AEM 7010: How to PhD: the hidden curriculum – Spring 2025

Meets Mondays and Wednesdays 8:40-9:55 AM in Warren B75

3 Credits, S/U only

Instructors: Ariel Ortiz-Bobea (Wednesdays, Jan 22 – Mar 5), Chris Barrett (Mondays, Jan 27 – Mar 10), Daniela Scur (Mar 12 – May 5), Lars Vilhuber (Feb 12, Mar 24, 26)

Office Hours:
Chris Barrett: Mondays, 3-5 PM in Warren 475H
Ariel Ortiz-Bobea, Wednesdays, 3-5 PM in Warren 450B
Daniela Scur: Tuesdays, 2-3pm

Pre-requisites: Graduate student standing; pre-doctoral research associates (junior staff) welcome.

Course Overview and Learning Outcomes

Course Description:

This course provides exposure to a wide variety of basic skills necessary for high-quality research. This includes principles of academic writing and presentation, research ethics, basic coding and data management as well as project management. The course is offered in 4 modules. Students are required to complete all modules. Some of the topics (e.g., coding) are only covered at an overview level with the expectation that those requiring a deeper knowledge will take further coursework.

The course will meet twice per week, Mondays and Wednesdays. For the second 7 weeks, Mondays will be mostly lecture-based and Wednesdays will be workshop based.

The primary mode of communication and sharing of class materials will be the course's Canvas site. Please make sure you can access it and familiarize yourself with all the resources there. There will also be a Slack channel for the course where students are encouraged to discuss the topics with each other, as well as post questions in the general channel. In the second 7 weeks of the course, Prof Scur will monitor the discussions and respond regularly. Please note this is the preferred mode of communication for course-related non-personal questions, as others may have the same question as you!

Course Learning Objectives:
1. Prepare current and prospective Ph.D. students to generate cutting-edge scholarship in their field and concentration.
2. Learn and show respect for the integrity of scientific inquiry

3. Learn best research practices to maintain the highest professional standards in scholarship in applied economics and management.

Course Module Topics

A. Data management (First 7weeks, Wednesdays, Jan 22-Mar 5 – Ariel)
- Secondary data. Recent trends in economic research. Protected datasets.
- Basics of data and code for efficient project management
- Considerations when choosing a language: R / Python / Stata
- Using AI (e.g. chatGPT) in your research and research transparency
- Reproducibility; version control and Github
- Understanding P-hacking and publication bias
- Parallel and cloud computing (e.g. Google Earth Engine)

B. Primary data collection (First 7 weeks, Mondays, Jan 27 – Mar 10, Chris)
- Laboratory versus field data collection (including lab-in-field experiments)
- Exploratory research trips and piloting
- Experimental and quasi-experimental designs and internal vs. external validity
- Sampling design and survey instrument development, field logistics
- In person vs. phone-based sampling and data collection best practices
- Grantswriting, budgeting and expenses management
- Research ethics in primary data collection: IRB/IACUC approvals, equipoise, etc.
- Pre-analysis plans
- Nontraditional data collection – biospecimens, digital collection (sensors, drones, GPS collars, etc.),
- Best practices: Working with external organizations and non-economists, ethics, etc.
- Special considerations in international research: exchange rates, political risk, travel insurance, cross-cultural communications, etc.

C. Research interactions and communication (2nd 7 weeks, Mar 12 – May 5 Daniela)
- Academic writing: manuscript preparation, journal norms, choosing the audience, responsible use of generative AI
- Writing and responding to referee reports
- Presentations skills, understanding the audience, pacing, practicing
- Discussions and Q&A at conferences/presentations, best practices
- Etiquette for conference, presentations, job market, trans-cultural aspects, etc.
- Working well with your faculty adviser, other faculty, classmates
- Establishing and managing collaborations
- Communicating your research post publication: press releases, policy briefs, video abstracts, op eds

- Using social media for sharing and engaging with research

D. Research management (2nd 7 weeks, Mar 12 – May 5 Daniela)
- Effective brainstorming for generating new ideas and collaborations
- Techniques and tools for managing *non-field work* research teams and projects (e.g. slack, managing meetings, setting expectations, tracking progress, hiring/firing, managing up and managing laterally)
- Working papers, preprints, paper databases, etc.

University and Course Policies

1. **Academic Integrity**: Each student in this course is expected to abide by the Cornell University Code of Academic Integrity. Any work submitted by a student in this course for academic credit will be the student's own work. You are encouraged to study together and to discuss information and concepts covered in this course and the sections with other students. However, this permissible cooperation should never involve one student having possession of a copy of all or part of work done by someone else, in the form of an electronic or hard copy. Should copying occur, both the student who copied work from another student and the student who gave material to be copied will both automatically receive a zero for the assignment/exam. Penalty for violation of this Code can also be extended to include failure of the course and University disciplinary action. Please see the essential guide[1] to Academic Integrity at Cornell for additional information.

