

# **IS 6910: Independent Study for Java 7 Certification (OCA)**

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Oversight Professor: Mike Boyle

Office: SFEBB 4169

Office hours: By appointment

## **Purpose:**

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This course objective is to learn Java and prepare for the Oracle Certified Associate, Java SE7 Programmer Certification Exam. Passing the actual certification exam is required to fulfill this course.

## **Course Design:**

Read exam prep book and practice exam questions. Pass the certification exam.

## **Course Textbook (required):**

OCP for Java SE 7 Programmer Study Guide by Kathy Sierra

## **Course Credits: 1.5 (Approx. 60 Hours)**

*MGT 6500 1*

## Course Reading and Activities Schedule

Week/Date	Topic & Reading
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	<b>Java Basics</b>
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| <b>1</b>      | <ul style="list-style-type: none"><li>• Define the scope of variables</li></ul>   |
| <b>Jan 10</b> | <ul style="list-style-type: none"><li>• Define the structure of a Java class</li><li>• Create executable Java applications with a main method</li><li>• Import other Java packages to make them accessible in your code</li></ul> |

	<b>Working With Java Data Types</b>
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|---------------|---|
| <b>2</b>      | <ul style="list-style-type: none"><li>• Declare and initialize variables</li><li>• Differentiate between object reference variables and primitive variables</li></ul>   |
| <b>Jan 20</b> | <ul style="list-style-type: none"><li>• Read or write to object fields</li><li>• Explain an Object's Lifecycle (creation, "dereference" and garbage collection)</li><li>• Call methods on objects</li><li>• Manipulate data using the StringBuilder class and its methods</li><li>• Creating and manipulating Strings</li></ul> |

<b>3</b>	<b>Using Operators and Decision Constructs</b>
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| <b>Feb 10</b> | <ul style="list-style-type: none"><li>• Use Java operators</li></ul> |
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- Use parenthesis to override operator precedence
- Test equality between Strings and other objects using == and equals ()
- Create if and if/else constructs
- Use a switch statement

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Feb 25

### **Creating and Using Arrays**

- Declare, instantiate, initialize and use a one-dimensional array
- Declare, instantiate, initialize and use multi-dimensional array
- Declare and use an Array List

### **Using Loop Constructs**

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March 10

- Create and use while loops
- Create and use for loops including the enhanced for loop
- Create and use do/while loops
- Compare loop constructs
- Use break and continue

### **Working with Methods and Encapsulation**

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March 20

- Create methods with arguments and return values
- Apply the static keyword to methods and fields
- Create an overloaded method
- Differentiate between default and user defined constructors
- Create and overload constructors

- Apply access modifiers
- Apply encapsulation principles to a class
- Determine the effect upon object references and primitive values when they are passed into methods that change the values

### **Working with Inheritance**

- Implement inheritance
- Develop code that demonstrates the use of polymorphism
- Differentiate between the type of a reference and the type of an object
- Determine when casting is necessary
- Use super and this to access objects and constructors
- Use abstract classes and interfaces

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March 30

### **Handling Exceptions**

- Differentiate among checked exceptions, Runtime Exceptions and Errors
- Create a try-catch block and determine how exceptions alter normal program flow
- Describe what Exceptions are used for in Java
- Invoke a method that throws an exception
- Recognize common exception classes and categories

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April 5th

**April 20th**

Tentative Certification Exam Date

