

COMPUTER SCIENCE 158 MICROCOMPUTER APPLICATIONS

I. Introduction

A. Catalog Description

This course provides an introduction to the capabilities, applications, and limitations of the computer as a problem solving tool. The course provides the student with an introduction to the use of applications software in problem solving, together with an introduction to networking. Topics include the history of the computer and its impact on today's society, design of spreadsheets and databases, sharing data among applications, introduction to the Internet. Students planning to take further courses in computer science should register for CSCI 161. CSCI 158 cannot be used as a prerequisite course for CSCI 255 or CSCI 261. *Prerequisites: two years of high school algebra, MATH 111, or equivalent.*

B. Objectives

CS 158 is designed to acquaint students with the underlying concepts of computer software and hardware. This course will give students the ability to choose the appropriate computer applications tool to solve problems in business and other fields. The course also will introduce students to both basic and advanced features of spreadsheet software, database management systems, and to the principles of spreadsheet and database design. By the end of the course, students will:

- understand the basic design of a microcomputer
- understand and be able to use computer terminology
- be familiar with the history of computer development
- know the functions of an operating system
- be able to use the Windows operating system
- understand the concept of computer networks
- be skilled in use of the Internet and e-mail
- be able to design and create World Wide Web pages
- understand the purpose and power of a computer spreadsheet
- be able to use a spreadsheet to build models
- understand the purpose and power of a database management system
- be able to design and use a simple database

C. Prerequisites

Two years high school algebra or Math 111, or equivalent.

II. Required Topics

A. Computers and Computer Organization

1. History of the Computer
2. Computer Architecture
 - The Processor
 - Memory
 - I/O Controllers
 - The System Bus
3. Disk Organization
4. Data Representation

B. Introduction to Microcomputer Operating Systems

1. File Organization and Manipulation
2. GUI concepts

C. Introduction to the Internet

1. Web page design
2. Searching and research techniques

D. Spreadsheets

1. Design and Documentation
2. Basic Spreadsheet Manipulation
3. Formulas and Functions
4. Graphs
5. Look-up Tables
6. What-if Tables
7. Frequency Tables
8. Macros

E. Database Management Systems

1. Design of Databases
2. Queries
3. Forms
4. Reports
5. Data validation

F. Integration of Applications

III. Optional Topics

A. Spreadsheet Templates

B. Visual Basic

C. Programming with BASIC

D. Advanced Features of DBMS

IV. Bibliography

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