

ESSEX COUNTY COLLEGE

Division of Mathematics, Engineering Technology and Computer Science

Fundamentals of Computer Science – CSC 100 - 002

Course Outline

Spring 2023

Instructor: Ardian Selimi

Lecture Location: Center for Technology, Room: T105

Lecture / Lab Hours: Tuesday / Thursday: 1:00 P.M. – 2:20 P.M.

College Email: aselimi@essex.edu

Preferred form of Communication: College Email

Office Hours by Appointment:

Monday, Wednesday and Friday: 11:00 A.M – 12:00 P.M

Tuesday and Thursday: 3:00 P.M – 4:00 P.M

(Office Room#: 217)

Course Information

Textbook:

Computer Science an Overview 13th Edition

J. Glenn Brookshear, Dennis Brylow; Publisher: Pearson

Course Description:

This course introduces the elementary concepts of computer science and is specifically designed for students planning to major in the discipline. The course emphasizes the various aspects of computing such as problem solving, algorithm design, and program construction. Students also explore the application of computer science to various real-world problems. An object-oriented programming language is used to develop the student's problem solving and programming skills.

After successfully completing this course, students will be able to:

1. demonstrate knowledge of basic hardware logic;
2. explain and interpret internal data representations;
3. implement algorithmic solutions in an object-oriented programming language;
4. use object-oriented design techniques to design algorithmic solutions for a variety of fundamental problems; and
5. discuss the applications of computer science in other disciplines such as business, engineering, medicine, etc.

Course Expectations:

1. Come prepared and give every task your best effort!
2. Raise your hand to ask a question or to contribute to class discussions.
3. Respect and cooperate with others. To this end, refrain from talking, surfing the Internet, texting, sending email etc... while the instructor is lecturing or when another student is participating in a class discussion.
4. Keep your cell phones, iPods, iPads and other electronics off during the lecture portion of the class.

Assessments

Grading for this course is based on:

- Assignment / Labs – 10%
- Homework – 10%
- Quizzes / Tests -50%
- Mid-Term Exam – 15%
- Final Exam – 15%

NOTICE:

I expect all homework and assignment to be in time. I value attendance and showing up in class is very important. Doing homework and assignments in time adds to your grade and what is more important it adds to your knowledge. I consider homework, assignment, quizzes and tests in same scale as midterms and final exams. You will have homework, quiz and assignment every time we finish one chapter and test will be giving every two chapters.

Student Code of Conduct:

All students are expected to conduct themselves as responsible and considerate adults who respect the rights of others. Disruptive behavior will not be tolerated. All students are also expected to attend and be on time for all class meetings.

Lecture / Lab Work:

Week	Topic	Chapter
1	Introduction <ul style="list-style-type: none">- The Role of Algorithms- The History of Computing- Algorithms, Abstraction and Creativity- Data, Programming, Internet and Impact	0
2	Data Storage <ul style="list-style-type: none">- Bits and Their Storage- Main Memory- The Binary Systems- Data and Programming	1
3	Data Manipulation <ul style="list-style-type: none">- Computer Architecture- Machine Language- Program Execution- Arithmetic / Logic Instruction- Programming Data Manipulation	2
4	Operating System <ul style="list-style-type: none">- The History of OS- OS Architecture- Coordinating Machine Activities- Security	3
5	Networking and the Internet <ul style="list-style-type: none">- Network Fundamental- The Internet- World Wide Web and Internet Protocols- Cybersecurity	4
6	Algorithms <ul style="list-style-type: none">- The Concept of Algorithms- Algorithm Representation and Discovery- Iterative and Recursive Structures	5

7	Programming Languages <ul style="list-style-type: none"> - History of Programming Languages - Traditional Programming Concepts - Procedural Units - Language Implementation - Object – Oriented Programming 	6
8	Software Engineering <ul style="list-style-type: none"> - Software Engineering Discipline - Software Life Cycle - Software Engineering Methodologies and Modularity - Tools, Trades and Documentation 	7
9	Data Abstraction <ul style="list-style-type: none"> - Data Structures and Implementation - Customized Data Types - Classes and Objects 	8
10	Database Systems <ul style="list-style-type: none"> - Database Fundamentals - The Relationship Model - Object – Oriented Databases - Database Integrity - Data Mining 	9
11	Computer Graphics <ul style="list-style-type: none"> - The Scope of Computer Graphics - 3D Graphics - Modeling and Rendering - Dealing with Global Lighting - Animation 	10
12	Artificial Intelligence <ul style="list-style-type: none"> - Intelligence and Machines - Perception and Reasoning - Artificial Neural Networks - Robotics 	11
13	Theory of Computation <ul style="list-style-type: none"> - Functions and Their Computation - Turing Machines - Universal Programming Languages - Complexity of Problems - Public – Key Cryptography 	12

Have a healthy, happy and successful semester.

P.S. Syllabus is subject to changes.

