

**MATH 346: SYLLABUS: FALL 2008**  
**Number Theory**  
**Dr. Cheryl Beaver**

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**CLASS MEETS**

MWRFF: 9:00 – 9:50 a.m. MNB 110

**Final Exam: Friday December 12<sup>th</sup>, 8-10 am**

Time	Mon	Tue	Wed	Thu	Fri
8:00				Office Hour	
9:00	346 (MNB 110)		346 (MNB 110)	346 (MNB 110)	346 (MNB 110)
10:00				251 (MNB 110)	
11:00	251 (MNB 104)		251 (MNB 104)		251 (MNB 104)
12:00	396 (MNB 103)		396 (MNB 103)		
1:00		Office Hours			
2:00					
3:00	Office Hour		Office Hour		
4:00					

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. At times other than my listed office hours you are welcome and encouraged to call or email me with questions about the course. If you have direct scheduling conflicts with my office hours and would like further help, please let me know.

**Course Prerequisite:** MTH 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.

**Class Structure:** The majority of the content of the class will be discovered by working through lab assignments. We will be covering at least 8 labs during the term. We will spend 2-4 days on each lab. For each lab you will be assigned a lab partner and a research team. For one to two class periods you and your lab partner will work through the lab, answering all the exercises and research questions. After completion of the lab you will meet with your research team to compare answers to the research questions and assemble a joint report. One person will be assigned from your research group to write up a formal lab report detailing the answers to the research questions. The duties of writing up the report will rotate. The day the lab report is due one team will be assigned to lead a class discussion on the findings of the lab. The entire class is expected to participate in the discussion. Following each lab, a day in class will be devoted to follow up lab work. This may take the format of group problem solving sessions, lecture, or a mixture of lecture and problem solving.

## **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 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. *It is not the responsibility of the report writer to complete unfinished problems. Hence, completing the lab report may require the research team to meet outside of class.* The grade earned on the report will be given to each group member. It is expected that each person will write two to 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 excused from the homework). More instructions on the format of the lab report will be provided.

**Lab Presentations:** On the day the lab reports are due one team will be assigned to review their findings with the class. The entire class is expected to participate. The presenting team should prepare clear, easily readable notes to display on the document camera. The team may need to meet outside of class to prepare their presentation.

**Text Homework:** For each chapter we cover, you will be assigned homework from the end of the chapter. The person who has the job of writing the lab report for that chapter is not required to turn in the

homework assignment for the chapter, but it is highly recommended they complete the problems.

**In-class follow-up lab problems:** Following each lab there will be one class period devoted to content related to the lab. This class period may take the form of a group problem solving session, lecture, or mixture of lecture and problem solving. Problems assigned will generally be due in class or the following class period. These problems are in addition to text homework problems.

**Exams:** There will be two midterm exams and a final exam. Exams are tentatively scheduled to be given after Lab 3 and after Lab 6. Missed exams may not be made up except in rare cases with prior notification and my approval. Cell phones must be turned off during exams.

**Late homework:** Except for the pre-labs which are due at the beginning of class, homework is due by 4:30pm on its due date. Any homework not turned in by this time is considered late. An assignment may be turned in by the end of one class day late for 75% credit or 2 class days late for 50% credit. Homework turned in later than 2 class days late will NOT receive credit. Consistently turning in late homework will have a very detrimental effect on your grade.

**Attendance & Missed Classes:** Attendance is very important in this class. Since you are working daily with a partner or research team, missing a class impacts your classmates as well. Therefore 5% of your grade is based upon attendance. For each class you miss your attendance grade goes down by 1% up to 5%. If you miss class on a lab day, then you are responsible for working through the portion of the lab you miss 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 a group and will be required to write up that lab on your own (and will not be excused from your homework).

**Grading:** Grades will be based on the following:

Attendance: 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-		

**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.

### **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 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 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.