**ECONOMIC EVALUATION II**
Course 313.602: Monday, Wednesday 3:30 - 4:50pm
Wolfe Street W2008

**Lead Instructor**
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**Office Hours**
TBD or by appointment

**COURSE DESCRIPTION**
Cost-effectiveness analysis (CEA) is a multidisciplinary science which aims to systematically and rigorously compare health interventions to reach optimal decision-making. Rooted in economic theory, decision science and statistics, CEA (and related methodologies) continue to evolve into a diverse toolkit of techniques that allow us to better quantify costs and effects of healthcare technologies and public health interventions.

This course extends the theory presented in Economic Evaluation I, and will expose students to intermediate methodology for conducting CEA with an emphasis on studying applied examples. We will learn to build decision tree and markov models in Excel and R, as well as practice reading, interpreting and critically appraising public and published CEA. Each student will be assigned an applied paper and be prepared to present it to the class.

In the course you will complete a term long project critiquing a published report from the Institute for Clinical and Economic Review (ICER - https://icer-review.org/about/). This project will consist of completing the 2nd Panel Impact Inventory template (page 351 Second panel) with associated write up explaining how and why certain decisions were made. Additionally, to practice modeling, students will be required to create a decision tree model mirroring the problem explored in the chosen ICER report. Further details will be provided the 3rd week of class.

**COURSE LEARNING OBJECTIVES**
Upon successfully completing this course, students will be able to:
1. Identify the key components of CEAs and critically review CEA and related literature
2. Learn to construct decision tree and basic markov models
3. Quantify, visualize and communicate the effects of uncertainty in CEA
4. Understand the role of health technology appraisal both within and outside the United States
INTENDED AUDIENCE
Masters and doctoral students with strong interest in health economics and outcomes research

METHODS OF ASSESSMENT
Homework assignments and Labs (24%); Class participation and pop quiz(izes) (10%); Applied Paper Presentation/Slides (11%); ICER Project (35%); Midterm (20%)

PREREQUISITES
Econ Evaluation I-313.601

INSTRUCTOR CONSENT
No consent required.

ACADEMIC ETHICS AND STUDENT CONDUCT CODE
Students enrolled in the Bloomberg School of Public Health of The Johns Hopkins University assume an obligation to conduct themselves in a manner appropriate to the University's mission as an institution of higher education. A student is obligated to refrain from acts which he or she knows, or under the circumstances has reason to know, impair the academic integrity of the University. Violations of academic integrity include, but are not limited to: cheating; plagiarism; knowingly furnishing false information to any agent of the University for inclusion in the academic record; violation of the rights and welfare of animal or human subjects in research; and misconduct as a member of either School or University committees or recognized groups or organizations. Students should be familiar with the policies and procedures specified under Policy and Procedure Manual Student-01 (Academic Ethics), available on the school’s http://my.jhsph.edu portal.

The faculty, staff and students of the Bloomberg School of Public Health and the Johns Hopkins University have the shared responsibility to conduct themselves in a manner that upholds the law and respects the rights of others. Students enrolled in the School are subject to the Student Conduct Code (detailed in Policy and Procedure Manual Student-06) and assume an obligation to conduct themselves in a manner which upholds the law and respects the rights of others. They are responsible for maintaining the academic integrity of the institution and for preserving an environment conducive to the safe pursuit of the School's educational, research, and professional practice missions.

DISABILITY SUPPORT SERVICES
If you are a student with a documented disability who requires an academic accommodation, please contact the Office of Disability Support Services at 410-502-6602 or via email at JHSPH.dss@jhu.edu. Accommodations take effect upon approval and apply to the remainder of the time for which a student is registered and enrolled at the Bloomberg School of Public Health.
SYLLABUS

(*) Denotes Optional Reading

The 2 textbooks for the course are:


They are available via the Welch Library online collection at these URLs

https://catalyst.library.jhu.edu/catalog/bib_6304017 (Drummond)
https://catalyst.library.jhu.edu/catalog/bib_7263104 (2nd Panel)

All other readings will be available on CoursePlus.

**Week 1a: Course Overview /Decision Analytic Modeling and Trees (10/28)**

Drummond Chapter 9: 9.1-9.4.4.5 (page 311-331)
Applied: None

**Week 1b: Decision Trees and Uncertainty in CEA, Deterministic Sensitivity Analysis (10/30)**

Drummond Chapter 11: 11.1-11.2.1.2 (page 389-398)

*Applied: Barkun et al. 2013 (Dr. Levy to present)*

*Review Second Panel Chapter 5*

**Week 2a: Systematic Review for Economic Evaluations [Dr. Drabo] (11/4)**

Edwards and McIntosh p. 87-102 (available here: https://catalyst.library.jhu.edu/catalog/bib_7963668)

*Applied: Kansal 2011 and Roskel 2010 (Dr. Drabo to present)*

*Drummond Chapter 10 (p. 354-369)*
*Sutton 2001 [Section 1-3]*
*Cawson 2014*
*Second Panel Chapter 6*
*Cochrane Chapter 9 (Green)*

**Week 2b: Lab #1: Building Decision Trees and Tornado Plots [Linda and Rebecca] (11/6)**

Bring Laptop with Excel and RStudio installed

*Finish Lab Write Up as HW #1*

**Week 3a: Reporting and Interpretation, Second Panel Recommendations, Impact Inventory Checklist (11/11)**

Second Panel Chapter 13
*Overview of the ICER value assessment framework and update for 2017-2019*
*Review Second Panel Appendix B*

*Applied: Li 2018 (first applied paper presentation)*

*Applied: Barkun et al. 2013 (Dr. Levy to present)*

Assign ICER Final Project
Week 3b: Probabilistic Sensitivity Analysis and Lab #2 (11/13)
Drummond Chapter 11 11.2.2-11.2.4.4 (398-410)
*Second Panel Chapter 11 Section 11.4.2-11.6 and 11.8-11.9
*Briggs et al. 2002

HW 1 Due

Finish Lab as HW #2

Week 4a: Probabilistic Sensitivity Analysis/ Review (11/18)
Briggs et al. 2012
Applied: Moore et al. 2006 (first applied paper presentation)

HW2 Due

Week 4b: Midterm in Class (11/20)

Week 5a: Markov Models (Math) (11/25)
Drummond Chapter 9: (331-339)
Applied: O'Sullivan 2009

Week 5b: CANCELED (11/27)

Week 6a: Lab #3 – Markov Models Using R/heRo3 (12/2)
Caro et al. 2012

Week 6b: Statistical Methods for EE (12/4)
Drummond Chapter 10 (p. 369-386)
Fleurence and Hollenbeak 2007
*Second Panel Appendix A

Week 7a: Cost Effectiveness Alongside Clinical Trails, Extrapolation (12/9)
Glick and Polsky Chapter 2
Applied: Garziano 2016 (and Ollendorf 2016)

HW #3 Due

Week 7b: Cost Benefits Analysis and Budget Impact Analysis in Public Health (12/11)
Dinkel 1985
Phelps 1991
Applied: Willink 2019

Week 8a – Week 8b (12/16 – 12/18):

Final ICER Project Presentations
Readings

(BOLD) denotes Applied Paper


