Course Orientation

CPEN 442
Teaching staff

• Instructor
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    • www.ece.ubc.ca/~beznosov
    • Research interests: usable privacy and security of
      – social media, mobile devices, IoT, cryptocurrencies

• Teaching Assistants
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Outline

• Course orientation
  • course site
  • syllabus
  • calendar
  • term project
  • Q&A

• Introduction into computer security
What background should I have?

- From students’ anonymous comments:
  - “This class involves fairly amount of programming. I am just wondering for those in EE, are they capable of doing all these coding from scratch.”
  - “This course definitely needed a strong programming background (which I happen to have). My peers without strong programming backgrounds had trouble with many of the assignments.”
  - “It was helpful to have taken CPSC 317 (Networking) and CPSC 310 (Software Engineering) and also concurrently taking MATH 342 at the same time.”
  - “I was lacking nearly all prerequisites for the course, and without my work experience with databases and web application programming I doubt I would have been able to keep up with the assignments. However, the focus of the quizzes and the projects was on problem-solving and applying new concepts, which my academic background had provided to me thoroughly.”
  - “An Electrical Engineering student (as opposed to a Computer Engineering student) does not have the background information to do some of the assignments.”
How Much Time Does the Course Require?

- A lot!

From student anonymous comments:
- “I felt the assignments … were extremely time-consuming …”
- “Coursework was too heavy - it was just more and more work dumped onto the student.”
- “Prof has extremely high expectations on students but I found them hard to meet …”
- “The course was very time-consuming, …”
- “I spent more time on this course than on my capstone fourth year project course, as a reference.”
- “The assignments and quizzes are very difficult. The workload of the course rivals the fourth year capstone 14 course (10 credits).”
- “Homeworks, Quizzes and Projects were very hard …”
- “… the expectations for the course were quite high …”

Q1 The assigned workload for the course was heavy.

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How Much Time Does the Course Require?

• From students’ anonymous comments:
  • “If a student is taking a full course load during the semester, it is quite unrealistic to have as many assignments and quizzes and expect students to start on the project early.”
  • “quizzes, assignments, and term project and exam is too much …”
  • “Lots of assignments, projects, one of my most intense courses.”
  • “With quizzes, lengthy assignments, and a pretty much full flegged project, as well as a final exam which is pass final to pass the course there was a lot of work to do.”
  • “Very heavy workload, the term project was huge, and there were no weeks that did not include either a due assignment or a quiz.”
  • “The assignments are all quite hard and take a lot of time, and the term project runs in parallel.”
  • “In this course I spent rough 16 hours week …”
repeat after me

• This course is hard!
• This course takes a lot of time!
course information flows

- **courses.ece.ubc.ca/cpen442**: calendar, lecture slides, syllabus, office hours, deadlines,
- **piazza.com**: out of classroom announcements, Q&As
- e-mail through piazza.com: urgent announcements
- course calendar
- announcements
  - non-urgent: in the class & on piazza
  - urgent: through piazza or UBC e-mail
- office hours
  - in the calendar
Bloom’s taxonomy of learning

- **Remember**: Retrieve, Identify, Match, Select, Label
- **Understand**: Compare, Explain, Distinguish, Present
- **Apply**: Illustrate, Demonstrate, Use
- **Analyze**: Organize, Attribute, Distinguish
- **Evaluate**: Assess, Hypothesize, Defend
- **Create**: Design, Invent, Compose, Revise

Source: www.nltslibrary.info
Key Points

- A lot of
  - hard work -- 15-20 hours/week
  - programming
- All the course material is on courses.ece.ubc.ca/cpen442
- Start early!
  - First assignment due September 13
  - First quiz on September 11
  - Project proposals due October 11
assignment #1 review
term projects
term project types

• design
  • come up with a technological solution to a real security or privacy problem
  • evaluate your solution

• analysis
  • analyze security of a real system/product/service
  • fail the project if no vulnerabilities are found

• implementation
  • implement and extensively test security functionality or a feature/mechanism in a real system
security analysis projects

- **authorized** analysis of a
  - UBC system
  - third-party system

- **unauthorized** analysis of a
  - UBC system
  - third-party system
authorized security analysis projects

1. preauthorized projects to analyze a UBC or third-party system
   1. Be the first group to “claim” the project. (send Kosta e-mail with subject “412: claiming project #…”)
   2. Meet with the system owner to scope out the project.

2. with authorization obtained by the students, analysis of a UBC or third-party system
   1. get authorization from Kosta by September 28
   2. get authorization from UBC IT Security by October 7
   3. get authorization from the system owner by October 13
   4. Meet with the system owner to scope out the project.
examples of good analysis projects

- Analysis of GridGear Solutions' Smart Meter & Web Application System, by Connie Ma, Derek Chan, Jake Larson, Pascal Turmel (2016)


- Security Analysis of the i>clicker Audience Response System, by Derek Gourlay, Yik Lam Sit, Yuan Sunarto, Tim Wang (2010)


http://courses.ece.ubc.ca/cpen442/term_project/previous_years_reports.html
Analysis of Smart Card Laundry System
best presentation, best analysis project (2009)
Jon Lee, Niel Paul, Choon-Sean Cheong, Dicky Bratawijaya
"Analysis of GridGear Solutions' Smart Meter & Web Application System"
Best Analysis Project, Best Presentation, Best Videoclip (2016)
Connie Ma, Derek Chan, Jake Larson, Pascal Turmel
examples of good design projects

- "Design of Expiring Barcodes" by Red Kernel Garsuta, Jae Yeong Bae, Matthew Mackenzie, Anni Wang (2016)
- "Password Gamification" by Peter Cheung, Peter Yeung, Crystal Ng (2012)
- “Paper De-shredder” by Hei Wang Chan, Evan Gillespie, Delfino Leong (2010)
"Design of Expiring Barcodes"
Red Kernel Garsuta, Jae Yeong Bae, Matthew Mackenzie, Anni Wang
"Design of Smartphone Unlocking Mechanism `The Locker’"
Calvin Chan, Daniel Chong, Shibo Weng
term project milestones

- **October 11**
  - proposal presentations
  - written proposals and authorizations due

- **November 8**
  - Introduction, Related Work, and Methodology sections of the report due

- **November 27**
  - project video clips due

- **December 3 (all day)**
  - project presentations

- **December 6**
  - final project reports due
Questions