UHON 351U — Uncertainty

List of Texts

1. M. Crouhy, D. Galai, and R. Mark, *The Essentials of Risk Management*, McGraw-Hill 2005

2. R. Descartes, *Meditations on First Philosophy*, any edition (free e-text available)

3. J. Faye, "Copenhagen Interpretation of Quantum Mechanics," *Stanford Encyclopedia of Philosophy*, http://plato.stanford.edu/entries/qm-copenhagen/, 2008

4. A. Fine, "The Einstein-Podolsky-Rosen Argument in Quantum Theory," *Stanford Encyclopedia of Philosophy*, http://plato.stanford.edu/entries/qt-epr/, 2009

5. A. X. Garg, et al., "Effects of Computerized Clinical Decision Support Systems on Practitioner Performance and Patient Outcomes: A Systematic Review", *Journal of the American Medical Association* 293 (2005) pp. 1223–1238 (e-text available via SIU Library subscription).

6. J. Gleick, *Chaos*, Viking 1987

7. J. Halpern, *Reasoning About Uncertainty*, MIT Press, 2005

8. J. Hilgevoord and J. Uffink, "The Uncertainty Principle," *Stanford Encyclopedia of Philosophy*, http://plato.stanford.edu/entries/qt-uncertainty/, 2006

9. M. Huemer, "Quantum Mechanics for Philosophers," http://home.sprynet.com/ owl1/qm.htm, ca. 2003.

10. R. C. Jeffrey, *The Logic of Decision*, 2ed, U Chicago Press, 1983

11. K. Popper, *Logic of Scientific Discovery*, any edition

12. P. Szolovitz, R. S. Patil, and W. B. Schwartz, "Artificial Intelligence in Medical Diagnosis," *Annals of Internal Medicine* 108 (1988), pp. 80–87 (e-text available via SIU Library subscription).

13. L. Wittgenstein, *On Certainty*, any edition.

Reading List

Week 1 Introduction to the course; Case study in medical decision support. Readings: Garg, et al., Szolovitz, et al.

Week 2 Introduction to the course; Case studies in business risk and medical decision support. Readings: Crouhy, et al., Chapters 1–4

Week 3 Physical limits on certainty 1: Quantum Uncertainty; Readings: Huemer, Hilgevoord and Uffink, Fine, Faye

Week 4 Physical limits on certainty 2: Chaotic dynamics; Readings: Gleick, Chapters 1-4

Week 5 Induction and Empiricism; Readings: Popper, Chapters I–IV

Week 6 Falsifiability and Testability; Readings: Popper, Chapters V–VII

Week 7 Readings: Popper, Chapter VIII

Week 8 Interpretation of evidence; Readings: Popper, Chapters IX–X

Week 9 Language and falsification; Readings: Wittgenstein, Aphorisms 1–299

Week 10 Communication and knowledge; Readings: Wittgenstein, Aphorisms 300-676

Week 11 Desire and certainty; Readings: Jeffrey, Chapters 1–3; Meet The Press due

Week 12 Quantifying desire: Jeffrey, Chapters 4–7

Week 13 Representing uncertainty; Readings: Halpern, Chapters 1–2

Week 14 In light of...; Readings: Halpern, Chapter 3

Week 15 Interdependence and expectation; Readings: Halpern, Chapters 4–5

Final Exam Week Final Project due