COURSE SYLLABUS

AI for Data Analytics Course

Learn how to use AI tools to clean, analyze, visualize, and report on data while applying validation, traceability, and critical evaluation to real-world analytics work.

> Group classes (Live Online) and onsite training are available for this course. For more information, email onsite@graduateschool.edu or visit: https://www.graduateschool.edu/courses/ai-data-analytics



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Course Outline

Welcome and Orientation

Who is in the room, where everyone stands on AI, and your first question put to a real dataset inside the first hour

What You Need to Know About AI

- How AI actually works and the three consequences that make up the rest of the course
- Why having no internal test for truth means AI can fail confidently
- Why some data must never be entered into a system you do not control
- Why verification is not optional

What You Need to Know About Data

- Structured and unstructured data and where data comes from
- The four levels of analytics, from what happened to what we should do about it
- The habit of asking who is missing from a dataset before trusting what it says

Where AI Earns Its Place, and Where It Does Not

- Five kinds of work worth handing over to AI
- Three conditions under which you should not reach for AI at all

How to Talk to It

- What a strong prompt contains and which of six prompt patterns fits the moment
- How to iterate without starting over
- Why a long conversation eventually stops seeing the file you uploaded

Data You Do Not Know

- How to orient yourself before working with data you cannot check by eye
- Profile a messy, unfamiliar dataset and distinguish errors from real anomalies
- Clean data transparently, explore it, and audit what the cleaning process removed
- Identify rows or information removed without your approval

Communicating What You Found

- Choose which chart answers which question and make AI justify the chart it selected
- Apply five rules for reading a chart critically
- Use three sentences to turn a finding into a decision
- Complete a mini-analysis that runs the full workflow from beginning to end

Unlocking What Was Out of Reach

- Build a working prediction from a paragraph of plain English and interrogate the result
- Read a forecast for its interval rather than only its line
- Pull meaning from thousands of customer reviews without reading each one individually
- Apply checks that determine whether predictions, forecasts, and text analysis can be believed

The Errors That Survive a First Check

- Identify fabricated figures and other errors that initially appear reasonable
- Recognize trends that reverse when data is split and hidden third factors that affect results
- Identify models that memorized rather than learned
- Use deliberate checks to catch errors that pass a casual review
- Hunt for problems within analyses that initially appear correct

Putting It Together

- Use seven prompts in one conversation to complete the full workflow
- Examine what changes when nobody is reading the intermediate steps
- Understand agents in practical terms, including how most people will encounter them by inheriting rather than building one
- Solve and verify a real question from someone in the room

Capstone and Close

- Apply the workflow to one real task from your own job
- Document the actual prompts used and the verification attached to each
- Identify the first action you will take when you return to your desk