

THE UNIVERSITY OF TEXAS AT EL PASO
Woody L. Hunt College of Business
Department of Accounting and Information Systems

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CIS 3301 – Intro to Data Process & Prog
Course Syllabus, Fall 2024

Class Hours: Tuesdays and Thursdays 4:30 – 5:50 PM at CoBA 320
Office Hours: Tuesdays and Thursdays 1:00 – 4:10 PM (or by appointment)

Course Description





This is an introductory course in programming and data processing. This course teaches important concepts about programming blocks, algorithms, and data structures using Python. More than teaching you how to program in Python, this course teaches programming fundamentals that can be used to implement code in Python or any other programming language. Moreover, this course teaches how to design, implement, and evaluate programming solutions to business problems. Furthermore, this course offers an introduction to the processing of data in multiple formats (e.g., plain files, comma separated values). This is a programming course. Therefore, in this course, coding, debugging, and improving code are central to students' learning.

Learning Objectives

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

- Understand and utilize basic programming building blocks
- Analyze algorithms implemented in code
- Solve problems by thinking algorithmically and implementing code
- Read and write files with different formats
- Clean and transform data from files
- Understand concepts of object oriented programming
- Build and instantiate objects
- Handle errors and exceptions

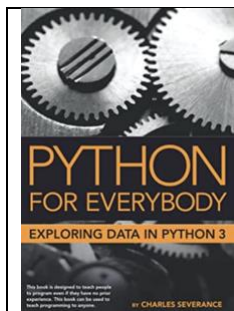
UTEP EDGE – Experiences

 <p>LEARNING COMMUNITIES Build friendships, gain academic support, and connect ideas across linked classes by joining a learning community</p>	 <p>CREATIVE ACTIVITIES Showcase your creative abilities through experiences that highlight your talents</p>	 <p>RESEARCH & SCHOLARLY ACTIVITIES Team-up with faculty to gain experience and make intellectual and creative contributions to your field</p>	 <p>STUDENT LEADERSHIP Develop professional values by assuming leadership roles in your campus experiences</p>
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UTEP EDGE – Advantages


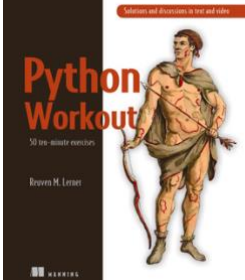
 <p>COMMUNICATION Reach mutual understanding through effective exchange of information, ideas, and feelings</p>	 <p>CONFIDENCE Be self-assured through appreciating your own talents, abilities, skills, and qualities</p>	 <p>CRITICAL THINKING Analyze and evaluate issues in order to solve problems and develop informed opinions</p>	 <p>GLOBAL AWARENESS Understand and appreciate people, cultures, and ideas from around the world that impact our community</p>
 <p>LEADERSHIP Step up, think, and act critically and creatively to bring others together to accomplish a common task</p>	 <p>PROBLEM SOLVING Find solutions to difficult or complex issues</p>	 <p>SOCIAL RESPONSIBILITY Act ethically and responsibly for the benefit of society and the public good</p>	 <p>TEAMWORK Participate as an effective, efficient member of a group in order to meet a common goal</p>

Required books







Severance, Charles R. Python for everybody. Charles Severance, 2009. Available for free at the author's website. <https://www.py4e.com/book>

Optional books

	<p>Aziz, A., Lee, T. H., & Prakash, A. (2019). Elements of programming interviews in Python. EPI.</p>
	<p>Lerner, R. (2020). Python workout: 50 ten-minute exercises (1st edition). Manning. Available for free at UTEP's library. https://utep.primo.exlibrisgroup.com/permalink/01UTEP_INST/1q3tr5t/cdi_askewsholts_vlebooks_9781638357223</p>

Required software

	<p>Python 3.0 or greater. https://www.python.org/</p>
	<p>Visual Studio Code. https://code.visualstudio.com/</p>
	<p>Git. https://git-scm.com/book/en/v2/Getting-Started-Installing-Git</p>
	<p>GitHub Desktop. https://desktop.github.com/</p>

Teaching methods

1. Class assignments (CASA)
 - i. It is important for students to come prepared to class and engage in each session. Therefore, before each lecture, students will be assigned a CASA assignment. These assignments aim to test students' preparation before each lecture. All CASAs are due one hour before the lecture. Only students who attend in person or present a formal justification for their absence will receive credit for CASA submissions.
2. Coding assignments (CODE)
 - i. Coding and debugging are essential for this class. Coding assignments that do not run or run with errors will automatically receive a 50% grade penalty.
 - ii. Students are allowed to consult their notes, books, classmates, or the internet to complete coding assignments. However, copying code blindly, or worse, plagiarizing code from others, is prohibited.

- iii. Students should be able to explain how their code works and why code similarities can appear. Students who fail to explain or justify their code authorship will receive a zero on the assignment and will be reported to the Office of Student Conduct and Conflict Resolution (OSCCR).
3. Exams (EXAM)
- i. There will be three learning assessments. A review session will be held before each exam. It is recommended that you review the exam material before each review session so you can actively participate in review sessions. Exams in this class are comprehensive and will require students to code.

