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| **Programming for All - Python**  **CS252 - Section 1288**  **Tuesday and Thursday. 11:20 AM – 12:35 PM**  **Fall 2024 Syllabus**  **Dr. Thomas J. Liu**  [**tliu@njcu.edu**](mailto:tliu@njcu.edu)**; 201-200-3140;**  **ZOOM and K430**  **tliu@njcu.edu**  **for emergency only – tomjliu@gmail.com** | | | |
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| **Lecture Session: K430** |  | |
| **OfficeHours:** |  | |
| Tuesday, Thursday 1-3PM at K415 and by either office appointment or by Zoom. | |  |
| **Textbook:** | Python for Everyone, 3rd edition by  Cay Horstmann and Rance D. Necaise  2nd Edition is ok too. | |

**Web site:** [**http://blackboard.njcu.edu**](http://blackboard.njcu.edu)

**Software: You will need to install Thonny on your computer. It is available on**

<https://thonny.org/>

**Course Information:**

**Purpose: CS 252 is an introduction to programming and computing concepts for students with no previous background in CS and with majors in subjects other than CS or engineering. This course provides a basic training and foundation to programming using Python that focus on the design of program logic, learning the essentials structures in coding and on the problem-solving skills all good programmers need to be successful.**

**Pedagogy and Objectives**

* Write programs for mathematically based calculations, string manipulation, text (e.g., HTML) creation/ manipulation, and simulation (e.g. using turtle sprites).
* Apply the basic concepts of computer science (especially data representations, algorithms, encodings, forms of programming) to practical problems, such as digital graphics, random simulations, and internet-based applications.
* Apply a range of useful algorithms and imported libraries.

**(Learning Outcome) Upon completing the course**, students will able to

* (Competency) Student will be able to understand the fundamentals of computer and simple programming concepts through writing computer programs. Student will also be able to write Python program to apply the logic structures in programming objects, e.g. Decisions, Boolean structures, iterative Loops – “For” and “While” in Functions, Lists, Files, Sets and Dictionaries.
* Demonstrate ability to write simple programs using function invocation, iteration, conditionals and simple sequential data structures. (e.g. lists and text strings).
* Apply knowledge of data encoding schemes and basic programming syntax and semantics to write simple graphics creation and manipulation programs.
* Explain basic coding and algorithmic concepts (e.g. coding structure, decision-making flow chart and iterations operations)
* (Accomplishment) Write over than twelve programs that creatively solving practical problems and display results in a decent format.
* (Integrated performance) write a longer program that integrates multiple syntax structures and demonstrating mastery of programming skills (sequencing of commands, function invocation, repetition and conditionals).

 The **ultimate purpose** of the course is to introduce fundamentals of computer science and programming concepts and skills using Python.

**Tentative Schedules: the syllabus and/or calendar may be revised with notification to students as deemed necessary by instructor.**

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| week of Classes | **Lecture topic** | **11** |
| Week of September 3 - 8  **Reading and programming Assignment 1** | Reading Assignment – Introduction in Chapter 1  Environment Set up, Learn to compile, and run Python programs in Thonny and IDLE.  Introduce the fundamentals of Computers and how information is formed, stored, used and represented. | Chapter 1 Introduction and  Environment set up for Java IDE |
| Week of September 9 - 15  **Programming Assignment 2** | Chapter 2  Creating and Modifying a program with NUMBERS and STRINGS | Chapter 2 Using Objects |
| Week of September 16 -22  **Programming Assignment 3** | Chapter 2 – Graphics with simple drawing | Chapter2-3 Implementing Classes |
| Week of September 23 - 29  **Programming Assignment 4** | Chapter 3 DECISION Techniques | Chapter 3 Implementing Classes |
| Week of September 30 - October 6  **Programming Assignment 5** | Chapter 3 Decision with Application: Input Validation |  |
| Week of October 7 – 13 | Chapter 4 Loops – While, for and Nested loops | Chapter 4 Fundamental Data types |
| Week of October 14 - 20  **Programming Assignment 6** | **Midterm Exam Chapter 1-4** | Chapter 5 Decisions |
| Week of October 21 – 27  **Programming Assignment 7** | Chapter 4 Loops with Application: Random numbers and Simulations |  |
| Week of October 28 – November 3  **Programming Assignment 8** | Chapter 5 Functions and parameters with values | Chapter 6 Iteration and Loops |
| Week of November 4 – November 10  **Programming Assignment 9** | Chapter 5 Problem solving with reusable functions | Chapter 7 Array and Array Lists |
| Week of November 11– November 17  **Programming Assignment 10** | Chapter 6 Lists and Operations |  |
| Week of November 18– November 24  **Programming Assignment 11** | Chapter 6 Using Lists with Functions to solve Adapting algorithms  - Tables |  |
| Week of November 25 – December 1 **Programming Assignment 12** | Chapter 7 Files – Reading and Writing  Thanksgiving Holiday! |  |
| Week of December 2 - 8  **Programming Assignment 13** | Chapter 7 Exception Handling and /or Sets and Dictionary |  |
| Week of December 9 -15  Final Exam preparation and All HW due to make up. | **Final Exam Review** |  |
| **December 19** | **Final Exam** |  |
| Additional chapter could be included pending upon the available time | **Chapter 8 – Sets & Dictionary**  **Chapter 9 – Classes and Objects** | Review for Final Exam |

