MGT 3745 Syllabus

Business Programming (Python), 3 Credits

Fall 2026

Instructor Information

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General Course Information

Description

MGT 3745 is a hands-on introduction to programming in Python, designed specifically for business students. Students learn how to write Python programs and apply them to real business and data analytics tasks, including data cleaning, transformation, analysis, and visualization. Python is widely used across industries—including finance, consulting, marketing, product management, and data science—and much of real-world analytics work involves data preparation: loading, cleaning, transforming, and reshaping data.

The course is organized in two parts: (1) Python Fundamentals, covering core programming concepts, syntax, and problem-solving; and (2) Python for Data Science and AI, applying Python to data wrangling, analysis, visualization, and an introduction to deep learning using PyTorch within a business context. While AI tools can now generate code, they cannot replace understanding. The course emphasizes developing code sense—the ability to understand how programs work, evaluate AI-generated code, debug errors, and adapt solutions to new problems.

Course Learning Outcomes

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

- Write Python programs using core language constructs and use Python data structures to store and manipulate data.
- Apply NumPy and pandas to load, clean, transform, merge, and analyze datasets.
- Create effective data visualizations in Python and use Jupyter notebooks as a development environment.
- Explain the data science workflow and Python's role within it, and apply Python to a deep learning task using PyTorch.
- Critically evaluate, debug, and adapt AI-generated code in a business programming context.

Required Course Materials

There is no required textbook. All instructional materials are provided through Canvas.

Software: Students must use one of the following Python environments: Anaconda (recommended for most coursework) or Google Colab (recommended for the PyTorch portion of the course). No other IDEs are permitted. Both are free for student use; instructions are provided on Canvas.

Other tools and resources: Generative AI coding assistants such as Gemini or Claude (https://gemini.google/students) and the PyTorch library and tutorials (https://www.learnpytorch.io) will be used during the course.

Grading Policy

Final grades are based on points earned across weighted course components as shown below. Canvas automatically applies component weights to compute the overall grade.

Letter grade scale: A: 89.5–100% | B: 79.5–89.49% | C: 69.5–79.49% | D: 59.5–69.49% | F: below 59.5%. Consistent with Georgia Tech policy, final course grades are awarded on a scale of A–F with no +/- grades.

Components

Component	Weight	Max Points
Homework	16%	160
Coding Challenges	5%	50
Vibe Coding Project	12%	120
PyTorch Tournament	15%	150
Data Science Project	12%	120
Mid-Semester Exam	20%	200
Final Exam	20%	200
Total	**100%**	**1000**

Description of Graded Components

Homework: Ten equally weighted programming assignments designed for rapid feedback and steady skill development. The lowest homework grade is dropped to accommodate unforeseen circumstances such as illness or family emergencies.

Coding Challenges: Short, in-class programming exercises graded as Satisfactory or Unsatisfactory. Attendance is required to earn credit.

Vibe Coding Project: A team-based project (teams up to 4 students) exploring AI-assisted software development, in which students use AI tools to generate working solutions, reflect on strengths and limitations, and present results and insights to the class.

PyTorch Tournament: A team-based project (teams up to 4 students) applying Python to deep learning using PyTorch.

Data Science Project: A project applying Python to the data science workflow, completed individually or in two-student teams (both partners will receive the same grade).

Mid-Semester Exam and **Final Exam:** Both exams are closed book and closed notes, taken on campus, and proctored using institute-approved software. The mid-semester exam is 65 minutes; the final exam is 120 minutes. Exams are not cumulative.

Course Policies

Attendance and Participation

Regular attendance is expected and is reflected in the course grade through the in-class Coding Challenges component, for which attendance is required to earn credit. Students who must miss class because of illness, an Institute-approved absence, or a religious observance should notify the instructor in advance when possible; the assignment drop policies for homework and coding challenges are designed to absorb the impact of occasional, unavoidable absences.

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

Generally, late work will not be accepted, nor work incorrectly submitted. Missed classes due to illness, family emergencies, interviews, or similar circumstances are addressed through a forgiveness policy: up to four recorded attendance misses are automatically allowed, and there is no penalty for two missed coding challenges. Absences covered by a Dean of Students letter, or appropriate medical documentation are handled in accordance with Georgia Tech policy. Please see the next section for times when an IAA is applicable.

Institute-Approved Absences (IAA)

An IAA allows you to miss class (get credit for attendance), but **not the work**. An IAA does not allow you to miss assignment deadlines.

To receive credit for **missed** in-class participation activities:

1. **Obtain documentation** (medical note, approved IAA, or Dean of Students letter)
2. **Complete the missed participation activity**
3. **Email** the Professor **the completed work and ALL documentation (in <u>one</u> email) within 10 working days** of the absence

- Missing documentation = no credit.
  - Athletes **must** include in the submission email the supporting IAA, even if the IAA was provided earlier or is available online.
- The instructor will not follow up on missing work—this is solely the student's responsibility.
- Do **not** email the instructor to inquire about what happened during a missed class – see Canvas.

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. Review Georgia Tech's Honor Code and the student Code of Conduct.

Any student suspected of cheating or plagiarism on an assignment, quiz, or exam will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Collaboration, Group Work, and Use of Generative AI

Collaboration is encouraged for learning, but submitted work must be the student's own unless an assignment explicitly states otherwise. Students may discuss ideas with classmates but must never share or copy code, and must never give or receive code files from another student. Every coding assignment must include either the statement "This assignment is solely my work" or "I worked on this assignment with [names]."

Generative AI tools may be used only when explicitly permitted by the instructor for a specific assignment. When permitted, students remain fully responsible for the correctness, quality, and originality of any AI-assisted code, and must be able to explain and defend any code they submit. Submitting AI-generated work without proper review, understanding, or required disclosure may constitute academic misconduct. All exams are closed book and closed notes; AI tools may not be used during exams.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services (404-894-2563) as soon as possible to make an appointment to discuss your needs and to obtain an accommodations letter. Please also email me as soon as possible in order to set up a time to discuss your learning needs.

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. The Student-Faculty Expectations articulate some basic expectations 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.

Additional Criteria for Successful Completion

To successfully complete this course, students must earn a final weighted score of at least 59.5% across all course components and must sit both the Mid-Semester Exam and the Final Exam in person on campus during the scheduled times. Requests for remote or alternate exam times will be denied except for accommodations approved by the Office of Disability Services or other Institute-recognized exceptions (such as the three-final-assessments-in-one-day rule under Georgia Tech policy).

Campus Resources for Students

Graduate Student Academic and Professional Success Resources

A list of resources for graduate students is available on the Office of Graduate and Postdoctoral Education website, including academic resources, student services, and professional development opportunities.

Student Well-Being

At Georgia Tech, we are concerned about your overall physical, social, and mental well-being. A comprehensive list of wellness-related resources is maintained by the Office of the Vice President for Student Engagement and Well-being at students.gatech.edu/student-resource-guide.