CS161 Computer Security

Overview
Teaching Team
What is Computer Security?
Personal Data & Files
Banking Funds
Personal Privacy
Location Privacy
What is Computer Security?

• Allow intended use of computer systems

• Prevent unintended use that may cause harm
Why Should You Care?

• It impacts your day-to-day life
Why Should You Care?

• It impacts everybody’s day-to-day life
  – Millions of computers compromised
  – Millions of passwords stolen
What Is This Class About?

Learn About Security

Make a Difference
How Can You Make a Difference?

• Be a more security-aware user
  – Make better security decisions

• Be a more security-aware developer
  – Design & build more secure systems

• Be a security practitioner & researcher
  – Identify security issues
  – Propose new security solutions
What Will You Learn in This Class?

• Security vulnerabilities
• How to exploit them & defend against attacks
• Fundamental security concepts & principles
• How to architect secure systems
• Security problems & solutions in application areas
Topics Covered in Class

• Secure coding
• Secure architecture concepts & principles
• Mobile security
• Cryptography
• Web security
• Network security & malware
Course Format
Course Format

• Lecture

• Discussion section:
  – Tue 10-11 am (75 Evans)
  – Tue 11-12 pm (75 Evans)

• Office hours:
  – Thu 1-2pm (TA) (611, Soda)
  – Fri 1-2pm (TA) (611, Soda)
Labs

- 6 Labs
- Usually 2-3 weeks long
- Hands-on experience for material covered in class
- Done in groups of two
  - Pick partners soon!
Labs Schedule

• Lab 1: Buffer overflow
• Lab 2: Program testing & verification
• Lab 3: Cryptography
• Lab 4: Network security
• Lab 5: Web security
• Lab 6: Android security
Grading

• Midterms
  – 2 total: 20% each

• Labs
  – 6 total: 10% each

• No Final
Next Steps


• Identify group partners

• Discussion sections start 9/4

• First lab 9/5