Introduction to Programming

SECTION I: Course Overview

Course Code: CS200BCN
Subject Area(s): Computer Science
Prerequisites: Calculus I
Language of Instruction: English
Total Contact Hours: 45
Recommended Credits: 3

COURSE DESCRIPTION

This course is an introduction to programming with Python, a powerful high-level and object-oriented programming language. Students will learn how to design, implement and test programs to solve problems related to engineering, mathematics, and science. Students will learn several programming concepts including selection and iteration, strings, functions, data structures, file processing, and user-defined classes. The emphasis is on data manipulation using practical examples. Prior knowledge of Python or other programming languages is not required.

LEARNING OBJECTIVES

Upon successful completion of this course, you will be able to:

- Explain the principles of Python as a programming language.
- Define and use basic elements of Python such as variables and expressions/operators.
- Explain and apply data types such as numbers, strings, lists, sets, dictionaries, namespaces, and tuples.
- Present the essentials of modules, libraries, files, and best practices.
- Design, implement, and test a program in Python to solve practical problems.

PREREQUISITES

Prior to enrollment, this course requires you to have completed Calculus I.

SECTION II: Instructor & Course Details

INSTRUCTOR DETAILS

Name: TBA
Contact Information: TBA
Term: SUMMER

ATTENDANCE POLICY

This class will meet four times weekly for 95 minutes each session for a total of 15 sessions. All students are expected to arrive on time and prepared for the day's class session.

CEA enforces a mandatory attendance policy. You are therefore expected to attend all regularly scheduled class sessions, including any field trips, site visits, guest lectures, etc. that are assigned by the instructor. The table below shows the number of class sessions you may miss before receiving a grade penalty.

ALLOWED ABSENCES - SUMMER TERM		
Courses Meeting X day(s) Per Week	**Allowed Absence(s)**	**Automatic Failing Grade at Xth absence**
Courses meeting **4** day(s) per week	**1** Absence	**4th** Absence

For every additional absence beyond the allowed number, your final course grade will drop down to the subsequent letter grade (ex: A+ to A). As a student, you should understand that the grade penalties will apply if you are marked absent due to tardiness or leaving class early. In the table below, you will find the grade penalty associated with each excessive absence up to and including automatic course failure.

ATTENDANCE DOCKING PENALTIES				
Absence	**1st**	**2nd**	**3rd**	**4th**
Penalty	**No Penalty**	**0.5 Grade Docked**	**1 Grade Docked**	**Automatic Failure**
HIGHEST POSSIBLE GRADE AFTER ATTENDANCE PENALTIES				
Grade	**A+**	**A**	**A-**	**F**

CEA does not distinguish between excused and unexcused absences. As such, no documentation is required for missing class. Similarly, excessive absences, and the grade penalty associated with each, will not be excused even if you are able to provide documentation that shows the absence was beyond your control. You should therefore only miss class when truly needed as illness or other unavoidable factors may force you to miss a class session later on in the term.

GRADING & ASSESSMENT

The instructor will assess your progress towards the above-listed learning objectives by using the forms of assessment below. Each of these assessments is weighted and will count towards your final grade. The following section (Assessment Overview) will provide further details for each.

Class Participation	**10%**
Exercises	**20%**
Projects	**25%**
Midterm Examination	**20%**
Final Examination	**25%**

The instructor will calculate your course grades using the CEA Grading Scale shown below. As a CEA student, you should understand that credit transfer decisions–including earned grades for courses taken abroad–are ultimately made by your home institution.

CEA GRADING SCALE			
Letter Grade	**Numerical Grade**	**Percentage Range**	**Quality Points**
A+	9.70 – 10.0	97.0 – 100%	4.00
A	9.40 – 9.69	94.0 – 96.9%	4.00
A-	9.00 – 9.39	90.0 – 93.9%	3.70
B+	8.70 – 8.99	87.0 – 89.9%	3.30
B	8.40 – 8.69	84.0 – 86.9%	3.00
B-	8.00 – 8.39	80.0 – 83.9%	2.70
C+	7.70 – 7.99	77.0 – 79.9%	2.30
C	7.40 – 7.69	74.0 – 76.9%	2.00
C-	7.00 – 7.39	70.0 – 73.9%	1.70
D	6.00 – 6.99	60.0 – 69.9%	1.00
F	0.00 – 5.99	0.00 – 59.9%	0.00
W	Withdrawal	N/A	0.00
INC	Incomplete	N/A	0.00

ASSESSMENT OVERVIEW

This section provides a brief description of each form of assessment listed above. Your course instructor will provide further details and instructions during class time.

Class Participation (10%): Student participation is mandatory for all courses taken at a CEA Study Center. The instructor will use the rubric below when determining your participation grade. All students should understand that attendance and punctuality are expected and will not count positively toward the participation grade.

CLASS PARTICIPATION GRADING RUBRIC	
Student Participation Level	**Grade**
You make major & original contributions that spark discussion, offering critical comments clearly based on readings, research, & theoretical course topics.	**A+** (10.0 – 9.70)
You make significant contributions that demonstrate insight as well as knowledge of required readings & independent research.	**A/A-** (9.69 – 9.00)
You participate voluntarily and make useful contributions that are usually based upon some reflection and familiarity with required readings.	**B+/B** (8.99 – 8.40)
You make voluntary but infrequent comments that generally reiterate the basic points of the required readings.	**B-/C+** (8.39 – 7.70)
You make limited comments only when prompted and do not initiate debate or show a clear awareness of the importance of the readings.	**C/C-** (7.69 – 7.00)
You very rarely make comments and resist engagement with the subject. You are not prepared for class and/or discussion of course readings.	**D** (6.99 – 6.00)
You make irrelevant and tangential comments disruptive to class discussion. You are consistently unprepared for class and/or discussion of the course readings.	**F** (5.99 – 0.00)

Exercises (20%): Exercises will be given on a weekly basis and will consist of program writing exercises which are typically one per chapter; collaboration with classmates is encouraged. Exercises will involve solving problems on specific topics covered during the course and will build the skills needed for the midterm and final exam. All exercises must be successfully completed by the end of the term.

