Office Hours: Wednesdays from 12:15pm to 2:00 pm and by appointment.

Course Objectives:

The overall goal of this course is to introduce you to the key concepts of health technology assessment and, in particular, cost-effectiveness analysis. This field is young, but it is very broad and multidisciplinary. This means that there are many possible angles from which to teach the material, and a fair deal of context (and pretext) behind it. It also means, quite simply, that there is a lot of challenging material, many different ways to do basically the same thing and substantial disagreement. It is impossible to cover every interesting topic (much less every important one!) from every angle in a single course. But hopefully, you will become equipped with the tools necessary to begin to do your own research and to be able to find further information (and perhaps most importantly, to know when it is necessary to find further information).

More specifically, this course should help you to:

- Become familiar with basic concepts of economic analysis as it applies to health technology assessment.
- Understand the principles of cost-effectiveness analysis on a level required to be a critical reviewer and to be able to conduct high quality, basic analysis.
- Understand the principles of cost and outcome measurement on a level required to be a critical user of the literature and to be able to "bootstrap" oneself through further study to be able to conduct primary cost and outcomes studies.
- Understand how uncertainty and statistical imprecision limits the ability to make judgments about technology; how to quantify and visualize the effects of uncertainty; and how to communicate the meaning/impact of uncertainty to an audience of users.
- Become familiar with current standards of technology assessment methods, remaining controversies, and both the dangers and advantages of standardization.

Group Project

I've found that the best way to gain an understanding of what technology assessment and cost-effectiveness analysis are all about is through "learning by doing." I've also found that very rarely does any single individual have all of the necessary skills and knowledge to do a good, thorough technology assessment. That's why most technology assessments are done by multidisciplinary teams of researchers. We will attempt to recreate the experience of the collaboration that goes on in the real world of technology assessment – for better and for worse! Throughout the semester, groups of students will complete a research poster project evaluating a technology of the group's choosing (with the instructor's input). Several homework assignments are designed to help your group identify a topic and make progress toward the final poster presentation. Each group will present their research poster in a poster session to be held from 9:25 to 12:00 on Wednesday, May 13.
Homework Assignments

Homework assignments will be due at or before 11:59 pm on the due-date. All assignments must be submitted via email to the instructor. Because of the "cumulative" nature of the assignments and their relation to your final project, timely submission is essential. You won't be able to receive your next assignment until the previous assignment is completed. Unless you receive permission from the instructor in advance, you will be docked 10% per day after the due date.

Three of the four homework assignments will relate to the topic for your group project and are meant to help you and your group make progress. These assignments will have both individual and group questions and consequently will be assigned both an individual and group grade. For the individual assignments, you can consult with your classmates, but each student must turn in their own work. Groups should elect one individual to turn in the group portion of each homework assignment.

Applied Article Critique

Based on your interests identified in the first assignment, I will select an economic evaluation paper for you to present and critique (~15 minutes) during classes on April 8 and 15. Article critique PowerPoints are due BEFORE CLASS on April 8. Missing this deadline will result in a 10% deduction.

Grades:

<table>
<thead>
<tr>
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<th>Individual Points</th>
<th>Group Points</th>
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<tbody>
<tr>
<td>Homework #1</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Homework #2</td>
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<td>Homework #4</td>
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<tr>
<td>Article Critique</td>
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<tr>
<td>Final Project</td>
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<td>300</td>
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<tr>
<td>Class Participation</td>
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<td><strong>Final Grade</strong></td>
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Grade Ranges

A  = 1400-1500
AB = 1350-1399
B  = 1300-1349
BC = 1250-1299
C  = 1200-1249
D  = 1150-1199
F  = 0-1149
Schedule:

