



**NYU**

**ROBERT F. WAGNER GRADUATE  
SCHOOL OF PUBLIC SERVICE**

## **Capstone: Advanced Research Projects in Quantitative Analysis**

**2021-2022  
CAP-GP 3148  
Syllabus**

### **Instructors Information**

- Ali T Ahmed;
  - Email: [ali.ahmed@nyu.edu](mailto:ali.ahmed@nyu.edu)
  - Office Hours: Fridays, 6:00 pm – 7:20 pm (<https://calendly.com/quant-capstone/>)
- Kristina Arakelyan
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  - Office Hours: Fridays, 6:00 pm – 7:20 pm (<https://calendly.com/quant-capstone/>)

### **Course Information**

- Course Dates: 9/2/2021 - 12/14/2021; 1/24/2022 – 5/9/2022
- Class Meeting Times:
  - First meeting on Monday, September 13, 6:45 pm – 8:25 pm
  - In following weeks, Monday, 6:45 pm – 8:25 pm
  - Except for Tuesday, October 12, 6:45 pm – 8:25 pm
  - Instructor meetings replace class meetings in Spring, except on March 7 and April 25
- Class Location (Fall): Online via Zoom; see course site for link
- Class Location (Spring): Online via Zoom; see course site for link

### **Course Description**

In architecture, the capstone is the crowning piece of an arch, the center stone that holds the arch together, giving it shape and strength. NYU Wagner's Capstone program plays a similar role, by integrating and enhancing your learning in several different arenas. You'll quickly become familiar with an issue or content area. You'll hone process skills, like teamwork and project management. And you'll effectively gather, analyze, and present data. Capstone requires you to interweave your learning in all these areas—and to do so in real time, in an unpredictable, complex, real-world environment.

#### **Learning Objectives**

- *Content.* Students should be able to:

- Understand the policy context surrounding their research question;
  - Utilize relevant (specialized) vocabulary;
  - Draw on previous research related to their project;
  - Connect their project with previous coursework in the broader program as well as their specialization.
- *Process.* Working as a team, you must be flexible and resilient. You must be able to adapt to unexpected developments, work on a team with competing demands and opinions, and accept uncertainty and ambiguity. You are expected to work through difficulties as a team, but you must also know when to consult with your capstone instructor.
    - Project Management – Students should be able to:
      - Frame and refine the research question;
      - Develop a schedule with the instructor, including timeline and deliverables;
      - Develop an internal project work plan;
      - Meet deadlines and monitor their progress against the work plan;
      - Revise the work plan as necessary.
    - Team Management – Students should demonstrate the ability to:
      - Diagnose and attend to interpersonal dynamics;
      - Define roles and useful division of labor;
      - Manage assignments and accountability;
      - Advocate points of view and negotiate differences of opinion;
      - Solicit and offer feedback;
      - Appreciate and learn from cultural and other differences.
- *Research.* Students should demonstrate the ability to:
    - Identify and synthesize existing research relevant to the project;
    - Identify and implement appropriate data collection methods;
    - Identify and implement appropriate data analysis procedures;
    - Determine findings;
    - Develop useful recommendations and/or tools and resources based on findings.
- Communication – Students should be able to:
    - Synthesize and summarize large amounts of data and information;
    - Prepare clear and well-argued written deliverables tailored to a policy audience;
    - Prepare clear and well-argued verbal presentations tailored to a policy audience.

## Course Requirements

You will be working as part of a team. Based on your subject-matter preferences, the instructors will assign teams. There will be five teams.

Class time will include a variety of activities. Given your busy schedules, the instructors will give teams – once formed – plenty of time to speak with each other on a weekly basis. Other activities will involve instructor presentations, guest speakers, team presentations, and discussion of required readings.

Other course requirements include:

- Enrollment during both semesters;
- Attendance and participation in class activities and team meetings (in and out of class);
- Completion of assignments (see below);
- Participation in project work and presentations.

**In order to facilitate discussion and promote collaboration, the instructors ask that you please have your cameras on during virtual class meetings.**

## Course Deliverables

The course deliverables are designed to keep the teams on track for successful completion of the entire project by the end of the academic year. Written deliverables should follow the following format: single-spaced, 12-point, Times Roman Font, one-inch margins. They will generally be due at the start of class. Presentations are expected to be professional and make use of a presentation program (e.g., PowerPoint or Beamer).

