

# Syllabus – MATH 776

Prof. Joshua Cooper, Fall 2007

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**Homepage:** <http://math.sc.edu/~cooper>

**Course Homepage:** <http://math.sc.edu/~cooper/math776/>

**Main Text:** Diestel, *Graph Theory*.

**Supplementary Reading:** Alon & Spencer, *The Probabilistic Method*; Bollobas, *Extremal Graph Theory*.

**Class:** Tuesday & Thursday 12:30PM – 1:45PM, LeConte (LC) 310

**Office Hours:** Tuesday 2:00PM – 3:30PM or by appointment.

**Course Material:** Fundamentals of graph theory. Cycles, paths, trees, graph invariants, connectivity, matchings, planarity, coloring, flows, hamiltonicity, regularity, minors, extremal graphs, Ramsey Theory. The pace of material (and therefore how much we cover) will be determined on-line.

**Note:** The last day to drop classes without incurring a “W” is 8/29, and the last day to drop classes without incurring a “WF” is 10/4.

**ADA:** If you have special needs as addressed by the Americans with Disabilities Act and need any assistance please notify me immediately.

**Attendance:** You are expected to attend every class. The bar is stratospheric for exam rescheduling or omission. If you *have* to leave before class is over, the correct procedure is to mention this to me before class. It is impolite and disruptive to leave class during a lecture unless you have followed this procedure.

**Grade Breakdown:** 50% from Problem Sets, 50% from Final Exam.

**Grading scale:**  $A \in [90, 100]$ ,  $B+ \in [86, 90)$ ,  $B \in [80, 86)$ ,  $C+ \in [76, 80)$ ,  $C \in [70, 76)$ ,  $D+ \in [66, 70)$ ,  $D \in [60, 66)$ ,  $F \in [0, 60)$ .

**Problem Sets:** Problem sets will be assigned periodically (generally at the start of a new chapter), announced, and posted on the website. They will consist of several problems ranked by difficulty (0-5), and *are in addition to the problems at the end of the indicated chapters in Diestel*. The problems in Diestel are considered difficulty 2, unless they are marked with a (–) (in which case they have difficulty 1), are marked with a (+) (in which case they have difficulty 3), or I indicate otherwise. Problem sets are due by the expiration date on the posted problem set and will not be accepted after that point. The number of points awarded for a problem is  $2^{\text{difficulty}}$ , and you are generally expected to provide complete, rigorous solutions in order to receive credit. Your final problem set grade will be the total number of points earned over the semester, divided by 40 times the number of problem sets. That is, a grade of 100 can be

achieved by averaging 40 points per problem set. A score greater than 100 is perfectly possible and will be treated the same in your final grade.

**Final Exam:** The content of the exams will be drawn from lectures and from the text. Keep in mind that you are responsible for *all* material covered in class, even if it does not appear in Diestel. No electronic devices, including calculators, are permitted in the exams. The final exam will be held on Thursday, December 13 at 2:00 p.m..

**Hints for a successful semester:**

1. Check the website early and often. Problem sets and announcements will be posted there, and there is a list of useful resources.
2. Ask questions in class, and come by office hours. Get to know your classmates and form study groups.
3. Do *not* assume you comprehend something just because you saw it done. It is all too easy to assume that you know how to do something just from seeing it done once. Always ask yourself, “Could I solve that problem myself, start-to-finish, even if it were slightly different?” If not, do related practice problems from the book or elsewhere.