Evaluation

Class assignments – 25 points for each assignment (16 CASA assignments)
 Coding assignments – 30 points for each assignment (10 CODE assignments)
 Exams – 100 points (3 Exams)

A	B	C	D	F
900	800	700	600	<600

Late assignments

Late assignments will be awarded 20% less credit per day late. Make-up assignments, class assignments, discussions, checkpoints, and presentations will not be given.

Extra credit

The course incorporates extra credit opportunities in assignments, in-class activities, and discussions to promote students’ engagement inside and outside the classroom.

Email Procedure

Please include “CIS 3301” in the subject line of all emails to the instructor to ensure that they are properly filtered. It would be helpful if the subject line also included a brief statement of need, for example: “CIS 3301 – Request for Appointment.” Please read the following link about emailing a professor for some helpful suggestions (e.g., please start with a greeting including my name and a signature including your name): <http://www.wikihow.com/Email-a-Professor>.

Accommodations

If you need special accommodations due to a disability, as recognized by the Americans with Disabilities Act, please contact The Center for Accommodations and Support Services (CASS) at 747-5148 or email at cass@utep.edu, or visit their office located at UTEP Union East, Room 106. For additional information, please visit the CASS website at www.sa.utep.edu/cass.

Academic integrity

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as

ones' own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the Office of Student Conduct and Conflict Resolution (OSCCR) for possible disciplinary action. To learn more, please visit [HOOP: Student Conduct and Discipline](#).

Acceptable use of Artificial Intelligence (AI)

The use of AI technologies or automated tools, particularly generative AI such as ChatGPT or DALL-E, **is only allowed with proper attribution given for its use.**

Students must properly cite and give full credit to the program used upon submission of every relevant assignment. For example, programming code generated using AI can only be used if the student understands its functionality. Additionally, all students must disclose the use of AI by including a citation, like the one below:

Chat-GPT(version). Date of query (year/month/day). "Text of your query." Generated using OpenAI Chat-GPT. <https://chat.openai.com/>

Copying and pasting blindly code directly from AI is strictly prohibited. Students who plagiarize code will be reported to the Office of Student Conduct and Conflict Resolution (OSCCR).

Tentative Course Outline

Module 1: Programming building blocks	
Week #1	
08/27 - Session 0	Introduction to CIS 3330
08/29 - Session 1	Computer architecture and programming building blocks
Week #2	
09/03 - Session 2	Variables, statements, operators, and expressions
09/05 - Session 3	Basic data types (integer, float, string) and data structures (lists, tuples)
09/08 - CODE 1	The guessing game
Week #3	
09/10 – Session 4	Arithmetic and string basic operations
09/12 – Session 5	Conditional code execution (if, match, while)
09/15 - CODE 2	Temperature conversion
Week #4	
09/17 – Session 6	Iteration code execution (for)
09/19 – Session 7	Built-in, type conversion, math, and customized functions
09/22 - CODE 3	Rock-Paper-Scissors game

Week #5	
09/24 – Session 8	Exam 1 - Review
09/26 – Session 9	Python best practices
09/29 - Exam	
Module 2: Algorithms and data structures	
Week #6	
10/01 – Session 10	Analysis of algorithms (Big-O)
10/03 – Session 11	Data structures (lists, tuples)
10/06 - CODE 4	Rock-Paper-Scissors game with loop
Week #7	
10/08 – Session 11	Data structures (sets, dictionaries)
10/10 – Session 12	Search algorithms (linear, binary)
10/13 - CODE 5	Temperature conversion with functions
Week #8	
10/15 – Session 13	Sorting algorithms (bubble, selection)
10/17 – Session 14	Recursion
10/20 - CODE 6	Bubble and insert sort algorithms
Week #9	
10/22 – Session 15	Sorting algorithms with recursion (bubble, merge)
10/24 – Session 16	Exam 2 - Review
10/27 - Exam 2	
Module 3: Data Processing	
Week #10	
10/29 – Session 17	Text encodings (ASCII, UTF-8, Unicode) and regular expressions
10/31 – Session 18	Read and write plain text files
11/03 - CODE 7	Fibonacci with recursion
Week #11	
11/05 – Session 19	Read and write comma separated files
11/07 – Session 20	Read and write comma separated files using Pandas
11/10 - CODE 8	Read and write files with Pandas
Week #12	
11/12 – Session 21	Data cleaning and transformation using Pandas
11/14 – Session 22	Web scrapping using http request and beautiful soup
11/17 - CODE 9	Web scrapping

Module 4: Principles of object oriented programming	
Week #13	
11/19 – Session 23	Introduction to the object oriented programming paradigm
11/21 – Session 24	Create and instantiate objects
11/24 - CODE 10	The bank object
Week #14	
11/26 – Session 25	Inheritance and objects life cycle
11/28 – No session	
Week #15	
12/03 – Session 26	Error and exceptions handling
12/05 – CODE 11	OpenAI Demo
12/10 - Final Exam	

Important Notes:

1. In addition to the announced office hours, students may stop by my office at any time (or email me) to ask questions.
2. Students should demonstrate that they have done code troubleshooting/debugging before requesting assistance from the instructor.
3. If you have any trouble with the class, please get help ASAP. Do not let the problems build up.
4. This syllabus is tentative.