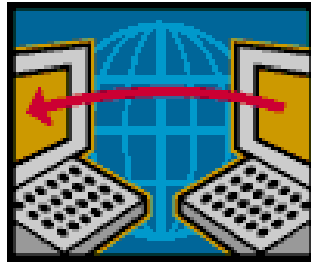


**COMMONWEALTH OF MASSACHUSETTS
BUNKER HILL COMMUNITY COLLEGE
CHARLESTOWN, MASSACHUSETTS**

COMPUTER INFORMATION TECHNOLOGY DEPARTMENT

**CIT 523 PYTHON PROGRAMMING
COURSE OUTLINE & REQUIREMENTS**



COURSE DESCRIPTION:

This is an introduction to using computation to solve real problems. The course is aimed at students with little or no prior programming experience who have a desire to understand computational approaches to problem solving. Some of the people taking the course will use it as a stepping stone to more advanced computer science courses, but for many, it will be their first and last computer science course. Since the course will be the only formal computer science course many of the students take, we have chosen a focus on breadth rather than depth. The goal is to provide students with a brief introduction to many topics so they will have an idea of what is possible when they need to think about how to use computation to accomplish some goal later in their career. That said, it is not a "computation appreciation" course. It is a challenging and rigorous course in which the students spend a lot of time and effort learning to bend the computer to their will.

COURSE OBJECTIVES:

The major goal of the course is for students to acquire a technical overview of modern information technology. Students who successfully complete this course should be able to:

- Perform basic programming in Python
- Understand many aspects of using computation in programming implementations to solve problems
- Understand the pedagogy of the flipped classroom
- Work in teams to produce solutions
- Understand fundamental computer science concepts
- Execute fundamental computer science concepts through Python programming
- Demonstrate programming concepts through program execution

INSTRUCTORS: The instructors for this course are:

Professor Jefferson Fernandes

- **E.MAIL:**
- **PHONE:**
- **OFFICE :**
- **OFFICE HOURS :**

Professor Jaime L'Heureux

- **E.MAIL:** **proflheureux@gmail.com**
- **PHONE:** **(617) 398-7731**
- **OFFICE :** **D-122E**
- **OFFICE HOURS :** **M 4 :30 – 5 :30PM, T 11:30AM – 12:30PM,
W 12 :45 – 1 :45PM**

REQUIRED COURSE MATERIAL: The following is required of all students enrolled in this course:

- ◆ Textbook: **Introduction to Computation and Programming in Python**, John V. Guttag
- ◆ Use of the following website for accessing course information:
https://edge.edx.org/courses/BHCC/CIT523/Python_Programming/about

ATTENDANCE:

Attendance is mandatory. Students are expected to attend each meeting of each class in which they are enrolled. Along with regular participation, the student is expected to come to the classroom discussions prepared. In other words, readings or other assignments are to be completed before the start of a discussion. The student is responsible for all material covered. **This is incredibly important in this course as the intensity of the course and pace of the course is such that if you fall behind you will have significant trouble being successful in the course.**

If you will be absent from class you must notify the class instructor **before class starts** if you would like the instructor to consider whether you can make up work completed during that class period. The class instructor has **full and final authority to decide whether a student is permitted to make up work missed through absence, and on what terms.**

If a student is absent from class, he/she is responsible for the material covered, as well as any announcements made at that time. Excessive lack of progress and/or non-participation may result in a grade reduction or failure (please consult the Student Academic Handbook).

STUDENT RESPONSIBILITY:

All students are expected to take an active role in their learning. Students should take notes from every reading and study them afterwards before attempting assigned problems. Homework, though not always assigned for credit or collected, should be done immediately after each reading. Several hours may be needed after each reading for homework/studying. Students should seek help on any difficult aspects of a particular assignment before the next scheduled reading. Our goal is to help you have a successful semester and your active participation is a necessary step towards achieving that goal.

