Logic of (Computational) Social Inquiry

771A11 / 771A12 Autumn 2019
ECTS 7.5

Director	Jacob Habinek
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Office	Kopparhammaren 2, C3028
Hours	Wednesdays, 13.00-15.00 (Weeks 38, 39, 41)
	Fridays, 13.00-15.00 (Weeks 34, 35, 36, 37, 40, 42)
Course period	19 August 2019 to 25 October 2019
Language	English

Course overview

This course is intended to introduce students to the principles of scientific inquiry, while also examining the unique features that distinguish the social sciences from other sciences. Students will learn to produce research questions, design research, and consider the micro- and macro-levels of social analysis. Special attention will be paid to computational approaches.

The course consists of lectures and seminars. All meetings are mandatory. The lectures will first address general aspects of social science research, and later go on to consider in detail four specific research methods: (i) case studies, (ii) surveys/observational data, (iii) experiments, and (iv) simulations. The final lecture will explore the cutting edge of computational social science research, along with its promises and pitfalls. The seminars will revisit each of the four core methods through detailed examination of an exemplary recent application drawn from the sociological literature.

Students are strongly encouraged to contribute to a positive and active learning environment. Please ask questions during class, or let the instructor know if something is unclear or confusing. There are no stupid questions. Please show respect to your classmates when they ask questions. This is a diverse group of students from different backgrounds and what is obvious for one student may be completely new for someone else.

Course structure

Lectures: each lecture will consist of two sections. The first section will be a lecture period in which the instructor will introduce a method or a set of concepts. The second section will be a discussion period in which students will discuss the assigned literature as a class and in small groups. Needless to say, students are expected to have completed the assigned reading before each lecture period.

Four of the lectures will be led by guest instructors who are experts in their respective methods. The names and contact information for the instructors responsible for each method covered in the course are as follows:

- Case studies: Petri Ylikoski (petri.ylikoski@liu.se).
- Surveys and observational data: Jacob Habinek (jacob.habinek@liu.se).
- Experiments: Marc Keuschnigg (marc.keuschnigg@liu.se).
- Simulations: Eduardo Tapia (eduardo.tapia@liu.se).
- Computational social science: Etienne Ollion (etienne.ollion@liu.se).

Seminars: seminars will follow several days after each “methods” lecture. An article has been assigned for each seminar. Students are expected to have read the article before the seminar and, when required, to have completed a written review of the article by the required deadline (usually one day before the seminar). During the seminar students will discuss the article as a class and in small groups in order to identify the strengths and weakness of the author’s research design.

Intended learning outcomes

Following completion of the course, students should be able to:

- Produce a social science research question and identify a research method that is appropriate to the question.
- Critically evaluate proposed and completed research that uses the methods examined in the course.
- Demonstrate a familiarity with key topics in the emerging field of computational social science.

Examination and grading

Grades range from A to F/Fx and are based on how well the student has achieved the intended learning outcomes. The learning outcomes are assessed as follows:

Two article reviews (6 ECTS ESSx, E-A, or F/Fx)

Students must complete two short reviews (800-1200 words each) of articles assigned to the seminar meetings. Detailed instructions will follow, but students will be expected to answer a version of Maurice Zeitlin's *The Four Questions*. The four questions are:

1. What does the author want to know? (Or what's the work's 'central question'?)
2. Why? So what? (Or what's the work's intellectual rationale?)
3. What's the author's answer or argument? (Or, what's the work's general theory and corresponding substantive theory?)
4. How does the author go about finding out if the answer is wrong or not? (Or what's the method and how is it used?)

The article reviews must be submitted through lisam by noon on the Tuesday after each method is introduced. The due dates are consequently as follows:

17 Sept: case studies.
24 Sept: surveys and observational data.
1 Oct: experiments.
15 Oct: simulations.

Students who are not satisfied with a grade will be able to complete an additional article review to replace the grade on a completed article review. If the deadlines for all the article reviews have passed, the student will receive a failing grade on the assignment. There will be two re-examination opportunities after the end of the course during which students will be able to submit one or more article reviews based on new articles chosen by the instructor.

Six course journal entries (1.5 ECTS ASSx, pass/fail)

Students must complete six of a possible seven "journal entries" based on questions or instructions that will be provided after each lecture. Each assignment will be relatively simple and require only a short written response. (Sometimes only a few sentences, never more than a page.)

The journal entries must be submitted through lisam by noon on the Tuesday following a lecture. The due dates and topics for each journal entry are as follows:

27 Aug: research questions.
3 Sept: revised research questions.
10 Sept: case selection.
17 Sept: questions about case studies.
24 Sept: questions about observational data.
1 Oct: questions about experiments.
8 Oct: no assignment.
15 Oct: simulation questions and review.

Students who fail to complete the journal entries will be permitted to complete an additional article review (pass/fail) to replace the journal entry component of the final grade.

