BRONX COMMUNITY COLLEGE of the City
University of New York
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

SYLLABUS: CSI 31 Introduction to Computer Programming I.   3 credits/4 hours.

PREREQUISITE: CSI 30 CSI 30; and CUNY English Proficiency, or ENG 100 or 110, if required

COREQUISITE: MTH 31.

TEXT: *Object-Oriented Programming in Python, 1-st Edition*, by Goldwasser and Letscher, 2008.
Reference for UML: Provided by Instructor.
Reference for TKInter (optional): Provided by Instructor.

Content: Introduction to computer systems and computer logic; techniques of structured programming; data representation; basic algorithm design and implementation in a modern structured language; computer solutions to problems taken from engineering, science, physics, mathematics, business, and other applications.

Objectives: By the end of this course the successful student will be able to work in the Python language to:

(1) Use it comfortably as an Object-Oriented language;
(2) To regard every variable as an object of some class, and to review the built-in types from this perspective;
(3) USE OOD/OOP to design correctly and to implement web applications and event-driven GUI applications.

Day	Section	Topic	Assignments	Projects
1	1.1-1.2	Data and Types; Functions and Algorithms (UML activity diagram, i.e. flow chart)	pg. 29: 1.5.16,1.10	
2	1.3-1.5	Higher Level Languages; Objects and Classes: OO Design (UML class diagram, UML sequence diagram)	pg. 29: 1.15, 1.19, 1.22, 1.25, 1.29, 1.31	
3	2.2-2.5	Built-in Python classes (list, str) and numeric types (int, long, float)	pg. 82-84: 2.5, 2.8, 2.9, 2.14, 2.18, 2.24(a-g)	pg. 86: 2.33
4	2.6-2.8	Expressions, Calling Functions	pg. 84:2.24(j-r), 2.25, 2.27 (a-r)	
5	4.1, 4.4	Lists and Conditional statements for-loops	pg. 151-155: 4.5, 4.9, 4.13, 4,23, 4.27	
6	4.5	For loops	pg. 155: 4.34	pg. 156: 4.39
7		**Exam 1**		
8	5.1, 5.4	While loops, defining functions	pg. 195-199: 5.4, 5.5, 5.23	
9	6.4	Designing and implementing classes – a Fraction class	pg. 233: 6.10	pg. 233: 6.18 (or complex numbers)
10	5.5	Error checking and exceptions	pg. 200: 5.33, 5.34	
11	7.2, 7.4-7.6	Design and Documentation	pg. 268: 7.4, 7.6, 7.8	
12	7.7	Modules and Unit Testing	pg. 269: 7.6, 7.8	
13	8.1-8.5	Input and Output; Files	pg. 293: 8.5, 8.13	pg. 296: 8.21-8.24
14		**Exam 2**		
15	3.1-3.3	Graphics (optional TKInter)	pg. 121: 3.5	pg.123: 3.17
16	9.1-9.4	Inheritance	pg. 328: 9.3, 9.6	

Day	Section	Topic	Assignments	Projects
17	4.3, 11.1	Structural recursion – Drawing a pyramid	pg. 151: 4.7, 4.10, pg. 390: 11.4	
18	11.3, 11.4	Procedural recursion – Binary search	pg. 391: 11.6, pg. 395: 11.31	
19	12.1, 12.2	Container Classes (list vs. tuple; Dictionary)	pg. 433: 12.5	pg. 434: 12.14
20		**Exam 3**		
21	15.1	Event-driven programming (UML state diagram)	pg. 519: 15.1, 15.2	
22	15.2-15.4	Event-handling	pg. 520: 15.6	pg. 520: 15.12 (or other GUI Project)
23	16.1-16.2	**(Optional topic)** A Network Primer, Basic Client	Modify fig.16.5	
24	16.3	**(Optional topic)** Basic Server	pg. 556: 16.1	
25	16.4	**(Optional topic)** A Chat Room		One of pg. 557: 16.8-16.12
26		Review		
27		Review		
28		Review		

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