CSCI 5334 Data Analytics with Python
Spring 2025

General Course Information

Instructor	Dr. Yi Li Email: yli@uttyler.edu
Lecture	Online Asynchronous Mode (7-week schedule)
Office Hour	TuTh 1:00 PM - 2:30 PM in COB 315.08, or by appointment
Required Device	Programmable Computer (Windows, Mac OS, or Linux OS). A stable, high-speed Internet connection is required to access course materials.
Required Text	▪ Python for Data Analysis: Data Wrangling with pandas, NumPy, and Jupyter 3rd Edition by Wes Mckinney ***Free online access***: https://wesmckinney.com/book/ ▪ Additional readings, handouts, and videos will be posted on Canvas.
Suggested Materials	1. Python tutorials https://docs.python.org/3/tutorial/ https://www.learnpython.org/ https://www.w3schools.com/python/ https://wiki.python.org/moin/BeginnersGuide/Programmers 2. Python Data Analytics with Pandas, NumPy, and Matplotlib, 2nd edition, Fabio Nelli, Apress, 2018, ISBN: 978-1484239124. 3. Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython, 2nd edition. Wes McKinney, ISBN: 978-1491957660 4. Intro to Python for Computer Science and Data Science 1st edition, Paul Deitel, Harvey M. Deitel, ISBN: 978-0135404676
Prerequisites	There is no prerequisite for this course. However, prior knowledge in computer programming is helpful.
Course Description	The course introduces students to important Python programming concepts such as data types, control flows, data operations, file operations, and various Python libraries such as Pandas, NumPy, Matplotlib essential for Data Analytics. Topics include Python basics, data analysis and visualizations. Through hands-on projects, students will learn to both analyze and visualize different types of data with Python language. (The weekly workload may span 10 to 15 hours approximately and depends on individual students' background.)

Course Objectives	
	1. Demonstrate how to articulate and implement core Python programming concepts to develop Python programs.
	2. Execute data manipulation tasks utilizing Python libraries – NumPy and Pandas.
	3. Craft impactful visualizations with Matplotlib and Seaborn.
	4. Convey insights through graphs and plots.
	5. Analyze data patterns, distributions, and correlations.
	6. Extract valuable insights from data.
	7. Explain machine learning basics.

Tentative Course Schedule

Week	Lecture Topics
1	Python Basics Part 1
2	Python Basics Part 2
3	NumPy
4	Pandas Part 1
5	Pandas Part 2
6	Matplotlib, Seaborn
7	Machine Learning Concepts

Grading Policy

Quizzes/Exercises – 10%	90.0 - 100%	A
Assignments/Projects – 45%	80.0 - 89.99%	B
Midterm Exam – 20%	70.0 - 79.99%	C
Final Exam – 25%	60.0 - 69.99%	D
	Below 60%	F

Class Arrangement:

This course will use an asynchronous online modality to support teaching and learning. The instructor will post course materials on Canvas. And will send out weekly reminders (via university email) to students to inform the current progress and upcoming course activities. The materials include course handouts (e.g., slides, notes, exercises), prerecorded lecture videos, discussion forums, among others. Students are expected to read / watch the materials and to make progress in their learning accordingly. Students are required to submit (via Canvas) assessment items that have specific due dates as listed in Class Schedule Page (on Canvas). The assessment items are intended to ensure that students are making satisfactorily progress toward the learning goals. The directions for submitting the assessment items will be provided on the Canvas. While all required learning materials are provided in an asynchronous mode, students are welcome to schedule appointments to meet with the instructor (online via Zoom), who will be available during office hours posted on the Canvas. Other times may be considered upon request. Students who want to set up an appointment with the instructor should email the instructor with several proposed meeting times.

Assessment

For each of the assessment categories listed below, students are required to submit the assessment items by their due dates and times listed on Canvas.

