

Programming Methodology and Abstractions - Course Syllabus

Course Number: CS 207

Course Title: Programming Methodology and Abstractions

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|-----------------------------|--------------|---------------------------|-------------|
| Academic Semester: | Summer | Academic Year: | 2015/ 2016 |
| Semester Start Date: | Jun 05, 2016 | Semester End Date: | Aug 04,2016 |

Class Schedule: Lectures: Monday - Wednesday, 9:00 am to 12:00 pm. Additional lab session schedule TBD according to TA availability

Instructor(s) Name(s): Malek Smaoui
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Office Location: Bldg. 1, flr. 4, rm. 4124
Office Hours: By appointment

Teaching Assistant name: TBD
Email:

COURSE DESCRIPTION FROM PROGRAM GUIDE

Computer programming and the use of abstractions. Object-oriented programming, fundamental data structures (such as stacks, queues, sets) and data-directed design. Recursion and recursive data structures (linked lists, trees, graphs). Introduction to basic time and space complexity analysis. The course teaches the mechanics of the C, C++ or Java language as well as an example of media library

COMPREHENSIVE COURSE DESCRIPTION

The course teaches the mechanics of the C, C++ to introduce and reinforce:

- Computer programming and the use of abstractions.
- Software engineering principles of data abstraction and modularity.
- Object-oriented programming and encapsulation of fundamental data structures.
- Recursion and recursive data structures.
- Basic time and space complexity analysis.

GOALS AND OBJECTIVES

At the end of the course, student should be able to:

- solve problems by writing computer programs
- solve problems iteratively and recursively
- design both structured and object-oriented programs
- use basic data structures available in standard libraries
- design custom data structures
- evaluate the running time and space usage of a program
- use third party libraries to compose a computer program of significant size and value.

REQUIRED KNOWLEDGE

Basic calculus knowledge

REFERENCE TEXTS

Programming Abstractions in C++, Eric Roberts, Prentice Hall, 2013.

METHOD OF EVALUATION

| Percentages % | Graded content |
|---------------------------------|---|
| 30% 15% 15% 20% 20% | 4 programming assignments 3-5 pop paper quizzes Programming midterm exam Programming project Paper final exam |

COURSE REQUIREMENTS

Assignments

Assignments are sets of short to medium length programming exercises, due within one week to cover 1-2 weeks of material.

Midterm consists in solving 1-2 exercises in the lab in 1-1.5 hours.

Project is assigned in the last 2-3 weeks and should use most of what has been learned.

Course Policies

Assignments, midterm and project are to be submitted via blackboard.

NOTE

The instructor reserves the right to make changes to this syllabus as necessary.