



**Gifted LearningLinks Program
Course Syllabus**

Instructor name: TJ Leone

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Course Title: Java Honors

Session Date: June 15, 2012 to March 15, 2013

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.

Resources and Materials:

- a. David J. Barnes and Michael Kölling, *Objects First with Java - A Practical Introduction using BlueJ*, Fifth edition, Prentice Hall / Pearson Education, 2012
US: ISBN 978-013-249266-9 UK: ISBN 978-013-283554-1
- b. Students should have computers of their own. See <http://www.bluej.org/download/download.html> for information on downloading and installing BlueJ.

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:

The following schedule is intended to help you work through the course material at an appropriate pace, manage your time effectively, and complete the course in a 9-month timeframe.

If you would like to accelerate through the material at a faster pace, please discuss your intentions with your instructor, so that he/she can help you adjust the schedule below.

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	Orientation to Online Learning, Intro to BlueJ	Installation and Orientation to BlueJ and Submission of Homework. Watch First Example video from Unit 1 . Read 1.1-1.7, Do Exercises 1.1-1.8	Introductions, questions or answers regarding BlueJ installation and submission of homework.	Interest survey, practice submission of figures project
Week 2	State, Objects, Source code	Watch video on Editing BlueJ code from Unit 1 Read 1.7-1.11, Do Exercises 1.9-1.20	questions and comments	
Week 3	lab-classes project	Read 1.12-1.14, Do Exercises 1.21-1.29	questions and comments	
Week 4	Review	Read 1.15. Do Exercises 1.30-1.36.	questions and comments	
Week 5	Ticket machines, class definitions, class header	Watch Unit 2 video . Read 2.1-2.3. Do Exercises 2.1-2.9.	questions and comments	
Week 6	Fields and Methods	Watch Unit 3 videos . Read 2.4-2.11. Do Exercises 2.10-2.45.	questions and comments	
Week 7	Conditional statements, variables	Watch Unit 4 video on Local Variables . Read 2.12-2.17. Exercises 2.46-2.63.	questions and comments	
Week 8	Review, Code Pad	Watch remaining Unit 4 videos . Read 2.18-2.23. Exercises 2.64-2.82.	questions and comments	
Week 9	Abstraction and Modularization	Watch first Unit 5 video . Read 3.1-3.6. Do Exercises 3.1-3.4.	questions and comments	
Week 10	Primitive types and Object types	Watch second Unit 5 video . Read 3.7-3.83. Do Exercises 3.5-3.22.	questions and comments	

SEMESTER ONE				
Week 11	Object interactions, part I	Watch first Unit 6 video. Read 3.84-3.12. Do Exercises 3.23-3.34	questions and comments	
Week 12	Object interactions, part II	Watch second Unit 6 video. Read 3.13-3.15. Do Exercises 3.35-3.46	questions and comments	
Week 13	Collections: ArrayList	Watch first Unit 7 videos. Read 4.1-4.6. Do Exercises 4.1-4.7.	questions and comments	
Week 14	Playing music files, common errors	Read 4.7. Do Exercises 4.8-4.16. Watch second Unit 7 videos. Read 4.8. Do Exercise 4.17.	questions and comments	
Week 15	Introduction to for-each	Watch Unit 8 video. Read 4.9 through 4.9.4. Do Exercises 4.18-4.28.	questions and comments	
Week 16	while loop	Watch first Unit 9 video. Read 4.10-4.11. Do Exercises 4.29-4.34.	questions and comments	music-organizer
Week 17	String class, identity, and equality. Track class.	Watch second Unit 9 video. Read 4.10-4.11. Do Exercises 4.35-4.38.	questions and comments	
Week 18	Study week	Study for semester one exam	questions and comments	SEMESTER ONE EXAM
SEMESTER ONE EVALUATIONS EMAILED				
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	Iterators	Watch first Unit 10 video. Read 4.12-4.13. Do Exercises 4.39-4.45.	questions and comments	
Week 20	The auction project	Watch second Unit 10 video. Read 4.14-4.15. Do Exercises 4.46-4.60.	questions and comments	auction
Week 21	Introduction to library classes	Read 5.1-5.3. Do Exercises 5.1-5.11.	questions and comments	
Week 22	Random behavior, packages and import	Read 5.4-5.5. Do Exercises 5.12-5.22.	questions and comments	

