



Course Orientation & Introduction into Computer Security

EECE 412
Session 1



Introductions

- Teaching staff
 - Instructor
 - Konstantin Beznosov, ECE
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 - Research interests
 - » engineering security mechanisms for distributed information systems
 - » security usability
 - » middleware security
 - » access control
 - » engineering secure software
 - » network security
 - Teaching Assistant
 - Keith Turkowski, ECE
Ph.D. candidate



Outline

- Course orientation
 - Introductions
 - Course overview
 - objectives
 - grading
 - modules
 - calendar
 - Q&A
- Introduction into computer security
- Upcoming important dates and action items



Course orientation

- What is this course about?
- Where can I find the course syllabus and other stuff?
- What will I learn in the course?
- What do I need to do to pass the course?
- What do I need to do to get 90% in the course?
- How do I contact/see the course staff?
- How can I obtain latest announcements regarding the course?



Course orientation cont-d

- What background should I have?
- What will I be doing in the course?
 - Term project/paper
 - Home assignments
 - Presentations
 - Quizzes
 - Mid-term
 - Participation
 - Reading
- What will I be reading?
- What will the course schedule look like?
- Where can I find additional information resources?
- How can I provide feedback?



Questions



Introduction to Computer Security



What is Security?

- security -- "safety, or freedom from worry"
- How can it be achieved?
 - Make computers too heavy to steal
 - Buy insurance
 - Create redundancy (disaster recovery services)



Goals of Security

- Prevention
 - Prevent attackers from violating security policy
- Detection
 - Detect attackers' violation of security policy
- Recovery
 - Stop attack, assess and repair damage
 - Continue to function correctly even if attack succeeds



Solovki Monastery, White Sea, Russia





Conventional, fortress-based, security

Goal:

Prevent people from violating system's security policy

Means:

Fortification

- provides safety
- involves layering
- expensive
- requires maintenance
- eventually compromised



Some points about fortresses

- No absolute safety
- One weakness/error sufficient
- Extra layers → extra cost
- Important to understand threats
- Limited defender's resources
- Need defense plan
- Adjust to attacks
- Resource suppliers
- Distinguishing noncombatants from attackers
- Containment



Limitations of Fortresses



Fortress Analogy Limitations

Fortress

- Against external attackers
- Protects only insiders
- Defenses cannot change

Computer security

- Control of insiders
- Has to keep system usable
- Has to protect from new types of attacks



Key Points

- Course orientation
 - All the course material is on webCT
 - Start early!
- Introduction into computer security
 - Security == freedom from worry
 - Conventional approach: fortress-like



Next session preview

- Introduction to computer security
 - Security mechanisms & policies