

FINA 5250
Python and Data Analytics for Finance
Fall 2025

Instructor: Stephen Owen, Ph.D.

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Office Hours: By appointment (in-person or virtual)

Prerequisites: FINA 5170 (can be taken concurrently)

Zoom Link: <https://unt.zoom.us/my/stephenowen>

Class Quote: "There is no growth in the comfort zone."

COURSE OVERVIEW

This course will incorporate a hands-on learning approach to data collection and financial analysis using Python. It will require students to learn Python. No prior programming experience is necessary. The objective of this course is to assist students in developing skills using Python and increasing their knowledge of financial markets through theoretical and empirical exercises.

MATERIALS

Students are required to have access to a computer with internet access.

REQUIRED TEXTBOOK

The **required** textbook for this course is *Financial Analysis in Python* by Brau, Holmes, Blau, Keith, and Owen. The book has been fully integrated into Canvas. Once the book is purchased, it will grant you lifetime access to the material. In addition, the text includes videos, assessment tools, and readings that have been integrated into the book and will be available once the text has been purchased. The text may be downloaded as a PDF and printed.

Step-by-step instructions can be found by following the link provided below:

<https://myeducator.freshdesk.com/support/solutions/articles/14000068906-how-do-i-access-myeducator-through-canvas-in>

If you have any questions, concerns, or issues with the sign-up process, send an email to support@myeducator.com, and they will assist you. They are very responsive.

ASSIGNMENTS

Assignments are integrated with the textbook, and each individual student must complete their own assignments. However, students may work together to complete each assignment. There is an attendance grade for this class. You are allotted **two** absences for any reason during the semester before you begin losing points toward your attendance grade. There will be two midterms given during the semester, proctored during class, and a comprehensive final exam given at the end of the semester. Midterms and the final exam are required to be taken, will not be dropped, and will be *handwritten*. Any use of Generative AI/ChatGPT is strongly discouraged; however, should it be used, **full disclosure** must be stated **within every code block that it was used for**, or you will receive an automatic *F* for your grade on that respective assignment. Excessive use of Generative AI/ChatGPT in the course will result in a reduction in assignment grades. Generative AI/ChatGPT may NOT be used on exams under any circumstances. If it is used on an exam, an irrevocable grade of *F* on that exam will be given.

Assignments may **not** be submitted late. This is a masters level finance course, so developing the skills of completing tasks on time is of paramount importance. Lastly, there is a syllabus quiz that you must score 100% on (with unlimited attempts) by the first exam, or you will receive a full letter grade reduction at the end of the semester, regardless of performance in the class.

OFFICE HOURS

The TA for the course is your first point of contact during scheduled office hours. The TA is a valuable resource to you but is not allowed to provide any code or homework solutions; however, they are here to provide assistance and guidance as you work through the process of learning to use Python in finance.

If you would like to meet with me for office hours, please email me details regarding your specific questions and the resources you have already exhausted so I can be prepared to help you in a timely and efficient way. We will not respond to emails with questions regarding information that has already been discussed in class or that has been answered in the syllabus.

GRADING POLICY

Attendance:	10%
Knowledge Checks:	20%
Midterm 1:	20%
Midterm 2:	20%
Final Exam:	30%

COURSE TOPICS OUTLINE

1. Introduction to Financial Analysis in Python
2. Python:
 - i. Variables and Flow Control
 - ii. Input-processing-output Model and Collections
 - iii. Iterations and Packages
 - iv. DataFrames
 - v. Univariate Statistics and Visualization
 - vi. Functions
 - vii. Bivariate Statistics and Visualization
 - viii. Multivariate Statistics
3. Finance:
 - i. Time Value of Money
 - ii. Debt Securities – Loans and Bonds
 - iii. Equities
 - iv. Risk and the Capital Asset Pricing Model
 - v. Cost of Capital
 - vi. Financial Forecasting
 - vii. Firm Valuation

LEISURELY READING RECOMMENDATIONS

These are just a few books that I think are interesting and informative. Good books for the summer, vacation, or just whenever.

