



Object Oriented Programming

Course Information

Class	M/W/F 9:00 to 9:50 PM at BTC 228
Instructor	Dr. Justus Selwyn, Professor & Chair, Computer Science
Office/Phone/Email	BTC120, +1-479-861-2731, JSelwyn@jbu.edu
Office Hours	M/W/F – 11:00 to 11:50 AM T/Th – 1:15 PM to 5:00 PM https://calendly.com/justusjbu/15-mins
Textbook (Required)	Not Required
Software (Free)	Open Source - Python

Course Description

The course introduces the basic programming concepts focusing on object-oriented analysis and design. The object-oriented concepts like abstraction, polymorphism, inheritance, and encapsulation are covered in detail with practical applications. The programming language used to learn these concepts in depth is Python. The programming constructs of Python will help understand the object-orientation problem solving and provide solutions for real-world problems. This course will be taught with a concentration on programming and problem-solving.

Prerequisites

- Basic understanding of computer systems and its functionality
- Basic understanding of coding in any programming language
- Basic knowledge in problem-solving using computer programming skills

Course Objectives

The objectives of this course are:

- To teach the basics of Python – a programming language
- To impart the concepts of Object-Oriented Programming
- To inculcate the programming skills in problem solving using Python
- To teach and help implement the OO concepts

Student Outcomes

By the completion of this course, students will have the...

1. Ability to carry out basic programming in Python
2. Skills to code the programming Constructs – Data flow, control flow, and functions
3. Knowledge to implement the basic data structures using the Programming Constructs in Python
4. Ability to understand & apply the OO concepts and Class Schema using Python in problem solving
5. Knowledge to use advanced concepts in Python
6. Proficiency to build software applications implementing OO concepts using Python

Course Schedule*

Weeks	Monday		Wednesday		Friday	
1	01	Aug 26	02	Aug 28	03	Aug 30
		Introduction & Devotion		Getting Started with Python String Operations		Control Statements: IF ELSE CW-1
2		Sep-2	04	Sep 4	05	Sep 6
		Labor Day Holiday		Loop Statements: FOR, WHILE		Lab-1
3	06	Sep-9	07	Sep-11	08	Sep-13
		Collections – LISTS Project Discussion		Class Work on LISTS, TUPPLES		Collections – SETS, DICT CW-2
4	09	Sep-16	10	Sep-18	11	Sep-20
		QUIZ-1		Class Work on SETS, DICT		Dictionaries <i>Project Finalization upload</i>
5	12	Sep-23	13	Sep-25	14	Sep-27
		Lab-2		Class Work on Functions		Class Work on Functions
6	15	Sep-30	16	Oct-2	17	Oct-4
		Class Work on Functions		CW-3		Project Review-1
7	18	Oct-7	19	Oct-9	20	Oct-11
		QUIZ-2		Introduction to OOD Class Diagrams		Lab-3 Mid-Grades Due
8		Oct-14	21	Oct-16	22	Oct-18
		FALL BREAK		Defining Classes		Problem1: Class work on Creating Classes, Objects
9	23	Oct-21	24	Oct-23	25	Oct-25
		Problem1: Class work on Creating Classes, Objects CW-4		Problem2: Classes & Objects		Problem2 (contd): Classes & Objects Lab-4
10	26	Oct-28	27	Oct-30	28	Nov-1
		Inheritance in OOP		Class Work on Inheritance		No Class Advisory Board Meeting
11	29	Nov-4	30	Nov-6	31	Nov-8
		QUIZ-3		Class Work on Inheritance		CW-5
12	32	Nov-11	33	Nov-13	34	Nov-15
		Project Work Day		GUI programming		GUI programming Lab-5
13	35	Nov-18	36	Nov-20	37	Nov-22
		Project Work Day		Project Work Day		Project Review-2
14		Nov-25		Nov-27		Nov-29
		THANKS-GIVING HOLIDAYS				

15	38	Dec-2	39	Dec-4	40	Dec-6
	Intro to Python Packages		File Operations		File Operations Lab-6	
16	41	Dec-9	42	Dec-11	43	Dec-13
	QUIZ-4 Project Work Day		Project Review-3		Review Prayer	
	FINALS – 12/17, 1:30 pm – BTC 121 Project Presentations					

*The schedule, policies, procedures, and assignments on this syllabus are subject to change in the event of extenuating circumstances, by mutual agreement, and/or to ensure better student learning.

