

11 December 2016 [subject to change and amendment without notice]

## **Course Outline for Economics 791, Topics in Advanced Health Economics, Winter Term, 2016-2017**

### **Modules on the Assessment of Health-Related Quality of Life and The Determinants of Population Health**

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**Office Hours;** Tuesdays 10:00 – 11:00 am; Thursdays, 1:00 - 2:00 pm; or by appointment [no Office Hour on Thursday 19 January]

**Handouts.** A number of handouts for the Module are posted (or will be posted) on Avenue to Learn, <http://avenue.mcmaster.ca/>. It will often be useful for students to bring printed or digital copies of those handouts to class.

**Participation.** I will be assigning students to prepare **brief summaries** of selected assigned readings to turn in at the beginning of class. I will be grading and returning these; the marks will count towards your mark for Participation in Economics 791. Students are also encouraged to participate in classroom discussions; again your performance in class will count towards your Participation mark.

**Brief Summaries of Assigned Readings.** Please briefly describe the issue or question that motivates the paper; the underlying theory or conceptual framework upon which the paper relies; the source(s) of data and evidence used in the paper; the major quantitative and analytical methods used; the major results; the interpretation of the results; and what the paper contributes, if anything. The brief summary should be in your own words. The maximum length is 400 words, approximately 1.5 pages, double-spaced.

**Assigned Readings.** Students are expected to have read the assigned articles before class. Again it may be useful for students to bring printed or digital copies of articles to class.

**Enrichment.** In general, students are not responsible for having read papers listed under Enrichment. Papers are listed in Enrichment to identify major additional papers on a topic and/or to identify the source for material presented during the lectures.

### **Week 1, Wednesday 01 February 2017; 9:30 am – 12:30 pm; KTH 334; The Assessment of Health-Related Quality of Life**

The Four Pillars: Land, Labour, Capital, and Institutions  
Definition of Health-Related Quality of Life and Taxonomy of Measures of Health-Related

Quality of Life (HRQL)  
Applications in Clinical Studies to Assess Outcomes  
A Simple Household Model  
von Neumann-Morgenstern Expected Utility Theory (vN-M)  
Multi-Attribute Utility Theory (MAUT)  
Estimating and Evaluating Multi-Attribute Utility Functions (MAUFs): Decomposed and  
Statistical Inference Approaches  
Summary of Empirical Evidence on Functional Forms for MAUFs  
Generalizability of MAUFs

### **Learning Objectives**

1. To become familiar with the major paradigms used to assess health-related quality of life in healthcare and public health.
2. To learn about the theoretical foundations underlying the preference-based approach to assessing health-related quality of life.
3. To learn about the major functional forms used to estimate multi-attribute utility functions.
4. To learn about the two major approaches for the empirical estimation and evaluation of multi-attribute utility functions.

### **Assigned Readings**

Guyatt, Gordon, H., David H. Feeny, and Donald L. Patrick, "Measuring Health-Related Quality of Life." *Annals of Internal Medicine*, Vol. 118, No. 8, April 15, 1993, 622-629.  
<http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.7326/0003-4819-118-8-199304150-00009>

Feeny, David, William Furlong, George W. Torrance, Charles H. Goldsmith, Zenglong Zhu, Sonja DePauw, Margaret Denton, and Michael Boyle, "Multi-Attribute and Single-Attribute Utility Functions for the Health Utilities Index ark 3 System." *Medical Care*, Vol. 40, No. 2, February, 2002, pp 113-128  
<http://libaccess.mcmaster.ca/login?url=http://www.jstor.org/stable/3767552>

Shaw, James, W., Jeffrey A. Johnson, and Stephen Joel Coons, "US Valuation of the EQ-5D Health States: Development and Testing of the D1 Valuation Model." *Medical Care*, Vol. 43, No. 3, March, 2005, pp 203-220.  
<http://libaccess.mcmaster.ca/login?url=http://www.jstor.org/stable/3768219>

**Questions.** Please read the assigned papers and think about the following questions before attending class.

1. Why is health important? How is the importance of health represented in utility models?
2. What are the implications of the various major functional forms in multi-attribute utility theory?
3. Do you think that interactions in preferences among health attributes are quantitatively important? How could you determine this?
4. Using the Health Utilities Index Mark 3 (HUI3) as an example, do you think that the mean HUI3 score for a group of patients and the mean standard gamble score for each patient's current subjectively defined health state assessed at the same time to be approximately equal? Would you expect the HUI3 score for an individual patient to be approximately equal to the standard gamble score for that patient?

