
With IS223 (CRN 20438)



CS121: Computer Programming I (CRN 20291)

Week 0 – Orientation & Motivation

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Office Hours: Mon 4pm-5pm
 Tues & Thurs 2:30pm–4:30pm
 (Room 212, 163 William Street)

CS121/IS223 Week 0, Slide 1

Today's Agenda

- Problem solving:
 - what is computer programming ... *really*?
 - what has it got to do with computer science?
 - what are you expected to do?
- Course overview – Syllabus:
 - Objectives
 - Skills
 - Structure & content
 - Assessment
 - Classes
 - Resources
 - Getting help
- Questionnaire - getting to know you


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About Olly...

- 1st program – BASIC on the Commodore PET – early 1980s!
- BSc (Hons), Computer Science
- MSc (Distinction), Advanced Computer Science
- PhD in Computing, Software Systems Engineering
- University work – teaching & research
- Industrial work – research, development & consultancy
- Latest program? Systems Requirements Engineer


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What is Computer Science All About?

“Computer Science is no more about computers than astronomy is about telescopes.”

- Edsger W. Dijkstra
 (source: <http://www.quotationspage.com/>)




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Example A

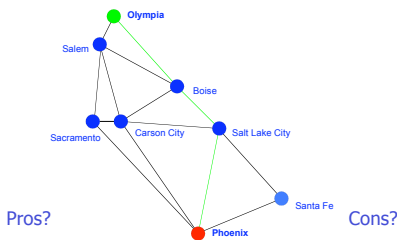
Shortest route from Olympia to Phoenix?



