Overview and Objectives:

The purpose of this course is to provide an introduction to the concepts and techniques used in the economic evaluation of health care programs. As the pressures of managed care and increasing health care costs push providers, payers and purchasers of health care to become more efficient, methods for understanding the appropriate basis for how to allocate shrinking health care resources must be understood. This course will provide an understanding of the foundations of cost effectiveness analysis, and sufficient detail regarding the mechanics and methodologies to prepare students to both interpret and critique the literature of cost effectiveness analysis and construct these analyses themselves.

Responsibilities:
Students are expected to read the assigned reading, attend class and participate, and complete the problem sets and the final exam.

Course Requirements:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Problem sets (3)</td>
<td>50%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>50%</td>
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</tbody>
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Attendance Policy:

Students are expected to sign-in to each class (computer provided in suite lobby). If a problem is encountered with the sign-in system, please contact the course instructor(s) as well as Lauren Talotta (talottals@upmc.edu) immediately.

Course Grading Scale:

- 93-100 A
- 90-92 A-
- 88-89 B+
- 80-87 B
- 78-79 B-
- 70-77 C
- 60-69 D
- <60 F

Course Mechanics:

1 credit (2 hours/session, 1-2 sessions/week, for 5 weeks)

Required textbook:


Principal article (to be used as an example throughout the course):

Optional text (on reserve at Falk Library and the Institute for Clinical Research Education [Parkvale Building, 3rd floor]):


Optional readings are placed on reserve at Falk Library and the Institute for Clinical Research Education [Parkvale Building, 3rd floor]).

**Competencies**

This course teaches to two major University of Pittsburgh Health Policy and Management competencies:

Analytic Thinking: Breaks down problems; Identifies and recognizes multiple relationships; develops complex analyses based on available data and information.

Financial Skills: Skills to make sound financial management decisions

**Academic Integrity:**

Students in this course will be expected to comply with the University of Pittsburgh's Policy on Academic Integrity (http://www.provost.pitt.edu/info/ai1.html). Any student suspected of violating this obligation for any reason during the semester will be required to participate in the procedural process, initiated at the instructor level, as outlined in the University Guidelines on Academic Integrity. This may include, but is not limited to, the confiscation of the examination of any individual suspected of violating University Policy. Furthermore, no student may bring any unauthorized materials to an exam, including dictionaries and programmable calculators.
Session 1  Introduction, Economic and Social Foundation of CE Analysis

Concepts and Topics:
This session will introduce the motivation behind using economic analysis in health care, including concepts of utility theory and maximization within budget constraints. We will define various cost analyses (cost benefit analysis, cost effectiveness analysis, cost utility analysis), and describe common misuse (cost minimizing, cost-consequence). Basic interpretive skills and the definition of the incremental cost effectiveness ratio (ICER) will be provided.

Required Reading:
Drummond, chapters 1 and 2


Optional Reading:
There are a series of introductory articles in specific fields, for individual interests:


Session 2  Basic Mechanics of Cost-effectiveness Analysis

Concepts and Topics:
This session will provide the definitions and calculations of various ratios and measures. Construction of a simple CE analysis problem, with definitions of outcomes and perspectives, will be presented. We will also introduce the concepts of incremental (marginal) vs. average effects, analysis of choice of strategies, and the concept of dominance.

Required Reading (prior to session):


Drummond, section 5.5 (pp. 126-130) and section 10.3 (pp. 326-329)

Optional Reading:
Gold, chapter 3

Session 3  
Case studies of cost effective analysis in the literature

Concepts and Topics:

Required Reading (prior to session):
Drummond, chapter 3

Optional Reading:

Homework Assignment:
Problem Set #1 due (Basic mechanics of cost-effectiveness analysis and ranking projects).

Session 4  
Estimating Benefits and Outcomes

Concepts and Topics:
This session will describe various methods for measuring outcomes, or the effectiveness of various health care programs. The advantages and disadvantages of alternative measures (lives saved, life-years saved, quality adjusted life years, healthy-year equivalents, etc.) will be discussed. The distinction between functional abilities and quality of life will be presented.

Required Reading (prior to session):
Drummond, sections 5.1.1-5.1.3 (pp. 103-109)

Optional Reading:


Gold, chapter 4


Session 5  Measuring and Estimating Costs

Concepts and Topics:
This section will provide definitions of various types of costs (direct vs. indirect, intangible) and appreciation of the differences in costs to be included in an analysis depending on perspective (patient, physician, payer, health system, and society). An introduction to standard cost accounting principles and definitions will be provided, and the differences and usefulness of cost-charge ratios vs. resource-based cost accounting schemes will be discussed. Examples of hospital level, provider level and government level claims databases will be described.

Required Reading (prior to session):
Drummond, section 4.1 (pp. 55-72)

Optional Reading:
Drummond, sections 4.3-4.4 (pp. 78-88)
Gold, chapter 6

Homework Assignment:
Problem Set #2 due (The effect of quality-adjusting outcomes; options for assessing utilities).

Session 6  Sensitivity Analysis, Analytical Methods

Concepts and Topics:
The use of sensitivity analyses as a tool for understanding important variables and testing the stability of results will be discussed. Incorporation of CE analyses for use in clinical or policy decision-making (e.g., individual comparisons, decision analysis, simulation) will be discussed.

Required Reading (prior to session):
Drummond, sections 9.1-9.3 (pp. 277-289)

Optional Reading:
Gold, chapter 8


Session 7  Discounting; Critical Review of CEA in the literature

Concepts and Topics:
This session will present the reasons for discounting both costs and benefits and describe current controversies over selection of appropriate discount rates. Issues regarding the inclusion of health care costs due to increased length of life will be presented. Principles of critical appraisal will be presented, and implications of the recommendation for using a “reference case” will be explored.
Required Reading (prior to session):
Drummond, section 4.2 (pp. 72-78) and section 5.1.4 (pp. 109-11)

Ubel PA. What is the price of life and why doesn’t it increase at the rate of inflation? Arch Int Med. 2003; 163: 1637-1641.

Optional Reading:
Gold, chapter 7


Gold, chapter 9

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Session 8  Contingency Valuation, Willingness to Pay, Cost-Benefit Analysis

Concepts and Topics:
The majority of the course has been devoted to developing separate measures of the outcomes (measured in clinical terms) and the costs (generally measured in monetary terms) and then creating the ratio of costs to outcomes. However, there are several methods that are more direct at determining a monetary value for a particular outcome. These methods can also be used as an alternative to utility assessments for assessing the strength of a person’s preferences for an outcome. This session will describe Contingency valuation and willingness to pay, both methods for assessing value of health events in monetary terms. Valuing outcomes in terms of dollars allows for the construction of the cost-benefit ratio, which is described and evaluated.

Required Reading (prior to session):
Drummond, sections 7.1-7.3 (pp. 211-230)

Optional Reading:

Homework Assignment:
Problem Set #3 due.

Final Examination handed out: Take home