

## **MGT4046/6046 Syllabus**

Applications of Data Analytics in Accounting, 3 credits

Fall 2026

### **Instructor Information**

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### **General Course Information**

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#### **Description**

The questions faced by accountants, auditors, financial analysts, and consultants in today's world differ considerably from those in prior decades. The proliferation of data, both structured and unstructured, necessitates a better understanding of the tools available to critically analyze any type of data in an efficient manner. This course prepares students to understand and apply advanced analytical techniques in accounting and finance related settings to facilitate better decision-making. Students will be exposed to a host of quantitative and qualitative analysis methods and learn to apply these methods in Python. These methods will be applied to quantitative financial statement data, narrative disclosures in regulatory filings, financial social media, and more.

#### **Course Learning Outcomes**

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

- approach accounting problems data-analytically. Students should be able to identify relevant data needed to answer accounting and financial reporting-related questions.
- understand the theoretical intuition behind key statistical associations in financial markets, such as between earnings and returns or audit pricing and risk.
- structure accounting related data, such as that in financial statements or SEC filings, into the format needed for analysis.
- apply basic and advanced analytical techniques to both structured and unstructured data related to accounting and finance applications.
- use results from data analysis to provide insightful answers to accounting-related questions

## Required Course Materials

### Course Text

There is no required text for this course.

### Additional Materials/Resources

If you wish to have a reference book, any book on conducting analytics (data science) in Python would likely be appropriate. Here is one recent one to consider (though I stress this is not required):

“Python for Data Analysis: Data Wrangling with pandas, NumPy, and Jupyter” (3rd Edition), by Wes McKinney (ISBN 978-1098104030)

You can find a free electronic version of this book on Github, including code in jupyter notebooks: <https://github.com/jakevdp/PythonDataScienceHandbook>

In addition, I have provided links to several other reference materials on Canvas.

### Pre- &/or Co-Requisites

#### Courses

None

### Additional Suggestions

The course will rely heavily upon Python. While we will spend some time in the first few classes on the basics, there are some excellent introductory modules available through LinkedIn Learning, which is offered free of charge to all Georgia Tech students, or YouTube. See Canvas for suggested modules.

### Computing requirements

In this class, we will rely heavily on Python for analysis. Demonstrations will be shared via Jupyter notebooks. You have two options for coding work (and you can use both):

1. **Your own computer:** If you wish to use your own computer, you should first install python via [anaconda](#) or [miniconda](#) (either is acceptable). You are also welcome (and even encouraged) to install a separate integrated development environment (IDE). I highly recommend [DataSpell](#) (free license for students available). Note that you should not need to pay for any licenses.

- 2. Computing Cluster:** You will have access to a cloud-based computing environment through Georgia Tech's Instructional Computing Environment (ICE). Additional instructions on how to set this up and access will be provided on Canvas. The benefit of this option is that all python environments are managed for you and all materials can be synced to your own account. The downside is you will be coding directly in jupyter rather than a full-featured IDE (with code completion, AI integration, etc.).

**Important caveat:** This system is not meant to be accessed by entire classes at once, so if you wish to follow along during in-class demonstrations it would likely be best to use your own computer, or some other cloud-based platform (e.g., Google Colab).

Please follow GT's computer ownership guide at <http://sco.gatech.edu/>. Note that tablets, Chromebooks, and old laptops will likely be insufficient for this class, though as noted above you will be able to access a cloud-based environment. If you choose to work on your own computer, please ensure you have at least 30 to 40 GB of storage available (either on your hard drive, external hard drive, or flash drive).

