



Lecture: Introduction to Computation for the Social Sciences

ECO-20330 / POL-20330 / POL-20335

Winter Term 2019-20

Lectures

Karsten Donnay

karsten.donnay@uni-konstanz.de

Room D 246

Exercises

Stefan Scholz

stefan.scholz@uni-konstanz.de

Marius Giebenhain

marius.giebenhain@uni-konstanz.de

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. The successful completion of more than 80% of the exercises gives a 0.3 grade bonus towards the final exam grade.

All course materials are available on ILIAS at:

[https://ilias.uni-konstanz.de/ilias/goto ilias uni crs 933370.html](https://ilias.uni-konstanz.de/ilias/goto%20ilias%20uni%20crs%20933370.html)

Course Schedule

Session 1 (Oct 21st). Introduction

Session 2 (Oct 28th). Information Coding

Session 3 (Nov 4th). Data Structures

Session 4 (Nov 11th). Programming

Session 5 (Nov 18th). Algorithms

Session 6 (Nov 25th). Recursion

Session 7 (Dec 2nd). Sorting Algorithms

Session 8 (Dec 9th). Complexity and Correctness

Session 9 (Dec 16th). Formal Languages and Automata

Session 10 (Jan 13th). Turing Machines and Computability

Session 11 (Jan 20th). Parallel Programming

Session 12 (Jan 27th). Databases

Session 13 (Feb 3rd). Social Science Applications

Session 14 (Feb 10th). Exam Review