

Computer Networks

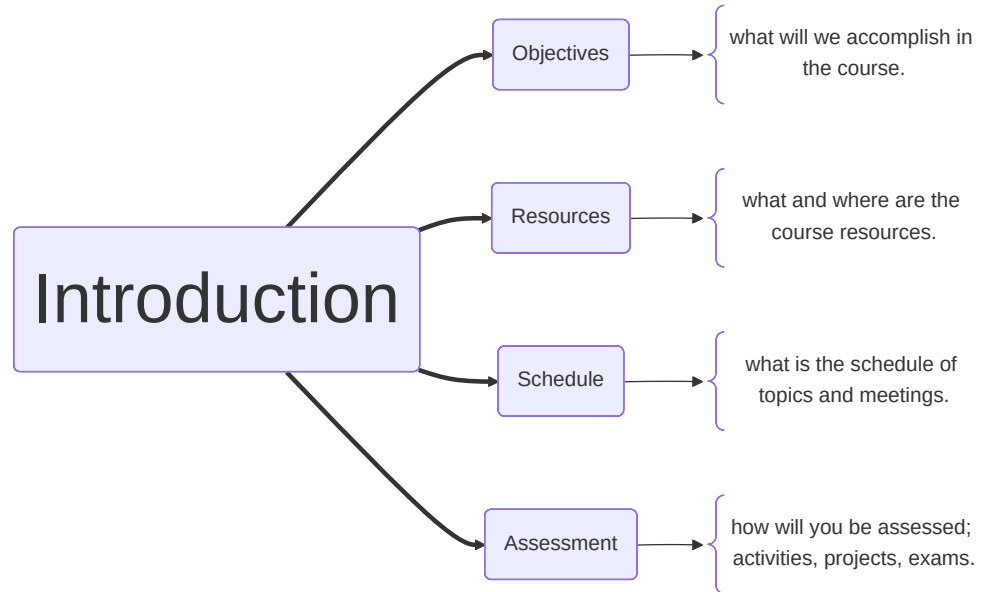
COS 460 / 540

University of Southern Maine
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About the Course...

Let's take a quick run-through of the course mechanics.


- Course Objectives
- Resources and Textbook
- Schedule
- Projects, activities, and Exams



About Me

- **Why Networks:**  I've studied and taught data communications for a reasonably long period of time and still find it fun and interesting. My graduate work was performance analysis of network file servers.
- **Courses:**  Operating Systems, System Programming, Mobile Development, Robotics, Art and Craft of Writing Code,
- **Other Interests:**  general software development and technology, electronics, physical computing, wood and metal working, making things.
- **Fun Fact:**  For the past few years I've been completing the Advent of Code in December. If you have not tried it, it will surely give you practice writing code!
- **Call me:**  Professor Houser works.
- **Contact:**  Stephen Houser <houser@maine.edu>

Info

 I don't have a permanent office on-campus. I will post office-hours availability in the next week.

 Zoom is an option, if it works for you!

Course Objectives

What is a network?

The basics of computer networks and networking.

- Computer networks as a **layered architecture**
- **OSI/ISO Model** of computer networks
- **TCP/IP** Model of computer networks

Course Objectives

What is a network?

How networks are connected together to send data from host to host.

Connecting Networks

- Layers are fun 🍰
- Switching and Bridging
- Routers and Routing
- End to End Data communication

Course Objectives

What is a network?

Applications that run over the network and what their data looks like.

Connecting Networks

Network Applications

- The hardware and software that makes the network work
- Presentation of data to applications
- Multimedia Data (audio, video, other...)
- Encryption, privacy, and security

Course Objectives

What is a network?

Writing code for network applications, servers, and services.

Connecting Networks

- What is a **protocol**

Network Applications

- Client-server applications

Writing Code

- Peer to Peer applications

- Distributed services

- Low and high level libraries

“Fairy tales are more than true: not because they tell us that dragons exist, but because they tell us that dragons can be eaten”

- Neil Gaiman

Course Resources

We will be using two primary systems during the semester.

Brightspace

Slides, activities, exams, reading materials, grades... Always start from the Brightspace course.

The content is organized into *weekly* modules.

GitHub / GitHub Classroom

Project submission and tracking. You will need a GitHub account.

Note

Projects always **Start** in Brightspace. You will *push* your code to GitHub upon completion.

