

**CS 150**  
**Introduction to Computer Science 1**

**Professor: Douglas J. Ryan**

**August 31, 2009**

# Douglas J. Ryan

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- <http://zeus.cs.pacificu.edu/ryand>
- [ryandj@pacificu.edu](mailto:ryandj@pacificu.edu)
- Office 201 Strain
- Office hours:
  - MWF 10:00am - 11:00am
  - or by appointment

# What is CS150?

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- 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 Home Page

The screenshot shows a Mozilla Firefox browser window displaying the CS150 Home Page. The browser's address bar shows the URL `http://zeus.cs.pacificu.edu/ryand/cs150/2009/cs150.html`. The page features the Pacific University logo and a navigation menu with links for [People Finder](#), [Directory](#), and [Calendar](#). A search bar is also present. The main content area is titled "CS150" and includes a code snippet: 

```
setId( int newId )  
id = newId >= 0 && newId <= 10 ? newId : 0;  
return Introduction to Computer Science I
```

 Below the code, the text describes the course: "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." The page also lists "News and Events", "Syllabus [doc, pdf]", "CS150 Tentative Schedule", "Survey", and "Computer Science Message Boards". A sidebar on the left contains links for "Doug Ryan Home", "CS130", "CS150", "CS300", "Schedule", "Office Hours", "MWF 10am - 11am", "or by appointment", "Contact Info", and "Map it". The footer includes contact information for Pacific University, a copyright notice, and a link for "日本語".

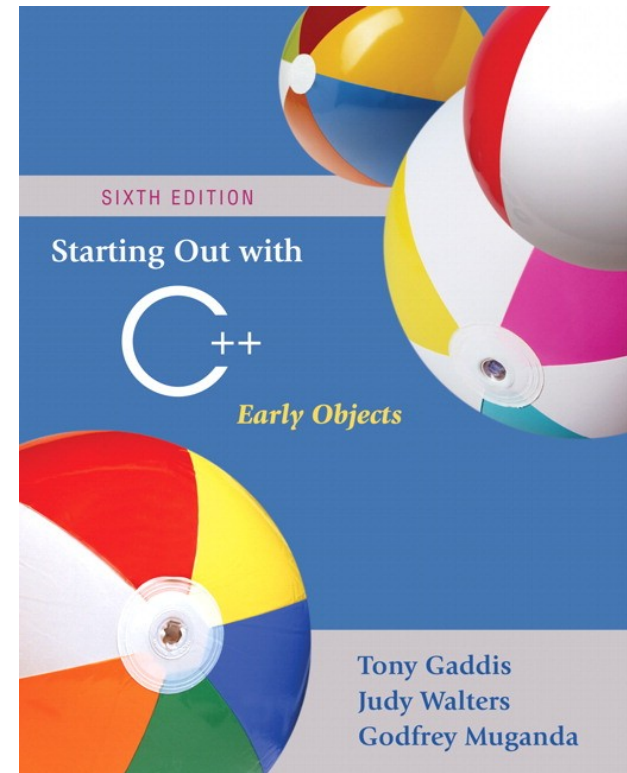
# Tenative Course Schedule

Date	Topics	Homework & Assignments	Notes
August 31	Welcome! Computer Basics	Survey to me by 9/4	<a href="#">01 Lecture</a>
September 1	My first C++ program (Lab)		<a href="#">01 Lab</a>
September 2	Basics of a C++ program		<a href="#">02 Lecture</a>
September 4	More C++		
September 7	NO CLASS (Labor Day)		
September 8			
September 9			
September 11			
September 14			
September 15			
September 16			
September 18			
September 21			
September 22			
September 23	EXAM 1		
September 25			
September 28			
September 29			
September 30			
October 2			
October 5			
October 6			
October 7			
October 9	NO CLASS (Fall Break)		
October 12			
October 13			
October 14			
October 16			
October 19			
October 20			

