COMP 2150 CS 2: Object-Oriented Programming and Data Structures using python– Spring 2022
Dr. James Yu

Contact Information:

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TA/GA: TBD	

The best way to get in touch with me is through email – I usually respond within 24 hours.

Office Hours:

I am usually around in the morning (M, Tu, Thr, F, Sat). You can drop by any time. My classes are in the afternoons (M – Thr). It is best to email me to set up an appointment (zoom or in-person) in advance.

Lecture Meeting Times/Locations:

12680 - COMP 2150 - 001 TR	5:30 pm to 7:30 pm	Dunn Hall 351
25605 - COMP 2150 – 002 MW	2:20 pm to 4:20 pm	Dunn Hall 124
19982 - COMP 2150 – 350 TR	5:30 pm to 7:30 pm	Dunn Hall 351

Catalog Description:

COMP 2150 – (CS 2): Object-Oriented Programming and Data Structures: Principles of object-oriented programming and software development; problem-solving with recursion and abstract data types, including linked lists, stacks, queues, binary search trees, hash tables; basic GUIs. Prerequisite: MATH 1910 or MATH 1421 (or MATH 1830 for COMP minors) and COMP 1900, and co-requisite Comp 2700.

Student Learning Outcomes (ABET):

This course focuses on the following ABET student outcomes and performance indicators:

(1) An ability to analyze a problem, identify and define the computing requirements appropriate to its solution. (Performance indicator: Demonstrate an ability to break down a problem into smaller components.)

(2) An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices. (Performance indicator: Demonstrate an ability to evaluate the benefits and tradeoffs of different data structures.)

Course Website:

You can find the course materials (lecture notes, assignments, codes written during lecture, sample codes, grades, etc.) at the University of Memphis LMS (Canvas) at Dashboard (instructure.com) https://memphis.instructure.com

Required Text:

- Zybooks: Object-Oriented programming and the Essentials of Data Structures.
  - Sign in or create an account at up @ http://www.zybooks.com
- Enter zyBook code: MEMPHISCOMP2150YuSpring2022
  - Click Subscribe (you must register using your Memphis.edu email address)
    You will need this book for the in-class exercises and zyBooks assignments

Evaluation:

Items	Points
Homework Assignments (HW)	**225**
zyBooks-Exercises (ZB)	**100**
InClass exercises (IC)	**175**
Quizzes (3) (@100 each)	**300**
Final	**250**
Total	**1050**

For the honor students (section 350), there will be an extra (project) assignment to fulfill the honor program requirement.

Final grade: add up your point total and divide by 1000. Note that the highest possible percentage grade is 105% since the points add up to 1050. Some of the zyBook exercises consist of in-class and take-home portions. You have to submit the in-class portion to get the overall (in-class + take-home) grade of that assignment. Missing the in-class part will result in a zero for that zyBook exercise assignment. Based on the records (> 500+), students pay no attention to homework assignments, and zyBooks exercises tended to get poor overall grades (C and below).

Grading Scale: Letter grades will be determined as follows:

A	B	C	D	F
100 -> 89	88 -> 76	75 -> 65	64 -> 60	59 -> 0
A+ ≥ 97%	**B+ 85–88%**	**C+ 71–75%**	**D+ 62–64%**	**F ≤ 59%**
A 92–96%	**B 80–84%**	**C 67 –70 %**	**D 60–62%**	
A– 89 –91%	**B– 76–79%**	**C– 65 –67 %**		

Assignments:

You will improve and enhance your programming skills by practicing frequently and regularly. Throughout the semester, many assignments are given to reinforce the concepts discussed in the lecture and provide you with hands-on coding practices. Therefore, you cannot do well in this course unless you work on the assignments persistently. There is no specific laboratory section assigned (as that of Comp1900). Instead, most lab-style exercises (HW, in-class, and zyBooks) are done in the latter part of the lectures to deepen your understanding.