Learning Evaluations

There will be FIVE class works (CW) as given in the schedule above during the class period. A problem will be given at the beginning of the class, and will cover the topics learnt in that past week. Students are expected to complete the program and upload their answers in Blackboard before the end of the class.

There will be SIX lab works (LW) as given in the schedule above during the class period. The lab problem will be given at the beginning of the class, and will cover the topics taught in the previous two weeks. Students are expected to complete the program and upload their answers in Blackboard before the end of the day.

There will be FOUR written quizzes during the class period. Schedules and the topics covered are given in the course schedule.

Students must do a group project with a team of two members. Students-team will participate in project discussion, present three project reviews, and a final presentation with demonstration.

Rubrics for all these evaluations will be given well ahead of the schedule.

Detailed Course Policies

Statement on Academic Expectations

John Brown University is a selective academic institution that consistently ranks among the top southern baccalaureate universities in the *U.S. News and World Reports* college rankings. As a student here, you are expected to devote significant time and effort to your academic courses. This course has been designed with the expectation that students will spend, on average, approximately **EIGHT hours** for each week, including lectures, lab works and self-programming works. **Furthermore, an “A” grade in this course signifies exceptional achievement, not merely completion of assignments.**

Class Web Page

All class materials (e.g., Class Works, Lab Works) will be posted on *Blackboard*. Quizzes/*Lab Assignments* will be conducted wherever necessary using Google forms

Grading Policy

A final score will be calculated based on:

Attendance	5%
Quizzes (FOUR)	10%
Class Works – (FIVE)	20%
Lab Works – (SIX)	40%
Project Reviews (THREE)	15%
Project Report/Presentation - Finals	10%
Total	100%

Grading Scale

A	A-	B+	B	B-	C+	C	C-	D+	D
100 - 93	92 - 90	89 - 87	86 - 83	82 - 80	79 - 77	76 - 73	72 - 70	69 - 67	66 - 60

Attendance/Punctuality

- Class attendance is considered mandatory for effective learning and to meet the student learning outcomes, and arrival to class on time is expected.
- **Class attendance will be called out at the beginning of every class. Three tardies will be counted as an ABSENCE (i.e., 1 T = 1/3 A).**
- Think of attending a class is like you are coming to your work. Your classroom is your work area. If you are absent for work then you don't get paid for your absence. If you are absent for a class, it will affect your learning curve and coping with the rest of the class.
- Coming to class and being physically present in the class does not mean that you will be given a 'P-Presence' for that class unless you **attentively listen, enthusiastically participate in the class conversations and exhibit active involvement in the learning process.**
- Doing other works/assignments (**reading other books, doing personal works, working for projects other than this class's projects, using your mobile phone, laptops, tablets in any form**) apart from active participation in the class leads to getting an absence for that class, and a zero in the week's assessment.
- If a **student is found disturbing the class in any form**, which includes but not limited to, talking loudly, hearing music, using headphones/earphones/earbuds, will be asked to leave the class. This will lead to absence for that class session, and penalties in the assessments.
- Excused absence, *with the consent of the instructor*, must be obtained before the dates he/she will be absent. Excused absence must meet one of these criteria:
 - Student's illness
 - Death or illness in the immediate family (parents, legal guardian, grandparents, sibling, spouse, child)
- For **Excused absence necessary document** needs to be submitted to the instructor on the first class of your meeting in the class after the absence.
- The **works of the missed classes must be completed or submitted within a week's time**. Late submissions within a week will be evaluated for 75% only, and after that 50%.
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Electronic Media

- Cell phones/smartwatches should be turned off or set to silent mode and put away from the table in class.
- Headphones/earphones/ear pods/music players should not be used inside the class/lab rooms
- Personal Computers / Laptops can be used, when asked to, in this class only for designing and developing software applications. These devices used for other purposes are not permitted in the class during the class sessions. If found using, the student will be marked absent and will be sent out of the class room, and will get a zero in the week's assessment.
- Use of Chat applications, social media or video tutorials in the class is prohibited during class sessions.
- To summarize, usage of these devices can result in your being asked to leave the class and receiving zero credit for any grades resulting from class activities.