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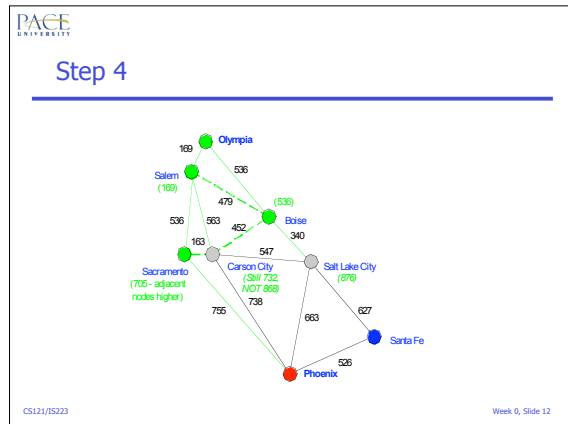
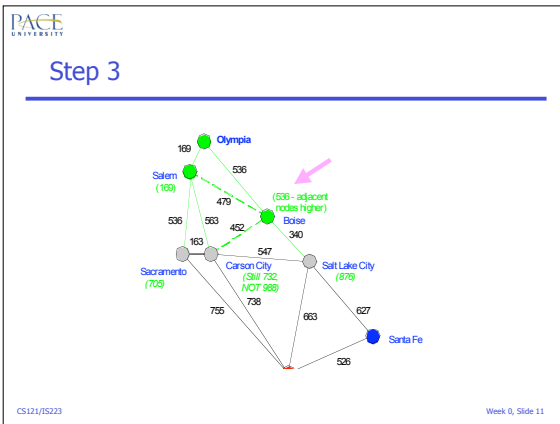
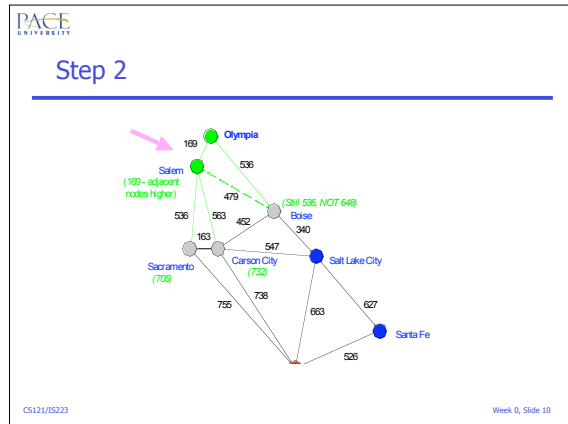
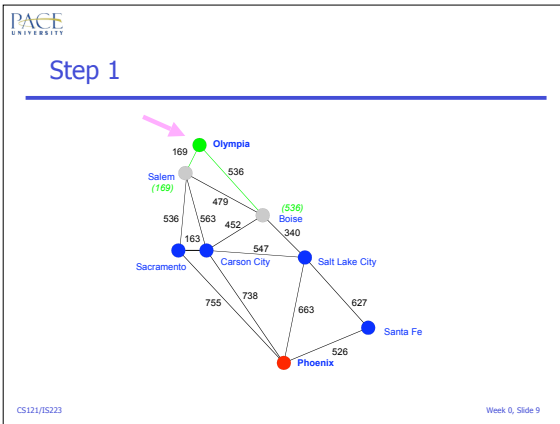
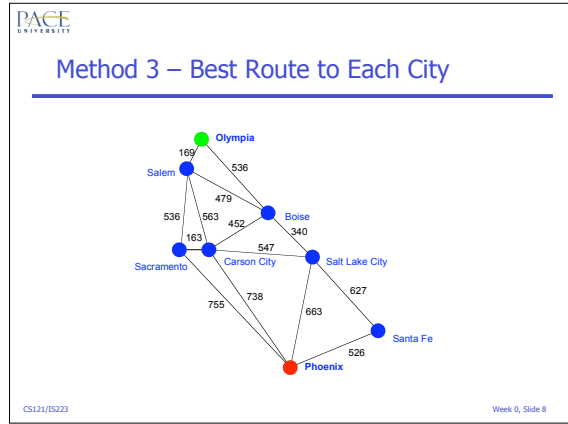
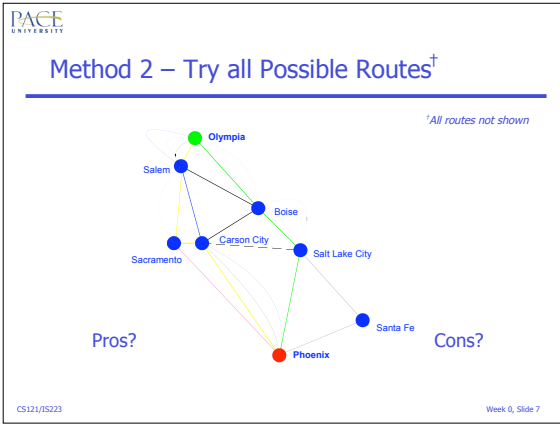


