

## Introduction to Python

**Department:** Fudan International Winter Session 2025

<b>Course Code</b>	GEIS20005						
<b>Course Title</b>	Introduction to Python						
<b>Credit</b>	2	<b>Experiment (including Computer) Credit</b>		<b>Practice Credit</b>		<b>Aesthetic Education Credit</b>	
<b>Credit Hours Per Week</b>	12 credit hours per week, 36+3 tutorial hours in total (one credit hour is 45 minutes)	<b>Education on The Hard- Working Spirit Credit Hours</b>		<b>Language of Instruction</b>	Engl ish	<b>Honors Course</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Course Type</b>	<input type="checkbox"/> Core General Education Course <input type="checkbox"/> Specific General Education Course <input type="checkbox"/> Basic Course in General Discipline <input checked="" type="checkbox"/> Others			2+X Major : <input type="checkbox"/> Professional Core Course <input type="checkbox"/> Professional Advanced Course <hr/> Non 2+X Major : <input type="checkbox"/> Professional Compulsory Course <input type="checkbox"/> Professional Elective Course			
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>Read a computational problem and formulate an algorithm to solve that problem.</li> <li>Implement a program in Python that performs specific tasks.</li> <li>Use abstractions such as variables and functions to manage complexity in your programs.</li> <li>Describe the functionality of a program that you or someone else has written.</li> <li>Find and fix errors in programs that you or someone else has written.</li> </ul>						
<b>Course Description</b>	This class focus on the fundamentals of Python programming and will cover variables, branching, loops, lists, 2D list, and dictionary. The applications of Python coding include image processing and csv file processing.						
<b>Course Requirements:</b> No prior programming experience is needed. High school level algebra is required.							
<b>Teaching Methods:</b> Lecture and lab (online live)							

**Course Director's Academic Background:****Instructor's Academic Background:**

PhD. in Electrical & Computer Engineering at Duke University. Currently teach undergraduate computer science classes at UC San Diego.

**Members of Teaching Team**

Name	Gender	Professional Title	Department	Responsibility
Paul Cao	Male	Lecturer	Computer Science	Course Instructor

**Course Schedule:**

Day	Material
Day 1	Course intro, Logistics, Hello world, data types, Variables, expressions, Type conversions
	Lab 1
Day 2	Interpret errors, using functions, user input, Defining functions, boolean types and conditional statements / More conditional statements
	Lab 2
Day 3	Strings and Lists, How to get started with coding, Range, for loops
	Lab 3
Day 4	While loops, break and continue, Reference, objects, methods, Object mutations, stack frame
	Lab 4
Day 5	Scope of variables, argument passing to functions, exercises, tuples
	Lab 5
Day 6	Intro to colors, 2D list of tuples, and image processing
	Lab 6
Day 7	Nested for loops and 2D lists, tuples, Images and basic image transformations
	Lab 7
Day 8	Image transformation using functions, Modifying images in functions, steganography intro
	Lab 8
Day 9	bitwise operations and image encryption/decryption, Dictionaries
	Lab 9
Day 10	More about dictionaries, Data and csv file processing
	Lab 10
Day 11	Wrapup and final exam review

Day 12	Final Exam					
<p><b>The design of class discussion or exercise, practice, experience and so on:</b></p> <p>The class will mostly based on lectures and in class labs and homework. Students will be working on basic coding projects in Python.</p>						
<p><b>If you need a TA, please indicate the assignment of assistant:</b></p> <p>Grade lab assignments, take attendance</p>						
<p><b>Grading &amp; Evaluation:</b></p> <ul style="list-style-type: none"> <li>• Class participation: 10%</li> <li>• Labs (drop the lowest lab, pair programming): 40%</li> <li>• Final Exam: 50%</li> </ul>						
<p><b>Usage of Textbook:</b> <input type="checkbox"/> Yes (complete textbook information form below)      <input checked="" type="checkbox"/> No</p> <p><b>Textbook Information</b> (No more than two textbooks) :</p>						
Title	Author	ISBN	Publishing Time	Publisher	Type I	Type II
<p><b>Teaching References:</b></p>						