

# **BSTA6600: Design of Observational Studies**

Fall 2023, October 25 – December 11, Blockley 418  
Monday and Wednesday 1:45 – 3:15  
Office hours: Wednesday 9:00 – 10:00, 604 Blockley

## **Course Director**

Rebecca Hubbard, PhD  
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## **TA**

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## **Course Description**

The objective of this course is to prepare students to design and analyze medical research studies using observational data. Through a combination of lectures and hands-on assignments, students will learn to identify an appropriate study design to answer a given research question, identify possible sources of bias, conduct an analysis appropriate to a given study design and interpret results, and conduct sensitivity analyses to evaluate robustness of results to common sources of bias and error.

Topics for the course will include:

- observational study designs
- common sources of bias
- confounder control via matching and propensity scores
- sensitivity analysis

## **Course Requirements and Grading**

- Three homework assignments (15% each)
- Final project (30%)
- Class participation (25%)

## **Course Materials**

*Required Text:* Lash T, Vanderweele T, Haneuse S, Rothman KJ. *Modern Epidemiology*, 4th Edition. Philadelphia: Wolters Kluwer; 2021.

Material from the textbook will be supplemented with readings from the statistical and epidemiologic literature.

In case of conflict, lecture material takes precedence over readings.

## **Class Canvas Site**

This course will use Canvas to share materials including lecture notes and readings, to submit homework assignments, and to interact outside of the classroom via the discussion board. Lecture notes and readings from sources other than the textbook will be made available prior to class each week. Students should check Canvas regularly for information.

## **Expectations**

Students are expected to:

- Complete all assigned readings prior to class.
- Participate in class discussions and activities.
- Complete all homework assignments and the final project by the due date. No credit will be given for late assignments except in extraordinary circumstances.
- Use of ChatGPT and other AI tools to help with your writing is permitted. However, you should not rely on AI to do your thinking for you. Getting help with writing and grammar from AI is fine, but the ideas represented in your work should be yours (not the AI's).
- Comply with the University of Pennsylvania's Code of Academic Integrity policy on plagiarism. Students may work together on homework assignments, but the final submitted document should be prepared by each individual student. No credit will be given for work that is plagiarized, either from another student, the internet, or any other source.