2. **Accommodations for students with disabilities**: Your access in this course is important. Please email us your Student Disability Services (SDS) accommodation letter early in the semester so that we have adequate time to arrange your approved academic accommodations. If you need an immediate accommodation for equal access, please speak with us after class or send an email message to us and/or SDS at sds_cu@cornell.edu. If the need arises for additional accommodations during the semester, please contact SDS.[2]

3. **Inclusivity:** We understand that our community members represent a rich variety of backgrounds and perspectives. Dyson is committed to providing an atmosphere for learning that respects diversity. While working together to build this community we ask everyone to:
    a.   share their unique experiences, values and beliefs
    b.   be open to the views of others
    c.   honor the uniqueness of their colleagues
    d.   appreciate the opportunity that we have to learn from each other
    e.   value each other's opinions and communicate in a respectful manner
    f.   keep confidential discussions that the community has of a personal nature

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[1] See: https://provost.cornell.edu/_files/faculty-resources/essential-guide-academic-integrity.pdf
[2] SDS is located on level 5 of Cornell Health, 110 Ho Plaza, 607-254-4545, sds.cornell.edu.

g. use this opportunity together to discuss ways in which we can create an inclusive environment in this course and across the Cornell community

4. **Lauren's Promise**[3]: We will listen and believe you if someone is threatening you. Please do not hesitate to come seek assistance from us, student services, or counseling staff. Your safety is of paramount importance. Any form of sexual harassment or violence will not be excused or tolerated at Cornell University. Cornell University has instituted procedures to respond to violations of these laws and standards, programs aimed at the prevention of such conduct, and intervention on behalf of the victims.

5. **Canvas:** The course home page on Canvas provides you with announcements, information about the course, links to the syllabus, useful web sites, the discussion board where you post assignments, etc. You should check the course web site frequently during the semester, especially for announcements prior to assignment due dates. All assignments are to be submitted through the Canvas site.

6. **Other:** We respect and uphold University policies and regulations regarding the observation of religious holidays; assistance available to the physically handicapped, visually and/or hearing-impaired student; and racial or ethnic discrimination. If you are not already, please become familiar with the respective University regulations and come to us with any concerns or questions you might have.

7. **Evaluation:** This course is S/U only. We look for thoughtful engagement to award a passing (S) grade for the course. We will have a number of low-cost exercises that signal thoughtful engagement to evaluate your performance. If you want to just sit in the class passively and collect materials but not do the reading nor participate actively, please just audit the course. If you cannot commit to attend all (or nearly all) of a module, please skip that module entirely.

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[3] Lauren McCluskey, a 21-year-old honors student athlete, was murdered on Oct. 22, 2018, by a man she briefly dated on the University of Utah campus. We must all take actions to ensure that this never happens again. If you are in immediate danger, call 911. See https://laurenmccluskey.org/.

Class Meeting Schedule

No.	Date	Topic	Assignments/Readings
1	*Week 1, class 1* *Wed 22 Jan* *Intro*	Secondary data in economics	**Before class read:** Einav, L., & Levin, J. (2014). Economics in the age of big data. *Science*, *346*(6210), 1243089. **Listen:** Episode from the Hidden Curriculum on restricted datasets https://open.spotify.com/episode/6Mn21DHtc5locuPfPAHv3h?si=2d383fd7bd08461f
2	*Week 2, class 1* *Mon 27 Jan*	Should I collect primary data? If so, in the lab or in the field? - Research questions, design, data types - Lab, lab-in-field, field experiments, RCTs, observational surveys, qualitative/mixed methods - Exploratory trips and pre-travel preparations	**Background reading:** *Barrett, Christopher B., Jeffrey Cason, and Erin C. Lentz. *Overseas research: A practical guide, 3rd edition.* (Routledge, 2020), chapters 1 and 2. *Harrison, Glenn W., and John A. List. "Field experiments." *Journal of Economic Literature* 42.4 (2004): 1009-1055. *Duflo, Esther, Rachel Glennerster, and Michael Kremer. "Using randomization in development economics research: A toolkit." *Handbook of Development Economics* 4 (2008): 3895-3962. Barrett, Christopher B. and Michael R. Carter, "The Power and Pitfalls of Experiments in Development Economics: Some Non-random Reflections ," Applied Economic Perspectives and Policy 32, 4 (2010): 515-548. Keane, Michael P. "Structural vs. atheoretic approaches to econometrics." *Journal of Econometrics* 156(2010): 3-20. Stantcheva, Stefanie. "How to Run Surveys: A Guide to Creating Your Own Identifying Variation and Revealing the Invisible," *Annual Review of Economics* 15(2003): 205-234.

