University of Colorado **Boulder**

Fundamentals of Data Communications
CSCI 5010

Course Overview

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Introduction

Why are you taking this course?

- **Internet**

- **Cloud**

- **Router**

- **Switch**

- **Wireless**

- **Internet of Things**

- **Firewalls / security / hacking**

Why are you taking this course?

- You will learn:
    - How to Design
    - How to Configure
    - How to Troubleshoot
    - Technologies and Theory
    - Industry Must Haves

- Do it for the KNOWLEDGE, not for the grade
    - Where to find the information!
        - ***I will NOT give you detailed, step-by-step instructions (it's not real world)***
        - ***Find the information for yourself (search web, wiki, etc.), don't memorize (use it or lose it)***
        - ***Teach you the material and help you figure out how to learn***

- Not many chances to build (and break) networks without consequence
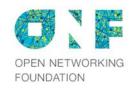
- Internships & Fulltime Positions

Course Overview

- **Course Homepage**
  - Canvas
    - ***https://oit.colorado.edu/services/teaching-learning-tools/canvas/help***

- **Syllabus**
  - Updates via "Versions"
  - "Syllabus (v1)"
  - "Syllabus (v2)"

- **Office Hours and Location**
  - On Syllabus (TBA)
  - By Appointment

- **Graduate Student Assistant**
  - TBA (2nd Year NE student)

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- **Levi - Industry Experience**
  - Research Associate Open Networking Foundation (ONF)
    - *Director of OCSP Program*
  - MEF Research Council – SDN/NFV
  - Lead Senior Network Engineer
    - *ADTRAN Inc. (ADTN)*
      - Hardware manufacturer (VoIP Gateways, Routers, Switches, Firewalls, Unified Communications, etc.)

- **Education**
  - Ph.D. Information Systems
    - *IPv6*
  - MS Information Systems

- **Research**
  - SDN/NFV, Net Auto, DevOps

- **Hobbies**
  - Rock Climbing (Trad./Sport)
  - Cycling (Road/Gravel/Mountain)

Course Overview

- **Communication**
  - Slack Channel
  - Email - add a general point about the question in the subject
    - *"CSCI XXXX: Help with IPv6 Link-local in Wireshark"*
  - Do not have errors in your email
  - Short and to the point
  - Make sure we know what you're asking!

  - Do the little things right.
    - *How you do anything is how you do everything.*

Course Overview

- ## **How I teach the class**
  - Lecture
    - ***Interactive***
      - Answer out loud = learn more
    - ***Interview-style questions***
      - Answer incorrect = learn more
    - ***Lecture Slides***
      - Talking points – requires note taking
    - ***Lectures and Labs are a starting point***
      - Go above and beyond

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Levi Perigo Emotional Chart

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Considerations

- **Pre-requisites**
  - None – starting from the beginning

- **Always Start on Time**
  - If late, then still show up, but not retake quiz

- **Bring your laptop to class!**
  - See professor if you do not have a laptop that meets requirements in syllabus

Considerations

- **Workload**
  - Time Management
    - *Importance, Prioritize, Other Classes, Overwhelmed*
    - *TALK TO ME!*

  - Expect 9-15 Hours Per Course (in NE)

  - The labs are designed to be done **individually** over **multiple days**
    - *if you try to do everything the day before, you will not benefit as much from the course*

Late Submissions

- **No Late Submissions!**
  - This is not relevant in industry
  - Late submission will be a zero

  - Addendum
    - *Late submissions up to 24 hours will receive 50% credit*

Honor Code

- **Provide reference citations for EVERYANG!**
  - If there is ever a doubt, add a reference
  - The references must be IN TEXT

- **If you have a question if something is considered cheating or plagiarism—ask!**

- **Labs**
  - *Lab Submission Guidelines (Canvas)

- **Assignments**
  - *Executive Summary (Canvas)

Research Studies

- **Research study about time spent studying**
  - Better grade, not better at this

- **Research study about "magic button"**
  - This "magic button" will raise your grade by 10% or one letter

- **Research study about neighbors with computers – 5% & 10% grade improvement**

- **Which is better to memorize or know where to find it?**

Introductions

- **2.5 Minutes**
  - What is your networking background
  - What you want to learn from the class
  - One hobby / something you did over the break

Homework & Projects

- **Homework is all individual**
  - Intended to test your ability to communicate your knowledge
    - *Written & oral*
    - *Learn and how to learn!*

Quizzes and Tests

- **Quizzes**
  - Will be at the start/middle/end of class
  - Can't be made up if late
  - Will be over the assigned reading

- **Tests**
  - Midterm
  - Final

Labs

- **Lab Reports**
  - Each lab report will be individual
    - *You can work together, but each question is answered individually*
  - Leave the question on the lab; the point value; and present your answer in a different color font
  - Only answer questions that have a point value / deliverable
  - Provide references where needed

- **Access / virtual**

- **Multivendor equipment**
  - GNS3 and Cisco PacketTracer

- **Real-world**
  - Taken from experience and industry

- **Better Understanding**
  - Starting point – Go Above and Beyond
    - *Have "fun"*

© AMC

Certifications

- **Cisco Certified Entry Networking Technician (CCENT)**
  - Exam voucher with book

- **CompTIA Network+**
  - Exam voucher with book

- **Why would I get a networking certification?**
  - Top Certifications

Current State of Network Engineering

- **Differentiator – Can only help you**
  - Hiring
    - *Experience*

- **Challenging, Advanced, and Rewarding**
  - You have to know networking technology/theory first

Words of Advice

- **Attitude is everything**

- **Treat this like a job**

- **Have fun**

- **I'm on your side**

- **Help you get a job**
  - Resume

Syllabus