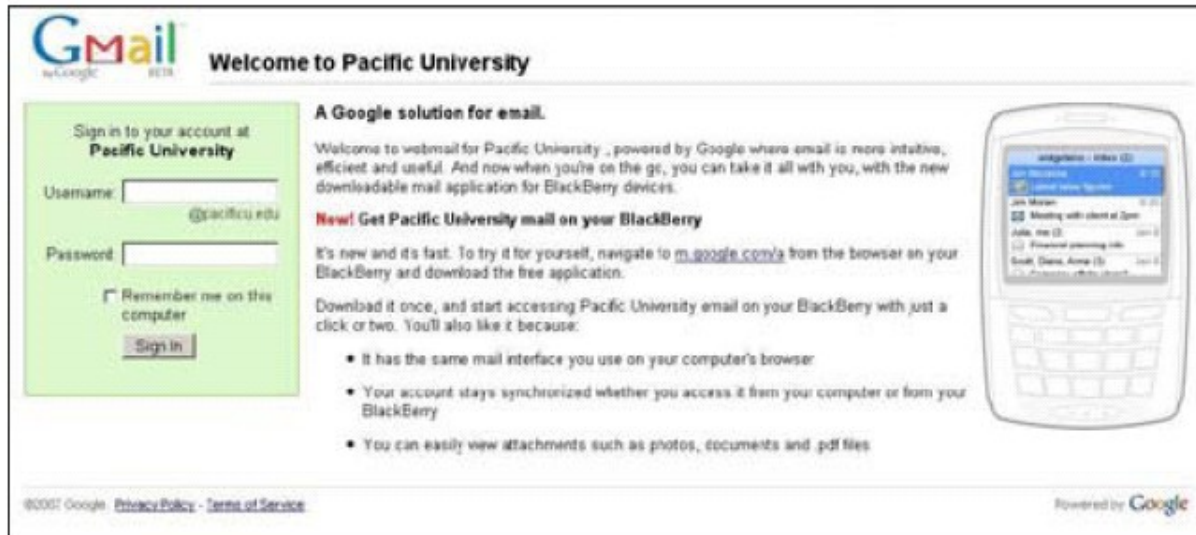
# Textbook & Software

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- Book/Handouts
- Software
  - Visual Studio 2008
  - You can get a free copy



# BoxerApps



**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 Boxer-Mail 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](http://pacificu.edu/uis/generalinfo/tip_sheets.cfm)

# Message boards

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CS 150 INTRO TO COMPUTER SCIENCE I		TOPICS	POSTS	LAST POST
	<b>Announcements from the Professor</b> Get the latest word on CS150, straight from the Professor's keyboard!	0	0	No posts
	<b>Lecture Discussion</b> Discuss the lectures and post questions for the Professor	0	0	No posts
	<b>Programming Assignment Questions</b> Ask the Professor about the Programming Assignments!	0	0	No posts



# How to Succeed in CS150

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- 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.



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# How to Succeed in CS150

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- 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

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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

# 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 4pm
- Be prepared to discuss your answers!

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# Introduction to Computers and Programming

## Chapter 1

# What is a Computer?

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- What is your definition?
  
  
  
  
  
  
  
  
  
  
- What is Computer Science?

# Question

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- Can computers think?

# Program

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- Program
  - ??
  
- Programming language
  - A language used to write programs
  - Examples?



# Programming

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

# Programming Language

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- 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++

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- 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

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- 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)

Address      Contents

0	-27.2
1	354
2	0.05
3	-26
4	H
5	400
6	JMP 001
7	ADD 003
8	STO 005
9	X
10	1005

-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

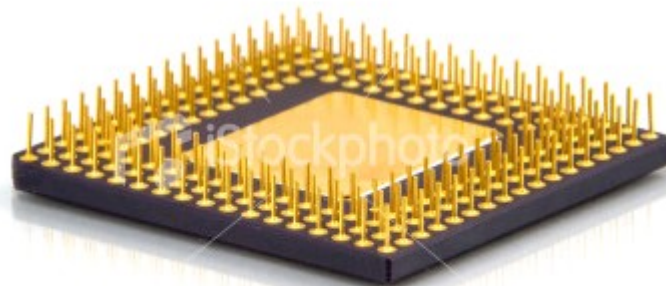
-RAM is volatile



# CPU

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- 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

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- 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