DAT-129: Python 2 programming

Syllabus | Fall 2021 | Sec: NC01
Saturdays 1300h-1700h (aka 1:00pm - 5:00pm)

instructor:	**Eric C. Darsow** CCAC North CIT & Data Analytics Faculty, Instructor
office Hours:	**Tues 1700h-1745h (5-5:45pm)** **Sats 1200h-1245h (12-12:45pm)** https://ccac.zoom.us/j/6149618122
semester:	**Fall 2021** **Online, Synchronous**
instructor Contact methods:	**In-Zoom Office Hours is preferred, followed by phone calls: 412.894.3020** Please do not email unless doing so is a special electronic mail use case as described on course website edarsow@ccac.edu
CIT Dept chair	**Professor Rebecca Elinich** relinich@ccac.edu
CIT Dean	**Conroy, Sara J.** sconroy@ccac.edu
course Credits	**4.0**
prerequisites	DAT-119: Python 1 or instructor approval

I: Course Description:

This course builds on the programming fundamentals acquired in Python 1 to manipulate and visualize data sourced not just from local flat files but also from remote API servers, scraped web pages and databases. Leverage the power of this portable, multi-purpose programming language to build robust scripts capable of recovering from data stream errors and data value anomalies. Emphasis is placed on writing well-documented code to support efficient team-based workflows. While object-oriented Python and simple graphical user interfaces (GUIs) are introduced, this course focuses primarily on writing scripts and creating visualizations with Python data container libraries.

II: Learning Outcomes

The following content is extracted directly from the CCAC master course syllabus for DAT-129:

1. Diagram data workflows which include processing by Python scripts as part of a larger pipeline of data sourced from remote computers and destined for external storage and presentation tools.
2. Assemble multi-leveled, dictionary-based data structures from heterogeneous sources.
3. Decode and encode data sets in flat files using Python and JavaScript Object Notation (JSON).
4. Acquire data from an Application Programming Interface (API) over multiple network requests.
5. Acquire data using Python's web scraping libraries from Hypertext Markup Language (HTML) files acquired over a network.
6. Create simple relational databases using Python's Structured Query Language (SQL) modules.
7. Demonstrate the ability to collaborate with peers to create Python programs using a version control system via the UNIX shell.
8. Create a static visualization of various types of data including univariate, multi-variate, time-series, textual and spatial.

Learning Outcomes and Course Description Revision: Approved By: Dr. Quintin B. Bullock Date Approved: 11/13/2020

III: The nitty gritty

textbook & materials	**OPTIONAL: Purchase of Intro to Python for Computer Science and Data Science** by Paul Dieteil (Pearson; 2020; 1st ed; ISBN-10: 0-13-540467-3) is strongly encouraged, ***but optional since its about $100*** Master course website with session-specific content, submission portals, and assignment details: https://technologyrediscovery.net/#python2
letter Grades	Drawing on completed work and contributions to our class learning environment, **propose a fair letter grade and a justification at midterm and final times using a 3x5 card.** https://technologyrediscovery.net/coursesGen/trgrading.html **Attend the final session!** Attendance at final session on Saturday, 18th December 2021 from 1300h-1500h (aka 1:00pm-3:00pm) and sharing of *fully-baked* final project is required to sufficiently justify a grade proposal of A or B except for pre-approved absences and "urgent, incidental, overriding life events"
due date	Work submission and grade proposals will be accepted until **Wednesday, 22-DECEMBER 2021@ morning light** but no later.
atten-dance & tardiness	As a primarily in-class driven course, **please try to attend 75-85% of sessions**. We recognize that students face varied constraints which can differently impact feasibility of class attendance. *Tardiness shall not be considered a factor in attendance.*
tests:	**No high-stakes tests!** Low-stakes, mini assessments written on single note cards will help track learning.

technology	**Laptops:** Students are encouraged to acquire a "middle-road" consumer-grade laptop computer of their own for this course, with a recommended 8 GB memory. (Your instructor uses a refurbished Lenovo Thinkpad T-430 purchased for $250 on Amazon.) Python runs on all OS platforms, but your instructor and most data scientists run Linux or OSX (with the BASH).
Academic Honesty	**Provide written credit to all relevant authors** of all code, writing, and project work for this course, including yourself and folks who help you (but who may not be published authors). Include direct URLs of websites consulted. **Honor the copyrights** associated with all content used in this course. **Consequences:** Students suspected of academic dishonesty will be asked to produce documentation to support any attributions (or, more commonly, non-attributions).

IV: Official CCAC notices

my. ccac. edu	Students are reminded that they can access their course information and CCAC email account, the CCAC Academic Calendar (including add/drop/withdrawal deadlines), the Student Handbook, the College's Incident Report form, and many other College services through the MyCCAC portal: https://my.ccac.edu
student handbook	All students are expected to read and comply with the policies and regulations set forth in the CCAC Student Handbook, including without limitation the College's policies regarding academic and behavioral conduct, the procedures for requesting an accommodation based upon a disability, pregnancy or pregnancy related condition, or a religious observance, and for reporting unlawful discrimination and harassment. The Student Handbook is available to view and download along with the full text of the College's *Policy Manual, Administrative Regulations Manual*, and the Civil Rights Complaint Procedure: https://www.ccac.edu/academic-rules-and-regulations/rules-and-regulations.php https://www.ccac.edu/president/policies-and-regulations.php
diversity	Title IX of the Education Amendments 1972 (20 U.S.C. 1681 et seq.) and its implementing regulations, 34 C.F.R. Part 106, prohibit discrimination on the basis of sex in education programs or activities operated by recipients of Federal financial assistance. It is the landmark legislation that bans gender based discrimination in schools and colleges. *"No person in the U.S. shall, on the basis of sex be excluded from participation in, or denied the benefits of, or be subjected to discrimination under any educational program or activity receiving federal aid."* https://www.ccac.edu/diversity/title-IX.php https://www.ccac.edu/diversity/notices.php
disability	Information concerning the process and documentation required to request a disability-related accommodation can be obtained by contacting the campus' Office of Supportive Services for Students with Disabilities (OSSSD) or by visiting the OSSSD information page https://www.ccac.edu/supportive-services/suppotive.php

V: Content licensing and sharing

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