



Gifted LearningLinks Program Course Syllabus

Instructor name: Vern Ceder
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Course Title:

Java Honors

Session Date: 2011-2012

Course Description:

This course will introduce students to the Java programming language and object oriented programming techniques for the purpose of problem solving. Students will learn about flow of control, fundamental data types, variables, arithmetic expressions, classes, objects, constructors, fields, methods, inheritance, polymorphism, one and two dimensional arrays, and various forms of input and output including files (persistent data). Many of the programming problems that the students will investigate require the understanding of basic mathematical concepts (at least the level of Algebra I). The BlueJ integrated development environment and the latest Sun Java Development Kit will be used to create, edit, compile, execute, and explore Java applications and applets.

The software used in this course runs on Windows, Mac OS X and Linux.

Outcomes: Upon successful completion of this course, students will:

- a. *use the BlueJ IDE for OOP exploration and Java program creation.*
- b. *enter, edit, compile, run, test, and debug Java programs.*
- c. *know and apply the basic syntax and grammar of Java for problem solving.*
- d. *read the Java API for the purpose of obtaining information about Java classes.*
- e. *apply the use of objects to the formulation of problem solutions.*
- f. *design classes that model specific concepts, including mathematical concepts.*
- g. *create complete Java programs by applying object oriented design techniques.*

Resources and Materials:

- a. *Head First Java, 2nd ed., Kathy Sierra and Bert Bates, O'Reilly, 2005, ISBN 978-0-596-00920-5*
- b. *Karel J Robot, Joseph Bergin, Mark Stehlik, Jim Roberts, Rich Pattis, 2005, Dream Songs Press, ISBN 0-9705795-1-9*
- c. *Karel J Robot simulator and software, <http://csis.pace.edu/~bergin/KarelJava2ed/>*
- d. *Java SE compiler and tools, <http://java.sun.com/javase/downloads/index.jsp>*
- e. *BlueJ IDE, <http://www.bluej.org/download/download.html>*

CTD Statement on Third-Party Web Sites

Instructors are required to thoroughly review any third-party web sites they intend to use in their courses for inappropriate content. However, because web content continuously changes, CTD disclaims any responsibility for any of the content contained on third-party web sites used in course materials. If you become aware of anything that may be inappropriate, please notify CTD staff immediately.

Schedule:

SEMESTER ONE				
	Topic/Focus	Activities & Reading Assignments	What do I need to post to the Discussion Board?	What do I need to turn in?
Week 1	Getting started	Install Java, BlueJay	Introduce yourself	Interest Survey
Week 2	First Programs	Ch 1, Head First Java (HFJ)	Questions/Comments over the assignments	program code for assignments
Week 3	Idea of programs, objects	Ch 1 & 2, Karel J Robot (KJR)	Questions/Comments over the assignments	program code for assignments
Week 4	Objects and variables	Ch 2 & 3, HFJ	Questions/Comments over the assignments	program code for assignments
Week 5	Finish programs and review	Quiz	Questions/Comments over the assignments	online quiz
Week 6	Variables, methods, object state	Ch 4, HFJ	Questions/Comments over the assignments	program code for assignments
Week 7	operators, loops, etc	Ch 5, HFJ	Questions/Comments over the assignments	program code for assignments
Week 8	Using the Java Library	Ch 6, HFJ	Questions/Comments over the assignments	program code for assignments
Week 9		Mid Term Test		Test
Week 10	Inheritance	Ch 3, KJR	Questions/Comments over the assignments	program code for assignments
Week 11	Inheritance	CH 7, HFJ	Questions/Comments over the assignments	program code for assignments
Week 12	Polymorphism	Ch 4, KJR	Questions/Comments over the assignments	program code for assignments
Week 13	Review	Quiz		Online quiz
Week 14	Polymorphism	Ch 8, HFJ	Questions/Comments over the assignments	program code for assignments

Week 15	Project	Review, Project	Questions/Comments over the assignments	Any questions relating to project
Week 16	Project	Project	Questions/Comments over the assignments	Any questions relating to project
Week 17	Project	Project		Project
Week 18	Project	Final Test		Test
SEMESTER TWO				
	Topic/Focus	Activities & Reading Assignments	What do I need to post to the Discussion Board?	What do I need to turn in?
Week 19	Conditionals	Ch 5, KJR	Questions/Comments over the assignments	program code for assignments
Week 20	Loops	Ch 6, KJR	Questions/Comments over the assignments	program code for assignments
Week 21	Garbage collection	Ch 9, HFJ	Questions/Comments over the assignments	program code for assignments
Week 22	Review	Quiz	Questions/Comments over the assignments	Online quiz
Week 23	Math operations	Ch 10, HFJ	Questions/Comments over the assignments	program code for assignments
Week 24	Error and exception handling	Ch 11, HFJ	Questions/Comments over the assignments	program code for assignments
Week 25	Recursion	Ch 7, KJR	Questions/Comments over the assignments	program code for assignments
Week 26	Review	Mid Term Test		Test
Week 27	GUI's	Ch 12, HFJ	Questions/Comments over the assignments	program code for assignments
Week 28	Swing GUI's	Ch 13, HFJ	Questions/Comments over the assignments	program code for assignments
Week 29	Saving files	Quiz - Ch 14, HFJ	Questions/Comments over the assignments	Online quiz

Week 30	Network connections	Ch 15, HFJ	Questions/Comments over the assignments	program code for assignments
Week 31	Data structures and sorting	Ch 16, HFJ	Questions/Comments over the assignments	program code for assignments
Week 32	Packaging	Ch 17, HFJ	Questions/Comments over the assignments	program code for assignments
Week 33	Project	Project		Any questions relating to project
Week 34	Project	Project		Any questions relating to project
Week 35	Project	Project		Project
Week 36	Project	Final exam		Final test

Student Evaluation and Grading Policies for Credit Courses Only:

a. CTD Grading scale

A+ 97-100	B+ 87-89	C+ 77-79	D+ 67-69	F Below 60
A 93-96	B 83-86	C 73-76	D 63-66	
A- 90-92	B- 80-82	C- 70-72	D- 60-62	

b. The final grade will be based upon programs (50%), online quizzes and tests (30%) and projects (20%).

Instructor Biography:

Vern Ceder has been teaching programming to high school and middle school students for nearly 20 years. He has been involved with Java since 2000, and has taught AP Computer Science since 1996. He is also active in the Open Source software community, having been one of the principal organizers of the Fort Wayne Linux Users Group. He is currently the lead IT developer at Zoro Tools, an e-commerce startup in the Chicago area.

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