BUSA 523: Business Analytics Programming

COURSE SYLLABUS: FALL 2025

Instructor: Dr. Zaki Malik
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Please use emails to ask me questions, and use BUSA-523 in the subject line of the email. This is the fastest way to reach me.

Office Hours: Thursday 8.30AM – 2PM in Dallas (or online by schedule in D2L)

COURSE INFORMATION

Course Modality

- In-person Classes will be held on Thursdays at 3.40 PM in Dallas. All course materials will be available through D2L.
- Online Class is asynchronous. But online students can join in the live Zoom (at in-person class times). Details will be available through D2L.

Textbook (online versions of any similar book are acceptable too)

Python is open-source, and you can use any free book you can find online. However, if you ask me, the following is a very good resource.

Python Crash Course: A Hands-On, Project-Based Introduction to Programming
by Eric Matthews
ISBN-10: 1593276036 OR ISBN-13: 978-1593276034

COURSE DESCRIPTION

This course is designed to introduce business analytics programming in Python to students, with a strong focus on AI integration. Students will learn Python fundamentals, data manipulation, visualization, and statistical analysis while leveraging AI tools like ChatGPT for coding assistance, as well as implementing AI-powered analytics, including regression,

classification, clustering, etc. The course culminates in a project where students apply both Python and AI skills to solve a real-world data problem.

COURSE OBJECTIVES

By the end of this course, students will:

- Write and execute Python code in Jupyter Notebooks for data analytics tasks.
- Apply core programming concepts such as variables, loops, conditionals, functions, and data structures.
- Use libraries such as **NumPy, Pandas, Matplotlib, and Seaborn** for data manipulation and visualization.
- Leverage AI tools (e.g., ChatGPT, Copilot) for coding assistance, debugging, and documentation.
- Implement basic machine learning models using **scikit-learn**.
- Apply natural language processing (NLP) techniques for text analytics.
- Work with real-world datasets.

STUDENT LEARNING OUTCOMES

Upon successfully completing this course, students will be able to “do something useful with Python”.

- Identify/characterize/define a problem
- Design a program to solve the problem
- Devise comparable program designs
- Create executable code
- Read most Python code
- Write basic tests
- Be able to work in a team environment and come up with a unified data analytics solution
- Show how one program can be executed in multiple ways
- Design and complete a data analytics project integrating AI tools and techniques.

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GRADING

Labs & Homeworks (A Maximum of 30 Points)
A number of labs and Homeworks will be given during the semester (almost every class). The labs will be handed out in-class and are usually due at the end of the class (or at the end of the day – instructor discretion). The purpose of the labs is student learning, rather than student testing.

Project (A Maximum of 70 Points)
One end of term project will be given. A one-on-one project demo is required (either in-person or online – depending on the modality of the class – Consult the professor when project is out).

Final Grade
At the end of this semester, if your total is between 90 and 100, you will get an A; if it's between 80 and 89, you will get a B, and so on. **Please note that the actual points will be used to calculate your final grade.** No curving will be used in this class.

Points	Grade
90-100	A
80-89	B
70-79	C
60-69	D
below 60	F

TECHNOLOGY REQUIREMENTS

You will need to install Python and a suitable editor (like Jupyter/Anaconda).

COMMUNICATION AND SUPPORT

- If you ask me questions by emails, I will reply within 48 hours. However, I usually answer them much faster.
- **If you have questions about software operations, please make sure to include the screenshots of the issues in the emails.**
- All assignment due dates, deadlines, and exam time are central time in the United States.

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COURSE AND UNIVERSITY POLICIES

Students with Disabilities
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
Gee Library- Room 132
Phone (903) 886-5150 or (903) 886-5835 Fax (903) 468-8148
StudentDisabilityServices@tamuc.edu

Student Conduct
All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. (See *Code of Student Conduct from Student Guide Handbook).*

Campus Concealed Carry
Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations. For a list of locations, please refer to ((http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf) and/or consult your event organizer). Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

AI use policy [May 2023]
Texas A&M University-Commerce acknowledges that there are legitimate uses of Artificial Intelligence, ChatBots, or other software that has the capacity to generate text, or suggest replacements for text beyond individual words, as determined by the instructor of the course.

Any use of such software must be documented. Any undocumented use of such software constitutes an instance of academic dishonesty (plagiarism).

Individual instructors may disallow entirely the use of such software for individual assignments or for the entire course. Students should be aware of such requirements and

follow their instructors 'guidelines. If no instructions are provided the student should assume that the use of such software is disallowed.

In any case, students are fully responsible for the content of any assignment they submit, regardless of whether they used an AI, in any way. This specifically includes cases in which the AI plagiarized another text or misrepresented sources.

13.99.99.R0.03 Undergraduate Academic Dishonesty
13.99.99.R0.10 Graduate Student Academic Dishonesty

TENTATIVE COURSE OUTLINE

Week	Topic(s)	Chapter
1	Class Introduction Getting Started / Software Installation	Chapter 1
1	Variables	Chapter 2
2	If Statements / Decisions	Chapter 5
3	Repetition / Loops	Chapter 4, 7
4	Functions	Chapter 8
5	Lists	Chapter 3
6	Files and Exceptions	Chapter 9
7	Dictionaries	Chapter 6
8	Numpy and Pandas	Notes
9	Pandas	Notes
10	Visualization	Notes
11	Statistics	Notes
12	Machine Learning Primer and Case Analysis	Notes
13	Miscellaneous Topics on Text Analysis (if time permits)	Notes
14	Object Oriented Programming (if time permits)	Chapter 9
15	**Project One-on-One Demo**	**In-person / Online**
