

QBS 133: CLINICAL EPIDEMIOLOGY

Spring Quarter 2020

W/F 1:00 - 2:30PM

Instructor:

Michael Passarelli, PhD

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Time: W/F 1-2:30pm

Classroom: TBD

Office hours: Available upon request

Teaching assistant: None

Prerequisites: QBS 130 & 131 (Foundations of Epidemiology I & II) or instructor permission

Description:

This course focuses on the study of medical interventions and the outcomes of disease, expanding on selected concepts covered in Foundations of Epidemiology I & II. Lectures will emphasize study design, statistical methods, collection and interpretation of data, and will be supplemented with readings from the medical literature. Topics include assessment of the performance of diagnostic and screening tests, design of studies for evaluating the efficacy of screening programs for early detection of chronic disease, as well as randomized clinical trials and nonrandomized studies of disease prognosis, therapeutic efficacy, and therapeutic safety. Also covered will be the construction and validation of clinical risk prediction models and statistical approaches for assessing the performance of risk prediction models including discrimination, calibration, and reclassification. Additional topics include pharmacoepidemiology, pharmacogenomics, quality of life measurement, and synthesis of quantitative data for medical decision making such as meta-analysis and cost-effectiveness analysis.

Coursework:

For each class session, there will be a journal article assigned to read in advance of class. There will be homework assignments every other week consisting of short written answers that in total should not exceed 2 pages typed. Material covered on the homework assignments will be drawn from the lectures and assigned readings. Typed assignment answers are to be uploaded to Canvas prior to the class time on the scheduled due date. Late assignments will not be accepted without prior arrangement with the instructor. Given the unusual circumstances created by the COVID-19 outbreak, please understand that course content and assignments may be subject to change. Additional information can be found on the course Canvas site.

Grading:

Final grades will be based on attendance and homework assignments. If attendance for the live class meeting is not possible, please notify the instructor in advance and watch the recorded lecture after it is posted to Canvas.

Class Slides & Lecture Recordings:

Lectures will be given online this quarter via Zoom. Online class meetings will take place at the time designated by the QBS administration. All students are expected to join class and participate online as if the class was being held in person. The instructor will post electronic copies of lecture slides before

each class session on Canvas. All Zoom sessions will be recorded and posted on Canvas immediately after each class session.

Required Text: None

Optional Text: Weiss NS. *Clinical Epidemiology: The Study of the Outcome of Illness* (3rd Ed.). Oxford University Press, 2006

DARTMOUTH POLICIES:

Student Safety

At Dartmouth, we value integrity, responsibility, and respect for the rights and interests of others, all central to our Principles of Community. We are dedicated to establishing and maintaining a safe and inclusive campus where all have equal access to the educational and employment opportunities Dartmouth offers. We strive to promote an environment of sexual respect, safety, and well-being. In its policies and standards, Dartmouth demonstrates unequivocally that sexual assault, gender-based harassment, domestic violence, dating violence, and stalking are not tolerated in our community.

The Sexual Respect Website (sexual-respect.dartmouth.edu) at Dartmouth provides a wealth of information on your right with regard to sexual respect and resources that are available to all in our community. Please note that, as a faculty member, I am obligated to share disclosures regarding conduct under Title IX with Dartmouth's Title IX Coordinator. Should you have any questions, please feel free to contact Dartmouth's Title IX Coordinator (Kristi.Clemens@Dartmouth.edu) or the Deputy Title IX Coordinator for Geisel (Leslie.Henderson@Dartmouth.edu) or for Guarini School of Graduate and Advanced (Gary.Hutchins@Dartmouth.edu).

Student Accessibility and Accommodations

Students with disabilities who may need disability-related academic adjustments and services for this course are encouraged to see me privately as early in the term as possible. Students requiring disability-related academic adjustments and services must consult the Student Accessibility Services (SAS) office in Carson Hall 125 or by phone: 646-9900 or email:

Student.Accessibility.Services@Dartmouth.edu.

Once SAS has authorized services, students must show the originally signed SAS Services and Consent Form and/or a letter on SAS letterhead to me. As a first step, if you have questions about whether you qualify to receive academic adjustments and services, you should contact the SAS office. All inquiries and discussions will remain confidential.

Religious Observances

Some students may wish to take part in religious observances that occur during this academic term. If you have a religious observance that conflicts with your participation in the course, please meet with me before the end of the second week of the term to discuss appropriate accommodations.

COVID-19 Information

Guarini School of Graduate and Advanced Studies is actively updating policies with respect to the coronavirus outbreak here: <https://graduate.dartmouth.edu/about/who-we-are/covid-19-guarini-updates>. Dartmouth College information is available here: <https://news.dartmouth.edu/covid-19/covid-19-coronavirus-information>.

Tentative Class Schedule for Spring 2020:

Class	Date	Topic	Reading	Due
1	W 4/1	Review of study designs, course overview	N/A	
2	F 4/3	Screening for chronic diseases	Nishihara (2013)	
3	W 4/8	Performance of diagnostic/screening tests I	Pepe (2004)	
4	F 4/10	Performance of diagnostic/screening tests II	Janes (2015)	
5	W 4/15	Clinical trials of therapeutic efficacy & safety I	Pocock (2016a)	
6	F 4/17	Clinical trials of therapeutic efficacy & safety II	Pocock (2016b)	
7	W 4/22	Clinical trials of therapeutic efficacy & safety III	Mauri (2016)	
8	F 4/24	Observational studies of therapeutic efficacy & safety	Mutsch (2004)	
9	W 4/29	Women's Health Initiative case study	Prentice (2006)	
10	F 5/1	Women's Health Initiative case study	Hernan (2008)	
11	W 5/6	Genetic epidemiology II	Manolio (2013)	
12	F 5/8	Pharmacoepidemiology I	Higashi (2002)	
13	W 5/13	Pharmacoepidemiology II	Suissa (2008)	
14	F 5/15	Risk prediction models I	Steyerberg (2010)	
15	W 5/20	Risk prediction models II	Cook (2007)	
16	F 5/22	Framingham Heart Study Risk Scores case study	Sullivan (2004)	
17	W 5/27	Meta-analysis	DerSimonian (1986)	
18	F 5/29	Cost-effectiveness analysis	Black (2014)	
19	W 6/3	Quality of life & patient-reported outcomes	Murray (2012)	

Updated: 4/30/20