# CS 4390: Computer Networks

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# Contents

# Preface

These are my notes for CS 4390: Computer Networks (Professor Zygmunt Haas), taken during Spring 2024.

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# Part I

# Exam 1: TBA

# Week 01: Introduction

# Week 02: Processes

# Week 03

What is the difference between a connectionless and connection-oriented protocol How do you calculte packet transmission delay How do you calculate propagation delay How fast does data (as EM waves) transmit over air How high are geo-satellites above the Earth Approximately how long (time) is one-way transmission with geo-satellites How are point-to-point links different from broadcast links What is peer-to-peer What are the layers What is the purpose of header bits What is a protocol What are reference models What are the 7 layers of the OSI reference model What is the physical layer of the OSI reference model What is the data-link layer of the OSI reference model What is the network layer of the OSI reference model What is the transport layer of the OSI reference model What is the session layer of the OSI reference model What is the presentation layer of the OSI reference model What is the application layer of the OSI reference model

# Part II

# Assignments

# Transmission delay, store-and-forward packet switching

## Summary

Data is sent from one computer to another bit-by-bit over some medium (e.g., over a wire as electricity or through the air as EM waves).

## 1.1 Calculate packet transmission delay

Transmission delay is the time it takes for a node to push all of the bits onto the transmission medium.

$$\text{transmission delay} = \frac{\text{bits}}{\text{bits / sec}}$$