### Grading Policy:

Assignment	Points
Quiz 1	30
Quiz 2	30
Quiz 3	30
Quiz 4	30
Quiz 5	30
Quiz 6	30
Experiential Task 1	32
Experiential Task 2	32
Experiential Task 3	32
Experiential Task 4	32
Experiential Task 5	32
Semester Group Project	120
Attendance & Participation	30

## Grading Scale

Your final grade will be assigned as a letter grade according to the following scale:

A	90-100%	(360-400 points)
B	80-89%	(320-359 points)
C	70-79%	(280-319 points)
D	60-69%	(240-279 points)
F	0-59%	(less than 240 points)

## Description of Graded Components

This class involves four different types of assignments, which I summarize below:

- 1. Quizzes:** Each quiz is meant to evaluate your understanding of the concepts covered. Quizzes will be administered in class through Canvas and require Lockdown Browser. Quiz questions will be a combination of “objective” question formats (e.g., multiple choice) and short answer. Note that quizzes will not test your ability to generate original code, though I may ask you to interpret what certain lines of code do. **Your lowest Quiz will be dropped.**
- 2. Experiential Tasks:** Each experiential task represents an accounting or finance-related application of one or more data analysis techniques. These tasks will pose a question one may face along with a suggested path for answering that question. You will be required to gather, clean, and process data to answer a set of questions related to the problem. Each task requires you to submit your completed Jupyter notebook (“ipynb” file); in some cases, you may also need to submit a dataset. Your grade will be based on the appropriateness of your responses and whether your code produces the correct output. Late submissions will be docked 10% per day. Note that graduate students (6046) will have extra requirements for some tasks.
- 3. Semester Group Project:** The project will begin approximately 4-5 weeks into the semester. Everyone in the class will be required to submit a brief (less than 1 page) project proposal. From the submissions, I will select the ones that I think have the most potential, and then the class will rank on their interest in each of the topics. I will then assign groups of 2-4 students based on topical preferences. There will be graded project milestones, so while the final presentations will not be until the last week of class, you cannot wait until the end of the semester to complete the project. Additionally, as part of these milestones, I may ask you follow-up questions that require you do additional analyses. This project is meant to emulate a typical assignment accountants, auditors, consultants, or financial analysts may face in the workplace, where there is an initial question to be answered, a series of updates and follow-up analyses, and then a final report. Note that students in 4046 and 6046 will not work on the same project, and the rubric for grading the final 6046 projects is more rigorous.

## Course Policies

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### Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. For information on Georgia Tech's Academic Honor Code, please visit <http://www.catalog.gatech.edu/policies/honor-code/> or <http://www.catalog.gatech.edu/rules/18/>.

Any student suspected of cheating or plagiarizing will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

### Core IMPACTS

Not applicable

### Use of Generative Artificial Intelligence by Students & Instructors

Generative AI tools (e.g., ChatGPT, Claude, GitHub Copilot) are permitted in this course for the following limited purposes:

- *Self-study and concept review*: You may use AI tools to help clarify course concepts, explore topics discussed in lectures, or generate practice questions for your own learning.
- *Code debugging*: You may use AI tools to help identify errors or understand why existing code is not functioning as expected.

Generative AI tools may **not** be used to develop, write, or generate code submitted as part of any task assignment, *unless expressly allowed or suggested*. Otherwise, submitted code must reflect your own original work (though you may freely use demonstration code as appropriate). Using AI to produce assignment code, even partially, constitutes a violation of Georgia Tech's Academic Honor Code and will be treated accordingly.

Note that the goal of coding assignments in this course is to build your own skills and understanding. Relying on AI to complete these tasks undermines that purpose and your own professional development. If you are unsure whether a specific use of AI is permitted, ask before submitting.

### Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services at (404)894-2563 or <http://disabilityservices.gatech.edu/>, as

soon as possible, to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

### **Attendance and/or Participation**

This class will be largely discussion and problem based, so students are expected to attend every class. As noted, several classes involve collaborative assignments submitted at the end of class, and not all will be announced in advance.

If illness or other circumstances force you to miss class, you must let me know in advance. Further, if your illness requires absence of more than 1 class, I encourage you to contact the Office of the Vice President for Student Life and Dean of Students, who will then notify all of your instructors of your excused absence. You should not directly send me medical excuses.