**Evaluation Scheme: extra 7% for Programming participation and class behavior and attendance**

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| Programming Exercises | **48%** (details as stated in Assignment Rubrics.) – 4**%** per assignment. |
| Midterm Exam | **20%** (Multiple choice || Essay questions || programming) |
| Final Exam | **25%** (Multiple choice || Essay questions || programming) |

**Grade scale: A : >=90.0; A-: >=80.0; B+:>=76; B: >=74; B-:>=70; C+:>=66;C:>=64;C-:>=60; D:<=50;F:<=49**

### Programming Style and Documentation

* Use paragraph comments at the beginning of the program to state your name, class, and give a brief description for the program.
* Indent your statement two spaces.
* Use Next-Line style.
* Leave a blank line before a comment line or a comment paragraph.

**Program** **Grading Rubrics**

**Every program exercise is worth 3 points of semester grade.**

**Program assignment will be given on class time and due next class.**

**We will officially assign 13 program assignments, one for each class topics.**

**No program assignment will be accepted after initial assignment date more than two weeks.**

**Python and Thonny (IDE for Students) Related Links**

**(IDE: Integrated Development Environment)**

**Resources:**

[https://thonny.org/](https://livenjcu-my.sharepoint.com/personal/tliu_livenjcu_onmicrosoft_com/Documents/NJCU_2022_SPRING/CS 252/%0b%0dhttps:/thonny.org/%0d)

* **http://www.python.org**
* **JES resources** – This is for advanced Python programmer for graphics

https://code.google.com/archive/p/mediacomp-jes/

* Reference Book site - www.MediaComputation.org
* **Python Book Resources –**

**http://www.wiley.com/college/horstmann**

**Python Lecture ppt Links - Blackboard**

**Solutions of written homework will be provided on Blackboard.njcu.edu.**

##### On-time Rubric: (used for all assignments)

**5 – Assignment handed in by the end of the due date.  
4 – Assignment handed in 1 school day late.  
3 – Assignment handed in 2 school days late.  
2 – Assignment handed in 3 school days late.  
1 – Assignment handed in 4 school days late.**

**Programming Assignments Rubric: (used for all computer programs)**

**5 – Program compiles and runs correctly. Program solves all of the requirements of the problem. Internal documentation is complete and useful.  
4 – Program compiles and runs. The basic ideas of each problem requirement is addressed, but not completely solved. Internal documentation is present, but incomplete.  
3 – Program has 3 or fewer compiler errors. Each of the problem requirements are addressed, but not necessarily solved. Internal documentation is incomplete or confusing.  
2 – Program has 3 to 5 compiler errors. Some of the problem requirements are not addressed. Internal documentation is not present. Coding is confusing.  
1 – Program has more than 5 compiler errors. The program requirements are not addressed. Internal documentation is not present. Coding is confusing.**

### Academic Honor Code

Programming assignments must be done individually. Failure to do so will result in a violation of the Academic Integrity. The following cases will be considered as violations: identical code, and extremely similar code. Violations will be reported to the Office of Dean of Student Services.

### Class behavior and Attendance Policy

Class behavior is to participate but to interrupt or disrupt class procession. Mutual respect is expected in the class. Violation of behavior conduct will be disciplined at instructor’s discretion.

Attendance is mandatory. Send me ([tliu@njcu.edu](mailto:tliu@njcu.edu)) an email in advance if you have to miss a class due to emergency or sickness.

**Expectations** for:

a. **Classroom demeanor**

b. **Email response timeframe**

c. **Return of graded assignments—process & timeframe**

**NJCU Academic Integrity Policy**—(available at the Senate website at:

http://www.njcu.edu/dept/senate/policies/Academic

**Turn-It-In.com Statement** :

**Students agree that by taking this course all assignments are subject to submission for textual similarity review to Turnitin.com. Assignments submitted to Turnitin.com will be included as source documents in Turnitin.com’s restricted access database solely for the purpose of detecting plagiarism in such documents. The terms that apply to the University’s use of the Turnitin.com service are described on the Turnitin.com web site. For further information about Turnitin, please visit:** [**http://www.turnitin.com**](http://www.turnitin.com)**.)**

**Disability :**

**If you are a student with a disability and wish to receive consideration for reasonable**

**accommodations, please register with the Office of Specialized Services and**

**Supplemental Instruction (OSS/SI). To begin this process, complete the registration form**

**available on the OSS/SI website at http://web.njcu.edu/programs/oss (listed under Student**

**Resources-Forms). Contact OSS/SI at 201-200-2091 or visit the office in Karnoutsos**

**Hall, Room 102 for additional information.**