			Starr, Martha A. "Qualitative and Mixed-Methods Research in Economics: Surprising Growth, Promising Future." Journal of Economic Surveys 28 (2014): 238-264.
3	*Week 2, class 2* *Wed 29 Jan*	Basics of data, code and project management	**Before class:** **Skim:** Matthew Gentzkow Jesse M. Shapiro "Code and Data for the Social Sciences: A Practitioner's Guide" Skim webpage from Daniel Sullivan "Writing code in economics") Skim writeup by al Gross on "Best practices for computer programming in economics" **Listen:** episode from the hidden curriculum podcast https://open.spotify.com/episode/4Cza9BStKm8fdKT6FeJq7h?si=b01d195b6f444ed4
4	*Week 3, class 1* *Mon 3 Feb*	Primary data collection considerations: Internal and external validity	**Before class:** post to Canvas discussion board two research questions that interest you and whether/what/how you would collect primary data to answer the question. Come to class ready to discuss. **Background reading:** From meeting #2: Duflo et al.; Stancheva; Barrett & Carter *Leamer, Edward E. "Let's take the con out of econometrics." *American Economic Review* 73.1 (1983): 31-43. *Barrett, Christopher B. "On design-based empirical research and its interpretation and ethics in sustainability science." *Proceedings of the National Academy of Sciences* 118.29 (2021): e2023343118.
5	*Week 3, class 2* *Wed 5 Feb*	Artificial Intelligence and research transparency	**Before class:** post to canvas discussion a recent paper with a reproduction

			package that you would like to reproduce. **Read:** Miguel, E. (2021). Evidence on research transparency in economics. *Journal of Economic Perspectives*, *35*(3), 193-214. Anton Korinek "Generative AI for Economic Research: Use Cases and Implications for Economists" Journal of Economic Literature 61(4) Anton Korinek "LLMs Learn to Collaborate and Reason" December 2024 Update to JEL paper
6	*Week 4, class 1* *Mon 10 Feb*	Data collection best practices: in person, online, phone. Sample selection and survey instrument/game development Research clearances Pilot testing Fieldwork logistics	**Background reading:** *Barrett, Christopher B., Jeffrey Cason, and Erin C. Lentz. *Overseas research: A practical guide, 3rd edition.* (Routledge, 2020), chapters 5 and 7.
7	*Week 4, class 2* *Wed 12 Feb* *Workshop*	Reproducibility workshop	Before class: - Attempt to reproduce the code of the selected paper - Post to canvas a short assessment of whether code follows good coding practices. Guest lecture from Lars Vilhuber
		FEBRUARY BREAK	
8	*Week 5, class 1* *Wed 19 Feb*	P-hacking simulation	**Before class:** Install R in your computer **Read**: Brodeur, A., Carrell, S., Figlio, D., & Lusher, L. (2023). Unpacking p-hacking and publication bias. *American Economic Review*, *113*(11), 2974-3002. Brodeur, A., Cook, N., & Heyes, A. (2020). Methods matter: P-hacking and publication bias in causal analysis in economics. *American Economic Review*, *110*(11), 3634-3660.

9	*Week 6, class 1* *Mon 24 Feb*	Research ethics: IRB/IACUC, Belmont report; p-hacking, pre-registration and pre-analysis plans	**Before class:** Complete Cornell IRB CITI training. Upload your completion certificate to Canvas Assignment. Background reading: *Barrett, Christopher B., Jeffrey Cason, and Erin C. Lentz. *Overseas research: A practical guide, 3rd edition.* (Routledge, 2020), chapter 6.
10	*Week 6, class 2* *Wed 26 Feb*	Parallel and cloud computing	**Before class:** skim and read introduction to the Google Earth Engine https://earthengine.google.com/platform/
11	*Week 7, class 1* *Mon 3 Mar*	Writing research grant proposals, budgeting, managing expenses and grants reporting	TBD
12	*Week 7, class 2* *Wed 5 Mar*	Possible Cloud computing workshop with CISER	
13	*Week 8, class 1* *Mon 10 Mar*	Collaborating w/external and/or non-economist partners; nontraditional data collection (biospecimens, digital data platforms);	TBD
END OF MODULES 1 & 2. START OF MODULES 3 & 4			
D1	*Week 8, class 2* *Wed 12 Mar* *Intro*	**Introduction to Modules 3 and 4** - The (un)structure of a PhD. What happens now that you no longer have classes? How to build own structure.	In-class survey, self-assessment and goal setting for this portion of the class. Are you *primarily* a theorist or applied economist?
D2	*Week 9,* *class 1* *Mon 17 Mar* *Lecture*	**Topic 1. Your research: how to build your research question and set up your paper structure** - The path from interest to actionable research question (there are many!) - Theory? Data? - Getting feedback on the question (from peers and supervisors) - Academic writing: how to prepare a manuscript (what	**Useful reading resources:** Bellemare, Marc (2022) Doing Economics Weisbach, Michael (2021) The Economist's Craft Varian, Hal (2016) How to Build an Economic Model in Your Spare Time