<table>
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<tr>
<th>Lec</th>
<th>Date</th>
<th>Topic</th>
<th>Events</th>
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<tbody>
<tr>
<td>1</td>
<td>1/21/2009</td>
<td>Introduction to Technology Assessment and Cost-Effectiveness Analysis</td>
<td>HW#1 Assigned: Horizon Scanning</td>
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<td>2</td>
<td>1/28/2009</td>
<td>Technology Assessment and Cost-Effectiveness Analysis in Context: NICE, CADTH and the U.S.</td>
<td>HW#1 Due</td>
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<td>3</td>
<td>2/4/2009</td>
<td>Study Design and Guidelines for Economic Evaluations</td>
<td>HW#2 Assigned: Project Proposals</td>
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<td>4</td>
<td>2/11/2009</td>
<td>Probability, Expected Value and Decision Analysis</td>
<td>Article Critiques Assigned</td>
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<td>5</td>
<td>TBD</td>
<td>Markov Models</td>
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<td>6</td>
<td>2/25/2008</td>
<td>Health Outcomes and Utility I: Theory</td>
<td>HW#2 Due</td>
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<td>3/18/2009</td>
<td>Spring Break</td>
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<td>3/25/2009</td>
<td>Costing II: Indirect Costs, Inflation and Discounting</td>
<td>HW#3 Due</td>
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<tr>
<td>11</td>
<td>4/8/2009</td>
<td>Article Critique Presentations I</td>
<td>All Critique PowerPoints due BEFORE CLASS</td>
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<tr>
<td>12</td>
<td>4/15/2009</td>
<td>Article Critique Presentations II</td>
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<td>13</td>
<td>4/22/2009</td>
<td>Trial-Based Analysis and Comparative Effectiveness Research</td>
<td>HW#4 Due</td>
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<td>14</td>
<td>4/29/2009</td>
<td>Guidelines for Technology Assessment and Cost-Effectiveness Analysis / Project Q&amp;A</td>
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<td>15</td>
<td>5/6/2009</td>
<td>Group meetings to work on final projects</td>
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<td>Exam</td>
<td>5/13/2009</td>
<td>Final Project Presentations / Poster Session</td>
<td>Final Project Due in Class</td>
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Readings


All other articles are available through the course website at http://learnuw.wisc.edu. Some articles may be added as the course progresses. Readings are divided into two categories: required and optional. The required articles and textbook chapters for a specific session must be read before coming to class. I like the Socratic method, so I expect lots of questions from you – and I'll ask you questions if you don't ask me first! You will be graded on class participation.

List of Readings by Lecture:

Introduction to Technology Assessment and Cost-Effectiveness Analysis:

Muennig, Chapters 1 and 2.

Technology Assessment and Cost-Effectiveness Analysis in Context: NICE, CADTH and the U.S.:

Pearson and Rawlins, 2005 JAMA
Tierney et al., 2008 CMAJ
Neumann, Rosen and Weinstein, 2005 NEJM
NICE, 2008 Appraisal: primary prevention of osteoporosis

Study Design and Guidelines for Economic Evaluations

Muennig, Chapter 3
Drummond, Chapters 2 and 3
Mark et al, 1995 NEJM

Probability, Expected Value and Decision Analysis

Muennig, Chapter 5
Drummond, Chapter 9, pp. 277-295
Elwyn et al, 2001 Lancet

Markov Models

Muennig, Chapter 6
Briggs and Sculpher, 1998 Pharmacoeconomics
Frazier et al, 2000 JAMA
Health Outcomes and Utility I: Theory

Muennig, Chapters 7-8
Drummond, Chapter 6

Health Outcomes and Utility II: Measurement

Recap Muennig 7-8 and Drummond 6
Kopec and Willison, 2003 J Clin Epidemiol
Brazier, 2008 Pharmacoeconomics

Costing I: Overview and Health Cost Measurement

Muennig, Chapter 4
Drummond, Chapter 4 (skip material on overhead allocation)

Costing II: Indirect Costs, Inflation and Discounting

Recap Muennig 4 and Drummond 4
Liljas, 1998 Pharmacoeconomics
Johannesson et al, 1997 NEJM

Sensitivity and Uncertainty Analysis

Muennig, Chapter 9
Briggs, 2000 Pharmacoeconomics

Trial-Based Analysis and Comparative Effectiveness Research

Drummond, Chapter 8
Rosenheck et al, 2006 Am J Psychiatry
Tunis et al, 2003 JAMA
Wilensky, 2006 Health Affairs

Guidelines for Technology Assessment and Cost-Effectiveness

NICE 2008 Guidelines
Weinstein et al, 1996 JAMA
Academy of Managed Care Pharmacy, 2005
Weinstein et al, 2003 Value in Health

Final Project Presentations / Poster Session