ENTD200

Course Summary

Description

Course Description: This course introduces students to writing computer programs. The class presents the principles of structured programming using the Python language, one of the most increasingly preferred languages for programming today. Because of its ease of use, it is ideal as a first programming language and runs on both the PC and Macintosh platforms. The course is designed for people without previous programming experience who do not necessarily plan on becoming professional programmers. However, the knowledge gained in the class can be applied later to other languages such as C and Java. Participants learn to solve problems logically by breaking them into smaller pieces, which can then be solved. The course uses iPython Notebook to afford a more interactive experience. Topics include: introduction to computing - how does a computer work?; input and output - getting information to and from the user; variables and expressions - performing arithmetic; data statements - reading information from inside the program; text files - reading information from other files; arrays - groups of variables; debugging - finding errors in your program; graphics; and formatting - changing how things look on the screen.

Course Scope:

In this course describes basic programming concepts and techniques. The course examines theoretical concepts that make the world of programming unique. This course adopts a practical hands-on approach when examining programming styles. Students will learn how to develop pseudocode for program design and how to review and read flowcharts. Along with examining different coding techniques, this course will explore the advancement of programming, as well as, timeless problem solving strategies.

Objectives

CO-1: Explain the process for designing and developing software

CO-2: Examine the benefits of modularizing software

CO-3: Apply the logic for a software application

CO-4: Apply the use of decision tables to design branching

CO-5: Examine the different control loops

CO-6: Use and manipulate arrays

CO-7: Summarize good software development practices

Outline

Week 1:

Topics

- Getting Started Programming a Computer
- Different Methods for Writing Programs

Learning Objectives

- CO-1: Explain the process for designing and developing software

Readings

Introduction

Chapters 1-2

Review Power Point Presentation/Video Lecture

Assignments

Week 1 Introduction

Week 1 Forum: Programming Development Cycle

- Flowcharts and pseudo code

Week 2:

Topics

- Programming Tools
- Managing Large Projects with Software Engineering

Learning Objectives

- CO-1: Explain the process for designing and developing software
- CO-3: Apply the logic for a software application

Readings

Chapters 3-4

Review Power Point Presentation/Video Lecture

Assignments

Week 2 Forum Understanding the three basic structures: Sequence, selection and loop

Week 2 Assignment

- Modularization
- Storyboards, flowcharts, pseudo code

Week 3:

Topics

- How a Program Works
- Variables, Data Types, and Constants

Learning Objectives

CO-3: Apply the logic for a software application

Readings

Chapters 5-6

Review Power Point Presentation/Video Lecture

Assignments

Week 3 Forum - Mainline Logic, Variables, Data types

Week 3 Assignment

- Boolean logic

- Declaring variables
- Selecting data types
- Using Math to manipulate numbers

Week 4:

Topics

- Manipulating Data
- Making Decisions by Branching

Learning Objectives

CO-4: Apply the use of decision tables to design branching

Readings

Chapter 7

Review Power Point Presentation/Video Lecture

Assignments

Week 4 Forum— Making Decisions Programming Style

Week 4 Assignment

- Declaring variables
- Using Math to manipulate numbers

Week 5:

Topics

- Repeating Commands by Looping

- Breaking a Large Program into Subprograms
- Breaking a Large Program into Objects

Learning Objectives

- CO-4: Apply the use of decision tables to design branching
- CO-5: Examine the different control loops

Readings

Chapters 8-9

Review Power Point Presentation/Video Lecture

Assignments

Week 5 Forum Working with Loops

Week 5 Assignment

- IF/THEN/ELSE
- FOR-NEXT Loop
- WHILE Loop
- Nested Loops
- Subprograms

Week 6:

Topics

- Reading and Saving Files
- Documenting Your Program
- Principles of User Interface Design

Learning Objectives

- CO-2: Examine the benefits of modularizing software
- CO-7: Summarize good software development practices

Readings

Chapters 10-11

Review Power Point Presentation/Video Lecture

Assignments

Week 6 Forum – Documentation and modularizing

Week 6 Assignment

- IF/THEN/ELSE
- Loops

Week 7:

