



# CSCI 101

## Connecting with Computer Science

### Midterm Review



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2020 Fall Semester (S3)

# Overview

- Focus: CS
- Readings: None
- Core Ideas:
  1. Plan This Week
  2. Short Review

# Plan This Week

- Today
  - Midterm Review
  - Last day of Group formation and Topic Proposal submission
  - Q&A
- Wednesday
  - Group formation complete
  - Group topic release
  - Q&A

# Midterm

- Date: 22 October 2020, 15:55-18:05
- Format
  - Online through Moodle
  - Open-Textbook. Google is allowed, copying from other students IS NOT.

# Midterm

- Question Types:
  - 10 MCQs
  - 5 short answers (single sentence)
  - 5 long answers (single paragraph)
  - One small essay (300 words)
- Difficulty
  - Low, this is a 101 course

# How do I study for this course?

1. Go through the **slides**, check for stuff that **confuses** you, and **figure them out**. Your **MCQs** will come from there.
2. Try to remember the points we raised in **in-class discussions**, those are going to be similar to your **short/long answer questions**.
3. Go through your **two assignments**, look at the questions, your **Midterm/Final essay** is going to be pretty similar.
4. The most important thing
  - **Think** about all the stuff we discussed, how will it **relate to your life and future profession** (i.e. what is the place of computers in your future).



# Extra Short Review

So short that I expect our class today to end before  
17:00

# Lec 1: Introduction to CS

- What is Science? What is CS?
- Terminologies: CS, IT, CE, SE, DA/DS, AI, Cloud
- Subareas:  
AI, CG, Computer System, WebInfo Systems, Software, Theories



# Lec 1: Introduction to CS

- History
  - Alan Turing: Turing Completeness, Turing Machine
  - Moore's Law
  - Binary system: how information is represented in digital systems
  - Hardware: von Neumann architecture

# Lec 2: Introduction to WWW

- Important Concepts
  - Difference between the Internet and WWW
  - Packet switching/delivery
  - Basic Infrastructure

# Lec 2: Introduction to WWW

- WWW
  - Concepts: URL, DNS, HTML, HTTP, Domain
  - Routing problem
  - IP address versions (IPv4, IPv6), DHCP
  - Local-Area Networks, and the Internet
  - Gateways

# Lec 2: Introduction to WWW

- In-class discussions
  - What was it like before?
  - How has the internet changed our lives?
  - What might the future be like?
  - What will your future with the Internet be like?

# Lec 3: Multimedia Tech

- Important Concepts
  - Mass Media before the Internet
  - Digital Media
    - Text; Graphics; Audio; How they are presented in computers
  - Content Delivery
  - Content Creation: Not covered

# Lec 4: Applications

- BioMedical Research
  - Digitisation
  - Quantitative Analysis
  - Brain Computer Interface

# Lec 4: Applications

- General Research
  - Automation, Computer Assisted Proofs,
  - Correlation Analysis
  - Simulation
- Notable Social Science Theories from CS
  - Chaos Theory
  - Social Influence Network Theory

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# Lec 4: Applications

- Robotics and its Challenges
  - Degree of Automation: Remote Controlled vs Autonomous
  - Environmental Mapping, AI / Decision Making, Swarm Intelligence
- Human-Robo Relationship
  - The Ethic Grey Ground: What roll(s) will robots play in the future human society?

**We are done!**