HPM 239A: Decision Analysis and Cost-Effectiveness Analysis

Course information
Fall 2019
Monday and Wednesday 10:00am-11:50am
Room: Roemer, CHS 31-262

Prerequisites
Biostat 100 (or equivalent); Epi 100 (or equivalent) or medical degree. Contact the instructors to discuss exceptions to these requirements. This class has a quantitative focus and requires a general sense of fundamental statistics (descriptive statistics and hypothesis testing) and math (algebra and probability) concepts.

Instructors
We are here to help! Feel free to contact us, or set up a time to meet with us, or drop by during open office hours listed below.

Drew M. Anderson, PhD
anderson.drewm@gmail.com
303-503-7741
Office hours by appointment
Learn more about Drew and his research at www.drewmanderson.com

Michelle Keller, PhD, MPH
mkeller05@ucla.edu
805-895-0629
Office hours: Monday 9:00am-10:00am in CHS 31-236
Learn more about Michelle and her research at www.michellesophiekeller.com

TA: Brayan Seixas
brayanseixas@ucla.edu
Office hours: Wednesday 9:00am-10:00am in CHS 31-236

Required textbooks
Anne C. Haddix, Steven M. Teutsch, and Phaedra s. Corso

(CBA) Cost-Benefit Analysis: Concepts and Practice
Anthony E. Boardman, David H. Greenberg, Aidan R. Vining, and David L. Weimer
Learning objectives

This class will teach you to think like an economist. We will consider health policy and management decisions as they affect all of society, before focusing in on particular stakeholders. We will give you tools to assess health policies quantitatively. Our approach will make competing policy actions comparable in terms of positive and negative impacts, across people, and across time. We will deal with the uncertainty inherent in this approach. Ultimately, you will become an informed consumer of research and analysis on health policy, able to assess the strength and direction of the evidence base and apply evidence as warranted to important decisions, or to make clear and well-reasoned recommendations to leaders. This class naturally leads to further coursework in statistics and research design, which would prepare you to produce new research of your own.

The course schedule below acts as a Table of Contents, summarizing the flow of specific topics we will cover. We have assigned readings that will prepare you for each lecture. The lectures will highlight key concepts in the longer readings, or will expand on some of the shorter readings. Policy memos, problem sets, and a take-home final exam will test your qualitative and quantitative skills developed in the course.

Our objectives are aligned with the Council on Education in Public Health (CEPH) Universal Competencies for the Professional MPH Degree. For example:

- Evidence-based approach: Select data collection methods; Analyze data; Interpret results of data analysis for public health research, policy or practice
- Policy: Select methods to evaluate public health programs; Evaluate policies for their impact on public health and health equity; Conduct policy analysis and write effective policy memos on current public health issues
- Communication: Communicate audience-appropriate public health content
- Management: Analyze economic decisions related to healthcare organizations and the public health and health care systems

The class touches on many other aspects of the professional MPH. These are just the main ones.

Credits

This is a 4-credit course. We expect in addition to attending lectures for approximately 4 hours per week, that you work outside of class for approximately 8 hours per week.
# Schedule

Readings are relevant to that day's lecture, and should be completed before each lecture.

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<tr>
<th></th>
<th>Instructor</th>
<th>Topics</th>
<th>Reading</th>
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<tr>
<td>1</td>
<td>Mon 9/30</td>
<td>Keller/Anderson</td>
<td>Intro to each other and the course</td>
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<td>2</td>
<td>Wed 10/2</td>
<td>Anderson</td>
<td>Economic foundations</td>
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<td>3</td>
<td>Mon 10/7</td>
<td>Keller</td>
<td>Intro to decision analysis</td>
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<td>4</td>
<td>Wed 10/9</td>
<td>Anderson</td>
<td>Intro to cost-effectiveness and cost-benefit analysis</td>
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<td>5</td>
<td>Mon 10/14</td>
<td>Keller</td>
<td>Decision trees: probabilities and expected values</td>
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<td>6</td>
<td>Wed 10/16</td>
<td>Anderson</td>
<td>Measuring benefits and costs</td>
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<td>7</td>
<td>Mon 10/21</td>
<td>Keller</td>
<td>Healthcare costs: Gross-costing</td>
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<td>9</td>
<td>Mon 10/28</td>
<td>Keller</td>
<td>Healthcare costs: Micro-costing</td>
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<td>10</td>
<td>Wed 10/30</td>
<td>Anderson</td>
<td>Discounting and inflation</td>
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<td>11</td>
<td>Mon 11/4</td>
<td>Keller</td>
<td>Health outcomes instruments</td>
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and life expectancy calculations

6 (pp. 87-92); Ch. 7 & 8

12 Wed 11/6 Seixas Lab: Discounting and inflation in Excel

13 Mon 11/11 Seixas Lab: Creating decision trees in Excel

PE Ch. 7 (pp. 114-124)

14 Wed 11/13 Anderson Uncertainty and sensitivity analysis

Boardman Ch. 11

15 Mon 11/18 Keller Cost-Effectiveness and ICERs

PE Ch. 9 (pp. 156-173)

16 Wed 11/20 Guest speaker TBD

RAND RR3106

17 Mon 11/25 Keller Sensitivity analysis and diagnostic tests

PE: Ch. 9 (pp. 173-176); Patient Zero Podcast, Episode 4 (posted online)

18 Wed 11/27 OFF Thanksgiving Break

19 Mon 12/2 Seixas Ethical considerations and discussion

Ethical and Distributive Considerations in Neumann et al. Cost-Effectiveness in Health and Medicine. 2nd edition (posted online)

20 Wed 12/4 Anderson Case studies, decision making, and designing a study

Perez-Arce (2012), PE Ch. 10

Assignments and grading

Assignments must be sent on CCLE by midnight on the due date.