Textbook

The textbook for the course is **FREE** online.

Computer Networks A Systems Approach

Petersen & Davie (5th Edition or newer)

The book is **FREE** online
<http://book.systemsapproach.org>

FREE

FREE

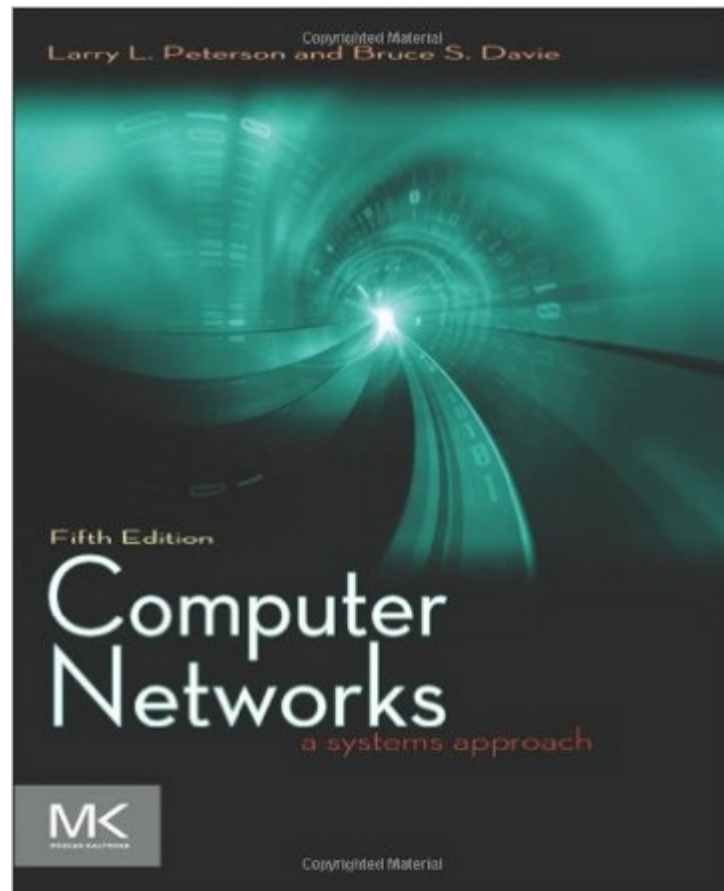
FREE

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FREE



Schedule

This is roughly the order and time we will spend on the different sections of the course.

- Foundation & Direct Networks (~4 weeks)
- Inter-networks & End-to-End Data (~6 weeks)
- Data & Applications (~5 weeks)

	Typical Class Meeting
5:30pm	Lecture and Discussion
6:15pm	Break
6:30pm	Lecture and Discussion
7:15pm	Break
7:30pm	Project & Activity Time

Note

Subject to change as the semester progresses. Brightspace will have the definitive dates and topics.

Projects, Activities, and Exams

Projects

4 programming assignments

- Choose your own language
- Progressively more difficult
- Project 3 and 4 is a two part project we will design in class
- Writing code for network applications, servers, and services.

$50 + 100 + 75 + 100 = 325$ points

Projects, Activities, and Exams

Projects

In-class Activities

Activities

- Discussion
- Quiz
- Worksheet

Will require either submission or discussion in Brightspace. Often from sections in the textbook or linked topical readings (articles) Be prepared to work on and discuss in class, you will get called on!

$10 \times 15 \text{ weeks} = 150 \text{ points}$

Projects, Activities, and Exams

Projects

3 Exams in Brightspace

Activities

Exams

- Based on three sections of the course
- Final exam is *comprehensive*
 - ~20% points from prior course material

$100 + 100 + 125 = 325$ points

Projects, Activities, and Exams

Projects

Final course grades thus consist of the following maximums:

Activities

Projects

325 points

Exams

Activities

150 points

Grade

Exams

325 points

Total

800 points

Grades are not scaled. 90-100% is an **A**, 80-89% is a **B**, etc... The exact point breakdown is detailed in the syllabus in **Birghtspace**.

Questions

 Question

Are course meetings optional

No. I'm expecting you to be here to take part in the activities with your classmates.

 Question

Can I hand in activities or projects late?

No. You are expected to complete them on time.

 Question

Do I need to buy the textbook?

No. It is available **FREE** online at <http://book.systemsapproach.org>

What are your questions?

