

# Bemidji State University

## CS 1309: Problem Solving and Computation

### A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: \*.\*

Lab Hours/Week: \*.\*

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: Goal 04 - Mathematical/Logical Reasoning

Introduction to general problem-solving techniques applicable to solving problems in computing, including elementary computational problems. Other techniques include using systematic lists, using diagrams, and looking for patterns. Includes fundamental computational concepts in information representation, computer organization, and social and ethical issues in computing. The two-hour lab introduces the use of software to solve a variety of problems. The prospective student should have a general understanding of computers and their operation. Prerequisite: Successful completion of MATH 0800 with a grade of B or better, or three years of high school mathematics (including two years of algebra) and a score on the Mathematics Placement Test appropriate for placement into MATH 1170. Liberal Education Goal Area 4

**B. COURSE EFFECTIVE DATES:** 01/14/2013 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Enhance problem solving skills by developing tactics and applying them to the problems of computers
2. Express computer solutions as algorithms
3. Overview of the disciplines of computer science and the fundamental ways that computer scientists view problems and their solutions

### D. LEARNING OUTCOMES (General)

1. have an general understanding of the history of the field of computer science.
2. develop and understand when to apply numerous problem solving strategies.
3. understand fundamentals of computer science: information representation, computer organization, process application, and social and ethical issues in computing.
4. develop the ability to create simple programs and implement algorithms.
5. understand basic programming language concepts: functions, control structures, events, and arrays.

### E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

Goal 04 - Mathematical/Logical Reasoning

1. Illustrate historical and contemporary applications of mathematical/logical systems.
2. Clearly express mathematical/logical ideas in writing.
3. Explain what constitutes a valid mathematical/logical argument(proof).
4. Apply higher-order problem-solving and/or modeling strategies.

### F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

**G. SPECIAL INFORMATION**

None noted