### Fall Semester

- *Team Charter*. A one or two-page document, signed by all team members and submitted to the class instructors, which:
  - Outlines specific tools/guidelines for team communication;
  - Outlines strategies for conflict resolution.
- *Project Idea Presentation*. A short presentation (15 minutes) on your team's policy research question. A memo (3-4 pages) will accompany the presentation. The presentation will:
  - Give the policy context;
  - Clearly state the research;
  - Discuss possible data sources and measurement strategies;
  - Discuss potential contribution or significance of the project.
- *Literature Review*. A document (3-5 pages) summarizing the literature in the field that will contextualize your research/analysis. Make sure to clarify your search strategy and the databases you use.
- *Work Plan*. A two-page document that:

- Identifies team members who will take primary responsibility for tasks, such as the literature review, data cleaning and preliminary analyses, drafting of sections, etc. (Consider and discuss your existing skills and individual learning objectives.)
- Provides a timeline for the project and deliverables, including internal deadlines.
- *CATME evaluations*
- *Research Prospectus*. A presentation of 30 minutes on a detailed research plan for your team. A memo (5-7 pages) will be turned in on the day of your presentation. Components of the presentation:
  - Research question and policy context: Why is the question important? Do you have a theory? What is your hypothesis?
  - Literature review: How will your research contribute to or challenge what we already know?
  - Research design: What are the empirical challenges that your project faces, and how will you address them?
  - Data and measurement: Describe the proposed data and how you plan to measure quantities of interest;
  - Analysis: What empirical methods are appropriate
  - Timeline: What is your work plan for implementing the research?
- *Assignments* (small tasks embedded into the class sessions):
  - In your teams, set up a form of group communication (e.g., Teams group, text group, etc.).
  - In your teams, identify two or three candidate questions of interest. Describe them in a few written sentences and prepare to share them to the class.
  - Describe the status of your project in about one page. Discuss the progress you've made toward defining a research question, any results from searching for relevant data and literature, and what you remain uncertain about. Please upload the result to the class site before we meet at 6:45pm.

## Spring Semester

- *Interim Report*. A presentation (20 minutes) describing your team's progress along with a written report of 8-10 pages:
  - Presentation should loosely follow the outline of: research question/policy context, theory/literature review, research design/data/methods, and findings. This will serve as practice for the final presentation.
  - Presentation of findings so far, with tables and graphs;
  - Future steps.
- *Draft Paper*. A draft of your final paper for detailed feedback.
- *Final Report and Paper*. A full-length presentation (30 minutes) and final paper (usually around 20 pages).

## Learning Assessment Table

<b>Course Learning Objective</b>	<b>Corresponding Assignment</b>
Understand the policy and/or management context for their project	Interim and final products
Be familiar with relevant specialized vocabularies	Interim and final products
Draw on critical research related to their content area	Interim and final products
Develop an internal project workplan	Team workplan
Meet deadlines and monitor their progress against the team workplan	Team workplan
Advocate points of view and negotiate differences of opinion	Self and team peer evaluations
Appreciate and learn from cultural and other differences	Self and team peer evaluations
Identify and synthesize existing research relevant to the project	Interim and final products
Identify and implement appropriate quantitative and/or qualitative data gathering methods	Interim and final products
Identify and implement appropriate data analysis procedures	Interim and final products
Determine findings	Interim and final products
Develop useful recommendations and/or tools and resources based on findings	Interim and final products
Synthesize and summarize large amounts of data and information	Interim and final products
Prepare clear and well-argued written deliverables tailored to the research question	Interim and final products
Prepare clear and well-argued verbal presentations tailored to the research question	Interim and final presentations

## Evaluation and Grading

Students will receive 1.5 credits for the fall semester and 1.5 for the spring semester. At the end of the first semester, students will receive a grade of "IP" (Incomplete Pass) to reflect the "work in progress" nature of the yearlong project. The instructors will assign final grades at the end of the second semester.

Grades will be allotted to individuals, not to the team as a whole. That is, team members may receive different grades if the instructors feel that is warranted. We will make this judgment

based both on our assessment of students' contributions and learning, and on assessments you give each other as part of the evaluation process after each semester.

Students will be graded on both the products they deliver and evidence of progressive learning throughout the course, as described by the learning objectives:

- 60% of the course grade is based on work products identified in the milestones as well as any interim deliverables assigned by the instructors.
- 40% is based on evidence of the individual student's learning during the course through participation in the team's work and class activities, his/her ability to act on peer and faculty feedback; individual and team preparation for and performance at presentations; and end-of-semester faculty, peer and self-evaluations.

