

COSC 10630 Introduction to Python for Data Analytics

Fall 2021

Course Information

- Meeting on TR 9:30-10:50 @ Tucker 352
- Course Materials: [TCU Online](#)

Instructor Contact Information

- Email: l.ma@tcu.edu
- Office Hours (Online Only): TR 12:00 – 14:00, or by appointment;
Email or GroupMe me first, then Zoom via <https://tcu.zoom.us/j/94258353480>

Catalog Description: This course will introduce Python data structures and ways to manipulate data. Students will design, implement, and test Python programs. This course will also give the students a working knowledge of how to use Python to perform data analysis.

Prerequisite(s): None.

Textbook(s)

- *A Byte of Python*, **Author(s):** Swaroop C H, <https://python.swaroopch.com> (free)
- *How to Think Like a Computer Scientist*, **Author(s):** Brad Miller and David Ranum, <http://interactivepython.org/runestone/static/thinkcspy/index.html> (free)
- *Starting Out with Python*, 5th Edition; **Author(s):** Tony Gaddis; **ISBN-13:** 978-0135929032 (choice)

Course Outcomes: Upon successful completion of this course, students will be able to ...

- Write Python programs that utilize strings, lists, tuples, and dictionaries;
- Write Python programs with basic control structures, functions, and classes;
- Write Python programs to implement simple algorithms;
- Utilize data analysis tools (e.g., NumPy and Pandas);
- Utilize data visualization tools (e.g., Matplotlib);
- Analyze simple real-world problems and develop appropriate program solutions.

Course Assessments, Extra Credit, and Late Work Policies

- **35% Programming Assignments:** There will be 8 equally weighted programming projects (3.5% each; 28% total). These projects will reinforce material covered in lecture. There will also be a final programming project (7%).
- **65% Exams:** There will be two mid-term exams (20% each) on approximately the 6th and 13th week and a final exam (25%; 8:00-10:30, Thursday, December 16)
- **Resubmissions, Reevaluations, Grading Errors:** You will submit your assignments to the appropriate dropbox on TCU Online. You are permitted to “upload” your assignment multiple times, however, only the the last submission will be evaluated and graded. There are no resubmit+reevaluate of programming assignments for a different score. If you believe there was a grading error on an exam, project, then requests for re-evaluation must be returned to the instructor within one week of the assignment being returned and accompanied by a brief explanation of the grading error you believe was made. After that time, the grade is final.
- **Late Work:** Programming projects are accepted late with a penalty of 50% per calendar day.

- **Extra Credit:** Some programming projects may have extra credit problems. Extra credit problems are made available to the whole class and not an individual student. Extra credit problems are optional. Do not ask for individual extra credit assignments.

Letter Grade Distribution

≥ 93.00	A	87.00 - 89.99	B+	77.00 - 79.99	C+	67.00 - 69.99	D+
90.00 - 92.99	A-	83.00 - 86.99	B	73.00 - 76.99	C	63.00 - 66.99	D
≤ 59.99	F	80.00 - 82.99	B-	70.00 - 72.99	C-	60.00 - 62.99	D-

- Numerical grades will be rounded to the nearest hundredth.
- Borderline cases are subject to the instructor's discretion, with a positive attitude, classroom participation and improvement throughout the term counting in the student's favor.

Important Dates

- Last Day to Drop: November 8
- P/NC Date: November 9
- Final Exam: 8:00-10:30, Thursday, December 16

Course Schedule and Topics (always subject to change):

WEEK	DATES	TOPIC	ASSIGNMENT
1	8/24	Course Introduction	
	8/26	Print Statements and Data Types	
2	8/31	Variables, Operators, Expressions	1
	9/2	Data Structures: Strings	
3	9/7	Flow Control: Branching (if-statements)	2
	9/9	Flow Control: Branching (if-statements)	
4	9/14	Flow Control: Repetition	
	9/16	Flow Control: Repetition	3
5	9/21	Functions I	
	9/23	More on Strings	4
6	9/28	TBA / Review	
	9/30	Exam I	
7	10/5	Data Structures: Tuples and Lists	
	10/7	Visualization: Plotting with Matplotlib	5
8	10/12	File I/O	
	10/14	Fall Break - No Lecture	
9	10/19	Data Structures: Dictionaries	6
	10/21	Functions II	
10	10/26	Functions III	7
	10/28	Data Manipulation - Numpy I	
11	11/2	Data Manipulation - Numpy II	
	11/4	Data Analysis - Pandas I	8
12	11/9	Data Analysis - Pandas II	
	11/11	Data Analysis - Pandas III	
13	11/16	TBA / Review	Project

