



U701-105: Introduction to Computation

Course Format: Online

Course Author/s: Timothy Knautz, MS

Course credits: 3

Prerequisites: None

Course Level: Introductory

Course Description: This course introduces the student to the basics of computers and shows how problem-solving is a central theme in Computer Science. Topics include data & program representation, the system unit, the CPU & memory, storage systems, input & output devices, the operating system & utility programs, networking and computer communications, computer security and privacy, problem-solving techniques and tools, flowcharts, algorithms, and basic programming.

The heart and purpose of this course is threefold: (1) to help students become effective users of IT, (2) to help students improve their problem-solving skills, and (3) to help students understand how to apply IT knowledge and problem-solving to their everyday lives.

Required Course Materials

- Textbook. Deborah Morley; Charles S. Parker. Understanding Computers: Today and Tomorrow: Comprehensive, 16th Edition. Cengage. ISBN-10: 1-305-65631-8. ISBN-13: 978-1-305-65631-4.
 - Older editions are not appropriate.
 - Students must purchase their own textbook - textbooks cannot be shared.

Optional/Recommended Course Materials

- None

Hardware Requirements

- Word processor capable of producing PDF documents.
- Web browser: Chrome is preferred.

Course Learning Objectives

- Identify and distinguish between the various hardware and software systems found in complete and functional computers.
- Identify the hardware and software components of a computer network and explain the various security measures necessary to keep a network and home computer system safe.
- Discuss and explain various problem-solving tools and techniques so they can be applied to different types of problems.
- Develop computer programs using some of the techniques employed by modern day programmers.
- Identify and discuss some of the ethical issues that arise in the computing field and relate them to how computers affect our everyday lives.
-



Course Overview

MODULE/U NIT #	MODULE/UNIT TOPIC	EVALUATED ACTIVITIES
1	Introduction to the Course	Scavenger hunt, discussion, scenario assignment
2	Introduction to Problem Solving	Scavenger hunt, writing assignment
3	The System Unit: Processing and Memory	Scavenger hunt, discussion, scenario assignment
4	Problem Solving Tools: Assumption Articulation	Scavenger hunt, writing assignment
5	Storage	Scavenger hunt, discussion, scenario assignment
6	Problem Solving Tools: Drill Down	Scavenger hunt, writing assignment
7	Input / Output Systems	Scavenger hunt, discussion, scenario assignment
8	Problem Solving Tools: Appreciation	Scavenger hunt, writing assignment
9	Operating Systems	Scavenger hunt, discussion, scenario assignment
10	Flowcharts	Scavenger hunt, writing assignment
11	Algorithms	Scavenger hunt, writing assignment
12	Computer Networks	Scavenger hunt, discussion, scenario assignment
13	Selection in Flowcharts & Algorithms	Scavenger hunt, writing assignment,
14	Network & Internet Security	Scavenger hunt, discussion, scenario assignment
15	Repetition in Flowcharts & Algorithms	Scavenger hunt, writing assignment
16	Introduction to Programming in Snap	Scavenger hunt, programming assignment, final scenario reflection
17	More About Blocks, variables, debugging, and parallelism	Scavenger hunt, programming assignment
18	Conditionals in Snap	Scavenger hunt, programming assignment
19	Repetition in Snap	Scavenger hunt, programming assignment

Evaluation Methods



Your final grade will be based on your performance on the following:

- 1) Scavenger hunts (25%)
- 2) Discussions (15%)
- 3) Writing assignments (30%)
- 4) Scenario assignments (30%)

Scavenger hunts (25%)

Scavenger Hunts are quizzes that come from the reading assignments. After completing the reading, go through the reading again with the Scavenger Hunt as a guide. You can find the exact answers to the questions in the readings.

Discussions (15%)

Discussions explore areas not specifically addressed in the readings or videos and expand on topics related to ethics in computing and the future of computing. Not every module has a discussion.

Writing assignments (30%)

Writing assignments parallels the current problem-solving topic and are based on custom course material not found in the textbook. These assignments require a written discussion and/or documentation. Written material is required to be in a digital form and submitted via PDF.

Scenario assignments (30%)

Scenario assignments are also written assignments but are related to a scenario in which the student will make choices about a new computing system based on their needs. These assignments will be a “work in progress” where the student adds to the document as they proceed through the course.

Exam Method: There are no exams in this course

Grading Scale

The following grading scale is used to evaluate all course requirements and determine your final grade:

A = 93–100	B = 83–87.9	C = 70–77.9	D = 60–69.9
AB = 88–92.9	BC = 78–82.9		F = Below 60

Pass/Fail Option

Students who enroll in an Independent Learning (IL) course under the pass/fail option will receive a final grade of S in place of a final grade equivalent to an A, AB, B, BC, or C and a final grade of U in place of a final grade equivalent to a D or F.