



Course Syllabus

CS-21: Introduction to Computer Science Summer, 2017

Instructor: Orkun Karabasoglu, PhD

Webpage: www.karabasoglu.com

Course Time: Monday to Friday: 10.45am-12.45pm

Teaching Assistant: TBD

Email: TBD



Course Hours

The course has 20 lectures and 8 seminars/exercise classes in total. Each class session is 120 minutes in length. The course meets from Monday to Friday. Each course has a total of 56 class hours (4 credit hours).

Course Description

The course provides an elementary introduction to computer science, suitable for students with little or no computer background. This course is meant for humanities and social sciences students who want to understand how computers and communications systems work. The course also uses the Python programming language to explain many of these concepts. More specifically, the objectives of this course are:

- To provide an understanding of fundamental concepts and terminology of computer science.
- To acquire and demonstrate elementary skills for programming in a high-level language, namely Python.

Course Objectives

After this course, students should be able to:

- Demonstrate an understanding of fundamental concepts and terminology of computer science, which can be used as basis for problem solving in various disciplines, as well as for continuing to more advanced computer science courses.
- Be fluent in the use of procedural constructs in Python, such as assignments, conditional statements, loops, method calls, and arrays.
- Design, code, and test small Python programs. This is an intensive but rewarding course - you work hard, but learn a lot and gain considerable experience!

Pre-requisites: No requirement. No prior experience in programming is assumed. Suitable for any student with any background.

Suggested Textbooks

- Introduction to Computer Science Using Python. A Problem Solving Focus by Dierbach, Charles. (Lectures 1-3)
- Think Python - How to Think Like a Computer Scientist. Allen B. Downey. (Lec-



tures 4-20) You can download a free PDF of the textbook at
<http://www.greenteapress.com/thinkpython/>

Computer Requirements

All students must have a modern laptop computer– Windows 7, Mac, Linux. **Students must bring their laptop (fully charged) to each class.**

Classroom Policy

All cellular phones must be turned off and stored before entering the classroom. Computers shall be used during class time for learning purposes only. Any personal use of computers, unless authorized by the instructor, is unacceptable.

Attendance Policy

Class attendance is mandatory. Attendance will be taken.

Grading policy

Attendance: 5 %

Quizzes: 10 %

Assignments: 10%

Midterm 1: 25 %

Midterm 2: 25 %

Final: 25 %

Course Topics

- Introduction to computer science
- Python—a programming language
- Variables, Expressions and Statements
- Functions in Python
- Conditionals and Recursion
- Fruitful Functions
- Iteration
- Strings
- List
- Dictionaries
- Tuples
- Files
- Classes and objects, functions and methods
- Inheritance

Tentative Course Calendar

Monday - Friday 10:45 - 12:45

Date	Day	Class Activity	Assignment Sched-
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July			
13	THU	Lecture 1: Computational Problem Solving	
14	FRI	Lecture 2: Computer Hardware	
17	MON	Lecture 3: Programing Languages	HW 1 out
18	TUE	Lecture 4: Python –a programming language	
19	WED	Lecture 5: Variables, Expressions and statements	HW 2 out, HW 1 in, Quiz 1
20	THU	Lecture 6: Functions in Python	
21	FRI	Lecture 7: Conditionals and Recursion	HW 3 out, HW 2 in
24	MON	Lecture 8: Fruitful Functions	HW 4 out, HW 3 in,
25	TUE	Lecture 9: In-class coding performance	First Midterm
26	WED	Lecture 10: Iteration	
27	THU	Lecture 11: List (1/2)	HW5 out, HW 4 in
28	FRI	Lecture 12: List (2/2)	
31	MON	Lecture 13: Dictionaries	HW6 out, HW 5 in, Quiz 2
August			
1	TUE	Lecture 14: Tuples	
2	WED	Lecture 15: In-class coding performance	HW6 in, Second Midterm
3	THU	Lecture 16: Files	HW7 out
4	FRI	Lecture 17: Classes and objects, functions and methods (1)	
7	MON	Lecture 18: Classes and objects, functions and methods (2)	HW7 in,
8	TUE	Lecture 19: In-class coding performance	Final Exam
9	WED	Lecture 20: Inheritance	

Online Coaching Sessions:

Course instructor arranged research assistant to be available for online coaching sessions. His TA will answer questions and help with coding almost every day during the course.



Code of Academic Integrity:

You must familiarize yourself with the Code of Academic Integrity in the Beijing Jiaotong University. It is your responsibility to ensure your behavior does not violate this code. You must observe the policies regarding various forms of academic dishonesty. The following statement about academic dishonesty has been provided by the Beijing Jiaotong University, “Activities that have the effect or intention of interfering with education, pursuit of knowledge, or fair evaluation of a student’s performance are prohibited.” Academic dishonesty will not be tolerated and may be handled by the Office of Student Conduct.

Inappropriate activity during exams (e.g., consulting other students) may result in a zero on the exam and will be submitted to the Office of Student Conduct. As a student in this course, you will be held accountable for your actions.