The assignments fall into three categories: inClass : (175 pts), ZyBooks (ZB) Exercises (100 pts), Homework Assignments (HW) (225 pts)

1. inClass (175 pts) consists of (in-class, code-along) exercises to reinforce the current topic discussed immediately. Attendance is also indirectly taken through eLearn submission. There is absolutely no makeup for the inClass coding exercise.
2. ZyBooks (ZB) exercises (100 pts) are from the required textbook. These are done on your own to reinforce the discussed material during the lecture. ZyBooks assignments are generally posted almost weekly.
3. Homework (HW) Assignments (225 pts): HW assignments will allow you to explore the topic more deeply than the zyBooks and in-class exercises.

You need to check the course LMS (Canvas) site regularly (https://memphis.instructure.com/)). Please note that we are switching from using the eCouseware to Canvas LMS. All the assignment due dates and updates are posted in the course Canvas. Unfortunately, there is no makeup for the missing assignments.

For the **Honors component** of the course (section 350), in addition to the basic data structures and OO programming assignments (001/002) in Python, honors students work on a project individually or as a pair. The project focuses on data structures and OOP in Python or using Python in the introduction level of (numeric processing)NumPy, (Visualization)Matplotlib, GUI with Tkinter. The project will be posted before spring break in early March, with a due date of one week before the last day of class (April 20)

Attendance / participation: (part of inClass and zyBooks exercises)

It is essential to attend the Class regularly. The course will keep building on itself and move pretty quickly. Therefore, it would be best to get a good handle on each concept soon after discussing it. Frequently, you will need to submit in-class coding python code, and I will use that for the attendance as well.

You are required to bring your laptop with the assigned zyBook textbook installed for this course. Some inclass exercises may be from the zyBooks chapters. If you miss the lecture and cannot submit the inclass portion, you will receive no marks for the assigned zyBooks exercise. There is absolutely NO Extention for the missing (in-class or take-home portion) zyBooks assignments

Email:

Please check your University of Memphis email (or the email address you provided) regularly (daily), as that is my primary means of communicating with you outside of Class.

Late/Makeup Policy:

All assignments (including zyBooks exercises) are expected to be completed and turned in on schedule. Each assignment will have specified due dates. Your TA/GA will not accept late assignments except in extreme circumstances. Likewise, makeup quizzes and exams will be given only under extreme circumstances. If you feel that your circumstances warrant a late work submission or a makeup quiz/exam, get in touch with me as soon as possible with documented proof of your situation.

Collaboration and Plagiarism/Cheating Policy:

An essential part of learning how to program is getting plenty of practice with it yourself. I also encourage you to work collaboratively and learn from each other. You are allowed to have similar designs and codes. You have to comment at your program heading with "// collaborated with (list of the name), and which parts of the program are your main contributions." If I (or TA) determine that you have copied something directly from a book, the Internet, or some other source, you will receive a failing grade on the assignment and (at my discretion) a failing grade in the course. If we determine that you have copied work from another student directly without any comment on your contribution, you will receive a failing grade, and this will happen to both you and the person from whom you copied. The Office of Student Conduct will also receive a copy of the incident for further disciplinary action. Please don't put me in this situation.

Important: Dates and Deadlines for the Academic Year 2021-2022:

Getting Help:

Although I expect your work for this Class to be done individually or collaboratively with conditions (see above), I encourage you to seek help as soon as possible if you get stuck: (this key is to start working on your assignment within 24 hours from the posted date)

- Talk to me! I'm very willing to sit down and provide hints without giving away the solution.
- Contact your course TA\GA.
- Online help: I generally have an open zoom open line on Sat 9:30 to 12noon. Please come prepared with specific questions.

