

COURSE TITLE: Computer Science Principles  
YEAR: 2017 - 2018  
INSTRUCTOR: Stacy Dolderer

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## I. COURSE DESCRIPTION:

This course introduces the skills and concepts of information technology, both from practical and a more theoretical point of view. During lectures and interactive computer labs, students will explore a wide range of digital and information technologies, including common PC applications, networking, databases, privacy, and security.

## II. COURSE OBJECTIVES:

- Demonstrate proficiency in the use of information technology, file management, and the ability to learn new software.
- Understand the basic operation of a computer, a local network, and the Internet
- Demonstrate proficiency in online learning and research.
- Identify security precautions for protecting personal information.
- Demonstrate concepts involving programming, digitizing, and encoding information.
- Develop general strategies to logically diagnose, troubleshoot, and solve technical problems.

## III. COURSE OUTLINE:

### **Unit 1 Defining IT (Chapter 1)**

- 1-1 Chapter 1: Defining Information Technology
- 1-2 Pixels and Metric Units
- 1-3 Analytic Comparisons: Image Resolution & Factor of Improvement

### **Unit 2 The Human-Computer Interface (Chapter 2)**

- 2-1 Chapter 2: Exploring the Human-Computer Interface
- 2-2 Comparing Operating Systems and Their Application Programs
- 2-3 Common Software Features

### **Unit 3 The Basics of Networking (Chapter 3)**

- 3-1 Chapter 3: The Basics of Networking
- 3-2 IP Networking and Domain Naming Services
- 3-3 Networking & File Transfer - SFTP & HTTP Protocols

### **Unit 4 HTML (Chapter 4)**

- 4-1 Chapter 4: A Hypertext Markup Language Primer
- 4-2 The First Web Page
- 4-3 Hyperlinks & Images
- 4-4 Tables & Lists
- 4-5 Cascading Style Sheets (CSS) & the "Box Model"

### **Unit 5 Locating Information on the WWW (Chapter 5)**

- 5-1 Chapter 5: Locating Information on the Web

5-2 Libraries and Online Research

**Unit 6 Debugging (Chapter 6)**

**Unit 7 Encoding Information (Chapter 7)**

7-1 Chapter 7: Representing Information Digitally

7-2 Data Storage & Encoding

**Unit 8 Encoding Multimedia (Chapter 8)**

8-1 Chapter 8: Representing Multimedia Digitally

**Unit 9 Social Implications of IT (Chapter 9)**

9-1 Chapter 9: Social Implications of IT

**Unit 10 Introduction to Computing & Problem Solving (Chapter 12)**

10-1 Chapter 12: An Introduction to Computing and Problem Solving

10-2 An Introduction to Python Programming

**Unit 11 Core Objects, Variables, Input & Output (Chapter 13)**

11-1. Working with Numbers

11-2. Working with Strings

11-3. Working with Enhanced Output

11-4. Working with Lists

**Unit 12 Structures That Control Flow (Chapter 14)**

12-1. Working with Relational Operators & Logical Operators

12-2. Working with Decision Structures

12-3. Working with the "while" Loop

12-4. Working with the "for" Loop

## IV. COURSE CALENDAR

**Week 1:** Syllabus Review and Course Overview Chapter 1: Defining IT

**Week 2:** Chapter 2: The Human-Computer Interface

**Week 3:** Chapter 3: The Basics of Networking

**Week 4:** Exam 1 Chapter 3: The Basics of Networking Chapter

**Week 5:** Chapter 4: HTML

**Week 6:** Chapter 5: Locating Information on the WWW

**Week 7:** Exam 2 Chapter 6: Debugging

**Week 8:** Chapter 7: Encoding Information Chapter 8: Encoding Multimedia

**Week 9:** Chapter 8: Encoding Multimedia Exam 3 Chapter 9: Social Implications of IT

**Week 10:** Chapter 9: Social Implications of IT Chapter 12: Introduction to Computing & Problem Solving

**Week 11:** Exam 4 Chapter 12: Introduction to Computing & Problem Solving

**Week 12:** Chapter 12: Introduction to Computing & Problem Solving Chapter 13: Core Objects, Variables, Input & Output

**Week 13:** Chapter 13: Core Objects, Variables, Input & Output

**Week 14:** Chapter 13: Core Objects, Variables, Input & Output Chapter 14: Structures That Control Flow

**Week 15:** Chapter 14: Structures That Control Flow

**Week 16:** Final Exam

*This schedule is subject to change at the discretion of the course instructor to accommodate instructional and/or student needs.*

## V. COURSE EVALUATION:

Assessment	Weight
Weekly Assignments	60%
Exams	30%
Attendance /Participation	10%

## VI. MIDTERM GRADES:

*A midterm grade will be posted using the letter grade scale or "S, U, or NA". Some instructors will use the traditional letter grades as well "A, A-, B+, B, B-, C+, C, C-, D+, D, D- and F or P (Pass)".*

*S - Satisfactory Progress*

*U - Unsatisfactory*

*Progress NA - Not*

*Applicable*

*X - Not Attending*

*Please talk to the instructor if you have any questions regarding your midterm grade. The midterm grade isn't posted to your official transcript.*

## VII. Learning Outcomes:

<b>Course Objectives</b>	<b>Aligns with the Following Program/ Degree/Division Outcomes</b>	<b>Type of Course Objective: <i>Introductory, Reinforce, or Emphasize</i></b>	<b>Assessment Tool Used to Determine if Course Objective Has Been Achieved</b>	<b>Great Falls College MSU College Learning Outcomes</b>
Demonstrate proficiency in the use of information technology, file management,		Reinforce	Observation Assignments Quizzes Tests	
Understand the basic operation of a computer, a local network, and the Internet		Introduction	Observation Assignments Quizzes Tests	The ability to form strategies to locate, evaluate, and apply information, and know the ethical issues surrounding information and technology.

Demonstrate proficiency in online learning and research.		Reinforce	Observation Assignments Quizzes Tests	The ability to form strategies to locate, evaluate, and apply information, and know the ethical issues surrounding information and technology.
Identify security precautions for protecting personal information.		Introduce	Observation Assignments Quizzes Tests	
Demonstrate concepts involving programming, digitizing, and encoding information.	Understand the fundamentals of computer programming and data structures.	Introduce	Observation Assignments Quizzes Tests	The ability to exercise the skills, competencies and behaviors necessary to succeed in the workplace or at a transfer institution.
Develop general strategies to logically diagnose, troubleshoot, and solve technical problems.		Reinforce	Observation Assignments Quizzes Tests	The ability to exercise the skills, competencies and behaviors necessary to succeed in the workplace or at a transfer institution.