		goes in an intro?), journal norms, choosing an audience and a journal (and being aware of all this when picking your question and framing) - Use of AI.	Eble, Alex (2018) Unofficial guidebook for PhD students
D3	*Week 9, class 2* *Wed 19 Mar* *Workshop*	**Workshop: setting up research questions to pursue** - In this class we will think through and workshop research questions – new, or current! - You will get an example template and we will engage in small group discussions, reporting out with feedback - Identifying potential target journals, thinking about the 'mock introduction'	**Prep work:** - Bring to class at least 1 research question (using the template) for discussion **Resources**: Alex Eble's research question template (see Canvas)
D4	*Week 10, class 1* *Mon 24 Mar* *Lecture*	**Topic 2. Your data and workflow.** Day N-1 Reproducibility (topic subject to change pending class vote)	Guest lecture by Lars Vilhuber
D5	*Week 10, class 2* *Wed 26 Mar* *Workshop*	Creating an archive, and why that's a good thing (topic subject to change pending class vote)	Guest lecture by Lars Vilhuber
		<center>**SPRING BREAK**</center>	
D6	*Week 11, class 1* *Mon 7 Apr* *Lecture*	**Topic 3. Surveys** - How to design a survey - How to administer a survey - How to get the most out of your survey -	**Resources:** Stantcheva, Stefanie (2022) How to Run Surveys: A guide to creating your own identifying variation and revealing the invisible McKenzie, David (2016) How to Run Surveys:A guide to creating your own identifying variation and revealing the invisible
D7	*Week 11, class 2* *Wed 9 Apr* *Workshop*	Workshop - Review an existing survey - Exercise on survey questions -	Bring your survey (or survey needs) to class
D8	*Week 12, class 1* *Mon 14 Apr*	**Topic 4. Your colleagues.** - Working well with your advisor, other faculty,	Bring to class: If you have an advisor: - How you collaborate well

	Lecture	classmates (how to engage with advisor/get the most out of your seniors) - Establishing and managing collaborators (how to pick your co-authors? How to even come across new coauthors?) - Etiquette for conference, presentations, job market, cultural aspects - How to network	- How you would like to collaborate better If you don't yet have an advisor: - How you are thinking of choosing one, and/or why people are on your shortlist - How you are thinking of approaching them
D9	*Week 12, class 2* *Wed 16 Apr* *Lecture*	**Topic 5. Presenting your work (and yourself!)** - Presentation skills, understanding the audience, pacing, practicing	Jesse Shapiro's How to Give an Applied Micro Talk
D10	*Week 13, class 1* *Mon 21 Apr* *Workshop*	*Workshop on presenting the introduction of a paper/project (all week)* - Learn the concept of a "fake introduction" – if *everything goes perfectly according to plan*, what would an introduction to this paper look like?	Presentations
D11	*Week 14, class 1* *Wed 23 Apr* *Lecture*	*Workshop on presenting the introduction of a paper/project (all week)* - Learn the concept of a "fake introduction" – if *everything goes perfectly according to plan*, what would an introduction to this paper look like?	Presentations
D12	*Week 15, class 1* *Mon 28 Apr* *Workshop*	**Topic 6. Service to the profession**: how to be a good colleague and get something from it - Referee reports. What are they, what is the goal, how to approach a paper and how to write one. - How to respond to referee reports: what is at least one process to do this? - Discussions: what is a discussion? How do do a good discussion?	**Additional resources:** Deryugina guide Turrell guide Berk et al (2017) *How to Write an Effective Referee Report and Improve the Scientific Review Process*

D1 3	*Week 15, class 1* *Wed 30 Apr* *Workshop*	*Workshop on writing and responding to referee reports.* Workshop on putting together a discussion for the referee report you just wrote.	Workshop on writing a referee report (for a working paper you have just read) **OR** putting together a discussion slide set
D1 4	*Week 16, class 1* *Mon 5 May* *Lecture +* *Workshop*	**The leftover topics** - Communicating your research post publication (press releases, policy briefs, video abstracts, op eds) - Using social media to share your research Handling rejection/rejected papers (don't dwell, don't do everything in the referee report)	