Extreme Ownership by Jocko Willink (I also recommend Jocko's other books)

The Psychology of Money by Morgan Housel

Crucial Conversations by Patterson, Grenny, McMillan, and Switzler

A Random Walk Down Wall Street by Burton Malkiel

Anitfragile: Things That Gain from Disorder by Nassim Taleb

New Ideas from Dead Economists by Todd G. Buchholz

Flashboys by Michael Lewis

The Ascent of Money: A Financial History of the World by Niall Ferguson

Misbehaving by Richard Thaler

*Syllabus subject to change

*Schedule subject to change

Week 1	Lecture	
8/21/2025 Thursday	Ch. 1	
Week 2		
8/28/2025 Thursday	Ch. 2	
Week 3		
9/4/2025 Thursday	Ch. 3	
Week 4		
9/11/2025 Thursday	Ch. 4	
Week 5		
9/18/2025 Thursday	Ch. 5	
Week 6		
9/25/2025 Thursday	Ch. 6	
Week 7		
10/2/2025 Thursday	Ch. 7	
Week 8		
10/9/2025 Thursday	Ch. 8	
Week 9		
10/16/2025 Thursday	Midterm 1	Ch. 1-6
Week 10		
10/23/2025 Thursday	Ch. 9	
Week 11		
10/30/2025 Thursday	Ch. 10	
Week 12		
11/6/2025 Thursday	Ch. 11	
Week 13		
11/13/2025 Thursday	Ch. 12	
Week 14		
11/20/2025 Thursday	Midterm 2	Ch. 7-12
Week 15		
11/27/2025 Thursday	Thanksgiving Break	
Week 16		
12/4/2025 Thursday	Ch. 13	
Finals Week		
12/11/2025 1:30 - 3:30 pm	Comprehensive Final	Ch. 1-13

UNT RESOURCES

TECHNICAL ASSISTANCE

Part of working in the online environment involves dealing with the inconveniences and frustration that can arise when technology breaks down or does not perform as expected. Here at UNT we have a Student Help Desk that you can contact for help with Canvas or other technology issues.

UIT Help Desk: <http://www.unt.edu/helpdesk/index.htm>

Email: helpdesk@unt.edu

Phone: 940-565-2324

In Person: Sage Hall, Room 130

Walk-In Availability: 8am-9pm

Telephone Availability:

- Sunday: noon-midnight
- Monday-Thursday: 8am-midnight
- Friday: 8am-8pm
- Saturday: 9am-5pm

Laptop Checkout: 8am-7pm

For additional support, visit [Canvas Technical Help \(https://community.canvaslms.com/docs/DOC-10554-4212710328\)](https://community.canvaslms.com/docs/DOC-10554-4212710328)

STUDENT SUPPORT SERVICES

UNT provides mental health resources to students to help ensure there are numerous outlets to turn to that wholeheartedly care for and are there for students in need, regardless of the nature of an issue or its severity. Listed below are several resources on campus that can support your academic success and mental well-being:

- [Student Health and Wellness Center \(https://studentaffairs.unt.edu/student-health-and-wellness-center\)](https://studentaffairs.unt.edu/student-health-and-wellness-center)
- [Counseling and Testing Services \(https://studentaffairs.unt.edu/counseling-and-testing-services\)](https://studentaffairs.unt.edu/counseling-and-testing-services)
- [UNT Care Team \(https://studentaffairs.unt.edu/care\)](https://studentaffairs.unt.edu/care)
- [UNT Psychiatric Services \(https://studentaffairs.unt.edu/student-health-and-wellness-center/services/psychiatry\)](https://studentaffairs.unt.edu/student-health-and-wellness-center/services/psychiatry)
- [Individual Counseling \(https://studentaffairs.unt.edu/counseling-and-testing-services/services/individual-counseling\)](https://studentaffairs.unt.edu/counseling-and-testing-services/services/individual-counseling)

Other student support services offered by UNT include

- [Registrar \(https://registrar.unt.edu/registration\)](https://registrar.unt.edu/registration)
- [Financial Aid \(https://financialaid.unt.edu/\)](https://financialaid.unt.edu/)
- [Student Legal Services \(https://studentaffairs.unt.edu/student-legal-services\)](https://studentaffairs.unt.edu/student-legal-services)
- [Career Center \(https://studentaffairs.unt.edu/career-center\)](https://studentaffairs.unt.edu/career-center)

- [Multicultural Center](https://edo.unt.edu/multicultural-center) (<https://edo.unt.edu/multicultural-center>)
- [Counseling and Testing Services](https://studentaffairs.unt.edu/counseling-and-testing-services) (<https://studentaffairs.unt.edu/counseling-and-testing-services>)
- [Pride Alliance](https://edo.unt.edu/pridealliance) (<https://edo.unt.edu/pridealliance>)
- [UNT Food Pantry](https://deanofstudents.unt.edu/resources/food-pantry) (<https://deanofstudents.unt.edu/resources/food-pantry>)