### Enrichment

Feeny, David, "A Utility Approach to Assessing Health-Related Quality of Life." *Medical Care*, Vol. 38, No. 9, Supplement II, September, 2000, pp II-151 - II-154.

<http://libaccess.mcmaster.ca/login?url=http://www.jstor.org/stable/3768073>

Keeney, Ralph L., and Howard Raiffa, *Decisions with Multiple Objectives: Preferences and Value Tradeoffs*. New York: Cambridge University Press, 1993. First Edition, John Wiley & Sons, 1976.

CALL NUMBER: T 57.95 .K43 (Thode)

Keeney, Ralph L., "Building Models of Values." *European Journal of Operational Research*, Vol. 37, No. 2, November, 1988, pp 149-157.

[http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1016/0377-2217\(88\)90324-4](http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1016/0377-2217(88)90324-4)

Patrick, Donald L., and Pennifer Erickson, *Health Status and Health Policy: Quality of Life in Health Care Evaluation and Resource Allocation*. New York: Oxford University Press, 1993.

CALL NUMBER: W 74 .P314H 1993 (Health Sciences)

Raynauld, J. P., G. W. Torrance, P. A. Band, C. H. Goldsmith, P. Tugwell, V. Walker, M. Schultz, and N. Bellamy, "A Prospective Randomized, Pragmatic, Health Outcomes Trial Evaluating the Incorporation of Hylan G-F 20 into the Treatment Paradigm for Patients with Knee Osteoarthritis (Part 1 of 2): Clinical Results." *Osteoarthritis and Cartilage*, Vol. 10, No. 7, 002, pp 506-517.

<http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1053/joca.2002.0798>

Sanders, Gillian D., Peter J. Neumann, Anirban Basu, Dan W. Brock, David Feeny, Murray Krahn, Karen M. Kuntz, David O. Meltzer, Douglas K. Owens, Lisa A. Prosser, Joshua A. Salomon, Mark J. Sculpher, Thomas A. Trikalinos, Louise B. Russell, Joanna E. Siegel, and Theodore G. Ganiats, "Recommendations for Conduct, Methodological Practices, and Reporting

of Cost-Effectiveness in Health and Medicine: the Second Panel on Cost-Effectiveness in Health and Medicine.” *Journal of the American Medical Association*, Vol. 316, No. 10, 13 September 2016, pp 1093-1103. Roberts, Mark S., “Editorial. The Next Chapter in Cost-Effectiveness Analysis.” *Journal of the American Medical Association*, Vol. 316, No. 10, 13 September 2016, pp 1049-1050.

Torrance, George W., "Measurement of Health State Utilities for Economic Appraisal: A Review." *Journal of Health Economics*, Vol. 5, No. 1, March, 1986, pp1-30.  
[http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1016/0167-6296\(86\)90020-2](http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1016/0167-6296(86)90020-2)

Torrance, G. W., J. P. Raynauld, V. Walker, C. H. Goldsmith, N. Bellamy, P. A. Band, M. Schultz, and P. Tugwell, “A Prospective Randomized, Pragmatic, Health Outcomes Trial Evaluating the Incorporation of Hylan G-F 20 into the Treatment Paradigm for Patients with Knee Osteoarthritis (Part 2 of 2): Economic Results.” *Osteoarthritis and Cartilage*, Vol. 10, No. 7, 2002, pp 518-527.  
<http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1053/joca.2001.0513>

Wilson, Ira B., and Paul D. Cleary, “Linking Clinical Variables with Health-Related Quality of Life. A Conceptual Model of Patient Outcomes.” *Journal of the American Medical Association*, Vol. 273, No. 1, January 4, 1995, pp 59-65.  
<http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1001/jama.1995.03520250075037>

The Cost Effectiveness Analysis (CEA) Registry, Tufts-New England Medical Center, Institute for Clinical Research and Health Policy Studies. The CEA registry provides a comprehensive list of preference scores for a wide variety of health states and results from cost effectiveness and cost utility analyses. <https://research.tufts-nemc.org/cear4/>

## **Weeks 2 and 3, Wednesdays 08 and 15 February; 9:30 am – 12:30 pm; The Determinants of Population Health**

Applications of the Assessment of Health-Related Quality of Life in Population Health Studies  
Household Model

Nutrition

Education

Income and Income Inequality

Determinants of Health

Latency and Life-Course Models

### **Learning Objectives**

1. To become familiar with major approaches for describing population health.
2. To become familiar with several major approaches for assessing the determinants of

population health.