Topics

- Structures and Arrays

- Sets and Linked Lists

Learning Objectives

CO-6: Use and manipulate arrays

Readings

Chapters 12-14

Review Power Point Presentation/Video Lecture

Assignments

Week 7 Forum - Arrays/Lists

Week 7 Assignment

- Working with Arrays and Lists

Week 8:

Topics

- Collections and Dictionaries
- Stacks, Queues, and Deques

Learning Objectives

CO-7: Summarize good software development practices

Readings

Chapters 15-20

Review Power Point Presentation/Video Lecture

Assignments

Week 8 Forum

Week 8 Assignment

- Working with Arrays and Lists

Evaluation

Students are expected to maintain routine contact with the instructor throughout the course. While the number of contacts may vary according to the specific course and individual student need, the University requires periodic weekly contacts during the semester. Contact will consist of professor notes, forum interaction, and email feedback. The method of discussion will be on-line related to issues concerning forum assignments, lesson assignments, and the final project.

TEXTBOOK READINGS
The main book for the course, Beginning Programming for Dummies, will be used for textbook readings. Review the table at the end of the syllabus to see assigned readings for each week.

FORUM

The Forum assignments for this course are designed to promote interactivity among students and enhance the online learning process. The Forum provides maximum flexibility because you do not have to be online at the same time as another person and you can read what other students have written.

Forum Timing: For the forum, you must post your work by midnight on **Thursday**, continue to follow your classmates' posts for the remainder of the week, and post the follow-up peer responses prior to midnight on **Sunday, *except for week one***. Your follow-up posts can add additional insight to a classmate's opinions or can challenge their opinions. Use examples from the readings, or from your own research, to support your views, as appropriate. Be sure to read the follow-up posts to your own posts and reply to any questions or requests for clarification. You are encouraged to conduct research and use other sources to support your answers.

Required Participation: Please keep in mind that the forum assignments require you to make at least 1 post to the forum with at least 250 words about the topic and also respond to at least 2 peers' posts with at least 150 words. Please be advised that there will be point deductions if you do not comply with these requirements of the assignment. Each one of you will have a different and unique experience that we can all learn from. Your participation in the Forums unleashes the power of synergy in our classroom. To facilitate this interaction, please be prompt when posting your forum work for each week; this provides time for the others to actively engage in the dialogue. For practical reasons, when you respond to other learners' posts, please start your response by referencing their name. I will read and grade your participation by reading the forum. There is no need to also post your forum work in the assignments area of the classroom. Refer to the forum and the syllabus for more details on grading.

WEEKLY ASSIGNMENTS

There will be weekly assignments for this course to reinforce your reading and learning. Students will use Python 3.x to practice programming concepts. Complete the weekly exercises required as stated in the Assignments area; then submit your work in the assignments area of the classroom as required.

FINAL GRADE IS BASED UPON: All work will be graded on a 100-point raw score basis. There are a total of 100 weighted points for this course broken down as follows:

Grading:

Name	Grade %
Forums	50.00 %
Week 1 Intro/Forum	6.25 %
Week 2 Forum	6.25 %
Week 3 Forum	6.25 %
Week 4 Forum	6.25 %
Week 5 Forum	6.25 %
Week 6 Forum	6.25 %
Week 7 Forum	6.25 %
Week 8 Forum	6.25 %
Assignments	50.00 %
Week 2 Assignment	7.14 %
Week 3 Assignment	7.14 %
Week 4 Assignment	7.14 %
Week 5 Assignment	7.14 %
Week 6 Assignment	7.14 %
Week 8 Assignment	7.14 %
Week 7 Assignment	7.14 %

Materials

Book Title: Beginning Programming with Python For Dummies-E-book available in the APUS Online Library

Author: Mueller, John Paul

Publication Info: Wiley Lib

ISBN: 9781118891452

Book Title: To find the library e-book(s) req'd for your course, please visit http://apus.libguides.com/er.php to locate the eReserve by course #. You must be logged in to eCampus first to access the links.

Author: N/A

Publication Info: N/A

ISBN: N/A

For general information regarding programming logic/development and its tools:

APUS On-line Library

> Farrell, J. (2011). ***Programming logic and design introductory,*** (6th ed.). Boston, MA: Course Technology: Cengage Learning. ISBN-10: 0-538-74477-4.

