

# PhD course: RCTs in education - methods & findings (2 ECTS)

June 9-11, 2026

Lecturer: Susan Dynarski, Harvard Graduate School of Education

Danish Graduate Programme in Economics (DGPE)  
TrygFonden's Centre for Child Research

This course is intended for PhD students in economics or related quantitative fields who have an interest in the economics of education, especially randomized controlled trials.

Students will learn how to plan, run, analyze, and interpret randomized field experiments in education. The course focuses on *research design* and *statistical analysis*. Students will learn the history, methodology, and theory of RCTs and write a proposal for a field experiment.

Students are expected to have familiarity with basic econometrics of program evaluation and causal inference.

## Credits

To receive credits for the course, students should either give a presentation (30 min) within the topics covered by the course (broadly speaking) or submit a proposal for a randomized trial (5-10 pages) no later than 2 weeks after the course has finished. The proposal should include a short literature review, specific research questions, an analysis plan, proposed context and data sources, power calculations, and a project timeline.

## Lecturer

Professor Susan Dynarski: <https://www.gse.harvard.edu/directory/faculty/susan-dynarski>

## Topics covered and readings:

### Session 1

- The experimental ideal
  - Potential outcomes framework
  - Selection bias and how randomization addresses it
1. Angrist, Joshua D., and Jörn-Steffen Pischke. *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton university press, 2009. Chapters 1-2.
  2. Krueger, Alan B. "Experimental Estimates of Education Production Functions." *The Quarterly Journal of Economics* 114:2 (1999): 497-532. Skim the technical bits; we will return to them later in the course.
  3. Esther Duflo, 'Social Experiments to Fight Poverty': <https://youtu.be/OzvriGpKvcs>

### Session 2

- Treatment Effects – ATE, TOT, ITT, LATE
  - Cluster RCTs – capturing spillovers
1. Bettinger, Eric P., and Brent J. Evans. "College guidance for all: A randomized experiment in pre-college advising." *Journal of Policy Analysis and Management* 38.3 (2019): 579-599.
  2. Angrist, Joshua D., and Jörn-Steffen Pischke. *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton university press, 2009. Chapter 4 (4.1, 4.1.1, 4.4.1, 4.4.3)

### Session 3

- When and how to randomize; at what level to randomize
  - Types of randomization: simple, stratified, pairwise
1. Glennerster, Rachel, and Kudzai Takavarasha. *Running Randomized Evaluations: A Practical Guide*. Princeton University Press, 2014. Chapter 4 (4.1, 4.2, 4.3, 4.5, 4.6 pages 161-165).
  2. Duflo, Esther, Pascaline Dupas, and Michael Kremer. "School governance, teacher incentives, and pupil-teacher ratios: Experimental evidence from Kenyan primary schools." *Journal of Public Economics* 123 (2015): 92-110.

### Session 4

- Power and precision: power, sample size calculation, improving power
  - Measuring outcomes
1. Glennerster, Rachel, and Kudzai Takavarasha. *Running Randomized Evaluations: A Practical Guide*. Princeton University Press, 2014. Chapter 5 (5.1 & 5.2) and Chapter 6 (6.1 & 6.4).
  2. <https://www.povertyactionlab.org/resource/power-calculations>
  3. Dynarski, Susan, et al. "Closing the gap: The effect of reducing complexity and uncertainty in college pricing on the choices of low-income students." *American Economic Review* 111.6 (2021): 1721-56.

### Session 5

- Estimating treatment effects for individual and cluster RCTs
  - Heterogeneity
  - Multiple hypothesis testing
  - Pre-analysis plans
1. Alan, Sule, Teodora Boneva, and Seda Ertac. "Ever failed, try again, succeed better: Results from a randomized educational intervention on grit." *The Quarterly Journal of Economics* 134.3 (2019): 1121-1162.
  2. <https://www.povertyactionlab.org/resource/data-analysis>
  3. Pre-analysis plan for Alan et. al (2019): <https://www.socialscienceregistry.org/trials/3317>

### Session 6: Seminar

Susan Dynarski, "The Impact of Free Tuition Program Design on College Applications and Enrollment in the United States"

AEA Registry Number: AEARCTR-0001831

AEA Registry Link: 10.1257/rct.1831-3.0 <https://www.socialscienceregistry.org/trials/1831/history/51066>

*Format and schedule*

This course is comprised of the equivalent to 2 full days of teaching (12 hrs) in addition to preparing readings (20 hrs) and presentations (or the submission of a research proposal after the course) (20 hrs).

Preliminary schedule:

Tuesday, June 9 2026	Wednesday, June 10 2026	Thursday, June 11 2026
12.30-13.00 arrival and lunch 13.00-14.30 session 1 14.30-15.00 break 15.00-16.30 session 2 18.00- course dinner	09.00-10.30 session 3 10.30-11.00 break 11.00-12.30 student presentations 12.30-13.30 lunch 13.30-15.00 session 4 15.00-15.30 break 15.30-17.00 student presentations	09.00-10.30 session 5 10.30- break 12.15-13.30 session 6 (lunch seminar)

*Sign up:*

May 1, 2026: Sign up (incl. draft paper for student presentation if interested in this option)