

Xavier University

Exhibit

Health Services Administration Syllabi Spring
2018

Health Services Administration Syllabi 2018

2018

HECO 674 Introduction to Cost-Benefit Analysis

Peter Mallow
mallowp@xavier.edu

Follow this and additional works at: [https://www.exhibit.xavier.edu/
health_services_administration_syllabi_spring_2018](https://www.exhibit.xavier.edu/health_services_administration_syllabi_spring_2018)

Recommended Citation

Mallow, Peter, "HECO 674 Introduction to Cost-Benefit Analysis" (2018). *Health Services Administration Syllabi Spring 2018*. 6.
https://www.exhibit.xavier.edu/health_services_administration_syllabi_spring_2018/6

This Restricted-Access Syllabus is brought to you for free and open access by the Health Services Administration Syllabi 2018 at Exhibit. It has been accepted for inclusion in Health Services Administration Syllabi Spring 2018 by an authorized administrator of Exhibit. For more information, please contact exhibit@xavier.edu.

HECO 674: Intro to Cost-Benefit Analysis
Spring 2018

Department of Health Services Administration
College of Professional Sciences
Xavier University

Schedule: Thursday's 5:00p to 7:30p
Classroom: TBA
Credit Hours: 3 Graduate Credit Hours
Faculty: Peter J. Mallow, PhD
Office: Schott 411
Office Hours: Thursdays 3:45p to 4:45p or by appointment
Office Phone: 513.745.3636
E-mail: mallowp@xavier.edu

Administrative Assistance: Ms. Kristin Dale, Schott Hall 411, Phone: 513.745.3649

HECO 675 Course Description:

This course will introduce the development, methodological approach, and application of quantitative models used to inform health care decisions. The course will emphasize decision trees and Markov models and introduce agent based modeling techniques. Approaches to uncertainty in the model will be addressed through one-way, and probabilistic sensitivity analyses. The course will consider the application and presentation of the model to stakeholders with an emphasis on the ethical use and proper disclosure of the limitations inherent in the data and methods.

Course Objectives:

Upon the successful completion of this course, students should be able to:

- Prepare & synthesize complex data to for use in a simulation model
- Develop a simulation model using appropriate study design for the research question
- Interpret the results of their simulation model and make recommendations

Student Assessment:

This course will be applied practicum. Therefore, there will not be any quizzes or formal exams. Students will be assessed based on their homework assignments, participation, and a final project as described below.

Homework: (25% of grade, 200 points)

Homework assignments will be distributed via canvas. Assignments will be deemed late if not received by the posted time or emailed to the Instructor prior to the assignment due date. Physical copies are the preferred method for submitting homework assignments.

Late assignments will accrue a penalty of one letter grade per day the assignment is late. It is considered two days late if it is submitted any more than 24 hours past the identified due date/time,

and so forth. This includes weekends! Once an assignment is 3 days late, it will become a zero and will not be accepted for credit.

If an extension for an assignment is requested, this must be received no less than 48 hours before the assigned due date/time. Extensions are not guaranteed, and are at the discretion of the instructor. Extensions may include a late penalty.

Project: (50% of grade, 400 points)

The project is intended to (1) allow the course director to evaluate your understanding of the concepts and techniques of the course, and (2) give you an opportunity to gain experience with them. While there is the potential for the projects to develop into a publishable paper, that is not the goal within the course. They should be considered as pilots, although in some cases they might come close to a “finished product.”

Participation: (25% of grade, 200 points)

The course is structured so that much of the learning occurs in the interactive discussions that occur within each class session. Evaluation will be based on preparation for the classes, engagement with the discussions, and evidence of understanding of the concepts based on participation.

Grading Scale (Note: 0.55% will be rounded up):

A	93-100
A-	90-92
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	60-66
F	≤59

Textbooks:

Drummond M, et al. Methods for the Economic Evaluation of Health Care Programmes. Oxford: Oxford University Press, 2015 4th Edition. ISBN-10: 0199665885 (you may purchase the older edition)

Briggs A, et al. Decision Modelling for Health Economic Evaluation. Oxford: Oxford University Press, 2006. ISBN-13: 9780198526629

Students will be expected to obtain a copy of TreeAge Software (www.treeage.com). A student license costs \$45.