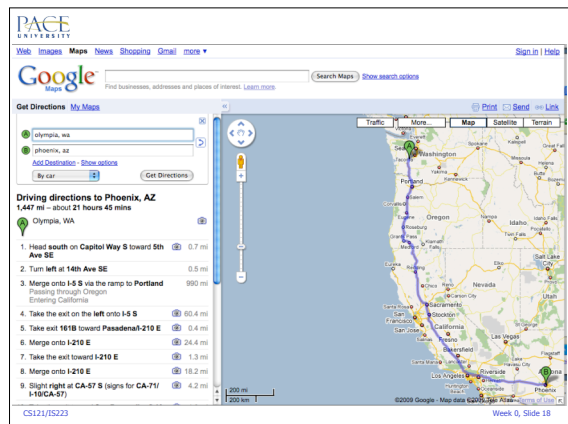
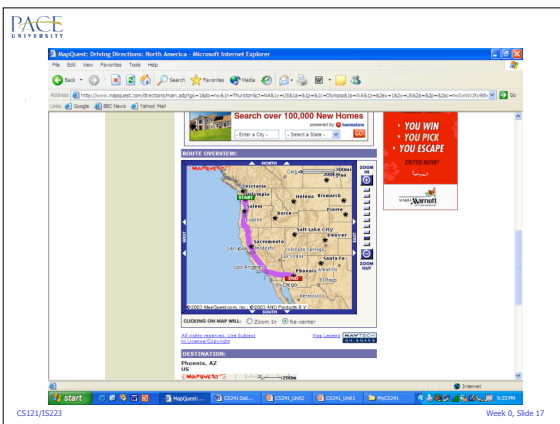
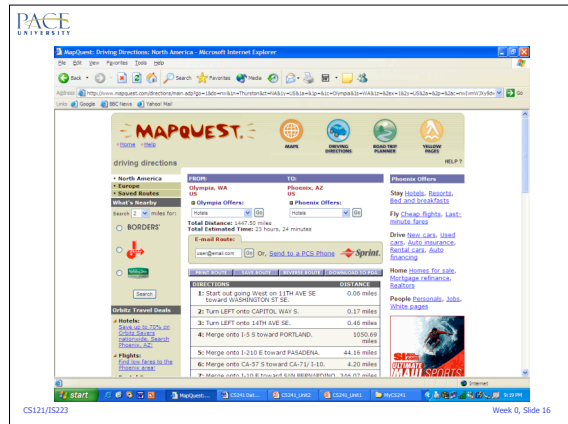
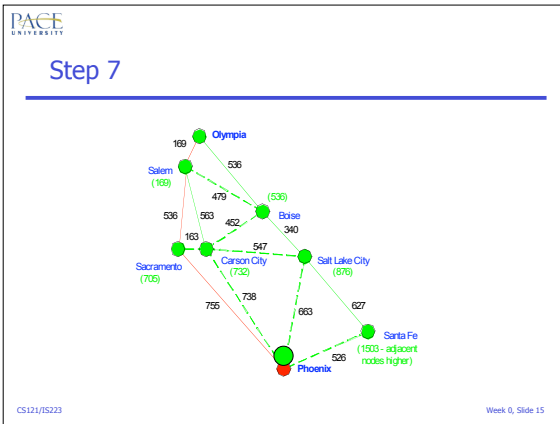
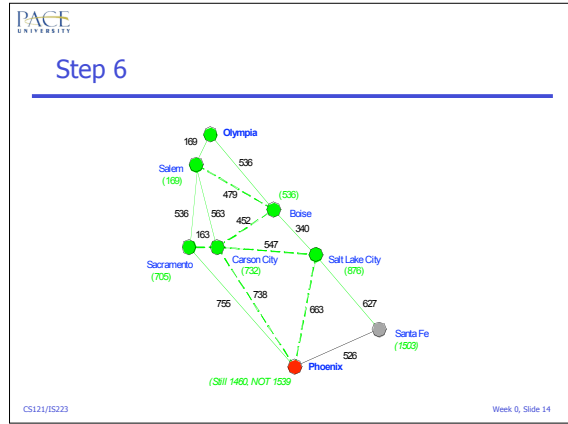
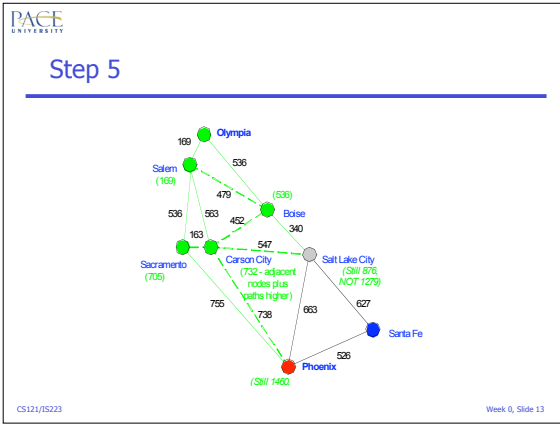
Method 1 – Go in the Right Direction



Pros? Cons?

