CS 150
Introduction to Computer Science 1

Professor: Chadd Williams
Chadd Williams

• http://zeus.cs.pacificu.edu/chadd
• chadd@pacificu.edu
• Office 202 Strain
• Office hours:
  – M  10:30 am – 11:30 am
  – T  11:00 am – noon
  – W  2:00 pm – 3:00 pm
  – Th  4:00 pm – 5:00 pm
  – or by appointment

8/25/08
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!
CS150

Introduction to Computer Science I

CS150 is a first course in computing and programming fundamentals. The goal of this course is to introduce you to problem solving through programming a computer. No previous computer experience of any type is required, but a deep interest in using one is. In this course, you will learn to program in C++. By the end of this course you should be able to write a program to do anything you want, given enough time and patience.

Syllabus

(Tentative) Schedule

Survey

Coding Standards

Official Clock

Computer Science Messageboards
Course Schedule

• The course schedule I have posted is tentative.

• The online schedule will be accurate and up to date.

• Contains:
  – handouts
  – assignments
  – labs
## CS 150 Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Notes</th>
<th>Assignments</th>
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</thead>
<tbody>
<tr>
<td>Aug 25</td>
<td>Welcome!</td>
<td>Computer Basics</td>
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<td>Aug 27</td>
<td>My First C++ Program</td>
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<tr>
<td>Aug 29</td>
<td>More C++</td>
<td>In Class Lab</td>
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<tr>
<td>Oct 24</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

8/25/08
Syllabus

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

8/25/08
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

8/25/08
Respect!

- Class starts promptly at 9:15 am!
- 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!
CS150

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Syllabus

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Computer Science Messageboards
Boxer Apps

Open a BoxerApps Account
Beginning September 2007, your email at Pacific is handled by Google.com. This partnership enables us to provide you with 2 GB of storage along with a calendar, personal Google start page and more - all accessible from any computer 24/7/365!

From the myAccount options page, just click the link to BoxerApps to create your account and get started.

NOTE: Your BoxerMail password may be different than your PUNet password. If you forget your BoxerMail password, log into myAccount and go to BoxerApps to request a new one.

To access your BoxerApps account use any one of these links --
• http://boxerstart.pacificu.edu (Personalized Start Page)
• http://boxermail.pacificu.edu (Email)
• http://boxercal.pacificu.edu (Calendar)
• http://boxerdocs.pacificu.edu (Docs and Spreadsheets)

http://pacificu.edu/uis/generalinfo/tip_sheets.cfm
## Pacific University Computer Science Forums

**take your first step into a larger world**

- FAQ
- Search
- Memberlist
- Usergroups
- Register
- Profile
- Log in to check your private messages
- Log in

---

### Tools

<table>
<thead>
<tr>
<th>Forum</th>
<th>Topics</th>
<th>Posts</th>
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<td>3</td>
<td>Wed Mar 21, 2007 11:47 pm</td>
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<td></td>
<td>Kyle Brickman</td>
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<td>11</td>
<td>Thu Dec 13, 2007 2:49 pm</td>
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<td>chadd</td>
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<td>Mon Aug 11, 2007 1:07 pm</td>
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<td>2</td>
<td>Sun Feb 11, 2007 9:25 pm</td>
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<td>Discuss your experience with various compilers and the make utility</td>
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<tr>
<td>All the other software tools you need to use....</td>
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<td>ranch</td>
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</table>

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### CS 150 Intro to Computer Science I

<table>
<thead>
<tr>
<th>Topic</th>
<th>Topics</th>
<th>Posts</th>
<th>Last Post</th>
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</thead>
<tbody>
<tr>
<td><strong>Announcements from the Professor</strong></td>
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<td>No Posts</td>
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<tr>
<td>Get the latest word on CS150, straight from the Professor's keyboard!</td>
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<td><strong>Lecture Discussion</strong></td>
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<td><strong>Programming Assignment Questions</strong></td>
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<tr>
<td>Ask the Professor about the Programming Assignments!</td>
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<td>chadd</td>
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</tbody>
</table>
How to Succeed in CS150

• Don’t miss class.
  – Take notes

• Try and read ahead
  – bring questions to class!

• Start programming assignments early
  – they take much longer than you think

• Do as much on your own as possible.

http://static.eway.com/catalog/1/ce05_127973_pfd.jpg

8/25/08   CS150 Introduction to Computer Science 1
How to Succeed in CS150

• Read the assignments carefully and follow all directions

• See me as soon as possible about any questions!

• Don’t forget that you are at a small school! – and you are paying for it!
Success!

• Start programming assignments early
  – they take much longer than you think

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• Start programming assignments early
  – they take much longer than you think
Hi Chadd,
I’m working on the programming assignment and I’m not sure how to calculate a square root in C++. Any hints?

Thanks,
Phil
8/25/08

CS150 Introduction to Computer Science 1
Homework!

• 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!

8/25/08
Introduction to Computers and Programming

Chapter 1
What is a Computer?

• What is your definition?
Question

- Can computers think?
Program

• Program
  – ??

• Programming language
  – A language used to write programs
  – Examples?
Programming

• Be very specific about what you want the computer to do

• It follows directions precisely
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
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
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
## Memory (RAM)

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<tr>
<td>1</td>
<td>354</td>
</tr>
<tr>
<td>2</td>
<td>0.05</td>
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<td>5</td>
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<td>JMP 001</td>
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<td>9</td>
<td>X</td>
</tr>
<tr>
<td>10</td>
<td>1005</td>
</tr>
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</table>

- Memory cells are 1 byte in size
- Bytes are groups of 8 bits
- Bits are 0 or 1
- Each memory cell has a unique address
- Contents can be data or instruction
- RAM is volatile

[Image: http://img.alibaba.com/photo/10989393/256_MB_DDR_333_Cl2_5_Pc2700_RAM_CHIP_Brand_New_Chip.jpg]
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
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