Course Outline: (Subject to change as needed but will be generally followed)

Week (Dates)	Topic	Assigned Reading(s) / Assignment(s)
Module 1 (1/11)	Course Orientation / Use of Economic Evaluation in Decision Making	Briggs Chapter 1 Drummond Chapter 3 Husereau D. et al. Consolidated Health Economic Evaluation Reporting Standards (CHEERS)—Explanation and Elaboration: A Report of the ISPOR Health Economic Evaluation Publication Guidelines Good Reporting Practices Task Force. Value in Health. 2013;16:231-250 Discussion: Use of Economic Evaluation in Healthcare Decision Making
Module 2 (1/18)	Decision Analysis & Decision Trees	Drummond Chapter 9 Assignment: Critical Appraisal of Economic Evaluation Discussion: CA of Economic Evaluations
Module 2 (1/25)	TreeAge – Decision Analysis and Decision Trees	Must bring laptop with TreeAge Assignment: Project Topic Statement
Module 3 (2/1)	Markov Models Manchester United is Over Rated	Briggs Chapter 3 Siebert U, Alagoz O, Bayoumi AM, et al. State-transition modeling: A report of the ISPOR-SMDM modeling good research practices task force-3. Value Health 2012;15:812-20 Assignment: Decision Trees
Module 3 (2/8)	TreeAge – Markov Models	Must bring laptop with TreeAge Discussion: Markov Models
Module 3 (2/15)	Working Session	Assignment: Sign up for 30 minute session with Instructor. You are only required to be present for your allotted time. Be punctual. Assignment: Exercise 2.5 from Briggs
Module 4 (2/22)	Uncertainty & Sensitivity Analysis	Briggs Chapter 6 Briggs AH, Weinstein MC, Fenwick E, et al. Model parameter estimation and uncertainty analysis: A report of the ISPOR-SMDM modeling good research practices task force-6. Value Health 2012;15:835-42.
Module 4 (3/1)	TreeAge – Uncertainty & Sensitivity Analysis	Must bring laptop with TreeAge Discussion: Uncertainty Analysis
Week (3/8)	NO CLASS	Spring Break
Module 4 (3/15)	TreeAge	Must bring laptop with TreeAge Assignment: Model Diagram, Parameter Listing with Definitions, Figure and Table Listing

Module 4 (3/22)	Working Session	Assignment: Sign up for 30 minute session with Instructor. You are only required to be present for your allotted time. Be punctual.
Week (3/29)	NO CLASS	University Closed for Holy Thursday
Module 5 (4/5)	Reporting on Economic Evaluations	Briggs Chapter 5 Drummond Chapter 10 Eddy DM, Hollingworth W, Caro JJ, et al. Model transparency and validation: A report of the ISPOR-SMDM modeling good research practices task force-4. Value Health 2012;15:843-50.
Module 5 (4/12)	TreeAge: Reporting on Economic Evaluations	Must bring laptop with TreeAge Discussion: Reporting on Economic Evaluations
Module 6 (4/19)	Discrete Event Simulation	Karnon J, Stahl JE, Brennan A, et al. Modeling using discrete event simulation: A report of the ISPOR-SMDM modeling good research practices task force-4. Value Health 2012;15:821-27. Discussion: Discrete Event Simulation Assignment: Final Report
Module 7 (4/26)	Presentations	You are required to attend all presentations Assignment: Presentation Discussion: Reflection on Presentations

HSA DEPARTMENT LEVEL Mission Statement (2011): Please see XU HSA Student Handbook

In keeping with its Catholic, Jesuit tradition, the mission of the Department of Health Services Administration at Xavier University is to educate knowledgeable, highly skilled, values-oriented future leaders who will contribute to the health of society by continuously improving the management of health related organizations. HSA will accomplish its mission through:

- Challenging students in the classroom and in applied field experiences including internships and administrative residencies
- Developing internal and external collaborative relationships with academicians and with health care practitioners which lead to innovations in teaching as well as in the delivery of health services
- Incorporating research, scholarship, and collaborative projects into the classroom experiences and field work.

