

CSCD 330

Network Programming

Winter
2016



Lecture 1 - Course Details

Contact Information

- **Instructor:**

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- **Course:**

CSCD330, CEB 228 – Lecture, M, W, F 1:00-1:50 PM

CEB 342 – Lab Tues, Thurs 1:00-1:50 PM

Office Hours:

M, W, F 11 am – 12

Course Information

- 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
- Uses Internet 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**
 - Think LAN's - Wired and Wireless
 - **Network**
 - Internetworking and Routing
 - **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
 - 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 Programming and Our Curriculum

- **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 and Our Curriculum



- **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

More Network Security

- **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 ahead of time
- 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** – Complete 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
- **Very Opinionated about Certain Topics**
 - Will discuss social issues too
 - We will explore network topics related to loss of Internet freedom and Surveillance

What is Expected of Me 1



ME

- Teacher but ...
- I don't know everything!!!
- The Internet is your friend
- You are encouraged to share what you learn with the class
 - Opportunities for extra credit
 - Send me links to other material

What is Expected of Me 2

- Provide feedback
- Put up interesting links
- Suggest ways to enhance your learning
- I like to have Speakers Occasionally
 - If you know of someone who can talk about networks ... has something interesting to say let me know

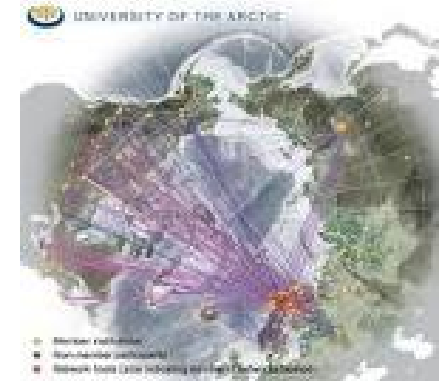
Conclusion



- 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

































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