MAT 321-1
NUMBER THEORY AND ITS APPLICATIONS
SPRING 2012
COURSE INFORMATION

INSTRUCTOR:	Dr. K. Spackman
OFFICE:	Bear Hall 132
PHONE:	962-3303
E-MAIL:	spackmank@uncw.edu
WEB ADDRESS:	http://people.uncw.edu/spackmank (Online now are this course information sheet and several links, including a link to a website specifically designed to accompany our textbook. As the course proceeds, additional materials will be added.)
OFFICE HOURS:	MTWRF 11:00-11:50 or by appointment. (If you would like to meet at another time, please check with me after class, or by phone or e-mail, and we'll set up a mutually convenient time to meet.)
CLASS MEETINGS:	TR 9:30-10:45 in BR 164
TEXT:	*Elementary Number Theory and Its Applications*, 6th ed., Kenneth H. Rosen, 2011

LEARNING OBJECTIVES: The goal of the course is to learn what number theory is, some of its techniques, and many of its applications. There are five specific learning objectives for the course:
By the end of the course, you will be able to:

- Perform computational and algorithmic procedures fundamental to number theory
- Use the computer software *MAPLE* for up-to-date number-theoretic calculations
- Demonstrate knowledge of the number-theoretic underpinnings of efficient computer algorithms
- Demonstrate a good understanding of basic number theory concepts and how they are used in modern applications, with an emphasis on primality testing and cryptography
- Construct short mathematical proofs of basic principles in number theory

The course is organized so that understanding applications is the motivation for everything we do. A detailed list of planned topics is attached.

COMPUTER USE: We will make use of the mathematical software *MAPLE* for classroom demonstrations, in-class student work, out-of-class homework, and tests. *MAPLE* is an arbitrary-precision, symbolic manipulation program widely used by scientists, engineers and educators to do all kinds of amazing mathematical things. The purposes of its use are to facilitate understanding of applications, to increase conceptual learning by avoiding tedious computations by hand, to take "hands-on" control of your learning, and to see how mathematics is really done in the modern workplace.

COMPUTER ACCESS: Some assignments will require use of the computer. There are several computer labs on campus including Randall Library, the University Learning Center in Westside Hall, and the residence halls. Instructions will be given later for gaining free access to *MAPLE* from any computer with an Internet connection, including your home.

TESTS: There will be two in-class tests and a final exam. The in-class tests will be announced at least one week in advance. (Approximate dates are Thursday, Feb. 23 and Thursday, April 12.) Ordinarily, no make-up tests will be given. If you foresee that you cannot avoid missing a test, notify me before the missed test. The final exam is scheduled for Tuesday, May 8, 2012, from 8:00 - 11:00 AM; it will be comprehensive.

HOMEWORK: Suggested homework will be assigned after each class period. Additional written assignments will be collected approximately weekly, corrected, graded, and returned.

IN-CLASS WORK: There will be several unannounced in-class worksheets to be submitted for grading. In the event of absence, these worksheets cannot be submitted later.

ATTENDANCE: Attendance at each class is expected and necessary for success in the course. This is not a course where you can get by just reading the textbook on your own.

GRADING: The two in-class tests will each count 25% of your final grade. Your combined homework and in-class worksheet grade will count 20%. The final exam will contribute the remaining 30%.

PLUS/MINUS GRADING: A plus or minus will be used as a possible grade modifier for final grades only, at the end of the semester. Factors that influence the judgment to assign a + or - (or neither) are: performance on the final exam, consistency of performance throughout the semester, proximity to a grade borderline, class participation and effort.

INCOMPLETES: A grade of I (incomplete) is given only if documented circumstances beyond the student's control (e.g., medical, legal) render the student unable to complete the course work and only if there is a reasonable possibility of passing the course. The grade I is not given for simply failing to meet the course requirements.

ACADEMIC HONESTY: Collaboration and discussion is encouraged on "suggested homework" problems. Homework assigned to be handed in must be done individually; that work must be your own. All tests are to be done without collaboration and without the aid of books or notes; calculators of any type are permitted and portions of the tests will require individual use of the computer. The Academic Honor Code (see the UNCW Code of Student Life) applies at all times, and rests on this principle: "It is … this institution's stated policy that no form of dishonesty among its faculty or students will be tolerated." All students are expected to read and abide by the Academic Honor Code.

STUDENTS WITH DISABILITIES: If you have a disability and need reasonable accommodation in this course, you should inform the instructor of this fact in writing within the first week of class or as soon as possible. If you have not already done so, you must register with the Office of Disability Services in DePaolo Hall, 1st floor (962-7555) and obtain a copy of your Accommodation Letter. You should then meet with your instructor to make mutually agreeable arrangements based on the recommendations of the Accommodation Letter.

CELL PHONES, TEXTING, ETC.: Please place cell phones and pagers on silent mode during class. Please don't read messages, text, tweet, surf or post during class.

CAMPUS SAFETY: If you, or someone you know, ever feel unsafe for any reason, go to this Web site for campus resources available to help: http://uncw.edu/emergencyandsafety/ForStudents.html UNCW practices a zero-tolerance policy for violence and harassment of any kind. For emergencies contact UNCW CARE at 962-2273, or dial 911 (for Campus Police or Wilmington Police). For additional University or community resources visit http://www.uncw.edu/wsrc/crisis.html.

RELIGIOUS OBSERVANCE POLICY: In accordance with North Carolina G.S. 116-11(3a), you are entitled to two excused absences for religious observances per academic year. In order to preserve your right to make up any tests or other work missed for religious observance required by your faith, you must inform the Registrar in writing of your intended absence before the end of the first week of class.

IMPORTANT DATES:

Wednesday, Jan. 18	Last day to drop without a grade.
Tuesday, Feb. 28	Last day to withdraw with a W.
Tuesday, May 8	Final Exam.