UNIVERSITY LEVEL GRADUATE POLICIES:

<http://catalog.xavier.edu/content.php?catoid=17&navoid=833>

HOT TOPIC! Academic Honesty: Read this section in the XU Catalogue, linked above. Please ask if you have questions regarding intellectual property rights.

HOT TOPIC! Attendance: See the university catalog: graduate academic Policies and Regulations
Note: Reasonable attendance at all class meetings is expected. If a student is unable to attend a class, **the responsibility of missed class content is the sole responsibility of the student.** Tests and written assignments include assigned readings, media, class content and discussions.

Canvas:

Supplemental articles/chapters, assignment descriptions and the syllabus will be available via Canvas.

HECOR PROGRAM LEVEL POLICIES: Please see HECOR Program Level Outcomes in the HSA Student Handbook

Relation to Xavier's Mission:

The M.S. in Health Economic and Clinical Outcomes Research furthers the mission of Xavier University by educating each student intellectually, morally and spiritually. This program provides a challenging and comprehensive learning opportunity for individuals who desire to expand upon their undergraduate degree and develop advanced skills in data analysis, economic and clinical quality improvement to support organizational decision making. Experiences include ethical issues inherent in the growing area of health outcomes research. Interdisciplinary classroom experiences include work with real clinical and economic data. Didactic work combined with service learning, a mentored practicum and optional internship helps students cultivate lives of reflection, compassion and informed action.

ACCOMMODATIONS

The Office of Academic Support offers tutoring, Supplemental Instruction (SI), and study groups. For information about these services, contact Stephanie Daniels at 745-3214 or danielss3@xavier.edu. The OAS is located on the fifth floor of the Conaton Learning Commons, Suite 514.

Students with Disabilities

Any student who feels he/she may need an accommodation based on the impact of a documented disability should notify the course instructor and contact Cassandra Jones in the Office of Disability Services at 745-3280 or e-mail jonesc20@xavier.edu to coordinate reasonable accommodations.

Economic Evaluation Project

Purpose of the project

The project is intended to (1) allow the course director to evaluate your understanding of the concepts and techniques of the course, and (2) give you an opportunity to gain experience with them. While there is the potential for the projects to develop into a publishable paper, that is not the goal within the course. They should be considered as pilots, although in some cases they might come close to a “finished product.”

Summary of Requirements:

1. Construct a cost-effectiveness analysis on a question that is of interest.
 - a. Potential Topics:
 - i. Medication Assisted Treatments for Opioid Dependency
 - ii. Stenting options for bifurcated lesions
 - iii. Hepatitis C treatments
 - iv. Biologic treatments for rheumatoid arthritis
 - v. Statin therapies
2. This project will entail:
 - a. Framing the problem
 - b. Identify the perspective, intervention, comparator, outcome, and time frame
 - c. Defining the appropriate evaluative methodology – decision tree or markov model
 - d. Finding relevant data
 - e. Analysis (expected value, or cost-effectiveness ratios)
 - f. Performing sensitivity analyses
 - i. One-way sensitivity analysis
 - ii. Probabilistic sensitivity analysis
 - g. Prepare a short report
 - h. Preparing and delivering a short presentation

Report

The report should be around 10 to 15 pages including figures, references, and tables. The report should include the following sections:

1. Background, no more than 1 page
2. Methods (especially assumptions; a table of assumptions is often helpful)
3. Printout of the decision diagram
4. Results
5. Printout of analyses / sensitivity analysis
6. Discussion, what do the results mean
7. Conclusions, including potential next steps
8. References
9. Please submit a copy of your TreeAge file in .trex format.

Presentation

Your presentation should be between 15 and 20 minutes allowing for 5 to 10 minutes of questions and discussion. I will cut you off at 25 minutes. You should use PowerPoint and include:

1. Oral presentation, including background, assumptions, decision tree, results, sensitivity analysis/analyses, and conclusions
2. Handouts of trees and sensitivity analyses for each of the students to follow

Summary of Economic Evaluation Project Assessment (400 points total)

1. Project Topic / Objective (40 points)
2. Attend Working Session 1 (60 points)
3. Model Diagram, Parameter Listing with Definitions, Figure and Table Listing (40 points)
4. Attend Working Session 2 (60 points)
5. Report (100 points)
6. Presentation (100 points)