STUDENT REQUIREMENTS:

Students are expected to have access to computer with internet access outside of class as there is a major web component to the course. To complete this course, receive a final grade and credit each student must:

- Read/view all assigned material before class on the date it is scheduled
- Complete the finger exercises as assigned and on the date it is scheduled
- Complete all problem sets as assigned and on the date it is scheduled
- Complete the projects as assigned and on the date it is scheduled
- Work in teams to solve problems
- Complete the project deliverables and submit them as assigned and on the date it is scheduled
- Complete exam(s) as assigned and on the date it is scheduled

METHODS OF INSTRUCTION:

This course will use a student centered pedagogy model called the flipped classroom model. According to Wikipedia, “in flip teaching, the student first studies the topic by himself, typically using video lessons created by the instructor or shared by another educator. In the classroom, the pupil then tries to apply the knowledge by solving problems and doing practical work. The role of the classroom teacher is then to tutor the student when they become stuck, rather than to impart the initial lesson. This allows time inside the class to be used for additional learning-based activities, including use of differentiated instruction and project-based learning. Flip teaching allows more hands-on time with the instructor guiding the students, allowing them to assist the students when they are assimilating information and creating new ideas (upper end of Bloom's Taxonomy).”

To learn more about this model please watch this video:

<http://www.youtube.com/watch?v=9aGuLuipTwg>.

As such, online lectures, finger exercises, and problems sets, in class problems, and exams are the main focus of all course activities, including discussions and labs.

A typical week will include:

- Watching video lectures and completing finger exercises online on your own at home.
- In class a discussion based on the online lectures and finger exercises completed prior to class.
- A short discussion that introduces a problem based on online materials, and some tutorial on how to approach this sort of problem.
- Lab time where students work on the problem together.
- A wrap-up discussion where students address their own and each others' solutions.

Grades will be based on performance in a number of individual and team assignments.

LABORATORY AND HOMEWORK:

Assignments should be completed properly and thoroughly and be ready to send in on or before the assigned due date. **NO LATE ASSIGNMENTS ARE ACCEPTED!** All of the

assignments will be explained during class and followed with classroom discussion and cooperative learning peer group work. Assignments are expected to be started during your lab time and completed on your own with help from the instructors, if needed. However, much of the work for this course is to be done outside of class time and students are urged to plan accordingly. The amount of out of class time required to complete the course will vary based on individual students' skill sets, **BUT IN GENERAL STUDENTS SHOULD PLAN TO SPEND TEN (10) HOURS PER WEEK** outside of regularly scheduled classes to complete this course successfully.

Exercises, Problem Sets, and Exams

Finger exercises are due immediately after you view the video lectures. Problem sets are due bi-weekly. The exam(s) will take place online, on the course website. Be sure to refer to the course content website for due dates.

You will be expected to sit for each exam for the duration of 3 hours during each exam period. While the exams are written to take only 90 minutes, we provide 3 hours of time with the understanding that some students may have slow internet connections. During the exam period, the forums will be shut down. You will still be able to read posts but you will not be able to post any questions. The honor code prohibits students from communicating with one another during the exam periods in any way whatsoever – so please don't discuss the exam on any other website or in person with other students.

*** VERY IMPORTANT ***

- Late assignments are not accepted! Be aware of the due date and plan accordingly!
- You are responsible for submitting your assignments ON TIME to your instructor
- Sickness, absenteeism, school cancellations is not a reason for late work; everything is available via the Internet.
- If you do not have internet access outside of the classroom then it is your responsibility to utilize the computer lab to complete your assignments if necessary. The College's Computer Lab is open seven (7) days per week according to the posted schedule.

CLASSROOM ETIQUETTE:

- Cell phones and pagers must be set on vibrate only! With the instructor's permission, they may be used for reasons of emergency only and calls must be placed or received outside of the classroom.
- If you are sleeping, reading the newspaper, playing games on the computer, working on homework for another class, or using the computer for purposes other than what relates to our classroom work (i.e. Instant Messaging or e-mail), you will be asked to leave the classroom and will be counted as absent for that class period.
- Rudeness will not be tolerated. We are all adults and should respect one another and the teaching/learning experience. Students who are disturbing the rest of the class will be asked to leave the classroom and will be counted as absent for that class period as well as given a warning not to repeat the behavior that created the disruption. If there is a second disturbance the student will be removed from the class and reported to the Dean of Students.

- All students at BHCC are reminded of their expected Code of Behavior especially regarding the creation, completion, and submission of the course's INDIVIDUALLY assigned projects.
- Much of the content of this course is offered online and we understand that there are many opportunities available to cheat. We caution you to not do so. You will learn less and only harm yourself by cheating. We ask that you review our collaboration and forum guidelines, available on the course handouts page, to understand how we expect our students to conduct themselves in this course. Additionally all students are expected to follow the edX Honor Code, available at <https://www.edx.org/honor>.

