Math 110 - Fall 2016

**Subject matter:** The course will discuss modular arithmetic, with applications to cryptography and error-correcting codes. We will study many examples, as well as develop a solid grounding in the theory.

**Text Book:** *Introduction to Cryptography with Coding Theory* by Trappe and Washington.

**Instructor:** Gunnar Carlsson (room 383L, building 380), carlsson@stanford.edu

**Course Assistant:** Jorge Guijarro Ordonez (room 380H, building 380), jguiord@stanford.edu

**Office Hours:** Carlsson Tu-Th 12:30-1:30, Ordonez MW 3:30-5

**Course requirements:** There will be several homework sets, to be submitted by e-mail to math110problemsetsfall2016@gmail.com. Their due dates are included in the schedule below. In addition, there will be a midterm and a final examination, both take home. The dates are included in the schedule below. Since this is a Writing in the Major (WIM) course, there will be a paper assigned, and work on that will begin in November. More detail will be given at the end of October.

**Course Schedule**

1. Week of 9/25:
2. Week of 10/9: Homework 1 due 10/13
3. Week of 10/16: Homework 2 due 10/20
5. Week of 10/30: Take home midterm exam.
7. Week of 11/13: Homework 5 due 11/17
8. Week of 11/20: Thanksgiving Break

**Homework assignments**

1. **Assignment 1:** §2.13, 2, 3, 4, 7, §3.13, 1, 2, 4, 6, 7
2. **Assignment 2:** §3.13, 8, 9, 10, 12, 14, 17, 18, 19, 20
3. **Assignment 3:** §3.13, 21, 22, 24, 25, 26, 29, 33, §6.8, 1, 2
4. **Assignment 4**: §6.8, 2, 4, 5, 6, 19, 23, §7.6, 2, 5, 7

5. **Assignment 5**: §13.3, 2, 3, §16.7, 1, 2, 3, 4, 5, 10, 11 (a-c)

6. **Assignment 6**: §18.12, 1, 3, 4, 5, 6, 9, 11, 12, 13

Homework Solutions available at