3. To examine empirical evidence on the roles of nutrition, education, income, and income inequality in affecting population health.
4. To examine the factors that influence trajectories of health-related quality of life.
5. To become familiar with the use of health-related quality of life measures in creating report cards on population health.

### Assigned Readings

Evans, Robert G., and Gregory L. Stoddart, "Producing Health, Consuming Health Care." *Social Science & Medicine*, Vol. 31, No. 12, 1990, pp 1347-1363.

[http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1016/0277-9536\(90\)90074-3](http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1016/0277-9536(90)90074-3)

Cutler, David M., Genia Long, Ernst R. Berndt, Jimmy Royer, Andree-Anne Fournier, Alicia Sasser, and Pierre Cremieux, "The Value of Antihypertensive Drugs: A Perspective On Medical Innovation." *Health Affairs*, Vol. 26, No. 1, January-February, 2007, pp 97-110 and "Technical Appendix".

<http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1377/hlthaff.26.1.97>

(Technical Appendix link in right panel)

Barrera, Albino, "The Role of Maternal Schooling and its Interaction with Public Health Programs in Child Health Production." *Journal of Development Economics*, Vol. 32, No. 1, January, 1990, pp 69-91.

[http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1016/0304-3878\(90\)90052-D](http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1016/0304-3878(90)90052-D)

Asakawa, Keiko, Ambikaipakan Senthilselvan, David Feeny, Jeffrey A. Johnson, and Darryl Rolfson, "Trajectories of Health-Related Quality of Life (HRQL) Differ by Age Among Adults: Results from an Eight Year Longitudinal Study." *Journal of Health Economics*, Vol. 31, No. 1, January, 2012, pp 207-218.

<http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1016/j.jhealeco.2011.10.002>

Deaton, Angus, and Darren Lubotsky, "Mortality, Inequality and Race in American Cities and States." *Social Science & Medicine*, Vol. 56, No. 6, March, 2003, pp 1139-1153.

[http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1016/S0277-9536\(02\)00115-6](http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1016/S0277-9536(02)00115-6)

Ross, Nancy A., Rochelle Garner, Julie Bernier, David H. Feeny, Mark S. Kaplan, Bentson H. McFarland, Heather M. Orpana, and Jillian Oderkirk, "Trajectories of Health-Related Quality of Life by Socioeconomic Status in a Nationally Representative Canadian Cohort." *Journal of Epidemiology and Community Health*, Vol. 66, No. 7, July, 2012, pp 593-598.

<http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1136/jech.2010.115378>

Asada, Yukiko, George Kephart, “Equity in health services use and intensity of use in Canada.” *BMC Health Services Research*, Vol. 7, No. 41, published online March 11, 2007.

<http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1186/1472-6963-7-41>

**Questions.** Please read the assigned papers and think about the following questions before attending class.

1. What are the major determinants of health? How important is medical care? How can one assess the relative importance of various factors?
2. Are public health interventions substitutes or complements to household activities in producing health? How can you answer this question?
3. Does the importance of various factors in affecting health vary across the life cycle?
4. What public policies might reduce the gradient in health status by socioeconomic status?
5. Please think about various approaches for comparing population health among countries or regions. What are the advantages and disadvantages of the major approaches?

### **Enrichment**

Asakawa, Keiko, David Feeny, Ambikaipakan Senthilselvan, Jeffrey A. Johnson, and Darryl Rolfson, “Do the Determinants of Health Differ Between People Living in the Community and in Institutions?” *Social Science & Medicine*, Vol. 69, No. 3, August 2009, pp 345-353.

<http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1016/j.socscimed.2009.05.007>

Au, Doreen Wing Han, Thomas F. Crossley, and Martin Schellhorn, “The Effect of Health Changes and Long-term Health on Work Activity of Older Canadians.” *Health Economics*, Vol. 14, No. 10, October, 2005, pp 999-1018.

<http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1002/hec.1051>

Case, Anne, and Angus Deaton, “Rising morbidity and mortality in midlife among white non-Hispanic Americans in the 21<sup>st</sup> century.” *Proceedings of the National Academy of Sciences*, published online 17 September 2015.