A note on plagiarism

Plagiarism will not be tolerated. Although students are encouraged to help their peers and ask their peers for help, all written assignments must be completed separately and must be the original work of the individual student. Copying directly from one another or from written sources is not permitted. All cases of suspected plagiarism will be reported immediately to the university disciplinary board. Punishments for plagiarism can be severe and may jeopardize your standing as a student in the program.

Course literature

Textbooks

- Martin, J. L. 2017. *Thinking through Methods: A Social Science Primer*. Chicago: University of Chicago Press.
- Salganik, M. 2018. *Bit by Bit: Social Research for the Digital Age*. Princeton: Princeton University Press. Available online at: https://www.bitbybitbook.com/
- Schelling, T. C. 2006. *Micromotives and Macrobehavior*. New York: W. W. Norton.

Scientific articles and other resources: see below for each lecture and seminar.

Course schedule and reading assignments

All readings should be completed prior to the lecture or seminar. Some minor additional readings may be added as needed.

Introduction and preliminaries

Wednesday 21 August: Lecture (Jacob Habinek) 10:15-12:00 (KO23), ~~13:15-15:00 (TP43).~~

- Martin, J. L. 2017. “Sharpen your tools.” Chapter 1 in *Thinking through Methods: A Social Science Primer*. Chicago University Press.
- Salganik, M. 2018. “Introduction.” Chapter 1 in *Bit by Bit: Social Research for the Digital Age*. Princeton University Press. Available online at: https://www.bitbybitbook.com/en/1st-ed/introduction/
- Coleman, J. S. 1986. "Social theory, social research, and a theory of action." *American Journal of Sociology* 91:1309-1335.

Asking a social scientific question

Wednesday 28 August: Lecture (Jacob Habinek) 10:15-12:00 (TP42), 13:15-15:00 (TP42).

- Martin, J. L. 2017. ”How to formulate a research question.” Chapter 2 in *Thinking through Methods: A Social Science Primer*. Chicago University Press.
- Becker, H. S. 1986. “Terrorized by the literature.” Chapter 8 in *Writing for Social Scientists: How to Start and Finish Your Thesis, Book, or Article*. University of Chicago Press.
- Becker, H. S. 1998. “Concepts.” Chapter 4 in *Tricks of the Trade: How to Think about Your Research While You’re Doing It*. University of Chicago Press.
- Hedström, P. & P. Ylikoski. 2010. “Causal mechanisms in the social sciences”. *Annual Review of Sociology* 36: 49–67.

Answering a social scientific question

Wednesday 4 September: Lecture (Jacob Habinek) 10:15-12:00 (TP52), 13:15-15:00 (TP52).

- Martin, J. L. 2017. “Choosing a site.” Chapter 3 in *Thinking through Methods: A Social Science Primer*. Chicago University Press.
- Reading(s) to be determined on measurement.
- “How to Read a Social Science Journal Article.” Handout.
- Maurice Zeitlin. “The Four Questions.” Handout.

Case studies

Friday 13 September: Lecture (Petri Ylikoski) 10:15-12:00 (TP45), 13:15-15:00 (TP45).

- Collier, D. 2011. “Understanding process tracing.” *PS: Political Science & Politics* 44(4): 823–30.
- Vaughan, D. 2004. “Theorizing disaster: analogy, historical ethnography, and the *Challenger* accident.” *Ethnography* 5(3): 315–47.
- Ylikoski, P. Forthcoming. “Mechanism-based theorizing and generalization from case studies.” *Studies in the History and Philosophy of the Science*.

Wednesday 18 September: Seminar (Jacob Habinek) 10:15-12:00 (TP42).

- **Seminar article:** Fligstein, N., et al. 2017. “Seeing like the Fed: culture, cognition, and framing in the failure to anticipate the financial crisis of 2008.” *American Sociological Review* 82(5): 879–909.

Surveys and observational data

Friday 20 September: Lecture (Jacob Habinek) 10:15-12:00 (TP41), 13:15-15:00 (TP41).

- Groves, R. 2011. "Three eras of survey research." *Public Opinion Quarterly* 75(5): 861–871.
- Martin, J. L. 2017. “Dealing with documents.” Chapter 8 in *Thinking through Methods: A Social Science Primer*. Chicago University Press.
- Salganik, M. 2018. “Observing behavior.” Chapter 2 in *Bit by Bit: Social Research for the Digital Age.* Princeton University Press. Available online at: https://www.bitbybitbook.com/en/1st-ed/observing-behavior/
- Bail, C. A. et al. 2019. “Prestige, proximity, and prejudice: the diffusion of Google search terms across 199 countries, 2004-2014.” *American Journal of Sociology* 124(5): 1496–1548.

Wednesday 25 September: Seminar (Jacob Habinek) 10:15-12:00 (TP51).

- **Seminar article:** Edelmann, A., et al. 2017. “Disparate foundations of scientists’ policy positions on contentious biomedical research.” *PNAS* 114 (24): 6262–6267.

Experiments

Friday 27 September: Lecture (Marc Keuschnigg) 10:15-13:00 (TP41).