ACADEMIC SUPPORT SERVICES

- [Academic Resource Center](https://clear.unt.edu/canvas/student-resources) (<https://clear.unt.edu/canvas/student-resources>)
- [Academic Success Center](https://success.unt.edu/asc) (<https://success.unt.edu/asc>)
- [UNT Libraries](https://library.unt.edu/) (<https://library.unt.edu/>)
- [Writing Lab](http://writingcenter.unt.edu/) (<http://writingcenter.unt.edu/>)
- [MathLab](https://math.unt.edu/mathlab) (<https://math.unt.edu/mathlab>)

UNT POLICIES

ACADEMIC INTEGRITY

Academic Integrity Standards and Consequences. According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University.

ADA POLICY

The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking reasonable accommodation must first register with the Office of Disability Access (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with a reasonable accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request reasonable accommodations at any time, however, ODA notices of reasonable accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of reasonable accommodation for every semester and must meet with each faculty member prior to implementation in each class. Students are strongly encouraged to deliver letters of reasonable accommodation during faculty office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office hours to protect the privacy of the student. For additional information, refer to the [Office of Disability Access website](http://www.unt.edu/oda) at <http://www.unt.edu/oda>. You may also contact ODA by phone at (940) 565-4323.

EMERGENCY NOTIFICATION & PROCEDURES

UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to Blackboard for contingency plans for covering course materials.

RETENTION OF STUDENT RECORDS

Student records pertaining to this course are maintained in a secure location by the instructor of record. All records such as exams, answer sheets (with keys), and written papers submitted during the duration of the course are kept for at least one calendar year after course completion. Course work completed via the Blackboard online system, including grading information and comments, is also stored in a safe electronic environment for one year. Students have the right to view their individual record; however, information about student's records will not be divulged to other individuals without proper written consent. Students are encouraged to review the Public Information Policy and the Family Educational Rights and Privacy Act (FERPA) laws and the University's policy. See UNT Policy 10.10, Records Management and Retention for additional information.

ACCEPTABLE STUDENT BEHAVIOR

Student behavior that interferes with an instructor's ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Dean of Students to consider whether the student's conduct violated the Code of Student Conduct. The University's expectations for student conduct apply to all instructional forums, including University and electronic classroom, labs, discussion groups, field trips, etc. Visit UNT's [Code of Student Conduct](https://deanofstudents.unt.edu/conduct) (<https://deanofstudents.unt.edu/conduct>) to learn more.

ACCESS TO INFORMATION – EAGLE CONNECT

Students' access point for business and academic services at UNT is located at: my.unt.edu. All official communication from the University will be delivered to a student's Eagle Connect account. For more information, please visit the website that explains Eagle Connect and how to forward e-mail [Eagle Connect](https://it.unt.edu/eagleconnect) (<https://it.unt.edu/eagleconnect>).

STUDENT EVALUATION ADMINISTRATION DATES

Student feedback is important and an essential part of participation in this course. The student evaluation of instruction is a requirement for all organized classes at UNT. The survey will be made available during weeks 13, 14 and 15 [insert administration dates] of the long semesters to provide students with an opportunity to evaluate how this course is taught. Students will receive an email from "UNT SPOT Course Evaluations via IASystem Notification" (no-reply@iasystem.org) with the survey link. Students should look for the email in their UNT email inbox. Simply click on the link and complete the survey. Once students complete the survey they will receive a confirmation email that the survey has been submitted. For additional information, please visit the [SPOT website](http://spot.unt.edu/) (<http://spot.unt.edu/>) or email spot@unt.edu.

SEXUAL ASSAULT PREVENTION

UNT is committed to providing a safe learning environment free of all forms of sexual misconduct, including sexual harassment sexual assault, domestic violence, dating violence, and stalking. Federal laws (Title IX and the Violence Against Women Act) and UNT policies prohibit discrimination on the basis of sex, and therefore prohibit sexual misconduct. If you or someone

you know is experiencing sexual harassment, relationship violence, stalking, and/or sexual assault, there are campus resources available to provide support and assistance. UNT's Survivor Advocates can assist a student who has been impacted by violence by filing protective orders, completing crime victim's compensation applications, contacting professors for absences related to an assault, working with housing to facilitate a room change where appropriate, and connecting students to other resources available both on and off campus. The Survivor Advocates can be reached at SurvivorAdvocate@unt.edu or by calling the Dean of Students Office at 940-565- 2648. Additionally, alleged sexual misconduct can be non-confidentially reported to the Title IX Coordinator at oeo@unt.edu or at (940) 565 2759.