Projects (25%): Students will complete six computer projects. Projects focus on the design and implementation of solutions using Python. Projects are to be completed individually.

Midterm Exams (20%): The midterm will evaluate progress made towards meeting the course learning objectives.

Final Exam (25%): A comprehensive final exam will be administered at the conclusion of the term

REQUIRED READINGS

Reading assignments for this course will come from the required text(s) and/or the selected reading(s) listed below. All required readings–whether assigned from the text or assigned as a selected reading–must be completed according to the due date assigned by the course instructor.

I. **REQUIRED TEXT(S)**: You may purchase the required text(s) prior to departure or upon program arrival. The required text(s) are listed below:

Punch, W. F., and Richard J. Enbody. *The Practice of Computing Using Python*. Third edition, Pearson, 2017.

RECOMMENDED READINGS

The recommended reading(s) and/or text(s) for this course are below. These recommended readings are not mandatory, but they will assist you with research and understanding course content.

Bader, Dan. *Python Tricks: The Book of Awesome Python Features*. 2018.

Beazley, David M., and Brian K. Jones. *Python Cookbook*. Third edition, O'Reilly, 2013.

Matthes, Eric. *Python Crash Course: A Hands-on, Project-Based Introduction to Programming*. No Starch Press, 2016.

O'Connor, T. J. *Violent Python: A Cookbook for Hackers, Forensic Analysts, Penetration Testers, and Security Engineers*. Syngress, an imprint of Elsevier, 2013.

Slatkin, Brett. *Effective Python: 59 Specific Ways to Write Better Python*. Addison-Wesley, 2015

ADDITIONAL RESOURCES

In order to ensure your success abroad, CEA has provided the academic resources listed below. In addition to these resources, each CEA Study Center provides students with a physical library and study areas for group work. The Academic Affairs Office at each CEA Study Center also compiles a bank of detailed information regarding libraries, documentation centers, research institutes, and archival materials located in the host city.

- **UNH Online Library**: As a CEA student, you will be given access to the online library of CEA's School of Record, the University of New Haven (UNH). You can use this online library to access databases and additional resources while performing research abroad. You may access the UNH online library here or through your MyCEA Account. You must comply with UNH Policies regarding library usage.

- **CEAClassroom – Moodle**: CEA instructors use Moodle, an interactive virtual learning environment. This web-based platform provides you with constant and direct access to the course syllabus, daily schedule of class lectures and assignments, non-textbook required readings, and additional resources. Moodle includes the normal array of forums, up-loadable and downloadable databases, wikis, and related academic support designed for helping you achieve the learning objectives listed in this syllabus.

  During the first week of class, CEA academic staff and/or faculty will help you navigate through the many functions and resources Moodle provides. While you may print a hard copy version of the syllabus, you should always check Moodle for the most up-to-date information regarding this course. The instructor will use Moodle to make announcements and updates to the course and/or syllabus. It is your responsibility to ensure that you have access to all Moodle materials and that you monitor Moodle on a daily basis in case there are any changes made to course assignments or scheduling.

  To access Moodle: Please log-in to your MyCEA account using your normal username and password. Click on the "While You're Abroad Tab" and make sure you are under the "Academics" sub-menu. There you will see a link above your schedule that says "View Online Courses" select this link to be taken to your Moodle environment.

Course Calendar *Introduction to Programming*			
Session	**Topics**	**Activity**	**Readings & Assignments**
1	**Beginnings**	Reading, Exercise & Projects	Chapter 0: The Study of Computer Science Chapter 1: Beginnings Project 1
2	**Control**	Reading & Exercise	Chapter 2: Control
3	**Strings & Functions**	Reading, Exercise & Projects	Chapter 4: Strings Project 2
4	**Functions**	Reading & Exercise	Chapter 5: Functions
5	**Files & Expectations I**	Reading, Exercise & Projects	Chapter 6: Files & Expectations I Project 3
6	**Algorithms**	Reading & Exercise	Chapter 3: Algorithms
7	**Lists & Tuples**	Reading, Exercise & Projects	Chapter 7: Lists Project 4
8	**Midterm Exam**		

9	**More on Functions & Mutables**	Reading, Exercise & Projects	Chapter 8: More on Functions Project 5
10	**Dictionaries & Sets**	Reading, Exercise & Projects	Chapter 9: Dictionaries & Sets
11	**Classes 1**	Reading & Exercise	Chapter 11: Introduction to Classes
12	**Classes 2**	Exercise & Project	Project 6
13	**Classes 3**	Reading & Exercise	Chapter 12: More on Classes
14	**Scope**	Reading & Exercise	Section 9.6: Scope – The Full Story
15	**FINAL EXAMINATION**		

SECTION III: CEA Academic Policies

The policies listed in this section outline general expectations for CEA students. You should carefully review these policies to ensure success in your courses and during your time abroad. Furthermore, as a participant in the CEA program, you are expected to review and understand all CEA Student Policies, including the academic policies outlined on our website. CEA reserves the right to change, update, revise, or amend existing policies and/or procedures at any time. For the most up to date policies, please review the policies on our website.

Class & Instructor Policies can be found here
General Academic Policies can be found here