

# CSCD 330

# Network Programming

Spring  
2017



## Lecture 1 - Course Details

# Contact Information

- **Instructor:**

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- **Course:**

CSCD330, CEB 227 – 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
- 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**

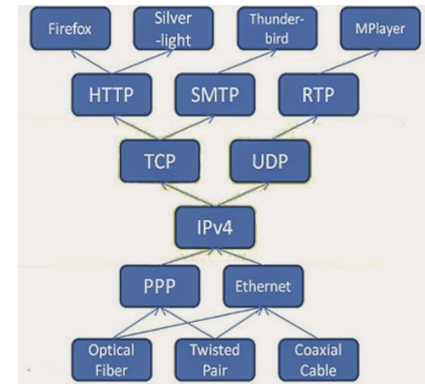
- RIP, OSPF, BGP

- **Transport Layer**

- TCP, UDP

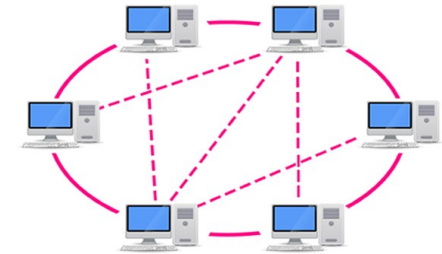
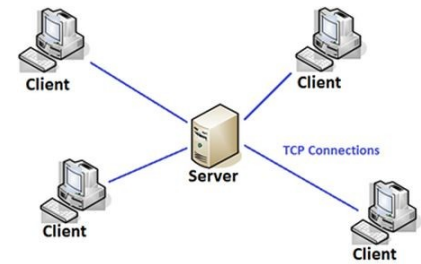
- **Application Layer**

- 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

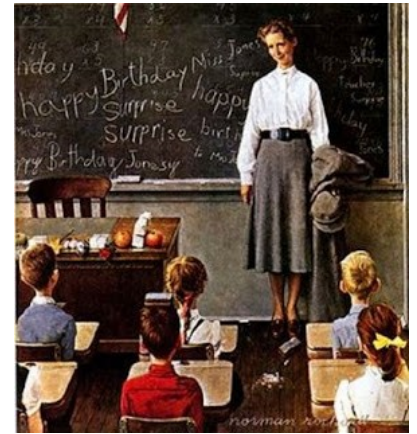


- **My Background**
  - PhD from University of Idaho in CS
  - Specialty is in Security
    - Also have MS and BS degrees in Forestry
  - Acquired networking expertise at EWU
- **Opinionated about Certain Topics**
  - Will discuss social issues too
  - We will explore network topics related to loss of 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

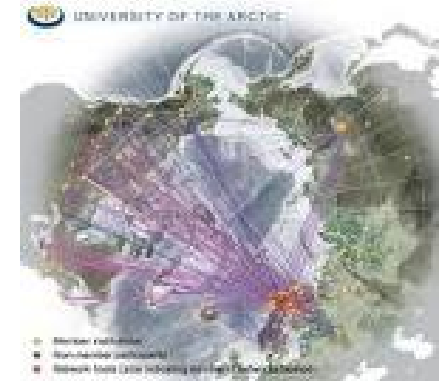
# Conclusion



- 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





































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