A. Quizzes/Exercises

Quizzes and exercises will be assigned as individual, untimed, open-book tests to help students review course materials and to prepare for exams. Each quiz contains objective-type questions (e.g., multiple choice, T/F, multiple selections, matching, etc.) designed to support retention of knowledge. Students may pause and resume a quiz (once started) and must complete the quiz submission by the due time. Each quiz/exercise is open for submission one week prior to the due date and is closed for submission 3 days after the scheduled due date. Each quiz/exercise must be submitted to Canvas by the due date (before 11:59:00 pm US Central Time) to receive a grade. All quizzes will be graded automatically.

B. Assignments/Projects

Individual assignments/Projects will be given to reinforce the topics learned. The assignments may include programming projects. Each assignment will be graded based on its accuracy, clarity, timely and proper submission, and overall quality. Students may submit the assignment any time before the due time. The latest submission is used for grading. Each assignment is open for submission one week prior to the due date and is closed for submission 3 days after the scheduled due date. Each assignment is open for submission one week prior to the due date and is closed for submission 3 days after the scheduled due date. Each assignment must be submitted to Canvas by the due date (before 11:59:00 pm US Central Time) to receive a grade. Assignments will be graded and returned within a 10-day period.

C. Examinations

There are two individual, one-sitting, close-book, close-note, limited-time exams (midterm and final) in this course. The exam will be open during a fixed period of time during which students must start at a specific time (as shown in the Course Schedule section). Students are not allowed to communicate during the period that the exam is open. Students must complete their submission by the end of the scheduled time period and must complete the exam within one sitting (no pause-and-resume is available). Online proctoring tools (*ProctorU*) will be used during the exam. *ProctorU* instructions will be provided on Canvas. Objective-type questions (e.g., multiple choice, vocabularies, multiple selections, matching, short answer, programming) may appear in the exam.

Course Policies

A. Late Submission Policy

➢ Late submissions will incur a score deduction of 10% for the first calendar-day late, 30% for the second calendar-day late. 50% for the third calendar-day late. The deliverable would receive a zero grade if not received by Day 3 after the due date. For example, if the due date is on Sunday, then a submission received on Monday will get a 10% deduction; a submission received on Wednesday will get a 50% deduction; a submission received after Wednesday will be assigned a zero grade.

➢ Tests must be taken when scheduled. Make-up exams will be granted at the discretion of the instructor. Make-ups will be given only under *extremely unusual* circumstances, will be different from exams given during the regular exam time and may be discounted by up to 50% of the grade. Permission for a makeup exam must be obtained *PRIOR* to the regular exam and must include written documentation of the student's absence.

B. Attendance and Participation:

➢ Students are expected to follow the course schedule, and the instructions provided through the learning management system, and check their university email account on a regular basis for all course materials and assignments. A stable, high-speed Internet connection is required to access course materials. By enrolling in this class, a student is bound by the requirements stated in this syllabus and given by the instructor. Students must operate with integrity in their dealings with faculty and other students; engage the learning materials with appropriate attention and dedication; complete assignments on time; maintain their engagement when challenged by difficult learning activities contribute to the learning of others; and perform to the standards set by the instructor.

➢ Each student is expected to participate by making regular forum posts on the discussion board under Canvas, either asking a question or responding to an existing topic.

C. Plagiarism

Unless otherwise specified, all work submitted for a grade must be completed by yourself. While students are encouraged to form study groups and to discuss course materials, students are required to submit only their own original work done exclusively for each assignment. You are not allowed to submit another person's work and claim it as your own. Plagiarism will result in disciplinary actions. To spare yourself accusations of plagiarism review the following statements: (Adapted from SFSU Department of Computer Science cheating and plagiarism policy)

Plagiarism occurs when a student:
- submits the work of another student representing it a their own.
- allows another student to replicate or submit their work.

- submits code or portions of code with modifications in an effort to make it look original.
- fails to inform the instructor of collaborating with others on code or projects.
- posts assignments on internet sites for solutions.
- submits code found online and modified without proper citation.

