

**HS 249G: Techniques in Medical Technology Assessment:  
Decision Analysis and Cost-Effectiveness Analysis**

Fall 2004  
Tuesdays, 8-11 A.M.  
Room 51-279 CHS

**Instructors:**

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**Required Textbooks** (available in UCLA Health Sciences Store):

Myriam Hunink and Paul Glasziou, *Decision making in Health and Medicine*, New York: Cambridge University Press, 2001.  
Peter Muennig, *Designing and Conducting Cost-Effectiveness Analyses in Medicine and Health Care*, San Francisco: Jossey-Bass, 2002.  
Marthe Gold et al. (eds.), *Cost-Effectiveness in Health and Medicine*, Oxford University Press, 1996.  
Treeage Pro Suite software, and TreeAge Pro and TreeAge Pro Healthcare manuals. (Available from Treeage, Inc., web site: <http://server.treeage.com/treeagepro/purchase/index.asp>. You can download the student version directly for \$45, which entitles you to a 10-month license.)

Students are expected to come to class prepared. All material should be read *before* the class session in which it will be discussed.

**Prerequisites:**

HS 200A,B (or equivalents).

**Learning Objectives:**

Students should leave this class with proficiency in constructing an appropriate a decision analysis probability tree, valuing health outcomes, and conducting cost-effectiveness and cost-utility analyses when evaluating a broad spectrum of medical technologies.

**Evaluation Criteria:**

Students will be given three assignments: one involving decision analysis, and one involving cost-effectiveness, and a final paper applying both techniques to a problem of interest selected by the student. Final grades will be calculated as follows:

Decision-analysis problem set:	20%	(due 11/2)
Cost-effectiveness problem:	20%	(due 12/7)
Final paper:	50%	(due 12/17)
Classroom participation:	10%	

## Schedule of Classes

Dr. Keeler will teach sessions 1-4 dealing with Decision Analysis; Dr. Kominski will teach sessions 5-9 dealing with Cost-Effectiveness Analysis; both Drs. Keeler and Kominski will teach the last session.

<b>Session</b>	<b>Date</b>	<b>Topic</b>
<b>1</b>	10/5	<b>Medical Technology Assessment: Why Is It Necessary? Policy Analysis, Models, Math preliminaries, Numeracy</b> <i>Readings:</i> Hunink, Ch 1; Stokey and Zeckhauser, p7-21 handout.
<b>2</b>	10/12	<b>Decision Analysis – Simple Trees and Imperfect tests (Bayes’ theorem)</b> <i>Readings:</i> Hunink Chapters 2, 3, 5 Optional: TreeAge Pro manual, Chap. 1-2.
<b>3</b>	10/19	<b>Probability – EVI, Triage, ROC, Subjective and Objective Probability</b> <i>Readings:</i> Hunink, Chap. 6, 7 (to page 190). Optional: Hunink, Chap. 8; TreeAge Pro manual, Chap. 5 Advanced: rest of Chapter 7 in Hunink.
<b>4</b>	10/26	<b>Valuing the Outcomes of Care for Patients</b> Stocks and flows, survival and life expectancy, assessing Health-Related Quality of Life (HRQOL) factors. <i>Readings:</i> Hunink, Chap. 4, Stokey and Zeckhauser, Chap. 4 (handout) Optional: Hunink, Chap. 10
<b>5</b>	11/2	<b>Overview: Cost-Benefit, Cost-Effectiveness, and Cost-Utility Analysis</b> <i>Readings:</i> Muennig, Chap. 1; Gold, Chap. 1-3
<b>6</b>	11/9	No class: APHA
<b>7</b>	11/16	<b>Time Preference and Discounting; Setting Up a Cost-Effectiveness Problem Using TreeAge</b> Gold, Chap. 7; TreeAge Pro Healthcare manual, Chap. 1-2
<b>8</b>	11/23	<b>Measuring Costs</b> <i>Readings:</i> Muennig, Chap. 6; Gold, Chap. 6
<b>9</b>	11/30	<b>Valuing the Outcomes of Care – QALYs and Preference-Weighted HRQL Measures</b> <b>Advanced Topics Using TreeAge</b> <i>Readings:</i> Muennig, Chap. 8, 9; Gold, Chap. 4; TreeAge Pro Healthcare manual, Chap. 4
<b>10</b>	12/7	<b>Using C/E Ratios; Dealing with Uncertainty; Critiques of DA, CEA; How to Identify a Good DA and CEA</b> <i>Readings:</i> To be distributed