

COURSE OUTLINE

(1) GENERAL

SCHOOL	Information Sciences and Technology		
ACADEMIC UNIT	Department of Statistics		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE		SEMESTER	3 rd
COURSE TITLE	INTRODUCTION TO PROGRAMMING USING PYTHON		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
Lectures		4	7
Labs		2	
COURSE TYPE	General Background - Elective		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBSITE (URL)			

(2) LEARNING OUTCOMES

Learning outcomes
Upon successful completion the students will (1) Understand fundamental programming concepts – Recognize key concepts such as variables, data types, control flow, and loops. (2) Write basic Python programs – Use Python syntax to develop simple programs (3) Apply control flow structures – Implement if, else, and elif statements, as well as loops (for and while). (4) Work with data structures – Manipulate lists, tuples, sets, and dictionaries. (5) Perform basic file handling – Read from and write to text files using Python. (6) Identify and fix errors – Use debugging techniques and handle exceptions (try-except). (7) Utilize external libraries – Work with popular Python libraries such as numpy, pandas, and matplotlib for data manipulation and visualization.
General Competences
• Search for, analysis and synthesis of data and information, with the use of the necessary technology • Decision Making • Adapting to new situations

- Working in an interdisciplinary environment
- Writing Reports
- Production of free, creative and inductive thinking

(3) SYLLABUS

Introduction to Computers and Programming, Basic Programming Principles, Introduction to Python, Syntax and Best Practices, Arithmetic Operations, Object Types and Data Structures, Object-Oriented Programming. Lists, Sets, Dictionaries, and Objects. Special Looping Constructs. Data Processing and Visualization Packages. Problem-Solving and Algorithm Implementation with Python.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	Face to face	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	Yes	
TEACHING METHODS	<i>Activity</i>	<i>Semester workload</i>
	Lectures	52
	Computer labs	20
	Literature study	18
	Project/report writing	35
	Individual study	50
	Course total	175
STUDENT PERFORMANCE EVALUATION	Final exam at the end of the semester (65%). Live Coding Midterm (20%). Coursework during the semester (15%). Information available on eclass.	

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

Introduction to Computation and Programming Using Python, Third Edition, Gutttag John V.

An Introduction to Python Programming for Scientists and Engineers, Wei-Bing Lin et al.