SEMESTER ONE				
Week 23	maps, javadoc	Read 5.6-5.10. Do Exercises 5.23-5.49	questions and comments	
Week 24	public and private, interfaces, class variables and constants	Read 5.11-5.14. Do Exercises 5.50-5.73	questions and comments	
Week 25	Introduction to zuul	Read 6.1-6.7. Do Exercises 6.1-6.13	questions and comments	
Week 26	Localizing change, implicit coupling, cohesion	Read 6.8-6.11. Do Exercises 6.14-6.26	questions and comments	
Week 27	Refactoring	Read 6.12-6.13. Do Exercises 6.27-6.40	questions and comments	
Week 28	Class design, static methods	Read 6.14-6.16. Do Exercises 6.40-6.56	questions and comments	zuul
Week 29	STREAM part I	STREAM readings and exercises to be posted at a later date.	questions and comments	
Week 30	STREAM part II	STREAM readings and exercises to be posted at a later date.	questions and comments	
Week 31	STREAM part III	STREAM readings and exercises to be posted at a later date.	questions and comments	
Week 32	STREAM part IV	STREAM readings and exercises to be posted at a later date.	questions and comments	TBA
Week 33	Intro to Testing	Read Chapter 7 through 7.3. Do Exercises 7.1-7.11	questions and comments	
Week 34	Test automation, debugging, style	Read 7.4-7.6. Do Exercises 7.12-7.24	questions and comments	
Week 35	More on debugging	Read 7.7-7.12. Do Exercises 7.25-7.37	questions and comments	
Week 36	Study week	Study for final exam	questions and comments	FINAL EXAM
SEMESTER TWO EVALUATIONS				

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	Classes and objects	+ Install BlueJ + Videos and exercises	+ questions + discoveries	+ answers to exercises
Week 2	Class definitions: part 1	+ Videos and exercises	+ questions + discoveries	+ reflections + answers to exercises
Week 3	Class definitions: part 2	+ Videos and exercises	+ questions + discoveries	+ reflections + answers to exercises
Week 4	Class definitions: part 3	+ Videos and exercises	+ questions + discoveries	+ reflections + answers to exercises
Week 5	Object structures, abstraction and modularization	+ Videos and exercises	+ questions + discoveries	+ reflections + answers to exercises
Week 6	Object interaction: method calls	+ Videos and exercises	+ questions + discoveries	+ reflections + answers to exercises
Week 7	Collections, loops, Iterators, arrays	+ Videos and exercises	+ questions + discoveries	+ reflections + answers to exercises
Week 8	Library classes	+ Videos and exercises	+ questions + discoveries	+ reflections + answers to exercises
Week 9	Class design criteria	+ Videos and exercises	+ questions + discoveries	+ reflections + answers to exercises

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	

- a. Breakdown of final grade: 20% explanations, 50% documented puzzle solving, 20% design reviews, 10% feedback/journaling

Instructor Biography:

TJ Leone has taught over twenty math and computer science courses at CTD since. He currently tutors K-14 students in math and computer science. He has also worked as a teacher at Chiaravalle Montessori School and an educational software developer at Northwestern University. He has a BA in Math and an MS in Computer Science from the City College of New York and an M.Ed. in Montessori Elementary Education from Loyola College in Maryland, as

well as graduate work in Computer Science and Learning Sciences at Northwestern. He holds a Montessori teacher certification from the Association Montessori Internationale and is a Sun certified Java programmer.

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