<http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1073/pnas.1518393112>

Case, Anne, Darren Lubotsky, and Christina Paxson, “Economic Status and Health in Childhood: The Origins of the Gradient.” *American Economic Review*, Vol. 92, No. 5, December, 2002, pp 1308-1334.

Cutler, David, Angus Deaton, and Adrianna Lleras-Muney, “The Determinants of Mortality.”

*Journal of Economic Perspectives*, Vol. 20, No. 3, Summer, 2006, pp 97-120.  
<http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1257/jep.20.3.97>

Deaton, Angus, "Health, Inequality, and Economic Development." *Journal of Economic Literature*, Vol. 41, No. 1, March, 2003, pp 113-158.  
<http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1257/002205103321544710>

Deaton, Angus, "Policy Implications of the Gradient of Health and Wealth." *Health Affairs*, Vol. 21, No. 2, March/April, 2002, pp 13-30.  
<http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1377/hlthaff.21.2.13>

Denton, Frank T., "Data Mining as an Industry." *Review of Economics and Statistics*, Vol. 67, No. 1, February, 1985, pp 124-127.

Feeny, David H., Mark S. Kaplan, Nathalie Hugué, and Bentson H. McFarland, "Comparing Population Health in the United States and Canada." *Population Health Metrics*, Vol. 8:8, published on-line April 29, 2010.  
<http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1186/1478-7954-8-8>

Feeny, David, Nathalie Hugué, Bentson H. McFarland, Mark S. Kaplan Heather M. Orpana, and Elizabeth Eckstrom, "Hearing, Mobility, and Pain Predict Mortality: A Longitudinal Population-Based Study." *Journal of Clinical Epidemiology* Vol. 65, No. 7, July, 2012, pp 764-777.  
<http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1016/j.jclinepi.2012.01.003>

Feeny, David, Rochelle E. Garner, Julie Bernier, Amanda Thompson, Bentson H. McFarland, Nathalie Hugué, Mark S. Kaplan, Nancy A. Ross, and Chris Blanchard, "Physical Activity Matters: The Associations Between Body Mass Index, Physical Activity and Health-Related Quality of Life Trajectories over 10 Years." *Journal of Physical Activity & Health*, Vol. 11, No. 7, September, 2014, pp 1265-1275.  
<http://libaccess.mcmaster.ca/login?url=http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4358805/>

Fogel, Robert W., "Nutrition and the Decline in Mortality since 1700: Some Preliminary Findings," in Stanley L. Engerman and Robert E. Gallman, eds., *Long Term Factors in American Economic Growth*, Chicago, University of Chicago Press, 1986, pp 439-556.  
CALL NUMBER: HC 106.3 .C714 V.51 (Mills)

Fogel, Robert W., "Economic Growth, Population Theory, and Physiology: The Bearing of Long-Term Processes on the Making of Economic Policy." *American Economic Review*, Vol. 83, No 3, June, 1994, pp 369-395.  
<http://libaccess.mcmaster.ca/login?url=http://www.jstor.org/stable/2118058>

Halfon, Neal, and Miles Hoschstein, "Life Course Health Development: An Integrated

Framework for Developing Health, Policy, and Research.” *Milbank Quarterly*, Vol. 80, No. 3, 2002, pp 433-479.

<http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1111/1468-0009.00019>

Heckman, James J., “Skill Formation and the Economics of Investing in Disadvantaged Children.” *Science*, Vol. 312, No. 5782, June 30, 2006, pp 1900-1902.

<http://libaccess.mcmaster.ca/login?url=http://www.jstor.org/stable/3846426>

Hertzman, Clyde, John W. Frank, and Robert G. Evans, “Heterogeneities in Health Status and the Determinants of Population Health.” in Robert G. Evans, Morris L. Barer, and Theodore R. Marmor, eds., *Why Are Some People Healthy and Others Not? The Determinants of Health of Populations*. New York, Aldine De Gruyter, 1994, pp 67-92.

CALL NUMBER: WA 30 .W629 1994 (Health Sciences)

Hurley, Jeremiah E., *Health Economics*, First Edition. McGraw-Hill Ryerson, Ltd., 2010; Chapter 6: “The Determinants of Population Health,” pp 164-181.

CALL NUMBER: W 74 DC2 .H965H 2010 (Health Sciences- Reserve)

James, Paul D., Russell Wilkins, Allan S. Detsky, Peter Tugwell, and Douglas G. Manuel, “Avoidable mortality by neighbourhood income in Canada: 25 years after the establishment of universal health insurance.” *Journal of Epidemiology and Community Health*, Vol. 61, No. 4, April, 2007, pp 287-296.

