MA301 NUMBER THEORY

Fall 2013   8/26 – 12/06/2013

MWF 5:30 – 6:20pm   WESS 120

INSTRUCTOR: DR. CHOCK Y. WONG

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Office Hours: W 11:30am – 12:30pm; TTH 10:00 - 12:00noon; or by appointments.

Course Description: The first course in elementary number theory. Topics include: Divisibility, prime numbers, congruences, solution of congruences, applications of congruences, Euler's ϕ-function, quadratic residues, Legendre's symbol, Gauss' Lemma, quadratic reciprocity (Gaussian reciprocity law), greatest integer function, Diophantine equations, Farey Fractions, rational approximations.

Text Book: <u>Elementary Number Theory & Its Applications</u> (6th edition). By Kenneth H Rosen. *Addison & Wesley.* ISBN 0-321-50031-8.

Objectives: The student will familiarize some symbols used in number theory and elementary number theoretic functions, and learn to prove fundamental theorems. Although it does not require much of prior knowledge of mathematics and it studies a concrete object, this subject is noted for the difficulty of its problems. By solving innocent and simple-looking exercise problems, student will acquire a valuable experience of triumph after a considerable amount of careful thinking. This course prepares the student better for future mathematics courses especially MA402, and offers a opportunity to experience the simple mathematical beauty of Number Theory, which is known as the Queen of Mathematics.

Homework and Exams:

A certain number of problems will be assigned after each section. It is important for the student to complete and submit the assignments on time. Grading penalty will apply to late homework papers (more than a week late).

There will be three unit-tests: Test #1 is to cover Chapter 1 to 3, Test #2 cover Chapter 4 to 6, and Test #3 Chapter 7, 8 & 9. (Dates are TBA.) And an accumulated Final Exam that covers most chapters will be at the end of the semester.

Grading:

ATTENDANCE:	5% of the total	**A:** 90 – 100%
HOMEWORK:	40% of the total	**B:** 80 – 89%
TESTS:	35% of the total	**C:** 70 – 79%
FINAL EXAM:	20% of the total	**D:** 60 – 69%
		F: below 60%