Late assignments will be handled on a case-by-case basis. Students should reach out to their instructors as early as possible if they are struggling with deadlines or extenuating circumstances.

## Class Schedule

Classes will generally meet on Mondays from 6:45-8:25 pm throughout the academic year, but note that during the week of October 11 will be meeting on Tuesday, October 12, at the same time, on account of the holiday.

The weekly schedule below is tentative and subject to change. Specific requirements for each class will be posted on NYU Classes and emailed to you with enough lead time to prepare. NYU Classes takes precedence over what is written here.

### Fall Semester

#### September 13th

- Course introduction
- Team assignments and initial discussion

#### September 20<sup>th</sup>

- Team building
- Assignment: *In your teams, set up a form of group communication (e.g., Microsoft Teams group, text group, etc.).*
- Required Readings:
  - Dhawan, E., & Chamorro-Premuzic, T. (2018). How to collaborate effectively if your team is remote. *Harvard business review*.
  - Tom Wujec's "Build a tower, build a team" TED talk

#### September 27<sup>th</sup>

- Team meetings
- *Team Charter – please submit to the class site by midnight on September 29<sup>th</sup>*

#### October 4<sup>th</sup>

- Developing research question(s)
- Assignment: *In your teams, identify two or three candidate questions of interest. Describe them in a few written sentences and prepare to share them to the class.*

- Required Reading:
  - Angrist and Pischke (2009): *Mostly Harmless Econometrics*, Chapter 1
  - Morgan and Winship (2007): *Counterfactuals and Causal Inference*, Chapter 1
  - Doody, O., & Bailey, M. E. (2016). Setting a research question, aim, and objective. *Nurse researcher*, 23(4).
- Additional Reading:
  - Brady (2013): "Causation and Explanation in Social Science"
  - Gerring (2011): *Social Science Methodology*, excerpt
  - King, Keohane and Verba (1994): *Designing Social Inquiry*, Chapter 1
  - Rubin (2008): "For Objective Causal Inference, Design Trumps Analysis"
  - Shively (2012): *The Craft of Political Research*, Chapter 2

#### October 12<sup>th</sup>

- Discussion of what makes a good research project
- Finalizing research topics
- Required Readings:
  - Hertel-Fernandez (2014): "Who passes Business's 'Model Bills'? Policy Capacity and Corporate Influence in U.S. State Politics"
  - Levitt, S.D. (2004). Understanding why crime fell in the 1990s: Four factors that explain the decline and six that do not. *Journal of Economic Perspectives* 18(1): 163-190.

#### October 18<sup>th</sup>

- Assignment: Describe the status of your project in about one page. Discuss the progress you've made toward defining a research question, any results from searching for relevant data and literature, and what you remain uncertain about. Please upload the result to the class site before we meet at 6:45pm.
- Team meetings

#### October 25<sup>th</sup>

- NYU Wagner library resources tutorial
- Project Idea Presentations (please submit the accompanying memo to the class site before we meet at 6:45pm)

#### November 1<sup>st</sup>

- Literature review
- Required Reading:
  - Knopf, J. W. (2006). Doing a Literature review. *PS: Political Science & Politics*, 39(1), 127-132.
- Optional Reading:
  - Booth, A., Papaioannou, D. & Sutton, A., (2016). *Systematic Approaches to a Successful Literature Review*.

#### November 8<sup>th</sup>

- Literature Review – please submit to the class site before we meet at 6:45pm
- CATME evaluations due midnight on November 10<sup>th</sup>
- Quasi-experimental Methods I (Differences-in-Differences)
- Required Readings:
  - Angrist and Pischke (2009): *Mostly Harmless Econometrics*, Chapter 5

- Stevenson and Wolfers (2006): Bargaining in the Shadow of the Law: Divorce Laws and Family Distress. *Quarterly Journal of Economics*
- Farrar, S., Yi, D., Sutton, M., Chalkey, M., Sussex, J., & Scott, A. (2009). Have payment by results affected the way the English hospital provide care? Difference-in-differences analysis. *Bmj*, 339.

