AI-Assisted Financial Analysis

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I believe that one of the most important things we can teach business students today is how they can use AI to be more efficient in the workplace. I created a half-semester MBA course at the Jones Graduate School of Business called AI-Assisted Financial Analysis. I created the course in Spring 2024 and delivered it again, with substantial revisions, in Spring 2025. The course caps a first-year sequence of finance courses at Rice:

- Full semester core finance course in Fall.
- Half-semester applied finance course in Spring Term 1 (spreadsheet implementation of topics taught in the core).
- Half-semester AI-assisted finance course in Spring Term 2 .

All three courses cover some of the same topics - capital budgeting, mean-variance efficiency, the CAPM, etc. - which reinforces and deepens students' understanding of the topics.

In my course, I teach students how to do financial analysis using "AI + coding" and more broadly how generative AI can and is being used in the finance industry. I view the role of the course as three-fold. I want the course to:

- Show students how to use the new tool of AI + coding for financial analysis.

- Show students something about how generative AI is implemented and used in the finance industry.
- Deepen students' understanding of core finance and related topics.

Coding plays a role in the use of AI for financial analysis, because AI models are not reliable for doing mathematical calculations, but the code they write can be executed reliably by a python engine. The AI models can write code to do analysis, and they can also write wrapper code to create an app to automate the analysis.

The platform that is currently best suited for teaching this course is Julius.ai. Julius integrates generative AI with a user-friendly and user-configurable python environment. Julius sends the student's prompts to the selected AI model. The AI model generates code and chats with the student. The Julius servers execute the code. The chat is very informative, telling the student what the plan is before the code is generated and then interpreting and explaining the results afterwards.

My course is hands-on. I do some live chatting with Julius in class. We also have breakout sessions where students work on group projects. I also often ask students during class to chat for ten minutes with Julius to do some analysis. I then ask them to share links to their chats, and we all look at some of them. This generates an active discussion about the underlying finance topic, the AI chat experience, and the AI model's performance.

In addition to "AI + coding," I also cover generative AI more broadly. I teach an HBS case on implementing generative AI at Deloitte Canada. The general strategy for implementation involves creating a custom channel through which all employees chat with an AI model. To complement the case, I show students that they can use Julius to create a mini version of this, namely a custom chatbot app that adds whatever context they want to each prompt by a user. Another element of corporate implementation is

setting up retrieval augmented generation (RAG) for corporate documents and data. I discuss this also and show students how they can do RAG with Google Notebook LM.

I do not expect students to have any prior programming experience, but how much python to teach is an important question. This year, I recorded python instructional videos and posted them for students. In the future, I will start the course using Google Colab and provide basic instruction in python. Google Colab is a free online JupyterLab environment that now offers very good AI coding assistance (Gemini 2.5). In Colab, students can either type code themselves or ask the AI to generate it, providing a better environment for learning the basics of python. Ideally, I would offer a half-semester course on python (using Google Colab) before the AI-Assisted Finance course.

Student comments from this spring include:

- The content is extremely relevant and up to date, covering current trends in applying AI to financial analysis. This course should be mandatory for anyone pursuing a finance concentration.
- Amazing content and very applicable.
- The class caught me by surprise with the advanced, in-depth use of AI. I'd never been exposed to Julius AI before, so it was great to discover the tool and learn how to use it and apply it in my own work. This is an innovative course that's not for everyone, but it's highly valuable within a niche. It's wonderful to see Rice offering such unique courses that are still very very high quality and extremely relevant.
- I really enjoyed the class as the professor did a really good job giving us the tools to succeed. Each class was hands on and learn by doing. The professor constantly solicited feedback from the class to understand what were important topics he wanted us to cover. I especially liked the final project where we got to take everything that we had learned and built an app through Julius to perform

a specific financial function.

- Loved this class! such an interesting subject matter and informed instructor.

Because this is such a rapidly evolving topic that is difficult for everyone to keep up with, I started a blog (finance-with-ai.org) to share my experiences. This complements course materials posted at mgmt675-2025.kerryback.com. There are currently 14 short posts on different things I do in the course and different things I've learned about how to do them. I will add at least that many more posts over the summer, going beyond python to Excel bots and agents, things I did not cover this year but plan to cover in the future. I hope the blog will be helpful to anyone who would like to teach this material. There is a facility for comments and discussion on the website, and the blog is also on Substack.

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