Plagiarism does not occur when a student:

- has permission to collaborate on a program or project and list all collaborators.
- receives guidance from instructors or teaching assistants.
- help with errors or provide tips on programming that will help others in the learning process.
- discuss requirements of an assignment and strategies for implementation.
- inclusion of code copied form another source when properly cited and specifically allowed by instructor.

Any indication of cheating and/or plagiarism on an exam/assignment/project will be an automatic 0 (zero) for the exam/assignment/project for all students involved. If you have questions about the line between assistance and cheating, discuss it with the instructor. For examples of Scholastic Dishonesty, please visit Section 8-802 of the Manual of Policy and Procedures.

D. Copyright Infringement

All materials are copyright-protected. Copying, reproduction, or re-distribution of the materials without written permission of copyright holders is a violation of the copyright law and is prohibited.

E. Academic Calendar
   https://www.uttyler.edu/academics/academic-calendar/

Student Resources:
Resources to assist you in your courses

- UT Tyler Student Accessibility and Resource (SAR) Office (provides needed accommodations to students with document needs related to access and learning)
- UT Tyler Writing Center
- The Mathematics Learning Center
- UT Tyler PASS Tutoring Center
- UT Tyler Supplemental Instruction
- Upswing (24/7 online tutoring) - covers nearly all undergraduate course areas
- Robert Muntz Library and Library Liaison
- Canvas 101 (learn to use Canvas, proctoring, Unicheck, and other software)

- Digital Support Toolkit (for supported courses only. Students are automatically enrolled in the toolkit for supported courses)
- LIB 422 -- Computer Lab where students can take a proctored exam
- The Career Success Center
- UT Tyler Testing Center
- Office of Research & Scholarship Design and Data Analysis Lab

Resources available to UT Tyler Students

- UT Tyler Counseling Center (available to all students)
- TAO Online Support Center (online self-help modules related to mental & emotional health)
- Military and Veterans Success Center (supports for all of our military affiliated students)
- UT Tyler Patriot Food Pantry
- UT Tyler Financial Aid and Scholarships
- UT Tyler Registrar's Office
- Office of International Programs
- Title IX Reporting
- Patriots Engage (available to all students. Get engaged at UT Tyler.)

University Policies and Information

- **Withdrawing from Class** - Students you are allowed to withdraw (drop) from this course through the University's Withdrawal Portal. Texas law prohibits students who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. This includes courses dropped at other 2-year or 4-year Texas public colleges and universities. Make sure to consider the impact withdrawing from this class has on your academic progress as well as the financial implications. We encourage you to consult your advisor(s) and financial aid for additional guidance. CAUTION #1: Withdrawing before census day does not mean you get a full refund. Please see the Tuition and Fee Refund Schedule. CAUTION #2: All international students must check with the Office of International Programs before withdrawing. All international students are required to enroll full-time for fall and spring terms.
- **Final Exam Policy**: Final examinations are administered as scheduled. If unusual circumstances require that special arrangements be made for an individual student or class, the dean of the appropriate college, after consultation with the faculty member involved, may authorize an exception to the schedule. Faculty members are required to maintain student final examination papers for a minimum of three months following the examination date.
- **Incomplete Grade Policy**: If a student, because of extenuating circumstances, is unable to complete all of the requirements for a course by the end of the semester, then the

instructor may recommend an Incomplete (I) for the course. The "I" may be assigned in lieu of a grade only when all of the following conditions are met: (a) the student has been making satisfactory progress in the course; (b) the student is unable to complete all course work or final exam due to unusual circumstances that are beyond personal control and are acceptable to the instructor; and (c) the student presents these reasons prior to the time that the final grade roster is due. The semester credit hours for an Incomplete will not be used to calculate the grade point average for a student.
The student and the instructor must submit an Incomplete Form detailing the work required and the time by which the work must be completed to their respective department chair or college dean for approval. The time limit established must not exceed one year. Should the student fail to complete all of the work for the course within the time limit, then the instructor may assign zeros to the unfinished work, compute the course average for the student, and assign the appropriate grade. If a grade has not been assigned within one year, then the Incomplete will be changed to an F, or to NC if the course was originally taken under the CR/NC grading basis.

