CS 151: Computer Science I

1. Course number and name: CS 151: Computer Science I

2. Credits and contact hours: 3.000 Credit Hours, 3.000 Lecture hours

3. Instructor or course coordinator: Neli Zlatarev


   a. other supplemental materials
      o Course syllabus and lecture notes are available online at: http://www.cs.ecsu.edu/~neli/
      o The course uses Blackboard/Vista for projects and grade book.

5. Specific course information

   a. brief description of the content of the course (Catalog Description): First course in Computer Science. Introduces the fundamental concepts of computer programming with an object-oriented language with an emphasis on analysis and design. Topics include data types, selection and iteration, instance variables and methods, arrays, files, and the mechanics of running, testing and debugging.

   b. Prerequisites: MATH 119. Co-requisite: MATH 152.

   c. indicate whether a required, elective, or selected elective course in the program: Required

6. Specific goals for the course

   a. Specific outcomes of instruction, ex. The student will be able to explain the significance of current research about a particular topic.

   **Course outcome 1:** The student will learn about primitive data types in JAVA, variables, assignment statement, arithmetic operators.

   **Course outcome 2:** The student will learn Boolean expressions, conditionals, and loops.

   **Course outcome 3:** The student will learn JAVA classes and class libraries, and how to write user-defined classes and methods, method overloading, interfaces, and how to and use them in definite application settings.

   **Course outcome 4:** The student will learn how to create and use text files.
Course outcome 5: The student will learn arrays of primitive data and arrays of objects and how to use them in definite application settings.

Course outcome 6: The student will become skilled in problem analysis and program design.

b. explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.

The department’s outcomes (a) an ability to apply knowledge of computing and mathematics appropriate to the discipline, (b) an ability to analyze a problem, and identify and define the computing requirements appropriate to its solution, (c) an ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs, (e) an understanding of professional, ethical, and social responsibilities, (i) an ability to use current techniques, skills, and tools necessary for computing practice.

7. Brief list of topics covered

- Introduction to computer systems and computer languages.
- Introduction to Object-Oriented Programming. Writing and running Java programs.
- Primitive data types. Data conversions.
- Java classes, class libraries and packages.
- Boolean expressions. Conditionals. Loops.
- User-defined classes and methods. Encapsulation and visibility modifiers. Static variables and static methods.
- Method overloading.
- Reading from a text file and writing to a text file.
- Arrays of primitive types and arrays of objects. Dynamic arrays.

8. Expected Performance Criteria

Students will demonstrate their mastery of Java programming in several (six) programming assignments. Each assignment consists of two or three programming projects, and for each project they are required to submit a design sheet, the code, and example runs to demonstrate the correctness of their programs. The student’s understanding of the core material covered in this class is demonstrated on two midterms and the final exams.