### **Collaboration & Group Work**

While your experiential tasks are individual assignments, I am open to you discussing particularly tricky parts with your classmates either in person or on Ed Discussion. You are also permitted to use external resources (Stack Overflow, ChatGPT, etc.) for your tasks and project, but please make note of how you used these resources, as indicated above.

### **Extensions, Late Assignments, & Re-Scheduled/Missed Exams**

Late submissions for most assignments are infeasible and therefore not accepted. With university approved absences I will work with students to re-schedule missed exams and extend these deadlines.

### **Student-Faculty Expectations Agreement**

At Georgia Tech we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. See <http://www.catalog.gatech.edu/rules/22/> for an articulation of some basic expectation that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

### **Student Use of Mobile Devices in the Classroom**

In general, mobile devices should be silenced and kept in bags during class. Students observed to be frequently texting or otherwise using phones will be asked to leave. With

that said, I understand that certain circumstances may require one to step out and handle a brief call.

### **Extra Credit Opportunities**

A key purpose of this class is to encourage you to identify opportunities to extract insights from data to aid decision making. While I try to cover a broad range of examples through our in-class exercises, you will undoubtedly identify some on your own, which forms the basis for this extra credit opportunity.

During the semester, you may submit one extra credit paper that summarizes (1) a specific area where you think a commonly used decision-making process is lacking (insufficient rigor, too subjective, etc.), (2) a specific type of data you think could be used to improve this process, and (3) the exact approach you would use. This paper should be no more than 3 pages but should thoroughly describe the issue you address.

### **Campus Resources for Students**

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In your time at Georgia Tech, you may find yourself in need of many types of support. Below you will find a list of services available to help you both as a student and as a person:

#### Academic support

- Center for Academic Success: <http://success.gatech.edu>
  - 1-to-1 tutoring <http://success.gatech.edu/1-1-tutoring>
  - Peer-Led Undergraduate Study (PLUS)  
<http://success.gatech.edu/tutoring/plus>
  - Academic coaching <http://success.gatech.edu/coaching>
- Residence Life's Learning Assistance Program <https://housing.gatech.edu/learning-assistance-program>
- OMED: Educational Services (<http://omed.gatech.edu/programs/academic-support>)
- Communication Center (<http://www.communicationcenter.gatech.edu>)

#### Personal Support

- Division of Student Life: <http://studentlife.gatech.edu/content/services>
  - You also may request assistance at [https://gatech-advocate.symplicity.com/care\\_report/index.php/pid383662?](https://gatech-advocate.symplicity.com/care_report/index.php/pid383662?)
- Counseling Center: <http://counseling.gatech.edu>
  - Services include short-term individual counseling, group counseling, couples counseling, testing and assessment, referral services, and crisis intervention. Their website also includes links to state and national resources.

- Students in crisis may walk in during business hours (8 am-5 pm, Monday through Friday) or contact the counselor on call after hours at 404-894-2204.
- Students' Temporary Assistance and Resources (STAR): <https://studentlife.gatech.edu/content/star-services>
  - Can assist with interview, clothing, food, and housing needs
- Stamps Health Services: <https://health.gatech.edu>
  - Will handle all student Covid-19 testing
  - Primary care, pharmacy, women's health, psychiatry, immunization and allergy, health promotion, and nutrition
- OMED: Educational Services: <http://www.omed.gatech.edu>
- Women's Resource Center: <http://www.womenscenter.gatech.edu>
- LGBTQIA Resource Center: <http://lgbtqia.gatech.edu>
- Veteran's Resource Center: <http://veterans.gatech.edu>
- Georgia Tech Police: <http://www.police.gatech.edu/> / 404-894-2500

The CARE Center and the Counseling Center, Stamps Health Services, and the Dean of Students Office will offer both in-person and virtual appointments. Student Center services and operations are available on the Student Center website. For more information on these and other student services, contact the Dean of Students or the Division of Student Life.