Math 311W: Discrete Mathematics
FALL 2012

Course Description

This is one of the first courses involving proofs for most students of mathematics. We will be learning basic notions of modern algebra and number theory.

Roughly half the course will be concerned with number theory. Most of the rest of the course will deal with topics in group theory and error-correcting codes.

Prerequisite: MATH 141

Textbook: *Numbers, Groups & Codes*, J. F. Humphreys & M. Y. Prest

- Number Theory (Chapter 1)
- Set Theory (Sections 2.1-2.3)
- Groups (Chapter 4)
- Group Theory and Error-Correcting Codes (Chapter 5)

Grading: Grades will be based on homework assignments, writing projects, midterm, and final exams with the following weighting:

Homework:	30%
Writing Project:	10%
2 Midterm Exams:	15% each
Final Exams:	30%

Homework: Homework will be collected and graded. Homework is due at the beginning of class on each due date. No late homework will be accepted without approval from the instructor in advance. You are encouraged to discuss the homework assignments with other students in the class. However you are required to write up your own solutions. In particular, you must **never** read another student's solution to a problem before submitting your own solution. You may assume without proof theorems that occur earlier in the course.

As befits a writing course, homework solutions must be complete, correct, and well written to receive full credit.

Class Attendance: Although regular classroom attendance will not figure into your grade in a tangible way, I strongly encourage regular class attendance. It should be obvious that attending all classes is beneficial to you. Having the material presented in a lecture is helpful because the presentation will often be different than the text. This will clarify and enhance the material. You will benefit from having questions answered in class (as well as hearing other students' questions). Material not

present in the textbook may be presented in class: You will be held accountable for this material on exams. Finally, regular attendance demonstrates good stewardship of your time and money.

Helpful Hints:

1. Learn for the long term. Try to retain the knowledge that you acquire. Do not try to learn materials a couple of days before an exam with the goal of forgetting it right after finals. View the learning of the material as an active process, not a passive one. (You are here to learn, not to receive grades.) Learning is a process, not an event.
2. Strive to know the material, i.e. to understand it at a very deep level.
3. Do the homework problems with as little help (text, friends, class notes etc.) as possible. Balance the use of group learning with individual study.
4. Ask questions, either in class or during office hours.
5. Read the textbook BEFORE the lecture.
6. Carefully study and rework the examples in the text.
7. Re-read and rewrite your notes.
8. Study for exams progressively, over a long period of time. Begin the studying process at least one or two weeks prior to the date of the exam.
9. Manage your time wisely. Plan to spend at least two hours outside of class for every hour in class.
10. Get plenty of rest. Staying up late every night is usually not a beneficial practice academically.

All Penn State policies, in particular
http://www.psu.edu/ufs/policies/47-00.html#49-20
and
http://www.science.psu.edu/academic/Integrity/index.html
regarding ethics and honorable behavior apply to this course.

Statement Regarding Students with Disabilities:
Penn State welcomes students with disabilities into the University's educational programs. If you have a disability-related need for reasonable academic adjustments in this course, contact the Office for Disability Services (ODS) at 814-863-1807 (V/TTY). For further information regarding ODS, please visit the Office for Disability Services Web site at http://equity.psu.edu/ods/.

In order to receive consideration for course accommodations, you must contact ODS and provide documentation (see the documentation guidelines at http://equity.psu.edu/ods/guidelines/documentation-guidelines). If the documentation supports the need for academic adjustments, ODS will provide a letter identifying appropriate academic adjustments. Please share this letter and discuss the adjustments with your instructor as early in the course as possible. You must contact ODS and request academic adjustment letters at the beginning of each semester.

General Information

Instructor: George Andrews
Office: 306 McAllister Building
Office Phone: 865-6642
e-mail: gea1@psu.edu

Office Hours: To be determined

Course Webpage: http://www.math.psu.edu/andrews/teaching.html

Course Meeting Places and Times:

M W F 9:05 AM-9:55 AM – 116 Osmond
M W F 11:15 AM-12:05 PM – 201 Osmond