<http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1136/jech.2006.047092>

Kaplan, Mark S., Nathalie Huguet, Heather Orpana, David Feeny, Bentson H. McFarland, and Nancy Ross, “Prevalence and Factors Associated with Thriving in Older Adulthood: A 10-year Population-based Study.” *Journal of Gerontology. Series A, Medical Sciences*, Vol. 63A, No. 10, October, 2008, pp 1097-1104.

<http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1093/gerona/63.10.1097>

Kuh, D., Y. Ben-Shlomo, J. Lynch, J. Hallqvist, and C. Power, “Life Course Epidemiology.” *Journal of Epidemiology and Community Health*, Vol. 57, No. 10, October, 2003, pp 778-783.

<http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1136/jech.57.10.778>

Maddigan, Sheri L., David H. Feeny, Sumit R. Majumdar, Karen B. Farris, and Jeffrey A. Johnson, “Understanding the Determinants of Health in Type-2 Diabetes.” *American Journal of Public Health*, Vol. 96, No. 9, September, 2006, pp 1649-1655.

<http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.2105/AJPH.2005.067728>

Maddigan, Sheri L., David H. Feeny, Sumit R. Majumdar, Karen B. Farris, and Jeffrey A. Johnson, “Health Utilities Index Mark 3 Demonstrated Construct Validity in a Population-Based Sample with Type 2 Diabetes.” *Journal of Clinical Epidemiology*, Vol. 59, No. 5, May, 2006, pp 472-477.

<http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1016/j.jclinepi.2005.09.010>

Orpana, Heather M., Nancy Ross, David Feeny, Bentson McFarland, Julie Bernier, and Mark S. Kaplan, "The Natural History of Health-Related Quality of Life: A 10-year Cohort Study." *Health Reports*, Vol. 20, No. 1, March, 2009, pp 29-35.

<http://libaccess.mcmaster.ca/login?url=http://search.proquest.com.libaccess.lib.mcmaster.ca/docview/207492804/fulltext?accountid=12347>

Power, Chris, and Clyde Hertzman, "Social and Biological Pathways Linking Early Life and Adult Disease." *British Medical Bulletin*, Vol. 53, No. 1, January, 1997, pp 210-221.

<http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1093/oxfordjournals.bmb.a011601>

Ross, Nancy A., Michael C. Wolfson, James R. Dunn, Jean-Marie Berthelot, George A. Kaplan, and John W. Lynch, "Relation between income inequality and mortality in Canada and in the United States: cross sectional assessment using census data and vital statistics." *British Medical Journal*, Vol. 320, No. 7239, April 1, 2000, pp 898-902.

<http://libaccess.mcmaster.ca/login?url=http://www.ncbi.nlm.nih.gov/pmc/articles/PMC27328/>

Ross, Nancy A., Stéphane Tremblay, and Katie Graham, "Neighbourhood Influences on Health in Montreal, Canada." *Social Science & Medicine*, Vol. 59, No. 7, October, 2004, pp 1485-1494.

<http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1016/j.socscimed.2004.01.016>

Smith, James P., "Healthy Bodies and Thick Wallets: The Dual Relation Between Health and Economic Status." *Journal of Economic Perspectives*, Vol. 13, No. 2, Spring, 1999, pp 145-166.

<http://libaccess.mcmaster.ca/login?url=http://dx.doi.org/10.1257/jep.13.2.145>

### **Some Guides on Writing**

McCloskey, Donald, "Economic Writing." *Economic Inquiry*, Vol 24, No. 2, April, 1985, pp 187-222.

McCloskey, Donald N., *The Writing of Economics*. New York: MacMillan Publishing, 1987.

Strunk, William, Jr., and F. B. White, *The Elements of Style*, Second Edition. New York: MacMillan Company, 1972.

### **Two Interesting Papers**

Gans, Joshua S., and George B. Shepherd, "How Are the Mighty Fallen: Rejected Classic Articles by Leading Economists." *Journal of Economic Perspectives*, Vol. 8, No. 1, Winter, 1994, pp 165-179.

McCloskey, Donald N., "The Rhetoric of Economics." *Journal of Economic Literature*, Vol. 21, No. 2, June, 1983, pp 481-517.