Quarter 2: Project

The main deliverable for the second quarter of the computational economics and finance class is a project to showcase what you have learned. The goal of this project is for you (potentially in a small group) to produce a piece of work (in the form of a Jupyter notebook) that you would be able to use to showcase the skills that you have learned in this class to potential employers or academic advisors.

The relatively loose structure in self-directed projects like this makes them a bit more challenging than other things that you will do in school, but we think it also makes them more interesting. They give you a chance to indulge your curiosity and show off your creativity.

We have broken the project into three components to keep you on track. Each of these components should be turned in as its own Jupyter notebook. The first two steps are graded almost entirely on whether you do them or not. You must complete the first two steps on your own. When you actually begin working on the final project, you may work in groups of one to three, but you may also work alone if you'd prefer.

Project Outline

1. **Project Ideas (10% Due 2021-12-31 in class)**: You will be asked to submit a short summary of three project ideas that you are considering working on. Each idea should be described in two to three sentences.
2. **Project Proposal (15% Due 2021-01-07)**: Form a team of between one and three students (no more) and choose a project. This project could come from the ideas that you submitted or some other idea if you get a sudden flash of inspiration. Flesh out the project in more detail, **including the data source you plan to use** and a description of at least two figures you plan to produce with it. Total length should be no more than two pages.
3. **Data Description (15% Due 2021-01-13)**: Describe your data and how you accessed it in enough detail that someone else could do it. Yes, that's "accessed," past tense. You should have done this already to make sure you have it. Include your Python code. Jupyter notebooks are a good way to submit this.
4. **Final Project (60% Due 2021-01-20):** You should create a Jupyter notebook (required!) that contains the project. The final project itself will be graded on 4 criterion and, as in Olympic diving, you get credit for taking on a challenge:
    - **Communication (15%)**: Are we able to understand what the project is about? Does the project tell a compelling story? Is the product professional looking? Is the code readable?
    - **Data skills (15%)**: Did you use the right data tools to manipulate the data? Were you able to either reshape or merge datasets in order to extract insights that were not immediately obvious? How complex was the data ingestion process?

    - **Visualization (15%)**: Did the graphs created help tell the story? Was the graph style visually appealing?
    - **Analytics (15%)**: Did you use the right tools for the job? Did you misapply any of the tools you used or miscommunicate what they were telling us? How technically demanding were the tools you used?

Free advice

This advice comes from our friend Dave Backus when he had students work on similar projects:

- **Keep it simple.** Most project ideas turn out to be too big. You're generally well-advised to carve out a manageable subset of what you think you can do. There's no reason to worry about this at the idea generation stage, but, as you develop your project, you may find that you need to focus more narrowly on a part of it.
- **Find data.** Make sure you can get the data you need. One way to assure this is to start with data and ask what you can do with it. Ideally you want the intersection of an interesting idea and good data. You can start with either one, but ideas are often easier to find than data. You can also start with an existing project that uses data and ask yourself if you can extend it in some way.
- **Ask for help.** We have years of experience with this kind of thing. If you're stuck, let us know and we'll try to help. You can also post questions on the class chat boards.