- **Grade Appeal Policy:** - UT Tyler's Grade Appeal policy requires the completion of a Grade Appeal form for this action to take place. The grade appeal begins with the instructor of your course. If you do not agree with the decision of the instructor, you may then move your appeal to the department chair/school director for that course. If you are still dissatisfied with the decision of the chair/director, you may move the appeal to the Dean of the College offering that course who has the final decision. Grade appeals must be initiated within sixty (60) days from the date of receiving the final course grade. The Grade Appeal form is found on the Registrar's Form Library.

- **Disability/Accessibility Services**: The University of Texas at Tyler has a continuing commitment to providing reasonable accommodations for students with documented disabilities. Students with disabilities who may need accommodation(s) in order to fully participate in this class are urged to contact the Student Accessibility and Resources Office (SAR) as soon as possible to explore what arrangements need to be made to ensure access. If you have a disability, you are encouraged to visit the SAR Portal (https://hood.accessiblelearning.com/UTTyler/) and complete the New Student Application. For more information, please visit the SAR wepage or call 903.566.7079.

- **Military Affiliated Students**: UT Tyler honors the service and sacrifices of our military affiliated students. If you are a student who is a veteran, on active duty, in the reserves or National Guard, or a military spouse or dependent, please stay in contact with me if any aspect of your present or prior service or family situation makes it difficult for you to fulfill the requirements of a course or creates disruption in your academic progress. It is important to make me aware of any complications as far in advance as possible. I am willing to work with you and, if needed, put you in contact with university staff who are trained to assist you. Campus resources for military affiliated students are in the Military and Veterans Success Center (MVSC). The MVSC can be reached at MVSC@uttyler.edu, or via phone at 903.565.5972.

- **Academic Honesty and Academic Misconduct:** The UT Tyler community comes together to pledge that "Honor and integrity will not allow me to lie, cheat, or steal, nor to accept

the actions of those who do." Therefore, we enforce the Student Conduct and Discipline policy in the Student Manual Of Operating Procedures (Section 8).

- **FERPA** - UT Tyler follows the Family Educational Rights and Privacy Act (FERPA) as noted in University Policy 5.2.3. The course instructor will follow all requirements in protecting your confidential information.
- **COVID Guidance**
  - *Information for Classrooms and Laboratories:* Students are required to wear face masks covering their nose and mouth, and follow social distancing guidelines, at all times in public settings (including classrooms and laboratories), as specified by Procedures for Fall 2020 Return to Normal Operations. The UT Tyler community of Patriots views adoption of these practices consistent with its Honor Code and a sign of good citizenship and respectful care of fellow classmates, faculty, and staff.

    Students who are feeling ill or experiencing symptoms such as sneezing, coughing, or a higher than normal temperature will be excused from class and should stay at home and may join the class remotely. Students who have difficulty adhering to the Covid-19 safety policies for health reasons are also encouraged to join the class remotely. Students needing additional accommodations may contact the Office of Student Accessibility and Resources at University Center 3150, or call (903) 566-7079 or email saroffice@uttyler.edu.

  - *Recording of Class Sessions:* Class sessions may be recorded by the instructor for use by students enrolled in this course. Recordings that contain personally identifiable information or other information subject to FERPA shall not be shared with individuals not enrolled in this course unless appropriate consent is obtained from all relevant students. Class recordings are reserved only for the use of students enrolled in the course and only for educational purposes. Course recordings should not be shared outside of the course in any form without express permission.
- **Absence for Official University Events or Activities**: This course follows the practices related to approved absences as noted by the Student Manual of Operating Procedures (Sec. 1 -501).
- **Absence for Religious Holidays:** Students who anticipate being absent from class due to a religious holiday are requested to inform the instructor by the second class meeting of the semester.
- **Campus Carry:** We respect the right and privacy of students who are duly licensed to carry concealed weapons in this class. License holders are expected to behave responsibly and keep a handgun secure and concealed. More information is available at http://www.uttyler.edu/about/campus-carry/index.php.