Student Disabilities:

If you require disability-related accommodations to meet the course objectives, please contact the Coordinator of Disability Resources located in the Student Development and Advising area of the student services building. For more information about Disability Resources or academic Accommodation, please visit the website at: http://www.memphis.edu/drs/

Tentative Course Schedule :

Date	Topic	Text	Quizzes	Assignment
01/17 01/20	Reviews (IDE, system test)	2,3		
01/24 01/27	Review: Data types	3 - 6		HW1: py Basics, Data Type
1/31 2/03	Review: Class, object	7 - 9		HW2:Basics (3 - 9)
2/07 2/10	Exception	10	Quiz 1(02/07)	
2/14 2/17	Modules, Packages	11		HW3: Exceptions, Modules
2/21 2/24	Files	12		HW4: Modules.
2/28 3/03	Data Structure , Algo Analysis	31, 32		HW5:Files
03/07 03/10	Spring Break (NO CLASS)			
03/14 03/17	algo Analysisi, sorting	32,33	Quiz 2(03/14)	
03/21 03/24	List Stack Queue	34		HW6: Algo, sorting
03/28 03/31	List Stack Queue, Hashing	34,35		HW7: List Stack, Queue
04/04 04/07	Hashing, BST	35,36		HW8:Hashing, BST
04/11 04/14	BST,OOP	36,13	Quiz 3(04/11)	
04/18 04/21	OOP	13+Notes		HW9:OOP, BST
04/25 04/28	OOP Study Day/No Class	Notes		

The quiz dates are subject to change. Each quiz is approximately 45 to 60 minutes. Plan to attend the entire lecture on the quiz day. If you miss a quiz, there is absolutely no retake.

Tentative Quiz and Exam Topics:

- Quiz1: review of (comp 1900) python basics, Data type, Class, objects
- Quiz2: File, data structure, Algorithm analysis (Big O factor)
- Quiz3: sorting, List Stack, Queue, and hashing.
- Final Exam: “all of the above”.

COVID-19 INFORMATION

(Please refer to the following link covidpolicy.pdf (memphis.edu) (GE2040) for the policies on COVID-19 Health and Safety)

Class Format

- In-person/on-ground.
- If you are experiencing symptoms such as sneezing, coughing, or a higher than normal temperature, please get in touch with your health care provider or the Student Health Center at https://www.memphis.edu/health/
- Do not attend Class in person if you are showing symptoms of illness. However, I will make every effort to have class materials available online for those who cannot attend in person.
- Please be reminded that the University currently highly recommends all persons wear masks indoors and in places where appropriate social distancing is not possible
- The policy does permit faculty members to take action for non-compliance with mask use. Additionally, if students have concerns about faculty or staff mask use, contact Human Resources at hr@memphis.edu or 901.678.3573.
- Faculty who are delivering on-campus instruction may remove their face mask to teach, provided they are located within a delineated teaching area that is no less than 6 feet from students.

University's COVID19 website ; Coronavirus Updates - Coronavirus Updates - The University of Memphis

Student Resources

Additional resources can be found on the Dean of Students website at
https://www.memphis.edu/deanofstudents/crisis/index.php

You MUST review your COMP1900 material (python I) within the first two weeks of Class). ***You need a solid foundation from COMP1900 in order to do well in COMP2015.***

This page summarizes COMP 1900 (zyBooks chapters 1 to 9, 14, 16).

- Installing the python interpreter (python 3, NOT python 2) (I use py 3.10.1 and an IDE of your choice (I'll be using pyCharm in Class) onto your computer
- Structure of basic python program instructions (input, process, and output)
  - Basic Python scripts and activities.
  - Single and multi-line comments (//, /* */)
- Python variables and expressions and how they're evaluated (ch 2)
  - Order of operations in numerical expressions (parentheses, multiplication/division/modulo, addition/subtraction)
  - Order of operations in Boolean expressions (parentheses, !, &&, ||)
  - Constructing Boolean expressions using *relational operators* (<, >, <=, >=, ==, !=)
  - division and modulo
- Different data types (Strings, List, Tuple, Set, and Dictionary) (ch 3)
- Branching/Conditionals (ch 4)
- Loops/controls (ch 5)
- Functions/Methods : (ch 6) know the difference between functions and methods.
- String slicing, methods, formatting, splitting (ch 7)
- List, Dictionary methods, iteration, looping (ch 8)
- Basic understanding of Class, objects, and OOP