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Implications for Programming

- Multiple solutions to problems
- We need to think about which solution to use & why
- Choice influenced by programming language, system environment & more
- Programming is **not** solely about writing code – it is about solving problems

Problem solving Algorithms Modelling
Abstraction Coding

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See syllabus handout

Course Overview

- Objectives
- Skills
- Structure & content
- Assessment & grading
- Classes
- Resources
- Learning to program
- Getting help

You need to take CS121 & CS122 for a full introduction

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Course Objectives

- This course introduces the fundamental concepts & processes involved in computer programming
- It seeks to do this in a way that is programming language independent, though actual languages will be used for illustration & practice
- It will complement this with initial skills in thinking with objects & programming with an object-oriented language (which CS122 takes further)
- The course aims to set all the above in an appropriate software engineering & professional context

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Student Skills

- After completing the course you will be able to:
 - describe & use concepts fundamental to computer programming
 - apply problem solving techniques
 - write algorithms in language-independent pseudocode or through diagrams
 - reason about algorithms/code & understand why programs work (or don't work)
 - design, implement, test & debug small OO programs (using OOA&D techniques & a subset of Java)
 - begin to navigate the Java class libraries & use the Eclipse IDE
 - professionally package your work (i.e. with suitable documentation & test material)

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Course Structure & Content

See syllabus for initial information
- I reserve the right to change this
at any time & without notice

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Capabilities

- Knowledge – remembering previously learned material
- Comprehension – understanding information & the ability to grasp meaning of the material presented
- Application – the ability to use learned material in new & concrete situations


"Taxonomy of Educational Objectives:
The Classification of Educational Goals"
[Bloom 1956]

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Course Assessment

Assessment Type	Weighting
1 mid-term exam	20%
1 final exam	50%
Homework and tests	10%
2 projects	20%



No extra credit; no make-ups possible


Participation will determine borderline grades

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Grading System


Letter grade	Grade points	Level reached
A	4.0	• Dominates the material
A-	3.67	Masters the material
B+	3.34	Good understanding, some excellent work
B	3.0	Good understanding
B-	2.67	Aptitude
C+	2.34	Some aptitude
C	2.0	Weak
D	1.0	Very weak
F	0.0	Fail



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Exams




- Held during a regular class session – you **MUST** attend or you fail the exam
- Will start promptly at the specified time (2 hours):
- Date of mid-term exam: 03/05/09 -- basic material
- Date of final exam: 05/05/09 or 05/07/09 (to be scheduled) -- more advanced material

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Tests



- Held in regular class sessions – I will tell you in class when to expect these, & I may surprise you
- If you are absent, you fail the test – no make-ups
- What to expect:
 - multiple choice or short questions
 - longer programming questions

If you do your homework, these should be easy
If you don't, it is unlikely you will be able to perform in class!

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You can work in pairs if this helps you


Homework

- Homework will be issued most weeks:
 - questions are designed to complement classes & must be answered to keep up with the course
 - it is **your responsibility** to do these
 - I will not chase you ... but if you can't do these questions you must seek help from me (in my office hours) or the CSIS tutors (in their hours) ... or you will struggle to pass the course
 - all the tests & exams will assume you have mastered these questions
- You are expected to try all the exercises on the slides and/or started in class

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Projects




- One programming project for each half of the course
- You design, write & document a larger program (pulling together all the pieces you have practiced so far) – projects should be challenging!
- You will be expected to demonstrate your project to the class in a class session & I will interview you on your work – consider this an oral exam
- No late work is acceptable!

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Participation




- You turn up to classes, get involved ...
- Attendance at class will be monitored, not enforced:
 - if you don't attend, you'll fall behind & you'll lose marks ... unless you have good reason!
 - if you don't attend, don't expect me to give you individual attention – you lose that right!

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How Do I Pass?

- Keep working & don't fall behind – if you do the homework, you should be fine!
- See me or CSIS programming tutors if you are struggling
- Practice programming & read the book



- How much time should I spend?
 - 4 unit course:
 - 4 hours of class per week
 - 8 hours of personal study (minimum)
- I WANT you to pass! You won't pass if I code for you!

