CS 150
Introduction to Computer Science 1

Professor: Douglas J. Ryan

August 31, 2009
Douglas J. Ryan

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• ryanjd@pacificu.edu
• Office 201 Strain
• Office hours:
  – MWF 10:00am - 11:00am
  – or by appointment
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 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 the 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.

News and Events

Syllabus [doc, pdf]

CS150 Tentative Schedule

Survey

Computer Science Message Boards

CS150 Coding Standards (Version 6)
# Tenative Course Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topics</th>
<th>Homework &amp; Assignments</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 31</td>
<td>Welcome! Computer Basics</td>
<td>Survey to me by 9/4</td>
<td>01 Lecture</td>
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<tr>
<td>September 1</td>
<td>My first C++ program (Lab)</td>
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<td>Basics of a C++ program</td>
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<td>More C++</td>
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</table>
Textbook & Software

- Book/Handouts

- Software
  - Visual Studio 2008
  - You can get a free copy
Boxer Apps

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.

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.

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

http://pacificu.edu/uis/generalinfo/tip_sheets.cfm
## Message boards

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Section</th>
<th>Topics</th>
<th>Posts</th>
<th>Last Post</th>
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<td><strong>Announcements from the Professor</strong></td>
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<td>Get the latest word on CS150, straight from the Professor's keyboard!</td>
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<tr>
<td></td>
<td><strong>Lecture Discussion</strong></td>
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<td>No posts</td>
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<tr>
<td></td>
<td>Discuss the lectures and post questions for the Professor</td>
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<td>0</td>
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<td></td>
<td><strong>Programming Assignment Questions</strong></td>
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<td>No posts</td>
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<tr>
<td></td>
<td>Ask the Professor about the Programming Assignments!</td>
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<td>0</td>
<td>No posts</td>
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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.
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!
How to send an effective email

To: ryand@pacificu.edu
From: hall4242@pacificu.edu
Subject: CS150: Outside Meeting Time?

Hi Doug,

I’m working on the programming assignment and I’m stuck. I can't make your office hours on Wednesday, so can I set up an appt to meet with you sometime Wednesday afternoon.

Thanks,
Lesley

8/30/09
Homework!

• Homework assignment #1

• Fill out the survey on the class web page
• Bring a printed copy to my office

• DUE: By Friday 4pm

• Be prepared to discuss your answers!
Introduction to Computers and Programming

Chapter 1
What is a Computer?

• What is your definition?

• What is Computer Science?
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

• The computer 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)

<table>
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<tr>
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<th>Contents</th>
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<td>354</td>
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<td>0.05</td>
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<td>8</td>
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</tr>
<tr>
<td>9</td>
<td>X</td>
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<tr>
<td>10</td>
<td>1005</td>
</tr>
</tbody>
</table>

- Memory cells are 1 byte in size
- Bytes are groups of 8 bits
- Bits are 0 or 1
- Each memory cell has 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:
  – Course expectations
  – 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