Use of AI Tools

For all programming works (class, lab, projects, assignments), you are required to do your own work on the programming projects. Do not work with anyone else (except the instructor and any JBU-provided course tutors). Do not copy anyone else's code (except for the textbook's code or code provided for you by the instructor). Do not show your code to anyone else, or view anyone else's code. Use of solution code from the internet or code from ChatGPT or other AI or in any other form tools is not allowed unless specifically permitted by the instructor for a particular assignment. Plagiarism violations will incur not only a grading penalty (typically zero credit for both people) but also penalties from the office of the Academic Dean, up to possible suspension or expulsion.

Class / Lab Works

All Class Works will be worked out in the class itself. A problem statement will be discussed, and students have to solve the problem by designing and developing a functional software product using the specification given during the lecture. All Lab Works will begin in the class, after a short lecture is given on the problem statement and the required specification. You may discuss with your peers on solving the problem, but have to come up with your own unique solutions. In other words, feel free to talk to each other about how to work a particular problem, but do the work yourself. Plagiarism of the submitted work (program codes or screen shots) should be less than 5%. The student may be asked to explain his/her code or change a code/functionality of a class/lab during the assessment. If the student is not able to perform the required changes or give proper explanation on his/her work, then the work will be assessed for 75% only.

Project Design & Development

Project teams will be formed at the beginning of the semester. The team has to identify a problem statement. While learning the concepts every week, students should design and develop a software application and/or a mobile application for their project incorporating all the concepts learnt in the course. At the end of the semester the teams will be asked to present their works and each student will be assessed for their work contribution in the project. The weightage of marks distribution is given above.

Final Project Presentation Policy

Students (teams) must present their project work at the specified time during the finals week. The only exceptions are death or serious illness of a member of the student's immediate family, or illness of the student as documented by a medical professional. Any exception to the final project

presentation policy must be approved by Dr. Rebecca Weimer, Dean of Academic Services and Registrar.

Grading Appeals

If a student believes a mistake has been made in grading a homework assignment or an exam, he/she must appeal within one week of receiving the graded homework or exam. After one week, no appeal will be accepted.

Policy on Students with Disabilities

Students with documented disabilities who need academic accommodations should make an appointment with Mr. Jarrod Heathcote, Coordinator of Disability Services, to begin the accommodation process. They are also encouraged to make an appointment with their instructors as soon as possible. Students without documented disabilities who feel they may have difficulty with their courses are also encouraged to make an appointment with their instructor to discuss what steps need to be taken to be successful. Contact information for the Coordinator of Disability and Testing Services: Mr. Jarrod Heathcote, 2000 W. University Street, Siloam Springs, AR 72761, phone: 479-524-7464, office: LRC 150. Email: jheathcote@jbu.edu.

Statement on Academic Integrity

As a Christian institution of higher education, John Brown University seeks to maintain the highest standards of academic integrity. Violations of these standards will result in substantial penalties. At a minimum, any instance of cheating or plagiarism will result in a zero for the assignment and a report submitted to the academic dean. Further infractions will result in failure of the course and possible suspension. For additional information and examples, see the Academic Integrity section on pages 7-8 of your Student Handbook.

Email Communication

This class will use email as an official form of communication for announcing homework or other class updates. Students will need to check their emails at least once a day during weekdays.

Proper Professional Email Formatting (<https://www.indeed.com/career-advice/career-development/how-to-write-a-professional-email>)

There are five elements to consider when formatting your email. Here is a breakdown of each.

1. **Subject line** – example: “Project Presentation”
2. **Salutation** – example: “Dear Dr. Justus”
3. **Body** - main contents of the email.
4. **Closing** – summarize your request
5. **Signature** – example: Jason, student-class, JBU

If your email does not follow this formatting, it will not be answered.

Copyright Notice

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Disclaimer

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