Contact Information

- **Instructor:**
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- **Course:**
  CSCD330, CEB 107 – Lecture, M, W, F 9:00-9:50 AM
  CEB 207, 208 – Lab Tues, Th. 9:00-9:50 AM
  CEB 342 – Lab

- **Office Hours:**
  M, W, F 10 am – 11 am
Course Information

• Do not use Canvas for this course

• Course number
  CSCD 330 Network programming

• Web page for the class
  http://penguin.ewu.edu/cscd330/
Overview

• Today
  • Overview of Course Content
  • Where CSCD330 fits within the curriculum
  • Expectations
  • Learning Objectives
Network Programming

- Basic networking course
- Internet serves as an example of core network concepts

Covers Network Concepts

- Networks have Layers
  - Application, Network, Transport, Data and physical
Network Programming

• Networks Have Layers - Bottom up
  • Data link layer
    • Physical and local – Wired / Wireless
  • Network
    • Internetworking and Routing
    • Device to Device
  • Transport Layer
    • Flow and congestion control
    • Process to process
  • Application Layer
    • User Interface
    • Application specific protocols services
Network Programming

• Networks Have Protocols
  • Each network layer has its own protocols
  
  • Data Link Layer
    • Ethernet and 802.11, ARP
  
  • Network Layer
    • RIP, OSPF, BGP
  
  • Transport Layer
    • TCP, UDP
  
  • Application Layer
    • HTTP, FTP, Telnet, SSH, SMTP
Network Programming

• Programming
  – Network programming
    • Client-Server, P2P
  – Why?
    – Helps to understand how hosts communicate in a network

• Labs and other hands-on exercises
  – Lets you see exchange between hosts using protocols
  – See exchange of messages, timing, data
Network Courses

• CSCD 330 – Network programming -
  • Basic networking course with some emphasis on programming and hands-on labs

• CSCD 433/533 – Advanced Networking -
  – More in-depth look at networking
  – More about QOS, real-time protocols, network simulation, wireless
  – Learn about measurement of networks
  – Includes some network programming
Network Security Course

• CSCD 434 Network Security
  – Computer networks focus on both threats and defense
  – Begins with coverage of attacks and attackers
    • Looks at how they gain access to computers on a network
    • Examine different phases of an attack
    • Learn tools and techniques attackers use
    • Finally, learn about defense mechanisms
General Computer Security Course

• CSCD303 – Computers and Information Security
  • This course is a basic course in computer security
  • Covers security concepts, web security, database security and beginning programming security
  • Also covers privacy concepts
  • How to protect yourself from privacy violations from anyone
Prerequisite Knowledge

• Prerequisites
  • Data structures – only!!!
  • Programming Language - Java
    • Know how to compile and debug programs
    • Know program testing, make sure they work
  • Don't assume any network knowledge!!!
Learning Objectives

• At the end of this course you should
  – Understand basic networking,
    • How the Internet works
    • The layers underlying the network
  – Understand Client/Server programs
  – Some experience with Java threads
  – Know how to continue learning about networks beyond this class
    • Certifications, Books, Journals, Web Sites
What You Need To Do

• **Come to class !!!!**
  - Listen, learn ... ask questions
• Download lecture notes, read them
• Read the textbook!!!
  - There will be some outside reading
• Some in-class participation
• Fun group exercises!!
What You are Expected To Do

• **Group exercises** in class, **part of your grade**
• **Labs** – Do them and turn them in
• **Programs**
  – Do them on time, hand in written part
  – Email code
• In class, **discussions of relevant topics**
Who Am I

- **My Background**
  - PhD from University of Idaho in CS
  - Specialty is in Security
    - Also have MS and BS degrees in Forestry
  - Acquired networking expertise at EWU

- **Social Aspect to Networks**
  - Will discuss social issues too
  - We will explore network topics related to loss of Internet freedom, privacy and surveillance
What I am Expected to do

• Teacher .. yet
• I don't know everything!!!
• We should not only study the Internet but
  – Use the Internet as extended classroom
• Encouraged to share what you learn
  – Opportunities for extra credit
  – Send me .... links
What I am Expected to do

• Provide feedback
• Put up interesting links
• Suggest ways to enhance your learning
• I like to have Speakers Occasionally
  – If you know of someone who is a network professional ... let me know
Conclusion

• CSCD330 is a required class ... BUT, all programmers need to know about networks!!!!

• Nothing (in my opinion) is particularly difficult, but networks are a large topic
The End

• Questions?
  • Do Assignment 1

• Next Time
  – Get the Book if you haven't already
  – Read: Chapter 1
  – General Network Overview
  – Download Wireshark – No Lab this week !!!