

# CPSC 317 — COMPUTER NETWORKING

Module 0 - Introduction

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# THINGS TO DO TODAY

- Introduce ourselves
- Talk a little about the course content
- Talk a little more about the course structure and rules

# WHO AM I?

- Aastha Mehta
  - UBC since 2021
  - PhD from Max Planck Institute for Software Systems, Germany 2012-2020
  - Software Engineer, NetApp, Bengaluru India 2011-2012
  - Ugrad from BITS Pilani 2007-2011
  - Office: ICCS 335
  
- My interests: systems security, O/S, networking

# INTRODUCE YOURSELF

- Talk to your neighbours
- Introduce yourself to each other
- Topics of discussion
  - What area of Computer Science are you interested in?
  - Why are you taking this course? What do you want to learn?

# COMPUTER NETWORKING

- What is a computer network used for?
  - Communication
  - Information sharing
  - Task distribution
  - Resource sharing
  - Scaling and redundancy
- How do we make it work?
  - Communication media (wires, radio signals, etc.)
  - Network architecture (hosts, NICs, switches, routers, etc.)
  - Protocols
  - Applications

# COPING WITH COMPLEXITY

- Complexity limits the size of the systems we build
  - We need techniques to cope with it in order to build larger systems
- Modularity:
  - Divide system into smaller components
- Abstraction:
  - Define how a component interacts with the outside world
  - Then don't worry about how it works internally
  - Example: a battery

# COPING WITH COMPLEXITY (CONT.)

- Robustness drives independence
  - Be tolerant of inputs (deal with incorrect values sensibly)
  - Be strict on outputs (don't produce unexpected values)
- Layering
  - A particularly successful type of modularity
  - The system contains a number of levels, each built on the previous one
  - Used in networks and operating systems
- Hierarchy
  - A more general approach when layering is too strict
- Indirection
  - Names are the glue that holds systems together
  - Using indirection allows sub-systems to be swapped more easily

# COURSE OBJECTIVES

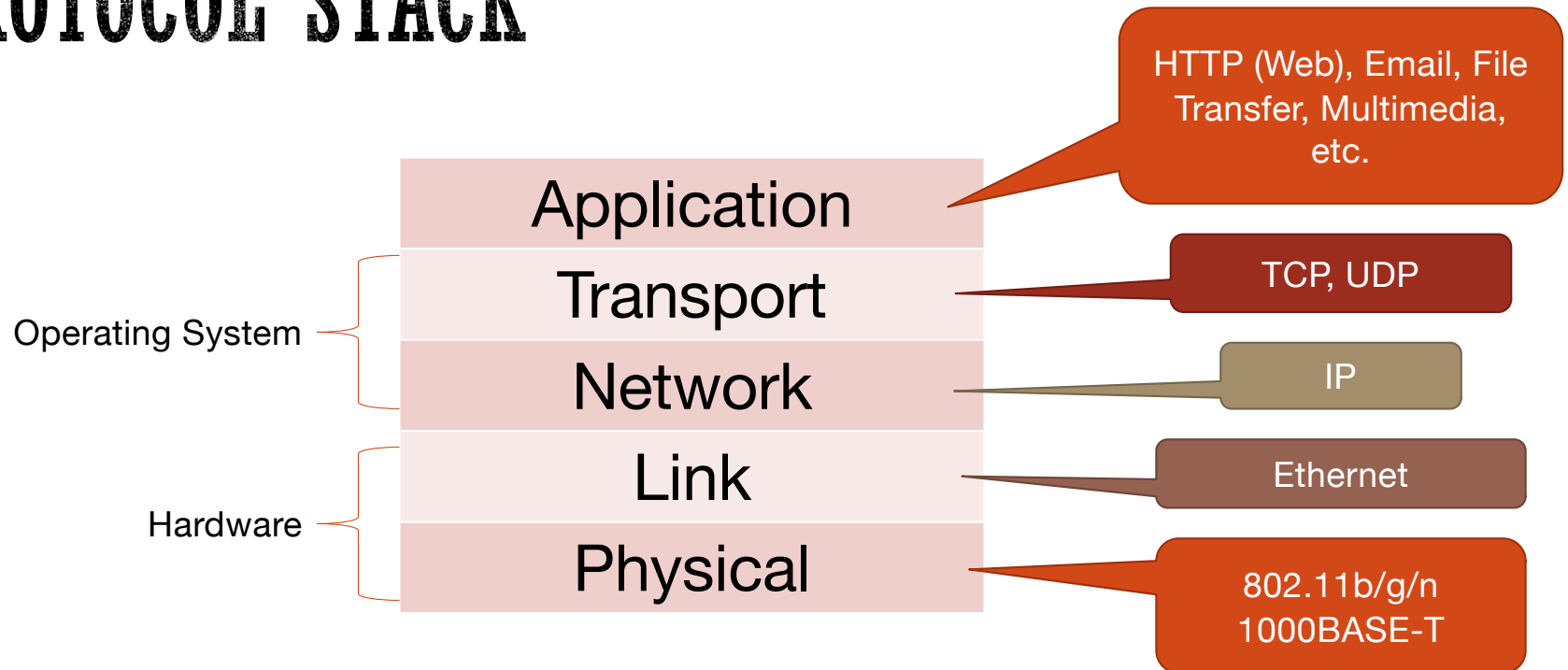
- You should become comfortable with:
  - writing and working with different types of programs that use computer networks
  - terminology about networking
  - key paradigms and strategies used in developing applications that use networks
  - applying these strategies and paradigms
  - basic concepts on how the Internet is put together and works



# KEY PARADIGMS AND STRATEGIES

- Isolation and privacy
- Data loss
- Performance
- Naming and location
- Using layers and abstractions