### November 15<sup>th</sup>

- Quasi-experimental Methods II (Regression Discontinuity)
- Required Readings:
  - Angrist and Pischke (2009): *Mostly Harmless Econometrics*, Chapter 6
  - Anderson (2018): Legal Origins and Female HIV. *American Economic Review*.
  - Jacob, B. A., & Lefgren, L. (2004). Remedial education and student achievement: A regression-discontinuity analysis. *Review of economics and staistics*, 86(1), pp.226-244
- Optional Readings:
  - Chapter 4, *Mostly Harmless Econometrics*
  - Cattaneo et al. (2019): "A Practical Introduction to Regression Discontinuity Designs: Foundations"

### November 22<sup>nd</sup>

- Technical skills session
- *Work Plan – please submit to the class site by midnight on November 24<sup>th</sup>*

### November 29<sup>th</sup>

- Presentation skills
- Team meetings
- Required Readings:
  - Anderson, C., & Duarte, N. (2013). How to give a killer presentation. *Harvard buisness review*, 91(6), 121-125.
  - Nancy Duarte's "The secret structure of great talks" TED talk
  - Chris Anderson's "TED's secret to great public speaking" TED talk

### December 6<sup>th</sup>

- *Prospectus Presentations (please submit the accompanying memo to the class site before we meet at 6:45pm)*

### December 13<sup>th</sup>

- Instructor meetings

## Spring Semester

### January 24<sup>th</sup>

- Part I: Spring catch-up (ALL STUDENTS)
- Part II: Instructor meetings: Teams 1 and 2

### January 31<sup>st</sup>

- Instructor meetings: Teams 3, 4 and 5

### February 7<sup>th</sup>

- Instructor meetings: Teams 1 and 2

### February 14<sup>th</sup>

- Instructor meetings: Teams 3, 4 and 5



**February 21<sup>st</sup>**

- **President's Day (no class)**

**February 28<sup>th</sup>**

- Instructor meetings: Teams 1 and 2

**March 7<sup>th</sup>**

- *Interim Presentations (please submit the accompanying report to the class site before we meet at 6:45pm)*

**March 14<sup>th</sup>**

- **Spring Break (no class)**

**March 21<sup>st</sup>**

- Instructor meetings: Teams 3, 4 and 5

**March 28<sup>th</sup>**

- Instructor meetings: Teams 1 and 2

**April 4<sup>th</sup>**

- Instructor meetings: Teams 3, 4 and 5  
*Draft papers to be submitted to the class site by midnight on April 6<sup>th</sup>*

**April 11<sup>th</sup>**

- Instructor meetings: Teams 1 and 2

**April 18<sup>th</sup>**

- Instructor meetings: Teams 3, 4 and 5

**April 25<sup>th</sup>**

- Team meetings (no class)

**May 2<sup>nd</sup>**

- *Final Presentations (please submit the accompanying paper to the class site before we meet at 6:45pm)*

**TBD**

- Capstone Expo
- 5-8 pm: Presentations to faculty

## Resources

Throughout the year, you may find yourself in need of help with data management, data analysis (Stata, R, SPSS, etc.), or GIS. As a student, you have access to the NYU Data Service Studio, located on the 6<sup>th</sup> floor of the Bobst Library.<sup>1</sup> Consultation is available remotely via e-mail ([data.service@nyu.edu](mailto:data.service@nyu.edu)), or by phone (212-998-3434).

Also, the [NYU Wagner Library page](http://guides.nyu.edu/wagner) (<http://guides.nyu.edu/wagner>) has a list of resources that Kathryn Wissel, the Wagner liaison to NYU libraries, has put together that is also particularly helpful for literature reviews.

<sup>1</sup> Note that during the Fall term, access to the library will be restricted due to COVID-19.

## **Academic Integrity**

Academic integrity is a vital component of Wagner and NYU. All students enrolled in this class are required to read and abide by [Wagner's Academic Code](#). All Wagner students have already read and signed the [Wagner Academic Oath](#). Plagiarism of any form will not be tolerated and students in this class are expected to report violations to the instructors. If any student in this class is unsure about what is expected of you and how to abide by the academic code, you should consult with the instructors.

## **Henry and Lucy Moses Center for Students with Disabilities at NYU**

Academic accommodations are available for students with disabilities. Please visit the [Moses Center for Students with Disabilities \(CSD\) website](#) and click on the Reasonable Accommodations and How to Register tab or call or email CSD at (212-998-4980 or [mosescsd@nyu.edu](mailto:mosescsd@nyu.edu)) for information. Students who are requesting academic accommodations are strongly advised to reach out to the Moses Center as early as possible in the semester for assistance.

## **NYU's Calendar Policy on Religious Holidays**

[NYU's Calendar Policy on Religious Holidays](#) states that members of any religious group may, without penalty, absent themselves from classes when required in compliance with their religious obligations. Please notify the instructors in advance of religious holidays that might coincide with exams to schedule mutually acceptable alternatives.