

Algorithms and Programming I
CS 61002
Spring 2015

Course Information

Algorithms and Programming I (4 credit hours) CS 61002

Time: TR 3:45 – 5:00 pm Place: ATB – 00101

Class Web: <http://www.cs.kent.edu/~mallouzi/>

Instructor

Maha Allouzi

Department of Computer Science Mathematics and Computer Science Building Kent, OH
44242-0001.

Office Hours

T TH 2:30 – 3:30 pm

Room 272 Mathematics and Computer Science Building.

Course Outcomes

After the completion of the course students will have the ability to do the following:

- Analyze worst-case running times of algorithms using asymptotic analysis.
- Describe the divide-and-conquer paradigm. Derive and solve recurrences describing the performance of divide-and-conquer algorithms.
- Explain the major algorithms for sorting.
- Explain the major graph algorithms and their analyses and analyze them.
- Write a complete, useful program to solve a computational problem using Python.
- Write a complete, useful program to solve a computational problem using C++.

Course Learning Objectives

This course will provide a comprehensive, introduction to programming with Python, Introduction to algorithms upon completion of this course, students will be able to analyze computing problems, and be able to write computer program to solve them.

Course Prerequisites

- CS 61001

Text Book

No text.

Course Contents

This course composed of three modules:

Module 1: Introduction to Algorithms

In this module students will learn about analyzing and designing algorithms:

1. Foundation: analysis of algorithms.
2. Sorting: insertion sort, merge sort, heap sort, and quick sort.
3. Elementary data structure: stacks and queues, linked lists, tree, and binary search tree.

Module 2: Programming with Python:

In this module students will learn about the basic of computer programming using the Python programming language:

1. Variables, objects, assignment, type
2. Control Structures
3. Functions
4. Containers, arrays
5. Strings
6. File I/O

Module 3: Programming with C++:

In this module students will learn about the basic of computer programming using the C++ programming language:

1. Variables, objects, assignment, type
2. Control Structures
3. Functions
4. Containers, arrays
5. Strings
6. File I/O

Evaluation:

Exam 1	Thursday, Feb 5 th ,	3:45-5:00 pm	25%
Exam 2	Thursday, Mar 5 th ,	3:45-5:00 pm	25%
Final	Wednesday, May 6 th	7:45-10:00 am	30%
Home Works, Quizzes & Assignments			20%

<http://www.kent.edu/registrar/spring-final-exam-schedule>

Course Policy

Students with Disabilities

University policy requires that students with disabilities be provided reasonable accommodations to ensure their equal access to course content. If you have a documented disability and require accommodations, please contact the instructor at the beginning of the semester to make arrangements

for necessary classroom adjustments. Please note, you must first verify your eligibility for these through Services or contact (330) 672-3391.

Administrative Policy Regarding Students Conduct

Chapter 3 of the University Policy Register describes policies with regard to teaching, research and public service. In specific, University Policy 3-01.8 deals with the problem of academic dishonesty. No form of academic dishonesty will be tolerated in this class and will be dealt strictly by the policies given in Chapter 3 of the University Policy Register. The sanctions provided in this policy will be used to deal with any violations. If you have any questions, please read Administrative policy regarding student cheating and plagiarism and/or ask