

School of Computing and Information Sciences

Course Title: Computer Programming I

Date: 2/12/2018

Course Number: COP 2210

Number of Credits: 4

Subject Area: Programming	Subject Area Coordinator: Tim Downey email: downeyt@cs.fiu.edu
Catalog Description: A first course in computer science that uses a structured programming language to study programming and problem solving on the computer. Includes the design, construction and analysis of programs. Student participation in a closed instructional lab is required. This course will have additional fees.	
Textbook: Big Java by Cay Horstmann	
References:	
Prerequisites Courses: None	
Co-requisites Courses: Includes a closed lab component	

Type: Required Common Prerequisite

Prerequisites Topics: None

Course Outcomes:

- O1. Be familiar with the concepts of Objects & Classes**
- O2. Master the fundamental Java data types**
- O3. Master the Java selection and iteration constructs**
- 03.04. Be exposed to arrays**
- 04.05. Master using String, ArrayList and Wrapper classes**
- O6. Master analyzing problems and writing Java program solutions to those problems using the above features**
- O7. Be exposed to software testing and interactive debugging**
- O8. Master complex Boolean expressions in selection and iteration constructs**
- O9. Master good programming practices**
- O10. Master methods, method parameters, and parameter passing**

- O5. (SAC will provide a list of best programming practices for instructors as a reference)**

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Relationship between Course Outcomes and Program Outcomes

BS in CS: Program Outcomes	Course Outcomes
a) Demonstrate proficiency in the foundation areas of Computer Science including mathematics, discrete structures, logic and the theory of algorithms	
b) Demonstrate proficiency in various areas of Computer Science including data structures and algorithms, concepts of programming languages and computer systems.	1, 2, 3, 4, 5
c) Demonstrate proficiency in problem solving and application of software engineering techniques	1, 2, 3, 4, 5
d) Demonstrate mastery of at least one modern programming language and proficiency in at least one other.	1, 2, 3, 4, 5
e) Demonstrate understanding of the social and ethical concerns of the practicing computer scientist.	
f) Demonstrate the ability to work cooperatively in teams.	
g) Demonstrate effective communication skills.	

Assessment Plan for the Course & how Data in the Course are used to assess Program Outcomes

Student and Instructor Course Outcome Surveys are administered at the conclusion of each offering, and are evaluated as described in the School's Assessment Plan:
<http://www.cis.fiu.edu/programs/undergrad/cs/assessment/>

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Outline

Topic	Number of Lecture Hours	Outcome
<ul style="list-style-type: none"> • Objects & Classes <ul style="list-style-type: none"> ○ Class variables ○ Defining a class 	5	O1, O5
<ul style="list-style-type: none"> • I/O with JOptionPane 	3	O1, O5
<ul style="list-style-type: none"> • Fundamental Java data types <ul style="list-style-type: none"> ○ Primitive types ○ Strings ○ Wrapper classes 	5	O2, O5
<ul style="list-style-type: none"> • Control structures <ul style="list-style-type: none"> ○ Selection ○ Iteration 	8	O3, O5
<ul style="list-style-type: none"> • Methods <ul style="list-style-type: none"> ○ Accessors & Mutators ○ Method parameters 	8	O1, O5
<ul style="list-style-type: none"> • ArrayLists 	8	O4, O5

Course Outcomes Emphasized in Laboratory Projects / Assignments

Outcome	Number of Weeks
	At least 7 assignments of 1.5 week duration are given In addition, students complete 10 1-hour in-lab exercises
O1	Assignments 1 & 2. All other assignments incidentally.
O2	Assignment 3.
O3	Assignments 5 & 6. Assignment 7 incidentally.
O4	Assignment 4. Assignments 5, 6 & 7 incidentally.
O5	Assignments 1 through 7

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**Oral and Written Communication:
None**

**Social and Ethical Implications of Computing Topics:
None**

Approximate number of credit hours devoted to fundamental CS topics

Topic	Core Hours	Advanced Hours
Algorithms:	1.0	
Software Design:	1.0	
Computer Organization and Architecture:	0	
Data Structures:	0	
Concepts of Programming Languages:	1.0	

**Theoretical Contents:
None**

**Problem Analysis Experiences:
None**

Solution Design Experiences

7-8 Programming Assignments
10 1-hour Lab Exercises

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The Coverage of Knowledge Units within Computer Science Body of Knowledge¹

Knowledge Unit	Topic	Lecture Hours
DS 2	Control structures (and/or, etc)	3
PF 1	Control structures	8
PF 3	ArrayLists	8
PF 5	I/O with JOptionPane	3
PL 4	Primitive and class types	2
PL 6	Objects & Classes	5
SE 2	Using APIs	1

¹See <http://www.computer.org/education/cc2001/final/chapter05.htm> for a description of Computer Science Knowledge units.