- Shadish, W., et al. 2002. “Experiments and generalized causal inference.” Chapter 1 in *Experimental and Quasiexperimental Designs for Generalized Causal Inference*. Houghton Mifflin.
- Jackson, M., & D. Cox. 2013. “The Principles of Experimental Design and Their Application in Sociology.” *Annual Review of Sociology* 39:27–49.
- Salganik, M. 2018. “Running experiments.” Chapter 4 in *Bit by Bit: Social Research for the Digital Age.* Princeton University Press. Available online at: https://www.bitbybitbook.com/en/1st-ed/running-experiments/
- Van de Rijt, A., S. Kang, M. Restivo, A. Patil. 2014. “Field Experiments of Success-Breeds-Success Dynamics.” *PNAS* 111:6934–6939.

Friday 4 October: Seminar (Jacob Habinek) 10:15-12:00 (TP52).

- **Seminar article:** Centola, D. & A. Baronchelli. 2015. "The spontaneous emergence of conventions: An experimental study of cultural evolution." *PNAS* 112 (7) 1989-1994.

Optional skills workshop t.b.d. (Research ethics? Writing for social science?)

Wednesday 9 October: Seminar (Jacob Habinek) 10:15-12:00 (TP52).

Simulation modeling

Friday 11 October: Lecture (Eduardo Tapia) 10:15-12:00 (TP55), 13:15-15:00 (TP55).

- Schelling, T. C. 2006. "Micromotives and macrobehavior" and "Sorting and mixing: race and sex." Chapters 1 and 4 in *Micromotives and Macrobehavior*. W. W. Norton.
- Epstein, J. M. 1999. "Agent-based computational models and generative social science." *Complexity* 4(5): 41–60.
- Page, S. 2015. "What sociologist should know about complexity." *Annual Review of Sociology* 41: 21–41.
- Centola, D. & Macy, M. 2007. "Complex contagions and the weakness of long ties". *American Journal of Sociology* 113(3): 702–734.

- **Seminar article:** Analytis, P. P. et al. 2018. "Social learning strategies for matters of taste." *Nature Human Behavior* 2: 415–424. (Note: the seminar will meet the following week.)

Computational social science

Wednesday 16 October: Lecture (Etienne Ollion) 10:15-12:00 (TP55), 13:15-15:00 (TP55).

- Keuschnigg, M. et al. 2017. "Analytical sociology and computational social science" *Journal of Computational Social Science* 1(1): 3–14.
- Lazer, D. et al. 2009. "Computational social science." *Science* 323(5915): 721–723.
- Mützel, S. 2015. "Facing big data: making sociology relevant." *Big Data & Society*, 2(2), 1–4.
- Stumpf, M. P. H., & M. A. Porter. 2012. "Critical truths about power laws." *Science* 335(6069): 665–666.

Friday 18 October: Seminar (Jacob Habinek) 10:15-12:00 (TP54)

- **No assigned reading:** we will discuss the experiments review article (above) and any final questions or concerns.

Summary of schedule

Week	Date		Time(s)	Location	Item	Topic
Week 34	Wednesday	21-Aug-19	10:15, ~~13.00~~	K023/TP43	Lecture	Intro
Week 35	Tuesday	27-Aug-19	12:00	DEADLINE	Journal	Research q's
	Wednesday	28-Aug-19	10:15, 13.00	TP42	Lecture	Asking q's
Week 36	Tuesday	3-Sep-19	12:00	DEADLINE	Journal	Research q's
	Wednesday	4-Sep-19	10:15, 13.00	TP52	Lecture	Answering q's
Week 37	Tuesday	10-Sep-19	12:00	DEADLINE	Journal	Case selection
	Friday	13-Sep-19	10:15, 13.00	TP45	Lecture	Case studies
Week 38	Tuesday	17-Sep-19	12:00	DEADLINE	Journal/review	Case studies
	Wednesday	18-Sep-19	10:15	TP42	Seminar	Case studies
	Friday	20-Sep-19	10:15, 13.00	TP41	Lecture	Surveys
Week 39	Tuesday	24-Sep-19	12:15	DEADLINE	Journal/review	Surveys
	Wednesday	25-Sep-19	10:15	TP51	Seminar	Surveys
	Friday	27-Sep-19	10:15	TP41	Lecture	Experiments
Week 40	Tuesday	1-Oct-19	12:00	DEADLINE	Journal/review	Experiments
	Friday	4-Oct-19	10:15	TP52	Seminar	Experiments
Week 41	Wednesday	9-Oct-19	10:15	TP52	Workshop	t.b.d.
	Friday	11-Oct-19	10:15, 13.00	TP55	Lecture	Simulations
Week 42	Tuesday	15-Oct-19	12:00	DEADLINE	Journal/review	Simulations
	Wednesday	16-Oct-19	10:15	TP55	Lecture	CSS
	Friday	18-Oct-19	10:15, 13.00	TP54	Seminar	Simulations
Week 43					Nothing!	