THE COLLEGE AT OLD WESTBURY
STATE UNIVERSITY OF NEW YORK

Department of Mathematics, Computer & Information Science

NUMBER THEORY
MA 4100 · SYLLABUS SPRING 2013

Professor **Frank Sanacory** *Office* **NAB 2014**
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Office Hours **MTWR 3:00 pm – 4:00 pm**
Course Web Page **https://webfs.oldwestbury.edu/faculty_staff/sanacoryf/**

TEXTBOOK: E**lementary Number Theory**, 7th Edition, David M. Burton, McGraw-Hill, 2011.

COURSE DESCRIPTION: This early proof course will develop the theory of numbers. We will start with the division algorithm, prime decomposition and modular arithmetic . We will continue by studying the many Chinese remainder theorem, Fermat's little theorem, Wilson's Theorem, Euler's phi-function, Euler's theorem. We will also foray into the modern field of cryptography.

COURSE OBJECTIVES: After successful completion of this course students should understand the division algorithm and Chinese remainder theorem. Be able to compute solutions to Diophantine equations, compute in modular arithmetic and Euler's phi function. Be ale to encipher messages using RSA, Knapsack and elliptic curve algorithms. Be able to prove basic results about divisibility.

COURSE EVALUATION & GRADING: Your grade for the course will be based on your homework/quiz performance (20%), three tests (45%), and a comprehensive final exam (35%). The grading scale is as follows:

A = [93, 100] **A**– = [90, 92]	**B +** = [87, 89] **B** = [83, 86] **B** – = [80, 82]	**C +** = [77, 79] **C** = [73, 76] **C** – = [70, 72]	**D +** = [67, 69] **D** = [63, 66] **D** – = [60, 62]	**F** = [0, 59]

TUTORIAL: Drop-in tutorial is available in the mathematics learning center, Room **A118.**

ACCOMMODATIONS FOR STUDENTS WITH SPECIAL NEEDS: If you have or suspect you may have a physical, psychological, medical or learning disability that may impact your course work, please contact The Office of Services for Students with Disabilities (OSSD), Phone: 516-876-3009, Fax: 516-876-3005, TTD: 516-876-3083. All support services are free and all contacts with the OSSD are strictly confidential.

FINAL EXAM: Will be held on Tuesday May 14 at usual class time in our regular classroom.

RESPECT: Respect the class, including the professor and the fellow students. This means showing up on time and having your cell phone off.