

MGMT 675

AI-Assisted Financial Analysis



Instructor

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Course Overview

The emergence of generative AI has been reshaping financial workflows and careers. This course prepares MBA students to leverage AI in financial modeling, valuation analysis, and app development. Students will develop hands-on fluency in combining Python, AI assistants, and custom applications to deliver financial insights. By the end of the course, students will:

- Use AI in combination with Python for simulation, forecasting, and portfolio optimization
- Build AI-enabled apps for data retrieval, visualization, and automated reporting
- Design a custom financial chatbot for financial statement analysis and valuation

Evaluation

Grades will be based on three group projects, each weighted equally:

1. AI + Python Portfolio Optimization Exercise
2. AI-Powered Stock Screener App
3. AI Statement Analysis and Valuation Chatbot

Each project deliverable includes:

- A working notebook/app/chatbot prototype
- A short presentation explaining design choices, AI integration, and financial insights

Week 1: AI in Finance

- Topics: From spreadsheets to large language models –AI’s impact on financial analysis workflows
- Hands-on: Google Colab + Gemini – using AI to write and debug Python snippets
- HBS case: *Implementing Generative AI at Deloitte-Touche*

Week 2: Financial Modeling

- AI + Python for simulation
- AI + Python for data retrieval, regression analysis, and report generation
- Group project 1 assigned: Portfolio optimization with AI + Python

Week 3: Apps and Financial Statement Analysis

- API calls to LLMs
- GitHub for hosting of app/chatbot code
- Building and deploying Streamlit apps
- Group project 2 assigned: AI-driven stock screener with visualization + PDF report generation

Week 4: Custom Chatbots

- System prompts vs. RAG vs. fine-tuning
- Databases and queries
- Lab: Ingest 10-K/10-Q filings and build a retrieval pipeline (modeled on Rice Business Data Portal)

Week 5: Capital Budgeting and Valuation

- Collaborating with AI for complex modeling
- Iterative design of system prompts
- HBS cases: *The Sneaker Project* and *Valuing Walmart*
- Group project 3 assigned: financial statement analysis chatbot

Week 6: Agents and Wrap-Up

- Building AI agents
- Deploying production apps
- Project 3 presentations
- Wrap-up

Honor Code

The Rice University honor code applies to all work in this course. Use of generative AI is of course permitted.

Disability Accommodations

Any student with a documented disability requiring accommodations in this course is encouraged to contact me outside of class. All discussions will remain confidential. Any adjustments or accommodations regarding assignments or the final exam must be made in advance. Students with disabilities should also contact Disability Support Services in the Allen Center.