

Conference Presentation

Description

Length:	15 – 20 minutes
Frequency:	One presentation at three venues
Value:	3 points (~ 25% overall grade)

You will present on a topic in combinatorics that was not covered during class. Your goal should be to introduce a general mathematical audience to an interesting idea in combinatorics that they may not have thought about before. Refer to the provided rubric throughout the process to help direct your speaking. Some possible topics are given below, but you are welcome to suggest others. Keep in mind that you will expand on this same topic when you write your paper. Contact me once you have selected a topic.

I will meet with you individually three times to help you work on your talk. Each meeting counts toward your daily preparation grade.

- For the first meeting, come with a written outline of the ideas you would like to discuss in your talk. A good way to approach this outline is to start by choosing one main item (a theorem, technique, structure, example, etc.) that you think the audience will find interesting. Structure your talk in such a way that you are constantly building toward that item, introducing only the definitions and clarifying examples that move you toward your goal.
- For the second meeting, come with significant progress (aim for 50%) on your slides. *Conference presentations must be completed in Beamer* (see the course webpage for examples to help get you started). If you have trouble getting certain slides to compile, comment out the offending lines of code by placing a percent symbol (%) at the beginning of each line. We will examine the direction of your talk and also try to diagnose code-related issues at this meeting, so come with specific questions on how to proceed.
- For the third meeting, come with a draft that is as complete as possible. We will work together to polish the presentation and fix any final code-related bugs.

Shortly after the final individual meeting, the entire class will meet as a group again for a few days of practice presentations. You will be given written feedback from the audience to help improve the quality of your presentation. You will be expected to read this feedback and view a recording of your presentation, incorporating your thoughts into a short written reflection. The next presentation will be at the Doane Symposium on Undergraduate Mathematics, which will neither be recorded nor formally critiqued (though you will still be asked to complete a short written reflection). The final presentation will be at the Nebraska Wesleyan Student Symposium, which I will grade according to the provided rubric.

Sources of Topics

- Our textbook (particularly sections not covered in class)
- Wikipedia page on combinatorics: wikipedia.org/wiki/Combinatorics
- Wikipedia page on graph theory: wikipedia.org/wiki/Graph_theory
- Wikipedia list of topics in graph theory: wikipedia.org/wiki/List_of_graph_theory_topics, in particular
 - Cages: [wikipedia.org/wiki/Cage_\(graph_theory\)](http://wikipedia.org/wiki/Cage_(graph_theory))
 - Random Graphs: wikipedia.org/wiki/Random_graph
 - Snarks: [wikipedia.org/wiki/Snark_\(graph_theory\)](http://wikipedia.org/wiki/Snark_(graph_theory))
 - Four Color Theorem: wikipedia.org/wiki/Four_color_theorem
 - Perfect Graphs: wikipedia.org/wiki/Perfect_graph
 - Critical Graphs: wikipedia.org/wiki/Critical_graph
 - Graph Labeling: wikipedia.org/wiki/Graph_labeling
 - Graph Pebbling: wikipedia.org/wiki/Graph_pebbling
- Open Problem Garden combinatorics: openproblemgarden.org/category/combinatorics
- Open Problem Garden graph theory: openproblemgarden.org/category/graph_theory
- MathOverflow question about topics in graph theory: mathoverflow.net/q/64448