



CS 1400

Division: Natural Science and Mathematics

Department: Engineering and Computer Science

Course: CS 1400

Title: Programming Fundamentals

Catalog Description:

This course introduces the discipline of computing and emphasizes problem-solving and programming. Considerable time is devoted to learning how to solve problems using a current programming language. Basic principles of program design and implementation are introduced.

General Education Requirements: N/A

Semesters Offered: Fall, Spring

Credit/Time Requirement: Credit: 3; Lecture: 3; Lab: 0

Clock/Hour Requirements: 0

Offered for Non-Credit: No

Prerequisites: MATH 1050

Corequisites: CS 1405

Justification:

This is the first course for students pursuing a computer science degree. It is part of the recommended curriculum for computer science and engineering majors at Snow College. This course follows guidelines for a "Programming Fundamentals" course outlined in *Computing Curricula 2001*, The Association for Computing Machinery, 2001. It is equivalent to Utah State University's CS 1400.

Student Learning Outcomes:

Students will know the basic data types, control structures, and programming approaches for a current programming language.

Students will be able to solve problems by developing algorithms and implementing those algorithms using a current programming language.

Students will begin to understand the social responsibilities of the computing professional and the impact of computing on society.

Content:

The following topics will be covered in this course:

- Introduction to computers and programming
- Data representation
- Control structures
- Functions
- Arrays
- Social context of computing.

General Education Outcomes:

1) Read effectively, constructively, and critically.

Students will read the text throughout the course. They will also be required to read and understand specifications of problems assigned as homework so that a solution can be developed. For example, a written description of a program will be given. The student will be required to read the description, understand what is expected, and then produce an appropriate program.

4) Retrieve, evaluate, interpret, and deliver information through a variety of traditional and electronic media.

Students will be required to utilize the text, application software help material, and online information to produce software solutions to many assigned problems.

7) Apply scientific reasoning to a variety of contexts.

Students will be able to approach problems logically and develop solutions by applying the software development process. This will include understanding the problem statement, developing a algorithmic solution, and verifying the solution.

Key Performance Indicators:

Daily homework: 10%-20% of final grade

8-10 quizzes: 10%-20% of the final grade

2-5 examinations: 30%-60% of the final grade

Comprehensive final examination: 15%-30% of the final grade

Representative Text and/or Supplies:

W. Savitch, *Absolute C++*, current edition, Addison Wesley

T. Gaddis, J. Walters, and G. Muganda, *Starting Out with C++*, current edition, Scott/Jones

Optimum Class Size: 24

Maximum Class Size: 30

Signatures:

I hereby submit this course syllabus:

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I hereby find this course consistent with the goals and resources of the Engineering and Computer Science Department:

Garth O. Sorenson, MS, Associate Professor, Chair

I hereby find this course consistent with the goals and resources of the Natural Science and Mathematics Division:

Dan Black, EdD, Associate Professor, Dean

I have discussed the need for library resources related to this class with the person submitting the syllabus:

Lynn Anderson, MLIS, Technical Services Librarian (Main Campus)

Michelle Olsen, MLS, Campus Librarian (Richfield Campus)