CS 493 - Computer Security

Today

- Syllabus
- Ethics
- Definitions & Intro
This course:
- Homework
- Lab attendance + occasional pop quizzes
- Paper reviews
- Lab assignments
- Midterm + final exam
Look for syllabus next time.

Some things to note:

- Late policy for assignments.

- Paper reviews: You will write in this course!

- Labs - on a remote system called DETER

- Course resources - the internet is fair game, but cite your sources! (use common sense)
Workload

This is a senior level topics course, I will expect a lot of reading and independent work.
Ethics and computer security

1. "Hacking" is not glamorous
   (pause for movie clips)
Indiscretions now will haunt you later (and probably...
So: Before you experiment, I suggest talking to me!

This course walks a fine line, playing too will get you into trouble.
Course policy

Any malicious behavior (as I define it) will result in an immediate filing of an official complaint on your student record, forwarding of the details to the dean.

In addition, I will report you to legal authorities.
What is security?

(Hint: The word “computer” should not be in your answer.)

Access control
physical safety/control
Why security?

- Money
- Safety
- Reputation
Security did not begin with computers.

8500 BC: Farmers store food in a communal warehouse.

Clay tokens represented food stores.

How to avoid cheating?
Solution: Tokens are placed in clay envelope, sealed at warehouse.

When a farmer wants his food, it is broken in front of a witness.

(This is the origin of today's coin.)
2nd Century: Jewish bookkeepers want a way to ensure integrity in their books.

Solution: Double-entry bookkeeping.

Account paid

Account receivable

(Still used today in banks.)
19th Century: The heliograph is used to signal Morse code.
From 1834-1836, two bankers bribed an operator to provide information about the stock market by making mistakes in the transmission.

(Now called a *covert channel* attack.)
Basic Issues:

1) Confidentiality
2) Integrity
3) Availability

Figure 1.1 The Security Requirements Triad

Image provided by William Stallings and Lawrie Brown, with permission.
Confidentiality:
- data confidentiality
- privacy

Example: Student grade information.
Grades are confidential. (high confidentiality)
Class roster - medium
Phone number.
Integrity:
- data integrity
- system integrity

Example: Doctor’s records

Accurate records
Accessibility
No unauthorized Changes
Availability:
- system should be available to users

Examples: Web sites
- Your homework (low)
- Bank account (medium)
- 911 call center
- DNS server
Sounds pretty boring
It's fiction, people!

In reality, it's mostly:

- resetting passwords
- attempting to convince people that they really do need to be careful
- advanced mathematics