# – Computer Science/Python

**Lecturer**: André Rossi
**Contact information**:
andre.rossi@lamsade.dauphine.fr

**Department:** LSO
**Semester**: 1

**Course level**: L1-L3 Undergraduate
**Domain**: Maths and Computer Science, Electives
**Teaching language**: English
**Number of in-class hours**: 33
**Number of course sessions:** 11
**ECTS**: 6

## Course description and objectives

Content: - basic concepts of algorithms in Python: variable, affectation, use of the print() and output() functions - Conditional instructions and Boolean expressions - Repetitive instructions (loops) - Modular programming: functions and libraries in Python - Sequential data structures in Python: strings and lists - Reading and writing to text files.

## Prerequisites

None.

## Learning outcomes

This class is an introduction to algorithms and programming.

The students develop sound skills in Python programming language, which is now a reference language in many technical domains.

This class lets students design and code Python programs to extract and handle data.

## Assignments and grading

- Mid-term exam (40%)
- Online quizzes (10%)
- Final exam (50%)

The numerical grade distribution will dictate the final grade. The passing grade for a course is 10/20.
**Class participation:** Active class participation – this is what makes classes lively and instructive. Come on time and prepared. Class participation is based on quality of comments, not quantity.
**Exam policy:** In the exam, students will not be allowed to bring any document (except if allowed by the lecturer). Unexcused absences from exams or failure to submit cases will result in zero grades in the calculation of numerical averages. Exams are collected at the end of examination periods.

## Course structure

| Session | Topic |
|---|---|
| 1 | Variables, affectation, reading and writing |
| 2 | Conditional statements |
| 3 | while loop |
| 4 | User-defined functions |
| 5 | Libraries |
| 6 | Character strings |
| 7 | String methods |
| 8 | Lists: creation, access and traversal |
| 9 | Lists: operators and methods |
| 10 | Strings and lists in functions |
| 11 | Final Exam |

## Bibliography


- David L. Ranum, Bradley N Miller, “Problem Solving with Algorithms and Data Structures Using Python” (https://runestone.academy/ns/books/published/pythonds/index.html)

- https://www.w3schools.com/python/


## Lecturer’s biography

Prof. André Rossi holds an engineering degree in Automatic Control and Production Science from ENSIEG, INPG, a Master of Science in the same field and a PhD degree in Robust Scheduling. He defended an Habilitation à diriger des recherches in September 2012, on networks optimization.

Prof. Rossi is full professor of Computer Science at LAMSADE, Université Paris Dauphine - PSL, France, since 2018. Before that, he was full professor of Operations Research at the Computer Science Department of Université d'Angers, France, from 2015 to 2018. Previously, he was Associate Professor at Université de Bretagne-Sud in Lorient, France, from 2005 to 2015 and served as an invited professor in the Department of Computer and Information Sciences in University of Hyderabad, India.

## Moodle

This course is on Moodle: **Yes**

## Academic integrity

Be aware of the rules in Université Paris Dauphine about plagiarism and cheating during exams. All work turned in for this course must be your own work, or that of your own group. Working as part of a group implies that you are an active participant and fully contributed to the output produced by that group.