Important Notice for F-1 Students taking Distance Education Courses

FEDERAL REGULATION

To read detailed Immigration and Customs Enforcement regulations for F-1 students taking online courses, please go to the [Electronic Code of Federal Regulations website \(http://www.ecfr.gov/\)](http://www.ecfr.gov/). The specific portion concerning distance education courses is located at Title 8 CFR 214.2 Paragraph (f)(6)(i)(G).

The paragraph reads:

(G) For F-1 students enrolled in classes for credit or classroom hours, no more than the equivalent of one class or three credits per session, term, semester, trimester, or quarter may be counted toward the full course of study requirement if the class is taken on-line or through distance education and does not require the student's physical attendance for classes, examination or other purposes integral to completion of the class. An on-line or distance education course is a course that is offered principally through the use of television, audio, or computer transmission including open broadcast, closed circuit, cable, microwave, or satellite, audio conferencing, or computer conferencing. If the F-1 student's course of study is in a language study program, no on-line or distance education classes may be considered to count toward a student's full course of study requirement.

UNIVERSITY OF NORTH TEXAS COMPLIANCE

To comply with immigration regulations, an F-1 visa holder within the United States may need to engage in an on-campus experiential component for this course. This component (which must be approved in advance by the instructor) can include activities such as taking an on-campus exam, participating in an on-campus lecture or lab activity, or other on-campus experience integral to the completion of this course.

If such an on-campus activity is required, it is the student's responsibility to do the following:

- (1) Submit a written request to the instructor for an on-campus experiential component within one week of the start of the course.
- (2) Ensure that the activity on campus takes place and the instructor documents it in writing with a notice sent to the International Student and Scholar Services Office. ISSS has a form available that you may use for this purpose.

Because the decision may have serious immigration consequences, if an F-1 student is unsure about his or her need to participate in an on-campus experiential component for this course, s/he should contact the UNT International Student and Scholar Services Office (telephone 940-565-2195 or email internationaladvising@unt.edu) to get clarification before the one-week deadline.

STUDENT VERIFICATION

UNT takes measures to protect the integrity of educational credentials awarded to students enrolled in distance education courses by verifying student identity, protecting student privacy, and notifying students of any special meeting times/locations or additional charges associated with student identity verification in distance education courses.

See [UNT Policy 07-002 Student Identity Verification, Privacy, and Notification and Distance Education Courses](https://policy.unt.edu/policy/07-002) (<https://policy.unt.edu/policy/07-002>).

USE OF STUDENT WORK

A student owns the copyright for all work (e.g. software, photographs, reports, presentations, and email postings) he or she creates within a class and the University is not entitled to use any student work without the student's permission unless all of the following criteria are met:

- The work is used only once.
- The work is not used in its entirety.
- Use of the work does not affect any potential profits from the work.
- The student is not identified.
- The work is identified as student work.

If the use of the work does not meet all of the above criteria, then the University office or department using the work must obtain the student's written permission.

Download the UNT System Permission, Waiver and Release Form

TRANSMISSION AND RECORDING OF STUDENT IMAGES IN ELECTRONICALLY DELIVERED CLASS

1. No permission is needed from a student for his or her image or voice to be transmitted live via videoconference or streaming media, but all students should be informed when courses are to be conducted using either method of delivery.
2. In the event an instructor records student presentations, he or she must obtain permission from the student using a signed release in order to use the recording for future classes in accordance with the Use of Student-Created Work guidelines above.
3. Instructors who video-record their class lectures with the intention of re-using some or all of recordings for future class offerings must notify students on the course syllabus if students' images may appear on video. Instructors are also advised to provide accommodation for students who do not wish to appear in class recordings.

Example: This course employs lecture capture technology to record class sessions. Students may occasionally appear on video. The lecture recordings will be available to you for study purposes and may also be reused in future course offerings.

No notification is needed if only audio and slide capture is used or if the video only records the instructor's image. However, the instructor is encouraged to let students know the recordings will be available to them for study purposes.