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<tr>
<th>Assignment</th>
<th>Posted</th>
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<tr>
<td>Memo 1</td>
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<td>Memo 2</td>
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<td>11/13</td>
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<td>Memo 3</td>
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<td>Problem set 1</td>
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<td>Problem set 2</td>
<td>11/11</td>
<td>11/26</td>
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<td>Take-home final</td>
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<td>12/6</td>
<td>25</td>
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<td>Attendance, timeliness, participation</td>
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The memos require you to choose a topic in healthcare or public policy that could benefit from economic analysis and decision analysis. Find and read 1-3 articles on that topic, with at least 1 of them a peer-reviewed research article. Then write a short memo synthesizing evidence on the issue and making a recommendation. Provide a rationale for your recommendation and any caveats about what we don't know. You may choose a topic that interests you, or choose from some examples we will provide. Memos are meant to be short. No more than 3 pages.

Memo 1 - extra focus on setting up the problem, seeing all costs and benefits
Memo 2 - extra focus on measurement of costs and benefits (or effects)
Memo 3 - extra focus on uncertainty

Memos will be graded based on clarity of summarizing the topic, setting up the problem in terms of economic analysis, summarizing each article, and making a sensible and justified recommendation (with about equal weight to each). Strive for simple writing, organized under clear headings. You seek to convey and support a key point to a leader who is generally overburdened and under-informed on this topic--but exacting and expert in their field. Your memo should reflect your own work, even if you choose the same topic as a classmate and discuss it with them.

Problem sets will be graded on a plus/minus scale. A good effort will get full credit. Late or partial effort will get half credit. You may collaborate with your classmates, but please turn in your own work.

The take-home final exam is intended to assess your knowledge of all the concepts in the class. It will be a mix of writing, problem solving, and research. You will have 24 hours to complete the final, and you may use the internet, class notes, books, everything--except that we ask you to work on the final alone, without collaborating with classmates. Late exams will only be eligible for half credit.

**If you have outside circumstances that necessitate an extension of any deadlines, please talk to one of us as soon as possible! We can work something out.**
Technology
You are encouraged to use whatever laptops, tablets, and smartphones in the classroom for educational purposes: note taking, looking up references, etc. The slides will be available online after each class.

Assignments will be posted and turned in on CCLE at https://ccle.ucla.edu/course/view/19F-HLTPOL239A-1.

Writing Assistance
If you feel that you need individual writing assistance, we encourage you to consult the UCLA Graduate Writing Center. See http://gsrc.ucla.edu/gwc/ for information about how to schedule a consultation. Please note that consultations must be scheduled in advance, so please plan ahead.

Campus Resources
Dealing with disability
Students needing academic accommodations based on a disability should tell the instructors, who will help you contact the Center for Accessible Education (CAE). You can contact them directly at 310-825-1501 or in person at Murphy Hall A255. For more information visit www.cae.ucla.edu. In addition to registering with CAE, students may contact your TA privately to discuss specific needs. We also welcome contact and conversation from those students who do not identify as disabled but who would like to share ways that we can help to make the curriculum more accessible and/or to facilitate learning and participation.

UCLA basic needs
For resources related to housing security, financial aid, the UCLA CPO food closet, students with dependents, CalFresh, and other needs, please visit https://www.basicneeds.ucla.edu/.

Counseling and psychological services
CAPS offers short-term, goal directed treatment which may include screenings, crisis intervention, individual one-on-one counseling, group therapy, referrals, and medication. CAPS provides workshops and trainings to staff and students. CAPS also offers sexual violence prevention education and response through the Campus Assault Resources and Education (CARE) program. CAPS is available to all registered students. See location, times, and services at http://www.counseling.ucla.edu/.

Crisis Counseling
24 hrs by phone at 310-825-0768
Please visit this website for links to additional campus resources listed below:
https://equity.ucla.edu/programs-resources/campus-resources/
- Dashew Center for International Students
- Office for Students with Disabilities
- Lesbian, Gay, Bisexual, Transgender Campus Resource Center
- Supporting Nursing Mothers at UCLA
- Undocumented Student Program at UCLA

Statement on academic integrity
You are expected to abide by UCLA's Code of Conduct. Cheating and plagiarism are not tolerated and can result in failure of the course and/or other disciplinary actions including expulsion from UCLA.

Equity, diversity, and inclusion
Inclusion is not just a value, it is a practice. In a community of people with diverse backgrounds, identities and points of view, we champion one another’s growth and success by being engaged, courageous, humble and open.