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Plagiarism

- Cheating - copying someone else's work without acknowledgement (with or without their knowledge)
- Don't do it!
- What is allowed & encouraged:
 - looking at other people's work (both good & bad work) & discussing it with them
 - helping each other work through problems
 - giving each other hints & tips

Read the Statement of Student Responsibilities in the Syllabus

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Accommodation

- If a student has a disability that may affect academic performance, that student should notify Pace University's Counselling Centre for assessment & advisement
- It is encouraged that students who may need accommodation do this as soon as possible, since this can **only** be permitted with an approval letter from Pace Counselling Services
- Please note, accommodation will **not** be retrospective; it will only take effect from the instructor's receipt of an approval letter


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ALWAYS check the website

Classes

- When & where:
 - Lab W200A, One Pace Plaza (i.e. here & now!)
 - Tuesday & Thursday 12:20pm – 2:15pm
- Requirements:
 - class attendance
 - listen, participate & ask questions
 - make notes, read notes, revise notes
 - do associated reading & all coursework
 - check web site often
 - read your Pace email
- Etiquette:
 - phones on vibrate
 - if you MUST answer calls – use txt or go outside



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Key Resources - Texts



- Lecture slides:** available from my website *after* each lecture
- Java:** "Java Software Solutions: Foundations of Program Design", 5th Edition, by John Lewis & William Loftus, Addison-Wesley (Pearson Education, Inc.), 2007
 - Note, a cheaper earlier edition (4th edition) is fine too & saves you some wonga. See <http://duke.csc.villanova.edu/jss1/>
 - Note, a more expensive recent edition (6th edition) is available -- this is expensive & unnecessary

You SHOULD get hold of an edition of this book, but only if you know you are going to persist with this course

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Any edition is fine ... really!



4th edition



5th edition




6th edition

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Key Resources - Software




- All available for FREE download – I will give instructions in class next week & you should see tutors if you can't do this after that
- Java:** JDK 6 (update 11)
<http://java.sun.com/javase/downloads/index.jsp>
- Eclipse:** Eclipse 3.4 (Eclipse IDE for Java Developers)
<http://www.eclipse.org/downloads/index.php>

Use (& later contribute to) Free Open Source Software!

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Learning to Program




- NO previous programming experience is assumed - I start from the very beginning
- Learning to program **is** difficult, but people fail (generally) because they get scared & give up OR because they don't **try** programming!
- People learn how to program in different ways
- Good programmers – lots of practice & experimentation, attention to detail, perseverance, logical & methodical, self-directed & disciplined


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Getting Help




- My contact details & office hours:
 - I will always try to accommodate you in my office hours ... & you should phone me if you can't come in physically during these hours
- CSIS tutors (in 163 William Street, 2nd floor):
 - use them to get advice & feedback
- Find out about the Pace University tutoring system - use it!
- Seek help from the Pace Student Computer Society
- You can help each other (so long as you tell me & abide by the rules regarding plagiarism) - you should set up study groups



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Key Points




- You are learning to program
- You are NOT learning Java
- You will learn principles & processes that apply in ANY programming language (e.g. problem solving, writing algorithms to solve your problem, doing abstraction & modelling)
- You will demonstrate you can do these things by writing code

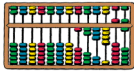
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Before Next Class...



- Go through the syllabus carefully – it is up to **you** to tell me if you are confused about anything!
- Get a copy of the text book and read the introductory chapter (simple basic computing stuff you should know)
- Locate my CS121 Spring 09 web page
- Do your History of Computing homework and bring to class next week - install real player from www.real.com if it doesn't work!



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Coming Up Next Week

Some week 1 topics:

- Programming basics
- Your first program
- Types, values, variables, declarations, assignment
- Lots & lots of **assignment**
- Simple statements, expressions & operators

- ... you will be getting started with Java and Eclipse, so we'll look at the software and how to install it

About You...

- Different backgrounds & experiences
- How do you rate yourself in computer programming?
 - Guru
 - Hobbyist
 - Dabbler
 - Novice
- Short questionnaire
- Some exercises...