	11/18	Exam II	
	11/23	No Lecture - Thanksgiving	
	11/25	No Lecture - Thanksgiving	
14	11/30	Misc. Topics	
	12/2	Misc. Topics	
15	12/7	TBA / Review	
	12/9	No Lecture - Study Day	
16	12/16	Final Exam	

Student Expectations: Class attendance as well as participation could have an impact on your final grade. You will be held responsible for all material presented in class. If you choose to miss a class, you should be aware that this could adversely affect your performance on tests. It is your responsibility to obtain all materials missed and to make up all lectures, discussions, and etc. without the aid of the instructor.

Disabilities Statement: Texas Christian University complies with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973 regarding students with disabilities. Eligible students seeking accommodations should contact the Coordinator of Student Disabilities Services in the Center for Academic Services located in Sadler Hall, 1010. Accommodations are not retroactive, therefore, students should contact the Coordinator as soon as possible in the term for which they are seeking accommodations. Further information can be obtained from the Center for Academic Services, TCU Box 297710, Fort Worth, TX 76129, or at (817) 257-6567.

Campus Life and the Student Experience will Be Different This Year. The health and safety of students, faculty, and staff is Texas Christian University's highest priority. TCU has implemented public health interventions, which includes following local and state public health orders and CDC guidelines. These health interventions may impact your experience as a student both inside and outside the classroom. Safety protocols may change during the semester and may result in modifications or changes to the teaching format, delivery method, or the course schedule (e.g., altering meeting times or frequency; changing beginning or ending dates for a term; or partially or completely moving from a face-to-face classroom teaching to an online teaching or remote learning format). Any changes in teaching format, delivery method, or course schedule will not impact the credit hours for the course.

Health and Wellness: If you are exhibiting symptoms that may be related to COVID-19 (fever or chills, dry cough, shortness of breath, etc.) or are concerned that you may have been exposed to COVID-19, you must self-quarantine and consult with the Brown Lupton Health Center at 817-257-7949 for further guidance.

In addition, you must notify the Campus Life Office immediately at 817-257-7926. Campus Life will inform your professors that you are unable to attend class, and provide any assistance and support needed. Click here for detailed information concerning COVID-19 symptoms: <https://www.cdc.gov/coronavirus>.

If you are unwell, but are not exhibiting potential COVID-19-related symptoms, please notify your instructor as soon as possible that you are ill and will not be attending class.

If you do not feel well enough to attend class in person, but feel well enough to attend class remotely, please notify your instructor as soon as possible before the class begins to arrange attendance via video conferencing.

Face Coverings and Physical Distancing: Face coverings are required on campus, unless you are alone in your private office or dorm room. Students will be expected to practice physical distancing and wear protective face coverings at all times while in public spaces on the TCU campus. Failing to do so in the classroom could result in the student being asked to leave the room and continue the class through remote access. Additionally, the instructor has the option to terminate the class period and continue it as a remote session. Failure to comply with the instructor's request to adhere to TCU policy regarding face coverings or repeat violations may be reported to Campus Life.

Student Access and Accommodation: Texas Christian University affords students with disabilities reasonable accommodations in accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act. To be eligible for disability-related academic accommodations, students are required to register with the TCU Office of Student Access and Accommodation and have their requested accommodations evaluated. Students are required to provide instructors an official TCU notification of accommodation approved through Student Access and Accommodation. More information on how to apply for accommodations can be found at <https://www.tcu.edu/access-accommodation/> or by calling Student Access and Accommodation at (817) 257-6567. Accommodations are not retroactive and require advance notice to implement.

Technology Policies

Email

Only the official TCU student email address will be used for all course notification. It is your responsibility to check your TCU email on a regular basis.

