

# CS 150 Introduction to Computer Science 1

**Professor: Shereen Khoja**

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## Shereen Khoja

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- [shereen@pacificu.edu](mailto:shereen@pacificu.edu)
- Office: Strain 203C
- Office hours:
  - M 2:00 am – 3:30 pm
  - W 2:00 pm – 3:30 pm
  - Th 1:00 pm – 2:30 pm
  - or by appointment

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## What is CS150?

- CS150 is a programming course
- You will learn
  - Syntax (Grammar)
    - The mechanics of writing programs in C++
  - Design
    - Logical reasoning
    - How do I solve this problem with a program?
    - How do I break this into smaller, solvable problems?
- No previous programming skills needed!

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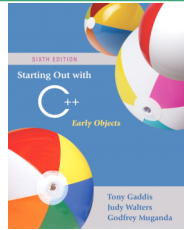
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## Syllabus

- Book/Handouts
- Software
  - Visual Studio 2008
- Grades
- Assignments
- Lab



Microsoft  
Visual Studio 2008

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## Syllabus

- Working outside of class
  - 8 hours per week
  - 1 hour studying (not working on an assignment)
- Academic Dishonesty
  - cheating
  - penalties
- Grade Complaints
- Learning Support Services

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## Respect!

- Class starts promptly at 1pm!
- You: Arrive on time!
- Me: End class on time!
- Turn off your electronic devices!
- Don't log on to the computers during lecture.
- Participate! Ask questions!

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## Homework!

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- Homework assignment #1
- Fill out the survey on the class web page
- Bring a printed copy **to my office**
- DUE: By Friday 5pm
- Be prepared to discuss your answers!

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## Introduction to Computers and Programming

### Chapter 1

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## What is a Computer?

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- What is your definition?

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## Question

- Can computers think?

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## Programming

- Be very specific about what you want the computer to do
- It follows directions precisely

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## Program

- Program
  - Set of instructions directing a computer to perform a task
- Programming language
  - A language used to write programs
  - Examples?

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## Programming Language

- Machine language
  - Zeroes and ones
  - CPU dependent
- High level language
  - Instructions look like everyday English
    - sort of
  - Each instruction can perform many machine language instructions

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## C++

- Based on the C programming language
- C++ is a high level programming language
- One of today's most popular programming languages
- Used extensively in industry

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## Hardware

- Physical components of a computer
  - Central Processing Unit (CPU)
  - Main Memory (RAM)
  - Secondary Storage
  - Input Devices
  - Output Devices
- Let's look at some of these in detail

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## Memory (RAM)

Address	Contents	
0	-27.2	-Memory cells are 1 byte in size
1	354	-Bytes are groups of 8 bits
2	0.05	-Bits are 0 or 1
3	-26	-Each memory cell has unique address
4	H	-Contents can be data or instruction
5	400	-RAM is volatile
6	JMP 001	
7	ADD 003	
8	STO 005	
9	X	
10	1005	



[http://img.alibaba.com/photo/10989393/256\\_MB\\_DDR\\_333\\_Ci2\\_5\\_Pc2700\\_RAM\\_Chip\\_Brand\\_New\\_Chip.jpg](http://img.alibaba.com/photo/10989393/256_MB_DDR_333_Ci2_5_Pc2700_RAM_Chip_Brand_New_Chip.jpg)  
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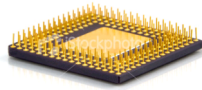
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## CPU

- A CPU
  - Fetches instructions
  - Performs instructions
  - Produces results
- A CPU consists of
  - Control unit: coordinates computer operations
  - ALU: performs arithmetic operations
    - integer unit
    - floating point unit



[http://www.istockphoto.com/file\\_thumbview\\_approve/2238679/2/istockphoto\\_2238679\\_cpu\\_processor\\_isolated.jpg](http://www.istockphoto.com/file_thumbview_approve/2238679/2/istockphoto_2238679_cpu_processor_isolated.jpg)  
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## Summary

- Today we have looked at:
  - The history of computers
  - The hardware of computers
  - The software of computers
  - Concept of programming
- Next time we will:
  - Learn how to write our first C++ program
- Completed sections 1.1 - 1.3 from the book
  - Pages 1-12

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