SYSC 2006 – Foundations of Imperative Programming  Summer 2017
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Undergraduate Calendar Course Description

SYSC 2006 [0.5 credit]  Foundations of Imperative Programming


Book

How to think like a Computer Scientist. Book available online at: http://prof.beuth-hochschule.de/fileadmin/user/scheffler/Lehre/Think-C_v1.08.pdf

Course Aims and Objectives

After completing this course, students should:

1. Understand the concepts that underlie most imperative programming languages and be able to use this knowledge to help them learn new languages;

2. Be able to visualize how memory is managed by an executing program, and demonstrate this knowledge.

3. Be able to implement small-scale imperative, modular C/C++ programs;

4. Understand different designs for simple data structures.

5. Be able to construct simple recursive functions;

6. Be prepared to undertake a course that provides a thorough introduction to object-oriented programming principles.

Grades

25 % Midterm Exam
40 % Final Exam
25 % Assignments
10 % Labs

Office Hours

TBD
Lab Periods

Attendance at the scheduled laboratory periods is mandatory, and attendance will be taken. During the labs you will work on short exercises that are intended to provide practical experience with tools and techniques related to the concepts presented in the lectures. You will normally be required to demonstrate and submit your lab work by the end of the lab period (or other specified deadline), as indicated in that week's lab "handout".

Your work in each lab period will be graded satisfactory, marginal, or unsatisfactory.

- Satisfactory means that you were present at the lab and made reasonable progress towards completing the lab exercises. Note that you do not have to finish all the exercises to receive a satisfactory grade. (75-100 percent).

- Marginal means that you made some progress towards completing the exercises, but your solutions to were not sufficiently complete to warrant a satisfactory grade. This grade indicates that you may be falling behind, and should take steps to remedy this situation. (50-75 percent).

- Unsatisfactory means that you were absent from the lab period, or you attended but made little or no progress towards completing the lab exercises. This indicates that you are likely having difficulty understanding important concepts and should seek help from your instructor as soon as possible. You will also receive unsatisfactory if you do not demonstrate or submit your work before the deadline or if it is apparent to the TA that you did not do enough of the lab work on your own; that is, you relied on your colleagues to explain the exercises and provide solutions. If you are absent from a lab period for any reason, it is up to you to do the missed lab work on your own time. Serious long-term illness will be dealt with on an individual basis. In these circumstances, please contact your instructor to discuss appropriate arrangements. (0-50 percent).

Assignments

Students are encouraged to discuss issues when working on assignments; however, you are expected to submit your own work for grading (assignments are individual work, unless otherwise stated). If you are unable to complete an assignment by the due date, you can submit the work you have completed.

Policy regarding late assignments: Any assignment submitted after the deadline, and up to 48 hours post the deadline will incur a penalty of ten percent of the assignment grade. No assignments are accepted after the 48 hour cutoff, unless with a documented excuse.

Exams

There will be one closed-book midterm test, which will be held approximately one-half of the way through the term. Computers will not be used during the midterm test.
Proposed Topics

- Introduction to imperative programming languages.
- Data types and variables.
- Expressions,
- Conditional statements.
- Iterative structures.
- Functions.
- Parameter passing mechanisms.
- Recursion.
- Arrays.
- Basic data structures.