

# **MAT 311 NUMBER THEORY**

**What below is all subject to change. Significant changes are announced in class.  
This document may be updated from time to time.**

## **IMPORTANT**

The following is strictly enforced: absolutely, no texting/surfing etc. during class; phones off and stored away; no food.

## **AIM**

Introduction to some basic notions and to some ideas, such as divisibility, congruences, quadratic residues, number- theoretical functions, Diophantine equations, rationality.

## **TEXTBOOK**

An introduction to the theory of numbers, by I. Niven, H.S. Zuckerman, H.L. Montgomery, 5th.ed.

## **MEETING TIMES**

TuTh 2:30-3:50pm, Physics P-130.

## **OFFICE HOURS**

Instructor: De Cataldo, Tu&Th 11:30-1pm, MAT Tower Room 5-108, mark.decataldo@stonybrook.edu

Grader: John Sheridan, MLC: Mo 11.30-12.30 and 4.30-5.30pm; MAT Tower 2-118 Wed 2.30-3.30, john.sheridan@stonybrook.edu

## **EMAIL**

Best way to contact your instructor and grader: in class and during office hours. Use email only for true emergencies; example: you are sick, you inform the instructor you are not coming to the test, and you will bring an official letter from the doctor (including phone number and address of medical practice to reach said doctor). Please refrain from using email to ask: for exceptions to the various rules (e.g. late hmk), math questions (our typing abilities are limited), questions about grades.

## **SYLLABUS (SUBJECT TO CHANGE; TOPICS MAY BE ADDED IF TIME ALLOWS)**

[read 1.1 on your own]

1.2, 1.3, 1.4 (36pp); 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8 (44pp); 4.1, 4.2, 4.3 (17pp); 5.1, 5.3, 5.4 (16pp); 6.1.,6.2 (10) (19 sections; 123 pages approx)

## **TENTATIVE SCHEDULE OF CLASSES (H1=homework 1; homework assigned by BB email)**

Jan 23&25 1.2, 1.3

Jan 30&1 1.3, 1.4

Feb 6&8 2.1  
Feb 13&15 2.2, 2.3  
Feb 20&22 2.4, 2.5  
Feb 27&1 2.5, 2.6  
Mar 6&8 2.7  
Midterm Th Mar 8 in class; covers up to 2.5  
Mar 13&15 SPRING BREAK  
Mar 20&22 2.7, 2.8  
Mar 27&29 2.8, 4.1  
Apr 3&5 4.2, 4.3  
Apr 10&12 5.1, 5.3  
Apr 17&19 5.3, 5.4  
Apr 24&26 5.6, 5.7  
May 1&3 additional topic: elliptic integrals

## EXAMS

Midterm: Th Mar 8 in class.

Final: MO MAY 14: 11:15-1:45pm, room to be announced.

There are no make-ups for missed exams.

If either exam is missed without a reasonable justification, the score will be zero.

If the midterm exam is missed because of a serious (properly documented) illness or emergency, the semester grade will be determined based on the balance of the work in the course. If the final is missed because of a serious (documented) illness or emergency, then the student will receive an I (incomplete).

## OFFICE HOURS BEFORE FINAL

Fr May 11, 9-11am, MAT Tower Room 5-108.

## HOMEWORK

Assigned by Blackboard email on or before Th. (subject to change).

Due the following Tu by 5pm (directly to grader's office: inside envelope posted on door); returned one week later on Tu 5pm by grader (envelope).

Late homework will not be accepted under any circumstances. No exceptions.

Homework must be stapled with a metallic staple (no folding, no paper clips).

Unstapled homework will not be accepted. No exceptions.

I have instructed the TA to not accept unstapled homework. No exceptions.

We can usually tell if the homework has been copied. In that case, students may be reported for violating academic integrity.

## GRADES

HOMEWORK 20% 200pts; MIDTERM 35% 350pts; FINAL 45% 450pts. Total: 1000pts.

HOMEWORK score: we add the 10 best hmk scores; each hmk max=20 pts.

Grades will be posted on Blackboard. You are responsible for monitoring them regularly. (If there is a discrepancy, contact the grader.)

Final grade: after the final, we will look at scores, and then we will curve to produce letter grades for the course.

A tentative letter grade for the Midterm is given after the midterm (that is only an indication of how you did in the midterm).

My policy for course grades: <http://www.math.stonybrook.edu/~mde/grades.html>

### **EXAMS (MIDTERM AND FINAL)**

Use the problems, examples etc. in the book as a guideline.

There will be no sample tests.

Midterm (subject to change): 6 problems; 5 of them ``similar'' to homework; 1 a bit different, to test a deeper understanding.

Final: (subject to change) 10 problems; 8 of them ``similar'' to homework; 2 a bit different, to test a deeper understanding. Final covers the whole syllabus.

### **Americans with Disabilities Act.**

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC (Educational Communications Center) Building, Room 128, (631) 632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential. Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Disability Support Services. For procedures and information go to the following website: <http://www.stonybrook.edu/commcms/studentaffairs/dss/>

**Academic Integrity** Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty is required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty please refer to the academic judiciary website at [http://www.stonybrook.edu/commcms/academic\\_integrity/index.html](http://www.stonybrook.edu/commcms/academic_integrity/index.html).

**Critical Incident Management** Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of University Community Standards any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures.