

**Graduate Program in Health  
Faculty of Graduate Studies, York University**

**HLTH 5050 3.0: Perspectives in Decision Making and Information Systems  
Term: Winter 2017**

**Class Time:** Thursdays 8:30am – 11:30am  
**Class Location:** Ross North 836

**Course Instructor:**  
Hannah Wong, Ph.D.  
Assistant Professor  
**Email:** hjwong@yorku.ca  
**Office Hours:** By appointment (location HNES 415)

**COURSE DESCRIPTION**

One of the major aims of Decision Making and Information Systems is to help health professionals understand the decision making aspects (rational and non-rational) in health care. This course reviews decision making theories and information systems used for supporting decision making in health care, the opportunities they offer and the challenges they face.

**OBJECTIVES**

The objectives of the course are to:

- Provide technical understanding in a range of methods used in health decision making
- Appreciate the uses and limitations of these methods in decision making
- Appreciate the non-rational aspects of healthcare management and health system decision making processes
- Describe the role and potential of information systems in health care delivery
- Appreciate the decision support opportunities created by the latest advances in informatics

**CLASS FORMAT AND EVALUATION**

The course will consist of lectures, readings and class discussions. For each class, a theme is provided to guide students through the readings and to frame the lectures and discussions.

<b>Evaluation</b>	<b>Weight</b>	<b>Due</b>
Paper 1: Personal Decision Making – Reflection	10%	Email by 5:00pm Feb 2
Paper 2: Personal Decision Making – Incorporation of course concepts	25%	Email by 5:00pm Mar 16
Presentation: Health Decision Making – Incorporation of course concepts	15%	In-class Mar 30
Paper 3: Health Decision Making – Incorporation of course concepts	50%	Email by 5:00pm Apr 6

Paper 1: Decision Making – Personal Reflection

Select a personal issue that required significant contemplation before you decided to take a certain course of action. Consider some/all of the following questions: Why was the decision difficult to make? Were there uncertainties involved? How did you justify to yourself to take a certain course of action? What pros/cons were considered? Who would be affected by your decision? Did past experiences or other influences shape your decision making? What were the outcomes? Were all outcomes anticipated or were there some outcomes that were unexpected? Do you think there are outcomes still

to be realized? If given the chance, would you make the same decision? Why did you choose to write about this decision?

For Paper 1, you are not required to incorporate course concepts; instead, you are expected to consciously analyze and thoughtfully articulate how you conducted your decision-making on a personal issue prior to HLTH 5050. Paper 1 will be evaluated based on clarity, organization and insight.

Max Paper 1 word count: 1000 words

Paper 2: Personal Decision Making – Incorporation of course concepts

Paper 2 is an extension of Paper 1 that incorporates three decision-making concepts covered in the course. Using the same personal issue in Paper 1, illustrate the hypothetical application of three decision-making concepts on your decision-making process and how applying these concepts might influence/change the decision you made. Include your rationale for choosing the three concepts among the various concepts covered in the course. Paper 2 will be evaluated based on depth of analysis, solidity of argument, clarity, organization and insight.

Max Paper 2 word count: 2000 words

Paper 3: Health Decision Making – Incorporation of course concepts

Choose one of the following timely and relevant health decision making topics:

- Fentanyl Crisis
- Medical Assistance in Dying
- Indigenous Youth Suicides
- Legalizing Marijuana
- Taxing Soda (sugar-laden beverages)
- Universal Pharmacare
- Zika Response

Paper 3 is a combination of Papers 1 and 2 applied specifically to a chosen health decision making topic. Paper 3 argues that decisions made about the chosen health topic would benefit from consideration of decision-making concepts covered in the course. Include the following in Paper 3:

- Current situation (why something should be done – background and motivation)
- Considerations/challenges to decision making
- Application of three decision-making concepts covered in the course
- Potential impact of these concepts on decision-making
- Recommendations (pragmatic) for decision makers and stakeholders

Paper 3 will be evaluated based on understanding of issue, literature review, depth of analysis, solidity of argument, clarity, organization and insight.

Max Paper 3 word count: 2500 words

Presentation: Health Decision Making – Incorporation of course concepts

You will present to the class your Paper 3 findings (7-9 minute PowerPoint presentation).

**General Note:**

Papers are penalized 5% for every day late. Papers submitted after 5pm on the due date are considered late.

**Academic Honesty and Integrity:**

Faculty considers breaches of the Senate Policy on Academic Honesty to be serious matters. To quote the Senate Policy on Academic Honesty:

*“The Policy on Academic Honesty is a reaffirmation and clarification for members of the University of the general obligation to maintain the highest standards of academic honesty. It outlines the general responsibility of faculty to foster acceptable standards of academic conduct and of the student to be mindful of and abide by such standards.”*

Faculty members are encouraged to pursue suspected cases of academic honesty with formal charges. Students should, however, review the university policy on Academic Honesty at <http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/>

**Accommodation:**

Any student who requires accommodation due to a disability is encouraged to inform the Course Instructor.

**Grading Scheme:**

Students will receive letter grades only. The regulations of the Faculty of Graduate Studies designate that course work be graded as follows:

Grade			Description pertaining to the program
<b>A+</b>	Exceptional	90–100%	Excellence in writing, research, reading and originality.
<b>A</b>	Excellent	85–89%	Work that shows a superior command of the subject, clearly written, creatively researched.
<b>A-</b>	High	80–84%	Work that shows a superior command of the material but limited in breath or depth of research and/or presentation.
<b>B+</b>	Highly Satisfactory	75–79%	Research and writing skills may be flawed in some visible and correctable way. Critical perspective is present and is consistently applied.
<b>B</b>	Satisfactory	70–74%	Work that meets minimum expectations of a graduate student in research, writing, and reading skills. Critical perspective is present but is not consistently applied.
<b>C</b>	Conditional	60–69%	Unsatisfactory work: flawed in methodology or critical assumption, incoherently organized, poorly written, or superficially researched. Critical perspective is beginning to develop.
<b>F</b>	Failure	0–59%	Work that is far below what is required. Does not address the assignment adequately. Absence of critical perspective. <b>Work that breaches academic honesty is given a grade of ZERO.</b>
<b>I</b>	Incomplete	N/A	

Class Date	Topic and Readings
Lecture 1 Jan 5	<b>Study Designs and Hierarchy of Evidence</b>  Carlson MD, Morrison RS. Study design, precision, and validity in observational studies. J Palliat Med 2009;12(1):77-82.

	<p>Oxman AD, Lavis JN, Lewin S, Fretheim A. SUPPORT Tools for evidence-informed health Policymaking (STP) 1: What is evidence-informed policymaking? Health Res Policy Syst 2009;7 Suppl 1:S1.</p> <p>Concato J. Study design and "evidence" in patient-oriented research. Am J Respir Crit Care Med 2013;187(11):1167-72.</p> <p>Anglemyer, A., H.T. Horvath, and L. Bero, Healthcare outcomes assessed with observational study designs compared with those assessed in randomized trials. Cochrane Database Syst Rev, 2014(4): p. MR000034.</p> <p>Pearce, W., S. Raman, and A. Turner, Randomised trials in context: practical problems and social aspects of evidence-based medicine and policy. Trials, 2015. 16: p. 394.</p> <p>Critical Appraisal of Study Methodologies:  <a href="http://www.sign.ac.uk/methodology/checklists.html">http://www.sign.ac.uk/methodology/checklists.html</a></p>
Lecture 2 Jan 12	<p><b>Systematic Reviews and Meta-Analyses</b></p> <p>Neely JG, Magit AE, Rich JT, et al. A practical guide to understanding systematic reviews and meta-analyses. Otolaryngol Head Neck Surg 2010;142(1):6-14.</p> <p>Cheung, M.W. and R. Vijayakumar, A Guide to Conducting a Meta-Analysis. Neuropsychol Rev, 2016. 26(2): p. 121-8.</p> <p>Manchikanti, L., et al., Evidence-based medicine, systematic reviews, and guidelines in interventional pain management: part 6. Systematic reviews and meta-analyses of observational studies. Pain Physician, 2009. 12(5): p. 819-50.</p> <p>Manchikanti, L., et al., Evidence-based medicine, systematic reviews, and guidelines in interventional pain management: part 3: systematic reviews and meta-analyses of randomized trials. Pain Physician, 2009. 12(1): p. 35-72.</p>
Lecture 3 Jan 19	<p><b>Statistical Concepts in Health Decision Making – Part 1</b></p> <p>Sonnad SS. Describing data: statistical and graphical methods. Radiology 2002;225(3):622-8.</p> <p>Medina LS, Zurakowski D. Measurement variability and confidence intervals in medicine: why should radiologists care? Radiology 2003;226(2):297-301.</p> <p>Statistical Primers:  <a href="http://www.vaoutcomes.org/downloads/Compendium_of_Primers.pdf">http://www.vaoutcomes.org/downloads/Compendium_of_Primers.pdf</a></p>
Lecture 4 Jan 26	<p><b>Statistical Concepts in Health Decision Making – Part 2</b></p> <p>Gareen IF, Gatsonis C. Primer on multiple regression models for diagnostic imaging research. Radiology 2003;229(2):305-10.</p> <p>Risk Adjustment Methodology:</p>

	<a href="https://www.cihi.ca/en/ccrs_qi_risk_adj_meth_2013_en.pdf">https://www.cihi.ca/en/ccrs_qi_risk_adj_meth_2013_en.pdf</a>
Lecture 5 Feb 2	<p><b>Decision Analysis</b></p> <p>Ryder, H.F., et al., Decision Analysis and Cost-effectiveness Analysis. Semin Spine Surg, 2009. 21(4): p. 216-222.</p> <p>Sher, D.J. and R.S. Punglia, Decision analysis and cost-effectiveness analysis for comparative effectiveness research--a primer. Semin Radiat Oncol, 2014. 24(1): p. 14-24.</p> <p>Chen, N.C., M.J. Shauver, and K.C. Chung, A primer on use of decision analysis methodology in hand surgery. J Hand Surg Am, 2009. 34(6): p. 983-90.</p>
Lecture 6 Feb 9	<p><b>Decision Modeling for Health Economic Evaluation</b></p> <p>Yin, D. and H.P. Forman, Health care cost-benefit and cost-effectiveness analysis: an overview. J Vasc Interv Radiol, 1995. 6(3): p. 311-20.</p> <p>Whittington, M.D., et al., A Primer on Health Economic Evaluations in Thoracic Oncology. J Thorac Oncol, 2016. 11(8): p. 1224-32.</p> <p>Huter, K., et al., Economic evaluation of health promotion for older people-methodological problems and challenges. BMC Health Serv Res, 2016. 16 Suppl 5: p. 328.</p>
Lecture 7 Feb 16	<p><b>Lean Six Sigma in Healthcare</b></p> <p>D'Andreamatteo A, Ianni L, Lega F, Sargiacomo M. Lean in healthcare: A comprehensive review. Health Policy. 2015 Sep;119(9):1197-209.</p> <p>Pronovost PJ, Armstrong CM, Demski R, Callender T, Winner L, Miller MR, et al. Creating a high-reliability health care system: improving performance on core processes of care at Johns Hopkins Medicine. Acad Med. 2015 Feb;90(2):165-72.</p> <p>Ahmed S, Manaf NH, Islam R. Effects of Lean Six Sigma application in healthcare services: a literature review. Rev Environ Health. 2013;28(4):189-94.</p>
Feb 23	<b>READING WEEK – NO CLASS</b>
Lecture 8 Mar 2	<p><b>Systems Thinking in Healthcare</b></p> <p>Sterman JD. Learning from evidence in a complex world. American Journal of Public Health 2006;96(3):505-14.</p> <p>Homer JB, Hirsch GB. System dynamics modeling for public health: background and opportunities. Am J Public Health 2006;96(3):452-8.</p> <p>Wolstenholme EF. Towards the definition and use of a core set of archetypal structures in system dynamics. System Dynamics Review 2003;19(1):7-26.</p>
Lecture 9	<b>Heuristics and Biases</b>

Mar 9	<p>Hammond JS, Keeney RL, Raiffa H. The hidden traps in decision making. Harv Bus Rev 1998;76(5):47-8, 50, 2 passim.</p> <p>Strough, J., T.E. Karns, and L. Schlosnagle, Decision-making heuristics and biases across the life span. Ann N Y Acad Sci, 2011. 1235: p. 57-74.</p> <p>Shrank, W.H., A.R. Patrick, and M.A. Brookhart, Healthy user and related biases in observational studies of preventive interventions: a primer for physicians. J Gen Intern Med, 2011. 26(5): p. 546-50.</p>
Lecture 10 Mar 16	<p><b>Health System Performance Frameworks</b></p> <p>Health systems performance assessment: debates, methods and empiricism  <a href="http://apps.who.int/iris/handle/10665/42735">http://apps.who.int/iris/handle/10665/42735</a></p> <p><a href="https://secure.cihi.ca/free_products/HSP_Framework_Technical_Report_EN.pdf">https://secure.cihi.ca/free_products/HSP_Framework_Technical_Report_EN.pdf</a></p> <p><a href="https://secure.cihi.ca/estore/productFamily.htm?locale=en&amp;pf=PFC2978&amp;lang=en">https://secure.cihi.ca/estore/productFamily.htm?locale=en&amp;pf=PFC2978&amp;lang=en</a></p>
Lecture 11 Mar 23	<p><b>Information Systems and Decision Support Systems in Healthcare</b></p> <p>Chaudhry B, Wang J, Wu S, et al. Systematic review: impact of health information technology on quality, efficiency, and costs of medical care. Ann Intern Med 2006;144(10):742-52.</p> <p>Goldzweig CL, Towfigh A, Maglione M, Shekelle PG. Costs and benefits of health information technology: new trends from the literature. Health Aff (Millwood) 2009;28(2):w282-93.</p> <p>Cresswell KM, Bates DW, Sheikh A. Ten key considerations for the successful implementation and adoption of large-scale health information technology. J Am Med Inform Assoc 2013;20(e1):e9-e13.</p>
Lecture 12 Mar 30	<p><b>Student Presentations</b></p>