Course Materials

TCU students are prohibited from sharing any portion of course materials (including videos, PowerPoint slides, assignments, or notes) with others, including on social media, without written permission by the course instructor. Accessing, copying, transporting (to another person or location), modifying, or destroying programs, records, or data belonging to TCU or another user without authorization, whether such data is in transit or storage, is prohibited. The full policy can be found at: <https://security.tcu.edu/polproc/usage-policy/>.

Violating this policy is considered a violation of Section 3.2.15 of the Student Code of Conduct (this policy may be found in the Student Handbook at <https://tcu.codes/code/index/>), **and may also constitute Academic Misconduct or Disruptive Classroom Behavior** (these policies may be found in the undergraduate catalog at <https://tcu.smartcatalogiq.com/current/Undergraduate-Catalog/Student-Policies/Academic-Conduct-Policy-Details>). TCU encourages student debate and discourse; accordingly, TCU generally interprets and applies its policies, including the policies referenced above, consistent with the values of free expression and First Amendment principles.

Anti-Discrimination and Title IX Information

Statement on TCU's Discrimination Policy

TCU prohibits discrimination and harassment based on age, race, color, religion, sex, sexual orientation, gender, gender identity, gender expression, national origin, ethnic origin, disability, predisposing genetic information, covered veteran status, and any other basis protected by law, except as permitted by law. TCU also prohibits unlawful sexual and gender-based harassment and violence, sexual assault, incest, statutory rape, sexual exploitation, intimate partner violence, bullying, stalking, and retaliation. We understand that discrimination, harassment, and sexual violence can undermine students' academic success and we encourage students who have experienced any of these issues to talk to someone about their experience, so they can get the support they need.

- Review TCU's Policy on Prohibited Discrimination, Harassment and Related Conduct or to file a complaint: <https://titleix.tcu.edu/title-ix/>.
- Learn about the Campus Community Response Team and Report a Bias Incident: <https://titleix.tcu.edu/campus-community-response-team/>.

Statement on Title IX at TCU

As an instructor, one of my responsibilities is to help create a safe learning environment on our campus. It is my goal that you feel able to share information related to your life experiences in classroom discussions, in your written work, and in our one-on-one meetings. I will seek to keep any information you share private to the greatest extent possible. However, I have a mandatory reporting responsibility under TCU policy and federal law and I am required to share any information I receive regarding sexual harassment, discrimination, and related conduct with TCU's Title IX Coordinator. Students can receive confidential support and academic advocacy by contacting TCU's Confidential Advocate in the Campus Advocacy, Resources & Education office at <https://care.tcu.edu/> or by calling (817) 257-5225 or the Counseling & Mental Health Center at <https://counseling.tcu.edu/> or by calling (817) 257-7863. Alleged violations can be reported to the Title IX Office at <https://titleix.tcu.edu/student-toolkit/> or by calling (817) 257-8228. Should you wish to make a confidential report, the Title IX Office will seek to maintain your privacy to the greatest extent possible, but cannot guarantee confidentiality. Reports to law enforcement can be made to the Fort Worth Police Department at 911 for an emergency and (817) 335-4222 for non-emergency or TCU Police at (817) 257-7777.

Obligations to Report Conduct Raising Title IX or VAWA Issues

Mandatory Reporters: All TCU employees, except Confidential Resources, are considered Mandatory Reporters for purposes of their obligations to report, to the Coordinator, conduct that raises Title IX and/or VAWA (Violence Against Women Act) issues.

Mandatory Reporters are required to immediately report to the Coordinator information about conduct that raises Title IX and/or VAWA issues, including any reports, complaints or allegations of sexual harassment, discrimination and those forms of prohibited conduct that relate to nonconsensual sexual intercourse or contact, sexual exploitation, intimate partner violence, stalking and retaliation involving any member of the TCU community, except as otherwise provided within the [Policy on Prohibited Discrimination, Harassment and Related Conduct](#).

