

**JEFFERSON COLLEGE**  
**COURSE SYLLABUS**

**CIS155**

**INTRODUCTION TO COMPUTER PROGRAMMING**

3 Credit Hours

Prepared by:  
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Revised by:  
September, 2005  
October 20, 2014

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## CIS155 Introduction to Computer Programming

### I. CATALOGUE DESCRIPTION

- A. Pre-requisite and/or Co-requisite: Reading Proficiency
- B. 3 Credit Hours
- C. Introduction to Computer Programming is an introductory object-oriented programming course using the C++ programming language. Students will learn to code, compile, and test programs and will incorporate looping, decision making, functions, and various data structures including arrays and classes. This course is designed for students pursuing a Graphics/Web Development degree or a four-year degree in Computer Science and for the Associate of Science students who need C++ as their programming language. (F,S)

### II. EXPECTED LEARNING OUTCOMES/CORRESPONDING ASSESSMENT MEASURES

Describe the process to develop best coding practices for information processing, arrays, classes, operators, and functions	Quizzes Exams
Demonstrate effective use of debugging, and pseudocode, object-oriented applications	Quizzes Exams Hands-On Exercises
Analyze console application that include classes, inheritance, overloading, and effective use of data types	Quizzes Exams Hands-On Exercises
Create console applications that utilize functions, pointers, references calculations and formulas, conditional formatting, forecasting, graphics, and charts	Quizzes Exams Hands-On Exercises
Create and modify existing code to debug and trouble shoot errors	Quizzes Exams Hands-On Exercises
Create logical coding statements that diagnose and problem solve a condition function or coding procedure	Quizzes Exams Hands-On Exercises Student Presentation
Create general objects that are of the best use for application of object	Quizzes Exams Hands-On Exercises

### III. OUTLINE OF TOPICS

- A. C++ Overview
  - 1. Object-oriented programming concepts
  - 2. Structured design versus object-oriented
  - 3. C++ IDE development
  - 4. Evolution of computer systems
  - 5. Types and characteristics of personal computers
  - 6. Compiling programs
  - 7. Program backup procedures
  
- B. Getting Started: Data Types, Variables, Operators, Simple I/O, and Strings
  - 1. Programming fundamentals
  - 2. Terminology and project construction
  - 3. C++ general format
  - 4. Data types
  - 5. Variable declaration
  - 6. Operators in C++
  - 7. Details on keyboard input and output screen
  - 8. Developing programming habits
  - 9. Basic C++ dev interface
  
- C. Control Statements and Loops
  - 1. Relational and logical operators
  - 2. If statements
  - 3. Switch statements
  - 4. Loops
  - 5. For loop
  - 6. While loop
  - 7. Do while loop
  - 8. Jump statements
  - 9. Trouble shootin
  - 10. Help files

- D. Functions Part I: The Basics
  - 1. Functions in C++
  - 2. Functions: basic format
  - 3. Function requirements
  - 4. Overloaded functions
  - 5. Default input parameter list
  - 6. Local, global, and static variables
  - 7. Stringstream class
  
- E. Functions Part II: Variable Address, Pointers, and References
  - 1. Data variables and memory
  - 2. Address operator: &
  - 3. Pointers
  - 4. Indirection operator
  - 5. Functions and references
  - 6. Function templates
  
- F. Arrays
  - 1. Using single data variables
  - 2. Array fundamentals
  - 3. Arrays and functions
  - 4. Character arrays
  - 5. Multidimensional arrays
  - 6. Filling arrays from data files
  
- G. Classes and Using Objects
  - 1. Classes and objects
  - 2. Writing own classes
  - 3. Objects as class members
  - 4. Class destructors
  - 5. Array of objects
  - 6. Overloaded operators and objects
  - 7. Pointer, references, and classes
  - 8. Templates

H. Inheritance and Virtual Functions

1. Inheritance
2. Access specified
3. Multiple inheritance
4. Polymorphism
5. Virtual functions
6. Templates

IV. METHOD(S) OF INSTRUCTION

- A. Lecture
- B. Hands-On Exercises
- C. Online Tutorials
- D. Student Presentations

V. REQUIRED TEXTBOOK(S)

Johnson, Barbara; *C++ Programming Today*, Prentice Hall, (Current Edition)

VI. REQUIRED MATERIALS

USB Flash Drive (at least 16gb)

VII. SUPPLEMENTAL REFERENCES

Online Tutorial Sites

VIII. METHOD OF EVALUATION

- |    |                       |     |
|----|-----------------------|-----|
| A. | Class Participation   | 10% |
| B. | Hands-on Examinations | 70% |
| C. | Student Presentation  | 10% |

IX. ADA AA STATEMENT

Any student requiring special accommodations should inform the instructor and the Coordinator of Disability Support Services (Technology Center 101; phone 636-481-3169).

## X. ACADEMIC HONESTY STATEMENT

All students are responsible for complying with campus policies as stated in the Student Handbook (see College Website <http://www.jeffco.edu>).

## XI. ATTENDANCE STATEMENT

Regular and punctual attendance is expected of all students. Any one of these four options may result in the student being removed from the class and an administrative withdrawal being processed: (1) Student fails to begin class; (2) Student ceases participation for at least two consecutive weeks; (3) Student misses 15 percent or more of the coursework; and/or (4) Student misses 15 percent or more of the course as defined by the instructor. Students earn their financial aid by regularly attending and actively participating in their coursework. If a student does not actively participate, he/she may have to return financial aid funds. Consult the College Catalog or a Student Financial Services representative for more details.

## XII. OUTSIDE OF CLASS ACADEMICALLY RELATED ACTIVITIES

The U.S. Department of Education mandates that students be made aware of expectations regarding coursework to be completed outside the classroom. Students are expected to spend substantial time outside of class meetings engaging in academically related activities such as reading, studying, and completing assignments. Specifically, time spent on academically related activities outside of class combined with time spent in class meetings is expected to be a minimum of 37.5 hours over the duration of the term for each credit hour.