For more information on flowcharting see:

http://www.nos.org/htm/basic2.htm

http://www.hci.com.au/hcisite2/toolkit/flowchar.htm

For the free interactive flowcharting tool that will be used in this class, see the following link to download the software:

http://raptor.martincarlisle.com/

You can test your logic with this interactive tool that actually executes your logical steps from input to output. Additional information on the function of Raptor can be found in Course Resources\Raptor Software

For more information on decision and loop structures see:

http://msdn2.microsoft.com/en-us/library/hh892482

For more information on arrays see:

http://en.wikipedia.org/wiki/Array

For information on pointers and arrays in C see:

http://pw1.netcom.com/~tjensen/ptr/pointers.htm

For more information on numbering systems and ASCII code see:

http://en.wikiedia.org/wiki/ASCII

http://en.wikipedia.org/wiki/Numbering_systems

Additional references are found in the Lessons Page of the classroom.

Course Guidelines

Citation and Reference Style

- Attention Please: Students will follow the APA Format as the sole citation and reference style used in written work submitted as part of coursework to the University. Assignments completed in a narrative essay or composition format must follow the citation style cited in the APA Format.

Tutoring

- Tutor.com offers online homework help and learning resources by connecting students to certified tutors for one-on-one help. AMU and APU students are eligible for 10 free hours* of tutoring provided by APUS. Tutors are available 24/7 unless otherwise noted. Tutor.com also has a SkillCenter Resource Library offering educational resources, worksheets, videos, websites and career help. Accessing these resources does not count against tutoring hours and is also available 24/7. Please visit the APUS Library and search for 'Tutor' to create an account.

Late Assignments

- Students are expected to submit classroom assignments by the posted due date and to complete the course according to the published class schedule. The due date for each assignment is listed under each Assignment.
- Generally speaking, late work may result in a deduction up to 20% of the grade for each day late, not to exceed 5 days.
- As a working adult I know your time is limited and often out of your control. Faculty may be more flexible if they know ahead of time of any potential late assignments.

Turn It In

- Faculty may require assignments be submitted to Turnitin.com. Turnitin.com will analyze a paper and report instances of potential plagiarism for the student to edit before submitting it for a grade. In some cases professors may require students to use Turnitin.com. This is automatically processed through the Assignments area of the course.

Academic Dishonesty

- Academic Dishonesty incorporates more than plagiarism, which is using the work of others without citation. Academic dishonesty includes any use of content purchased or retrieved from web services such as CourseHero.com. Additionally, allowing your work to be placed on such web services is academic dishonesty, as it is enabling the dishonesty of others. The copy and pasting of content from any web page, without citation as a direct quote, is academic dishonesty. When in doubt, do not copy/paste, and always cite.

Submission Guidelines

- Some assignments may have very specific requirements for formatting (such as font, margins, etc) and submission file type (such as .docx, .pdf, etc) See the assignment instructions for details. In general, standard file types such as those associated with Microsoft Office are preferred, unless otherwise specified.

Disclaimer Statement

- Course content may vary from the outline to meet the needs of this particular group.

Communicating on the Forum

- Forums are the heart of the interaction in this course. The more engaged and lively the exchanges, the more interesting and fun the course will be. Only substantive comments will receive credit. Although there is a final posting time after which the instructor will grade comments, it is not sufficient to wait until the last day to contribute your comments/questions on the forum. The purpose of the forums is to actively participate in an on-going discussion about the assigned content.
- "Substantive" means comments that contribute something new and hopefully important to the discussion. Thus a message that simply says "I agree" is not substantive. A substantive comment contributes a new idea or perspective, a good follow-up question to a point made, offers a response to a question, provides an example or illustration of a key point, points out an inconsistency in an argument, etc.
- As a class, if we run into conflicting view points, we must respect each individual's own opinion. Hateful and hurtful comments towards other individuals, students, groups, peoples, and/or societies will not be tolerated.

University Policies

Student Handbook

- Drop/Withdrawal policy
- Extension Requests
- Academic Probation
- Appeals
- Disability Accommodations

The mission of American Public University System is to provide high quality higher education with emphasis on educating the nation's military and public service communities by offering respected, relevant, accessible, affordable, and student-focused online programs that prepare students for service and leadership in a diverse, global society.