

Immersion Programming – CSPP 50101

Description

In this course you will learn how to solve problems computationally through computer programming in Java. Students will learn a lot about the Java programming language itself, the theory and principles of Object Oriented software design, as well as general computing principles and practices such as analyzing and choosing appropriate data structures and algorithms to solve problems.

Instructor

Baker Franke '08

email: bfranke [at] ucls [dot] uchicago [dot] edu

Email is the best way to contact me, or just use the....

Class mailing list:

We will use a class discussion forum called Piazza in place of a traditional listserv. You can set the preferences to email you with every post or in digest mode etc. Also there are mobile versions for iPhone and Android. Should be usable. Sign up here:

<http://piazza.com/uchicago/summer2012/cspp50101>

Course website:

<http://cs.ucls.uchicago.edu/moodle>

The class will be managed through a course management system called Moodle. You will get your assignments and submit work through the Moodle site. You will get access to the site several weeks before the course in order to do the pre-course work.

Class Meetings:

See the calendar (right)

First Class: Thu., June 21, 2012

Final Exam: Thu., Sept. 13, 2012

Lecture: Thursdays 5:30 – 8:30pm, Ryerson 251**

Lab and T/A sessions: Mondays TBA

**Exceptions: we will swap Thursday for Monday Lecture twice:

1. Lecture will be Mon., July 2

(to hopefully give you some time for July 4 weekend)

2. Lecture will be Mon, Aug. 20 (to give a late summer break before the final stretch)

	M	T	W	Th	F	notes:
Week	June					
1	18	19	20	21	22	
2	25	26	27	28	29	
	July					
3	2	3	4	5	6	Monday Lecture
4	9	10	11	12	13	
5	16	17	18	19	20	
6	23	24	25	26	27	
7	30	31				
	August					
			1	2	3	
8	6	7	8	9	10	
9	13	14	15	16	17	
10	20	21	22	23	24	Monday Lecture
11	27	28	29	30	31	
	September					
12	3	4	5	6	7	Labor Day
13	10	11	12	13	14	Final Exam

Lab T/A Session

Lecture

Tentative Syllabus

Please note, this is roughly what the class will cover in roughly the order we will do it. However, you should expect some week-to-week to adjustments on both the topics covered and assignments given in order to accommodate the pace of the class and to add or remove things that have been (accidentally) omitted or included.

Week	Date	Topics	Chapters	Assignments Due by next lecture
Pre		Installing/Getting started in Blue] Hello World and Chapter 1 of BJP [See getting started Video]	BJP Ch. 1	Bike Wattage
1	20-Jun	Getting started with Blue] and Karel J Robot Primitive data types and variables Extending Objects - inheritance Writing void methods.	Bergin Ch. 1-3 [BJP 2.1, 2.2]	H-Bot (Getting Started) Stair Climber (Extending Objects, Abstraction) Harvester (Extending Objects, Abstraction)
2	27-Jun	Solving problems with stepwise refinement and procedural abstraction Polymorphism If Statements Recursion 1.0 OO-Design Principles (Abstract Classes and Interfaces)	Bergin Ch.4-6 [BJP 4.1]	Long Stair Climber, Diamond Harvester (polymorphism)
3	2-Jul	Recursion 2.0 Objects creating other Objects	[Ch.8, Ch. 9]	BeeperFinder, Hurdle Race (If Statements and Recursion 1.0) Number Drawer (Abstract Classes)
4	11-Jul	Loops Non-Robot objects Transition away from Karel	[BJP 5.1, 2.3 - loops]	DecoderBot Simple Karoomba?
5	18-Jul	Terminal User Interface Arrays OO-Design Patterns (Factory, Command)	[BJP 3.3 - Scanner] [BJP Ch. 7 - Arrays]	Hangman Game Carnival Game GUI?
6	25-Jul	More arrays and File I/O	[BJP 6.1-6.4 - File I/O]	Basketball Stats Program DNA Sequence Quality

7	1-Aug	Simple Graphics 2D Arrays Encryption algorithms	[BJP Ch. 3G]	Image Manipulation and encryption?
8	8-Aug	Designing software and packaging. Working within a large software system.		GridWorld? Fish Simulation?
9	15-Aug	List Interface, ArrayList Comparable Interface Sorting Algorithms Unit Testing	BJP Ch. 10, 13	Searching and Sorting (Selection, Insertion, Bubble, Quicksort, Mergesort, Heapsort)
10	20-Aug	Linked List Iterators	BJP. Ch. 16	Traveling Salesman
11	29-Aug	Set Interface and implementations Java Collections	BJP Ch. 11	Evil Hangman
12	5-Sep	Tweaking for performance	BJP 13.2	Catching Plagiarists
13	12-Sep	Final Exam		

Software:

BlueJ – programming environment – bluej.org

There will be a number of programming libraries to add to BlueJ. You'll get them through the course web site at the appropriate time.

Required Text:

Building Java Programs: A Back to Basics Approach, 2nd Edition by Reges and Stepp
Available from many sources, including Amazon, etc. Book website here:

<http://www.buildingjavaprograms.com/>

If you want to use the online notes and videos that come with book to bolster what you learn in class you'll need a legit copy of the book to get an access code.

Optional Text:

Karel J. Robot: A Gentle Introduction to the Art of Programming in Java, by Bergin et. al.
We'll be using Karel J. Robot for the first two weeks of the course. Everything you need to know, you'll learn in class, but if you miss class or are the type of person who wants to read about it, then get this, too. Purchase only available here:

<http://www.cafepress.com/kareljrobot/609789>

Office Hours and Extra Help

Your steps for getting help...

0. Teaching Assistants: TBA

Your first step should be to find the T/As for help and questions.

Posting questions to Piazza (see below) is also a good first step.

1. Before lecture

I will generally be available before lecture, but also busy preparing. If you'd like to meet in that time, PLEASE email me by noon that day to give me a heads-up, otherwise if you drop in I might a) not actually be there, or b) not in a good mindset to help.

2. After Lecture

If you can stand the hour of day, after class is also fine to meet, but again please let me know ahead of time if you want to do that.

3. Lab and T/A sessions.

I also plan to attend the Monday Lab and T/A sessions as frequently as I can. I will try to let you know in lecture if I plan to be there the following Monday.

4. By arrangement

I will be traveling a lot between classes, but when I'm around I'm pretty flexible, both in day of the week and time of day, and we should be able to work something out if you just email me.