

CS 2316 Data Input and Manipulation

Georgia Tech-Europe Summer 2025

Instructor

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Course Description

This course will provide background and experience in reading, manipulating, and exporting data for engineering, business and scientific applications. Specific topics include file I/O, string processing, web scraping, API accessing, data manipulation using Pandas and NumPy, and interfacing with SQL databases. Students will also learn to build simple programs controlled by basic graphical user interfaces. Assignments will be modeled after business, engineering, and scientific problems.

Grading

- Participation Exercises: **30%** (Tentatively 9 weekly programming assignments)
- Exams: **35%** (Exam 1 15%, Exam 2 20%)
- Final Project: **35%** (Phase 1 10%, Phase 2 10%, Phase 3 15%)

Grade Cutoffs: A: 90.0, B: 80.0, C: 70.0, D: 60.0 (grades will not be rounded)

Late Submission Guidelines

Late homework and projects will not be accepted.

Assignments

Written exams: There will be two in-class written exams. Exam 1 is worth 15% of your grade. Exam 2 is worth 20% of your grade for a total of 35%.

Coding projects: There will be 9 to 10 homework assignments totaling 30% and a final project worth 35% of your total grade. The last phase of the final project will be due during final exam days.

Assignments must be turned in before the date and time indicated as the assignment's due date.

Professionalism

I expect every student to behave in a professional manner befitting Georgia Tech. Your behavior matters, and poor behavior can result in severe consequences for you as a student. I expect you to be aware of and abide by Georgia Tech's Code of Conduct, which includes the Academic Code of Conduct. Lack of professionalism that specifically crosses over into areas of academic misconduct (or that results in significant violations of any aspect of the GT Code of Conduct) will likely be referred to the Dean of Students Office.

Academic Integrity and Collaboration

We expect academic honor and integrity from students. Please study and follow the academic honor code of Georgia Tech: <https://policylibrary.gatech.edu/student-affairs/academic-honor-code>. You may collaborate on homework assignments and daily work, but your submissions must be your own. You may not collaborate on exams.

Regrade Policy

To contest any grade you must contact the instructor **within one week of the assignment's original return date**. The original return date is the date the exam was first made available for students to pick up or the grade was posted online. After that point regrade requests will not be accepted.

Prerequisites

At least one of:

- Undergraduate Semester level CS 1301 Minimum Grade of C
- Undergraduate Semester level CS 1315 Minimum Grade of C
- Undergraduate Semester level CS 1371 Minimum Grade of C

Course Materials

The language used in this class is Python. The software is free and can be downloaded from <https://www.python.org/downloads/>.

Canvas

All course information and resources will be provided in Canvas. This includes: Syllabus, Assignments, Submissions, Announcements, Grades & Feedback, Resources, etc.

The code from each lecture will be posted on Canvas under the Files tab by the end of the following day. Canvas is not forgiving about due dates and times. The assignment folder will close and you are not allowed to turn in your work any other way.

Free online books

Think like a computer scientist: <http://www.openbookproject.net/thinkcs/python/english3e/>

Think like a computer scientist - Interactive Edition:
<http://interactivepython.org/runestone/static/thinkcspy/index.html>

Other course specific online resources (in the form of handouts) will be made available and will be required reading.

Attendance

Attendance in class every day is expected and required. If you anticipate missing class you must inform your instructor in advance. If you are sick you must let them know as soon as possible so that you can make up the class material.