Mandatory Reporters may receive this information in a number of ways. For example, a complainant may report the information directly to a Mandatory Reporter, a witness or third-party may provide information to a Mandatory Reporter, or a Mandatory Reporter may personally witness such conduct. A Mandatory Reporter's obligation to report such information to the Coordinator does not depend on how he/she received the information. Mandatory Reporters must provide

all known information about conduct that raises Title IX or VAWA issues to the Coordinator, including the identities of the parties, the date, time and location, and any other details. Failure of a Mandatory Reporters to provide such information to the Coordinator in a timely manner may subject the employee to appropriate discipline, including removal from a position or termination of employment.

Mandatory Reporters cannot promise to refrain from forwarding the information to the Coordinator if it raises Title IX or VAWA issues or withhold information about such conduct from the Coordinator. Mandatory Reporters may provide support and assistance to a complainant, witness, or respondent, but they should not conduct any investigation or notify the respondent unless requested to do so by the Coordinator.

Mandatory Reporters are not required to report information disclosed (1) at public awareness events (e.g., “Take Back the Night,” candlelight vigils, protests, “survivor speak-outs,” or other public forums in which students may disclose such information (collectively, public awareness events); or (2) during an individual’s participation as a subject in an Institutional Review Board approved human subjects research protocol (IRB Research). TCU may provide information about Title IX rights and available resources and support at public awareness events, however, and Institutional Review Boards may, in appropriate cases, require researchers to provide such information to all subjects of IRB Research.

Relevant reporting phone numbers are: 911 for an emergency and (817) 335-4222 for non-emergency or TCU Police at (817) 257-7777.

Emergency Response Information

Please review [TCU’s L.E.S.S. is More public safety video](#) to learn about Lockdown, Evacuate, and Seek Shelter procedures. (<https://publicsafety.tcu.edu/less-is-more/>)

[TCU’s Public Safety website](#) provides maps that show our building’s rally point for evacuation and the seek shelter location. (<https://publicsafety.tcu.edu/>)

In the event of an emergency, call the TCU Police Department at 817-257-7777.

Download the [Frogshield Campus Safety App](#) on your phone. (<https://police.tcu.edu/frogshield/>)

Academic Misconduct

Academic Misconduct (Sec. 3.4 from the [TCU Code of Student Conduct](#)): Any act that violates the academic integrity of the institution is considered academic misconduct. The procedures used to resolve suspected acts of academic misconduct are available in the offices of Academic Deans and the Office of Campus Life and are also listed in detail in the [Undergraduate Catalog](#) and the [Graduate Catalog](#). Specific examples include, but are not limited to:

- **Cheating:** Copying from another student’s test paper, laboratory report, other report, or computer files and listings; using, during any academic exercise, material and/or devices not authorized by the person in charge of the test; collaborating with or seeking aid from another student during a test or laboratory without permission; knowingly using, buying, selling, stealing, transporting, or soliciting in its entirety or in part, the contents of a test or other

assignment unauthorized for release; substituting for another student or permitting another student to substitute for oneself.

- **Plagiarism:** The appropriation, theft, purchase or obtaining by any means another's work, and the unacknowledged submission or incorporation of that work as one's own offered for credit. Appropriation includes the quoting or paraphrasing of another's work without giving credit therefore.
- **Collusion:** The unauthorized collaboration with another in preparing work offered for credit.
- **Abuse of resource materials:** Mutilating, destroying, concealing, or stealing such material.
- **Computer misuse:** Unauthorized or illegal use of computer software or hardware through the TCU Computer Center or through any programs, terminals, or freestanding computers owned, leased or operated by TCU or any of its academic units for the purpose of affecting the academic standing of a student.
- **Fabrication and falsification:** Unauthorized alteration or invention of any information or citation in an academic exercise. Falsification involves altering information for use in any academic exercise. Fabrication involves inventing or counterfeiting information for use in any academic exercise.
- **Multiple submission:** The submission by the same individual of substantial portions of the same academic work (including oral reports) for credit more than once in the same or another class without authorization.
- **Complicity in academic misconduct:** Helping another to commit an act of academic misconduct.
- **Bearing false witness:** Knowingly and falsely accusing another student of academic misconduct.

Note(s): *Course syllabi are intended to provide students with basic information concerning the course. The syllabus can be viewed as a "blueprint" for the course; changes in the syllabus can be made and students will be informed of any substantive changes concerning examination, the grading or attendance policies and changes in project assignments.*