As stated in the BHCC College Catalog:

“If it is proven that a student in any course in which he or she is enrolled has knowingly cheated or plagiarized, this may result in a failing grade for an exam or assignment, withdrawal from the course or a failing grade for the course.

The student would also be subject to disciplinary proceedings as outlined in the Student Handbook for violation of the Student Code of Conduct.”

GRADING SYSTEM:

Your final grade for this course will be based on the finger exercises, problems sets, in class problem deliverables and exams/quizzes. Students are reminded of the College's policies relative to working independently (see College Catalogue) and are required to complete all projects individually, except for assignments specifically designated as group projects.

STUDENT EVALUATION:

A letter grade will be awarded at the completion of the course according to the following weighted average:

Lecture 1: Introduction to Computation (15 points)

Problem 1	5
Problem 2	5
Problem 3	5

Lecture 2: Core Elements of Programming (55 points)

Problem 1	5
Problem 2	5
Problem 3	5
Problem 4	5
Problem 5	5
Problem 6	5
Problem 7	5
Problem 8	5
Problem 9	5
Problem 10	5
Problem 11	5

In Class Problem 1	0
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Lecture 3: Simple Algorithms (25 points)

Problem 1	5
Problem 2	5
Problem 3	5
Problem 4	5
Problem 5	5

Lecture 4: Functions (148 points)

Problem 1	5
Problem 2	5
Problem 3	5
Problem 4	5
Problem 5	5
Problem 6	5
Problem 7	5
Problem 8	5
Problem 9	5
Problem 10	5
Problem 11	5
Problem 12	5

Problem Set 2	50
In Class Problem 2	38

Lecture 5: Recursion (45 points)

Problem 1	5
Problem 2	5
Problem 3	5
Problem 4	5
Problem 5	5
Problem 6	5
Problem 7	5
Problem 8	5

Lecture 6: Objects (158)

Problem 1	5
Problem 2	5
Problem 3	5
Problem 4	5
Problem 5	5
Problem 6	5
Problem 7	5
Problem 8	5
Problem 9	5
Problem 10	5
Problem 11	5

Problem Set 3	65
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In Class Problem 3	38
<u>Lecture 7: Debugging (40)</u>	
Problem 1	5
Problem 2	5
Problem 3	5
Problem 4	5
Problem 5	5
Problem 6	5
Problem 7	5
Problem 8	5
<u>Lecture 8: Efficiency and Orders of Growth (108)</u>	
Problem 1	5
Problem 2	5
Problem 3	5
Problem Set 4	55
In Class Problem 4	38
<u>Lecture 9: Memory and Search (168)</u>	
Problem 1	5
Problem 2	5
Problem 3	5
Problem 4	5
Problem 5	5
Problem 6	5
Problem 7	5
Problem Set 5	95
In Class Problem 5	38
<u>Lecture 10: Exceptions (50)</u>	
Problem 1	5
Problem 2	5
Problem 3	5
Problem 4	5
Problem 5	5
Problem 6	5
Problem 7	5
Problem 8	5
Problem 9	5
Problem 10	5
<u>Lecture 11: Object Oriented Programming (108)</u>	
Problem 1	5
Problem Set 6	65

In Class Problem 6	38
Exam (s)	80
TOTAL:	1000

The point to Letter Grade equivalency is as follows:

940 - 1,000 Points	A Letter Grade
939 - 900 “	A- “ “
899 - 870 “	B+ “ “
869 - 830 “	B “ “
829 - 800 “	B- “ “
799 - 770 “	C+ “ “
769 - 700 “	C “ “
699 - 600 “	D “ “
Less Than 600	F “ “

No student will be given a final grade in this course until all requirements have been completed.

STATEMENT OF REASONABLE ACCOMMODATION FOR DISABLED STUDENTS:

If there is a student in this class who has needs because of a documented learning disability or is Deaf or Hard of Hearing, please feel free to come to discuss this with me and/or directly contact the appropriate office.

INSTRUCTOR'S NOTE:

The instructor reserves the right to make changes to this syllabus at any time during the semester. A new syllabus may or may not be distributed at the discretion of the instructor.