# PROTOCOL STACK



# PRE-REQUISITES

- CPSC 213 (Introduction to Computer Systems)
- CPSC 221 (Basic Algorithms and Data Structures)
- If you don't have these prerequisites, check <https://www.cs.ubc.ca/students/undergrad/courses-deadlines/prerequisites>

# CONTACT

- For most requests email: [cpsc317-admin@cs.ubc.ca](mailto:cpsc317-admin@cs.ubc.ca)
  - Extensions, Illness accommodations, Regrade requests, ...
- To contact the instructor only: [cpsc-317-staff@cs.ubc.ca](mailto:cpsc-317-staff@cs.ubc.ca) (instructor mail)
- Our teaching assistants are:
  - Ali, Alyssa, Ethan, Lucas, Karthik, Quinn, Ryan, Thomson
- Office hours: Tue 10-11am on Zoom (see URL on course page), Wed 1:30-2:30pm in my office
- For general questions about course material or assignments, do not email directly. Instead:
  - Use Piazza
  - Ask a TA during office hours
  - Ask us before or after class or during office hours

# GRADING SCHEME

- Grading Scheme:
  - Programming Assignments: 30% (6% for each of 5 assignments)
  - Quizzes: 30% (best 4 of 5 quizzes, 7.5% for each quiz)
  - Participation: 4% (iClicker questions in class and in-class activities)
  - Final Exam: 36%
- You must get 50% in the weighted average of the quizzes and the final exam
- You must get 50% on the assignments (average)
- We reserve the right to make minor modifications to this scheme

# TUTORIALS

- Practical exercises based on:
  - Course content
  - Programming assignments
- Start this week

# TUTORIAL REGISTRATION

- Do I have to go to a tutorial?
  - No
- Will handouts be provided if I don't go?
  - Yes, after the first tutorial of the week
- I want a tutorial, but sections don't fit my schedule
  - Keep looking – there is often quite a bit of “churn” in the first weeks
  - We'll keep an eye on registration numbers
  - Attend other tutorials in the meantime

# PROGRAMMING ASSIGNMENTS

- Will be released and submitted on PrairieLearn
- PA1: Dictionary client application in Java
- Some questions may have preliminary autograding on PrairieLearn
  - TAs will still review all submissions
- All assignments to be done individually



# QUIZZES AND EXAMS

- Biweekly quizzes
  - In CBTF, throughout the week (Mon-Fri)
  - First quiz in the week of January 29<sup>th</sup>
- Final exam
  - Will be held in the CBTF, dates to be determined
  - Do not schedule travel in April until you know when the exam is happening (and even then, be conservative – unforeseen events (fire alarms, etc.) can cause the final exam schedule to change at the last minute)

# TEXTBOOK

- Kurose and Ross, Computer Networking: A Top-Down Approach, 7th edition, Pearson, 2017
- Use 8<sup>th</sup> edition if you're planning to take CPSC 417 in the future

# SLIDES

- Slides will be regularly posted on the web – linked from the calendar
- As much as possible will be posted in advance
  - Sometimes they may be modified shortly before class
- **No class recordings**

# COURSE WEBSITE

- <https://www.students.cs.ubc.ca/~cs-317/2023W2/web/index.html>
- You can find everything from there:
  - Learning Goals and Readings
  - Assigned problems
  - Additional references
  - Course policies and administrative information
  - Links to all other tools

# PRAIRIELEARN

- Used for all assessments:
  - Quizzes
  - Assignments
  - Final Exam
  - Practice exercises

# PIAZZA

- Announcements
- Discussion board
  - Do not use the discussion board on Canvas
- To join:
  - Use the link provided on the course website (or search Piazza for this course)

# IClicker Cloud

- In-class participation questions
- Typically multiple-choice or short answer questions
- Please use a valid student ID when logging in
  - <https://join.iclicker.com/SQKD> Section 201
  - <https://join.iclicker.com/FRJL> Section 202
- Answering gets you half the points per question
  - Answering correctly gets you the other half
- 80% of points to get full participation points

# CLASS RECORDING

- No class recordings



# SOME RULES

- Masks are **optional**
- Vaccines are highly recommended
- If you're sick, stay home
  - No need to bring doctor's note or any documentation
- Please be respectful

# SOME RULES: ABSENCES

- If you must be absent in a quiz, contact the course coordinator ([cpssc317-admin@cs.ubc.ca](mailto:cpssc317-admin@cs.ubc.ca)) as soon as you are aware of the problem
- You do not need to notify us of absences in days when there is no graded work
- For assignments, you get upto 96 extension hours to be used across any of the assignments.
- Full policy and notification instructions available on course syllabus page.

# SOME RULES: MARKING DISAGREEMENTS

- You have 1 week from when a piece of graded work is handed back to request a review
  - Review requests must be submitted via Qualtrics survey: [https://ubc.ca1.qualtrics.com/jfe/form/SV\\_0PxCVsOJs1cv3Se](https://ubc.ca1.qualtrics.com/jfe/form/SV_0PxCVsOJs1cv3Se)
  - Provide a detailed response explaining why the answer, as written, is correct
  - “But I meant ...” is not a valid response
  - After 1 week the mark stands
- We may review marking of other questions
- Full policy and notification instructions available on Canvas

# ACADEMIC CONDUCT

- Don't cheat!!
- If you are uncertain: ASK!!!
- We can and will compare your solutions to those of other students (past and present)
- Possible penalties
  - Failing grade in the work in question or in the course in general
  - Suspension from the University
  - Reprimand with letter in student's file
  - Notation in student's permanent record
- Full policy and information on course web page

# THINGS TO DO

- Get familiar with course tools (if you are not already):
  - Course web page (including policies)
  - PrairieLearn
  - Piazza
  - iClicker Cloud
- Come to tutorial this week