



# Lecture: Introduction to Computation for the Social Sciences

ECO-20330 / POL-20330 / POL-20335

Winter Term 2018-19

## Lectures

Karsten Donnay

[karsten.donnay@uni-konstanz.de](mailto:karsten.donnay@uni-konstanz.de)

Room D 246

## Exercises

Stefan Scholz

[stefan.scholz@uni-konstanz.de](mailto:stefan.scholz@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\\_iliastuni\\_crs\\_812712.html](https://ilias.uni-konstanz.de/ilias/goto_iliastuni_crs_812712.html)

## **Course Schedule**

**Session 1 (Oct 22<sup>nd</sup>). Introduction**

**Session 2 (Oct 29<sup>th</sup>). Information Coding**

**Session 3 (Nov 5<sup>th</sup>). Data Structures**

**Session 4 (Nov 12<sup>th</sup>). Programming**

**Session 5 (Nov 19<sup>th</sup>). Algorithms**

**Session 6 (Nov 26<sup>th</sup>). Recursion**

**Session 7 (Dec 3<sup>rd</sup>). Sorting Algorithms**

**Session 8 (Dec 10<sup>th</sup>). Complexity and Correctness**

**Session 9 (Dec 17<sup>th</sup>). Formal Languages and Automata**

**Session 10 (Jan 7<sup>th</sup>). Turing Machines and Computability**

**Session 11 (Jan 14<sup>th</sup>). Complexity**

**Session 12 (Jan 21<sup>st</sup>). Parallel Programming**

**Session 13 (Jan 28<sup>th</sup>). Databases**

**Session 14 (Feb 4<sup>th</sup>). Exam Review**