

Math 108. Topics in Combinatorics: The Probabilistic Method. Winter 2008.

Topics for project presentations (updated on 2/21/08)

Each student should give a presentation at some point during the term. Here is a list of possible topics. The number in brackets after each project is the number of students that could work on it (longer projects have higher numbers). If you have your own topic in mind you are more than welcome to discuss it with me.

1. Present an application of the probabilistic method that you have encountered somewhere else (for example, reading a paper, in another class, or in your research). [any]
2. *Brégman's Theorem*. Pages 22–24 of the book. [Chien-Chung]
3. Section 4.6. [Chrisil]
4. Section 4.7. [2 or 3]
5. *Hamiltonian Paths*. Pages 60–62 of the book. [Amir]
6. *Directed Cycles*. Pages 78–79 of the book. [Ranganath]
7. *Weierstrass Approximation Theorem*. Pages 113–114 of the book. [Chor]
8. Theorem 8.3.2 (uses other results from Chapter 8). [1]
9. Section 8.4. [Umang]
10. *Local Coloring*. Pages 130–131 of the book. [Joshua]
11. *Random walks*. Pages 150–151 of the book. [1]
12. *Counting Subgraphs* Pages 180–181 of the book. [Patricia]
13. *Maximal Antichains*. Pages 197–198 of the book. [already done by Peter Winkler]
14. Erdős-Kac Theorem: The distribution of prime divisors of n is asymptotically normal. [Enrique]