

Number Theory
Syllabus for Mathematics 346 Winter 2012
 Dr. Cheryl Beaver

MWF 9-9:50 a.m. MNB 110; T 9-9:50 p.m. MNB 130

FINAL EXAM: Monday, March 19, 2012 8-9:50 a.m.

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Time	Mon	Tue	Wed	Thu	Fri
9:00	346	346	346		346
10:00	office	office	office		office
11:00			office		
12:00					
1:00	344	344	344		344
2:00					
3:00		meetings			
4:00		meetings			

Please feel free to drop by my office during my office hours for help. You do not need to make an appointment to come to office hours. If you have direct scheduling conflicts with my office hours and would like further help, please let me know.

PREREQUISITES: Mathematics 280 with a grade of C- or better.

TEXT: *Discovering Number Theory, Holt and Jones*

COURSE CONTENT AND GOALS: Number theory is concerned with the study of numbers, their properties and relationships. We will explore properties of the integers including divisibility, primality, congruences and residues. We will explore key ideas including the Euclidean Algorithm, Diophantine equations and the Chinese remainder theorem.

The course will be laboratory driven. The lab examples and questions are carefully designed to lead you to discover important concepts and rich theorems. You will work on increasing your level of sophistication in understanding, reading, writing, researching and proving mathematics.

Success: To succeed in this course it is very important to attend class, read the book and complete, with understanding, your pre-labs, labs and homework. I encourage you to attend office hours and have regular discussions with classmates.

CLASS STRUCTURE:

MWF Computer lab work: The majority of the content of the class will be discovered by working through lab assignments with your lab group. Your group will consist of 3 members and your lab team will change for each lab. We will spend approximately 3 days in the computer lab on each lab. One person will be assigned from your research group to write up a formal lab report detailing the proofs to the research conjectures. The duties of writing up the report will rotate.

Tuesdays: Tuesdays are non-computer lab days. This class period will be used to wrap up unfinished lab work, do additional problem solving and exploration of the current topic, and occasionally for lecture.

CLASS WORK

Pre-labs: Prior to each lab, you will be required to read and answer the questions in the pre-lab section of the chapter. This assignment helps ensure that each person is prepared for the lab. These pre-lab assignments are due at the *beginning* of class on the first day we work on that lab. Late pre-lab assignments will not be accepted.

Lab Reports: For each lab, your research team will turn in a single team lab report. The entire team must participate in completing the research questions and one person from the team will be assigned the responsibility of writing the report. The person writing the report will be allowed to turn in the homework for that lab up to two class days late. You will usually have 3 class periods to finish your lab. *To finish on time, you will need to work outside of class – this is considered part of your homework.* It may work best for you to meet as a group or assign individual tasks outside of class. *It is not the responsibility of the report writer to complete unfinished problems.*

The grade earned on the report will be given to each group member. It is expected that each person will write about three lab reports during the term. If you miss more than one class during work time on a single lab, you will also be required to turn in your own report for that lab (you do not get the grade from your team report, nor are you allowed to turn in your homework late so missing class is a very bad idea). More instructions on the format and scoring of the lab report will be provided in the *Lab Report Guidelines* document.

Text Homework: For each chapter we cover, you will be assigned homework from the end of the chapter. Completing this homework is essential to understanding the material in this course. While it can be useful to work with others, it is important to create your own understanding and be able to write proofs on your own. If you do not understand the problems you are strongly encouraged to come to office hours. Always write up answers to problem in your own words.

In-class problems: Tuesdays are non-computer lab days. Problems may be assigned in class on these days (in addition to the text homework problems). If

you miss class it is your responsibility to meet with the instructor ASAP to determine if missed problems may be made up.

Exams: There will be two midterm exams and a final exam. Exams are *tentatively* scheduled for 2/8 and 3/6. Missed exams may not be made up except in rare cases with prior notification and instructor approval. Cell phones must be turned off during exams.

Late homework: Pre-labs and draft lab reports are due at the beginning of class on their due date. Text homework is due by 4:30 pm on its due date. Any homework not turned in by this time is considered late. **LATE HOMEWORK WILL NOT BE ACCEPTED unless you are the report writer. The report writer may turn in homework (for that lab only) up to 2 days late.** If you have not completed your homework by 4:30 on the due date, it is in your best interest to turn in what you have for partial credit. Your lowest homework grade will be dropped.

Attendance & Missed Classes: Attendance is very important in this class. Since you are working daily with your research team, missing a class impacts your classmates as well. If you miss class on a lab day, it is your responsibility to contact a group member to find out what you missed. You are responsible for working through the missed portion of the lab *on your own before the next class meeting* so you can contribute to your group. If you miss more than one class during which the same lab is worked on then you will no longer be considered part of the group and will be required to write up that lab on your own (and will not be given extra time on your homework).

Participation Assessment Reports: Following each lab you will complete a participation assessment report on each lab member. Your assessments will be combined at the end of the term to form a *combined participation assessment grade*. An assessment rubric will be provided for this purpose.

GRADES

Scoring: Grades will be based on the following:

Combined Participation Assessment grade: 5%

Lab Reports: 25%

Pre-labs, Text Homework, In-class problems: 25%

Midterm: 30% (15% each)

Final: 15%

Standard Grading Scale for this Course:

% Range	Grade	% Range	Grade	% Range	Grade
93 – 100	A	80 – 82	B-	60 – 69	D
90 – 92	A-	77 – 79	C+	Below 60	F
87 – 89	B+	73 – 76	C		
83 – 86	B	70 – 72	C-		

APPROPRIATE CLASSROOM BEHAVIOR

You are ultimately responsible for your own attendance and performance. Disruptive classroom behavior of any kind, such as talking during lecture or consistently coming to class late etc., is not appropriate. Proscribed Conduct for all students is described in the University Catalog. **In particular for this course do not use the computer for anything other than class use.** Any student found cheating on an exam or copying from another student's exam paper will receive a zero score on that exam.

LEARNING DISABILITIES

If you have a documented learning disability, please talk to me during the first few days of class, I will be more than happy to accommodate you in any way that I can. If you have a documented disability which requires any academic accommodations, you must go to the Office of Disability Services (ODS) for appropriate coordination of your accommodations. You can drop by APSC 405 or contact ODS at (503) 838-8250 (V,TTY) to schedule an appointment.

INCOMPLETE POLICY

An Incomplete can only be granted for a student who is passing a class and has a documented emergency that prevents them from completing the course.

Veterans and Active Military Personnel with special circumstances are welcome and encouraged to communicate these, in advance if possible, to the instructor.

CELL PHONE POLICY¹: TURN THEM OFF AND PUT THEM AWAY!! NO TEXTING DURING CLASS!

¹ If you are in an emergency situation in which you need to have your cell phone on quiet; please speak to me about it before class.