

**CS 122 – Object Oriented Programming**

**Credit Hours:** 4

**Scheduled hours per week**

Lecture: 3

Lab: 1

Other:

**Catalog Course Description:** This course introduces new programming tools required to solve more advanced problems. Students will study object-oriented design and programming, including using interfaces, inheritance, and the fundamentals of data sets and data structures

**Pre-requisites:** CS 121 must be passed with a grade of C or better  
Math 125 or Math 126 or Math 128 or Math 129 or Math 150 or Math 155 or Math 156 or Math 211 must be passed with a grade of C or better

**Co-requisites:**

**Course Learning Outcomes:**

Students should have an understanding of and be able to apply the following concepts:

- To learn how to design, develop, and use object oriented programming for software development
- Learn the Java programming language, its syntax and rules, and best practices in computer programming

**Topics to be studied:**

<ul style="list-style-type: none"> <li>• Introduction to the Java Language</li> <li>• Java Basics</li> <li>• Standard Classes</li> <li>• Selection and conditions</li> <li>• Looping in code</li> <li>• User defined classes</li> <li>• Arrays</li> </ul>	<ul style="list-style-type: none"> <li>• Multi-dimensional arrays</li> <li>• Inheritance, Polymorphism, and Interfaces</li> <li>• Exceptions and I/O operations</li> <li>• Recursion</li> <li>• Data Structures</li> </ul>
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**Relationship of Course to Program or Discipline Learning Outcomes:**

Computer Science

✓	Ability to understand and use elements of good programming style and best practices
✓	Understanding of programming paradigms, such as imperative, functional, and object oriented design
✓	Ability to understand and use variables with different data types and control structures
✓	Ability to perform top-down design, use modular programming, string processing, elementary data structures, basic disk I/O, and recursion
✓	Ability to use data structures and algorithms to represent data relationships, data manipulation, searching, sorting, and solving complex problems
✓	Ability to design, configure, troubleshoot, and manage database tables, normalize data, and store and retrieve object attributes in a database

For general education courses, a listing of the general education competencies that are met.)

<b>Relationship of Course to General Education Learning Outcomes:</b>	
<b>Composition and Rhetoric</b> Students illustrate a fundamental understanding of the best practices of communicating in English and meet the writing standards of their college or program-based communication requirements.	
<b>Science &amp; Technology</b> Students successfully apply systematic methods of analysis to the natural and physical world, understand scientific knowledge as empirical, and refer to data as a basis for conclusions.	✓
<b>Mathematics &amp; Quantitative Skills</b> Students effectively use quantitative techniques and the practical application of numerical, symbolic, or spatial concepts.	✓
<b>Society, Diversity, &amp; Connections</b> Students demonstrate understanding of and a logical ability to successfully analyze human behavior, societal and political organization, or communication.	
<b>Human Inquiry &amp; the Past</b> Students interpret historical events or philosophical perspectives by identifying patterns, applying analytical reasoning, employing methods of critical inquiry, or expanding problem-solving skills.	
<b>The Arts &amp; Creativity</b> Students successfully articulate and apply methods and principles of critical and creative inquiry to the production or analysis of works of art.	
<b>5/3/2016</b>	

**Special requirements of the course:**

You will need a computer with an Internet connection.

**Additional information:**

**Prepared by:** Charles Almond

**Date:** 10/20/2017