

# Final Project

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All materials can be found at [alexcardazzi.github.io](https://alexcardazzi.github.io).

## Project Summary

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Students will be expected to carry out an econometric analysis on a topic of their choosing (to be approved by the instructor). The project should focus on **identification** and **estimation**. The goal of this project is to not only convince people that you know **R** and econometrics, but that you can also present and articulate technical concepts.

While students may use any method discussed in class, they may *not* use time series analysis. Unfortunately, we do not have time to study time series methods, so a project using such methods would be inappropriate. Put differently, students must use either cross-sectional or panel data (though panel is *highly* encouraged).

Students will submit checkpoints throughout the semester to ensure they are on target. The due dates and expectations for each checkpoint are as follows.

## Checkpoint 1

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### Create ePortfolio | Week 1 | 10 Points

For this checkpoint, students will create an outline of an ePortfolio. Maximally, you should think of your ePortfolio as a personal website. Minimally, your ePortfolio will act as an online resume where you can show off your work.

ODU supports student ePortfolios via the [Office of Academic Success Initiatives & Support](#), and students are encouraged to explore these resources. I have personally used Google Sites in the past and found it to be intuitive and functional. Other faculty members might suggest websites such as Wix. The two major advantages of these services are that they are “point and click” softwares that require no coding and you can continue using them even after you graduate.

To receive full credit for this checkpoint, students must submit a working URL that navigates to an ePortfolio home page with a professional picture (or a placeholder image), their name, major, home town, graduation date, and small bio.

## Checkpoint 2

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### Topic + Meeting | Week 4 | 20 Points

In this checkpoint, students will have to complete two items in order to receive full credit:

1. Students must submit some research topics they're interested in. Students are encouraged to submit multiple topics to keep their options open, and submit topics they are interested in. Some examples of topics might be: air quality, housing prices, sports, education, the wage gap, crime, life expectancy, traffic fatalities, etc. You might also be interested in particular law or policy changes that could influence certain economic outcomes. This might be a good opportunity to bounce some ideas off of AI. Tell AI that you need to write an econometrics paper using a causal inference method and that you're interested in XYZ.
2. Students must schedule a meeting with the instructor to discuss their topics. Meetings may be on Zoom or in person. Students are responsible for scheduling their meetings, which do not necessarily have to be during office hours. **Meetings will likely be most effective after you've come up with some topics.**

## Checkpoint 3

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### Research Question | Week 6 | 20 Points

For this checkpoint, students are required to submit a specific research question with a clear, testable hypothesis. At this point, it is still OK if students have multiple research topics. Gathering data is a difficult task, so having multiple possibilities will be for the better. This is also an instance where AI can be helpful in shaping and molding your ideas. After this checkpoint, though, AI's usefulness will start to diminish.

## Checkpoint 4

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### Data + Identification + Meeting | Week 10 | 20 Points

1. Students must schedule a meeting with the instructor to discuss their data and identification. Meetings may be on Zoom or in person. Students are responsible for scheduling their meetings, which do not necessarily have to be during office hours. **Meetings will likely be most effective before or during data collection and the formulation of their identification.**
2. Students must have a clear, specific identification strategy and research design. This should feel similar to [an imagination exercise](#), except a bit more grounded in reality.
3. Students must submit the data they'll be using in their analysis. Data can either be links to online sources, `.csv` files, or a rendered `.html` file with summary statistics, etc. Obviously, the closer to the latter the better. In addition, data must be appropriate for the research question and causal inference strategy. For example, if a student is choosing to use Synthetic Control, they **must** have panel data with only one or two treated units. Students should anticipate their sample sizes being in the hundreds or thousands unless approved by the instructor.

## Checkpoint 5

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### Analysis | Week 14 | 20 Points

This checkpoint requires students to submit some form of analysis in a rendered `.html` file. This document should include not only an analysis, but an outline of the rest of their final project. See below for more information.

## Final Project

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Final projects must be rendered `.html` files that are uploaded to an ePortfolio. The project's outline should be as follows:

- **Introduction:** Motivate and introduce your research question. Convince the reader that this topic/question is important and that they should care. What data do you use? What causal inference strategy do you use to address this question? What do you find? What can we learn from this?
- **Literature Review:** What work has already been done on this topic by others? What are their conclusions? How is your work different?
- **Data:** Where does your data come from? Why is this data good for answering your question? Be sure to create, and discuss, a summary statistics table and some plots.
- **Empirical Strategy:** Outline your identification strategy including your causal inference method. Provide a discussion about why you are using the method you're using. What are the strengths and weaknesses? What are your assumptions? Generate the results, and interpret your findings. You might want to split this into two sections: Empirical Strategy and Results.
- **Conclusion:** Remind the reader why your topic is important, what your research question is, what you do, and what you find. Be sure to include a discussion of the implications of your findings.

**Bonus:** Students can gain up to 10 bonus points for creating both a video abstract and a short, non-technical executive summary of their findings. In addition to the final project, these should also be uploaded to the ePortfolio.