Math 220: Finite Mathematics

Summer 2013

Instructor: Joey Palmer
Email: jpalmer@math.wustl.edu
Office: Cupples I Room 203
Office Hours: Monday 3-4, Thursday 11:30-12:30

Course Website: math.wustl.edu/~jpalmer/teaching/math220
Course Times: 1:00pm-2:45pm, every weekday
Room: Psychology Building 241

Description:

In this course the students will be introduced to formal arguments and rigorous mathematical proofs. The subject matter used to introduce proof writing will be a variety of topics from set theory, number theory, and combinatorics. There is particular emphasis on writing, discussing, and explaining mathematics clearly. Also, this course will emphasize learning mathematics as an *active* experience, with several breaks in each discussion for short or long in class activities.

Tentative Outline:

We will use textbook *Discrete Mathematics* by Kevin Ferland and cover most of sections 1, 2, 3, 6, and 8 and portions of sections 4, 5, 7, 9, and 10. This will approximately cover four topics:

I. Logic, Sets, and Basic Proofs
   An introduction to formal arguments and proofs
II. Number Theory, Induction, and Relations
   Topics from number theory include well-ordering, Euclid's algorithm, and modular arithmetic. We will also discuss advanced proof techniques such as induction and (time permitting) relations.
III. Counting
   The beginning of combinatorics. We will cover several topics including permutations, combinations, and applications to probability.
IV. Graphs
   An introduction to graphs. Time permitting, we will discuss advanced graph topics such as Hamiltonian cycles and trees.

Check the course webpage for the calendar which will be updated throughout the summer.

Grading:

The final grading scale I will use will be influenced by the performance of the class, but it will be no worse than:

Letter Grade	Percentage in Class
A	>90.0%
B	80.0%-89.9%
C	70.0%-79.9%
D	60.0%-69.9%
F	>60.0%

What I mean is the following: To improve the distribution of letter grades I may change the intervals of raw scores (percentages) in the class which correspond to the different letter grades. In short, you are guaranteed to get at least as good of a letter grade as is indicated in the above table, but I may give you a better letter grade.

The grade breakdown is:

Homework	20%
Participation	10%
Quiz 1	10%
Quiz 2	10%
Midterm	20%
Final	30%

Notice that 10% of the grade is from participation. This is comprised of attending class and participating in the short in class assignments and activities.

Homework:

There will be approximately two homework assignments per week, due on Tuesdays and Fridays. Since we meet every day for a long class period these homework assignments will be relatively lengthy, and it is highly encouraged to not try to complete them in a single

night. This is a pattern which is very typical in higher mathematics courses, so the student would be wise to become accustomed to this now.

Exams:

There will be two “quizzes” which will be written to take about 1 hour to complete (half of one class period) and two “exams” which will be written to take an entire class period. Quiz 1 will be taken about one quarter of the way through the course and is tentatively scheduled for Tuesday July 23rd.