs, and explain the usefulness of graphs in a variety of fields. Students will learn to run simple algorithms on graphs, to prove structural characteristics of graphs, and calculate certain parameters of graphs such as chromatic number.

Combinatorics is the area of mathematics that deals with counting. Students might be surprised to learn that counting problems can be much harder than they anticipated. By the end of the semester, students will have mastered basic counting principles including the sum and product rules and the pigeonhole principle. They will be able to perform calculations using binomial coefficients and generating functions. All of these skills will be applied to a variety of counting problems.

Grading: Grades will be based on two in-class exams (20% each), quizzes (20%), class participation (10%), and the final exam (30%). The final exam is scheduled for **Monday, December 20, at 1:00 PM.**

Homework. Homework problems will be assigned each week but will not be collected or graded. The best way to learn mathematics is by doing mathematics and students are expected to stay current with the assignments. In-class quizzes will consist of problems taken directly from the homework.

Academic Honesty: The instructor takes academic honesty very seriously. Expectations and requirements will be made clear for each assignment. A student who is uncertain about what constitutes plagiarism, should consult both the student handbook and the instructor. Both the instructor and student maintain the right to refer any issue to Arcadia's Judicial Board.

Disability Services: Arcadia University provides reasonable accommodations for students with documented disabilities. If you require accommodations or other academic support due to a physical, psychological, psychiatric or learning disability, you should contact the Office of

Academic Development, Disability Support Services, in Knight Hall. You can call DSS at 215-572-4033.

Attendance Policy: Students are expected to attend every class. Students who do not regularly attend are not eligible for office hour help. Student athletes will be excused from class for games/meets. Student/athletes should give the instructor a copy of the games/meets for the semester. With sufficient notice, I will try to schedule exams around games/meets. Students are not excused from class for practice and will not be excused from the final exam for practice or for games/meets.

Help: Students who need help should visit the instructor during posted office hours. If it is not possible for you to attend during that time, I will make every effort to meet with you at a mutually convenient time. Please email me to set up an appointment.

Title IX: Arcadia University is committed to ensuring a safe and productive educational environment for all students. In order to meet this commitment and to comply with Title IX of the Education Amendments of 1972 and guidance from the Office for Civil Rights, the University requires faculty members to report incidents of sexual violence shared by students to the University's Title IX Coordinator. The only exceptions to a faculty member's reporting obligation are when incidents of sexual violence are communicated by a student during a classroom discussion, in a writing assignment for a class, or as part of a University-approved research project.