A Comparison of Introductory Computer Science Courses

CS115: Computer Science Concepts and Practice
CS180: Interactive Programming with Java
CS153: Introduction to Java Programming

In Fall 2003, the Computer Science Department will offer three introductory courses beyond Microsoft Office. Briefly, CS115 provides an overview of the field of computer science with examples covering fundamental concepts of computer science. CS180 (to become CSCC150 in Spring 2004) teaches the students to write useful Java programs, emphasizing the graphical user interface. CS153 provides a more thorough introduction to Java, targeting computer science majors and minors.

Only CS153 satisfies a degree requirement in Computer Science and is the prerequisite for subsequent computer science courses (e.g. CS200: Algorithms and Data Structures). All three of these courses can be applied to the ISTeC interdisciplinary program.

Below is more information on each of these courses. More complete information can be found in the course syllabi, by following the indicated URL.

CS180: Interactive Programming with Java
(to be renumbered CSCC150 in Spring 2004)

The purpose of the CS180 course is to familiarize students not intending to become computer scientists (majors or minors) with the fundamentals of Java programming, program design and problem-solving. The course is oriented towards practical skills including current Java programming technologies for Java applets, graphical user interfaces (GUIs) and basic Web pages.

The course covers the basic Java syntax and language features, compilation, interpretation, execution, class and object usage, graphical interfaces, program-user interaction, and the Java API. Problem-solving techniques and object-oriented programming are also covered.

This course is designed for students who have an interest in computer programming but no prior programming experience, who would like to learn how to create their own programs to enhance their Web pages or to perform useful personal tasks. CS180 also provides a taste of computer programming for students who are considering Computer Science as a possible major, but who are not sure if they will like computer programming.

CS180 is an optional course for the ISTeC interdisciplinary program. This course does not satisfy a requirement in the Computer Science Department, but can count as a free elective.

A CS180 syllabus can be found at http://www.cs.colostate.edu/~cs180/syllabus.html
CS115: Computer Science Concepts and Practice

CS115 is a course covering the fundamental ideas behind computer science (such as that of an algorithm, recursion, automata) and also includes some practical skills including current programming technologies (HTML and JavaScript). This course presents the breadth and vocabulary of computer science, for the student who wants to be knowledgeable in the area, without majoring in computer science. This course would be useful for someone with an interest in learning about computer science, as well as how to do more sophisticated things with computers than using Microsoft Office, but who does not have an interest in becoming a programmer or computer scientist. This course would also be ideal for students who are interested in exploring computer science as a possible major, but are not sure what computer science is about.

This course is not intended to teach programming, since programming in and of itself is not the essence of computer science. However, it is impossible to appreciate the significant ideas of computer science without programming, and there is a programming component to the course. This is done using exercises in HTML and JavaScript. Much of the programming is in the form of running and modifying existing programs.

CS115 is a required course for the IsTEC interdisciplinary program.

A CS115 syllabus can be found at http://www.cs.colostate.edu/~cs115/syllabus.html

CS153: Introduction to Java Programming

CS153 is the first course required for computer science majors and minors, introducing technical topics that will be used in later required computer science courses. It is far more technical and demanding than CS180, and requires a high degree of mathematical ability compared to CS180. This course is a good choice for those who have done some previous computer programming, and are good at mathematics, and who are planning to major or minor in computer science. The breadth and depth of Java programming topics are explored considerably more in this course compared to CS180, and the assigned programs are more involved and time consuming. Students with insufficient background have typically been overwhelmed by the demands of this course.

A CS153 syllabus can be found at http://www.cs.colostate.edu/~cs153/syllabus.html