Universität Konstanz

Lecture: Introduction to Computation for the Social Sciences

Winter Term 2017-18

Lectures

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Exercises

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Description

This lecture serves as an introductory course to computer science and programming for a social science audience. The main emphasis of the course is on providing students with a good conceptual understanding of fundamental principles in computer sciences and of basic programming concepts. Topics covered range from basic principles of information coding, computer systems and information storage, to data types, data structures, algorithms, different programming paradigms and database systems. Concepts are taught "in context" throughout the lecture, i.e., students will learn concepts and directly apply them in programming exercises structured along relevant social science applications. The lecture will rely on Python as teaching language.

Requirements and Grading

Students will have to fulfill the following requirements:

- Successfully complete at least 60% of the exercises to qualify for the final exam.
- Final written exam of 90 min.

The final grade for the course corresponds to the exam grade.

All course materials are available on ILIAS at:
https://ilias.uni-konstanz.de/ilias/goto_ilias_uni_crs_623887.html

Course Schedule

Session 1 (Oct 25th). Introduction

Session 2 (Oct 30th). Information Coding

Session 3 (Nov 6th). Data Structures

Session 4 (Nov 13th). Programming

Session 5 (Nov 20th). Algorithms

Session 6 (Nov 27th). Recursion

Session 7 (Dec 4th). Sorting Algorithms

Session 8 (Dec 11th). Complexity and Correctness

Session 9 (Dec 18th). Formal Languages and Automata

Session 10 (Jan 8th). Turing Machines and Computability

Session 11 (Jan 15th). Complexity

Session 12 (Jan 22nd). Parallel Programming

Session 13 (Jan 29th). Databases

Session 14 (Feb 5th). Exam Review