

PSYCH 9001-07: Medical Decision Making  
Fall 2013 MW 3:30-4:45pm  
40A Arts & Science Building

**\*\* COURSE INFORMATION \*\***

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**\*\* COURSE DESCRIPTION \*\***

The goal of this course is to provide a graduate level overview of research in medical decision making covering both methodological and theoretical topics along with primary research articles. Within this field, we will focus the applications of decision psychology and behavioral economics to health.

**\*\* ASSIGNMENTS AND GRADING \*\***

Performance in this class will be based upon contributions to the class discussion, presentations, and a final paper.

**Class participation:** 30% of grade

The format of this class will largely be discussion which, to be successful, necessitates regular, sustained input from the class. It is expected that each of you will read the assigned articles in preparation for class and arrive with several prepared discussion points. Additionally, each student will take turns leading discussion throughout the semester. Attendance is expected and required. Unexcused absences will lower your final grade by half a letter grade, and students missing more than a week of class will be asked to drop the course.

**Presentations:** 30% of grade

There will be two presentations during the semester, one informal (10%) and one formal (20%). The large end product of this class will be a research proposal. The two presentations will be opportunities to get feedback on the proposal and share the final product. The informal presentations will occur during Week 7. During the informal presentation, students should present a rough draft of their research idea. This should include details about proposed methodology. The formal presentations will occur during Week 16 (the last week of class). These presentations should include a summary of your paper (lit review, methods, predicted results, some conclusions).

**Paper:** Due on **December 12<sup>th</sup>** (40% of the grade)

This paper should be a research proposal on a relevant topic. It should be 10-15 pages in length (excluding title page, abstract, and references) with 5-10 pages of literature review and 5-10 pages describing the proposed research. The paper should include a proposed methods section and expected results and discussion sections. For this proposal, imagine that you have unlimited funds. Feel free to choose some important topic within your own field. What I would not want to read is some minor modification of research you have already done.

## ACADEMIC HONESTY

Academic integrity is fundamental to the activities and principles of a university. All members of the academic community must be confident that each person's work has been responsibly and honorably acquired, developed, and presented. Any effort to gain an advantage not given to all students is dishonest whether or not the effort is successful. The academic community regards breaches of the academic integrity rules as extremely serious matters. Sanctions for such a breach may include academic sanctions from the instructor, including failing the course for any violation, to disciplinary sanctions ranging from probation to expulsion. When in doubt about plagiarism, paraphrasing, quoting, collaboration, or any other form of cheating, consult the course instructor.

## INTELLECTUAL PLURALISM

*The University community welcomes intellectual diversity and respects student rights. Students who have questions or concerns regarding the atmosphere in this class (including respect for diverse opinions) may contact the Departmental Chair or Divisional Director; the Director of the [Office of Students Rights and Responsibilities](http://osrr.missouri.edu/) (<http://osrr.missouri.edu/>); or the [MU Equity Office](http://equity.missouri.edu/) (<http://equity.missouri.edu/>), or by email at [equity@missouri.edu](mailto:equity@missouri.edu). All students will have the opportunity to submit an anonymous evaluation of the instructor(s) at the end of the course.*

## UNIVERSITY OF MISSOURI NOTICE OF NONDISCRIMINATION

The University of Missouri System is an Equal Opportunity/ Affirmative Action institution and is nondiscriminatory relative to race, religion, color, national origin, sex, sexual orientation, age, disability or status as a Vietnam-era veteran. Any person having inquiries concerning the University of Missouri's compliance with implementing Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, the Americans With Disabilities Act of 1990, or other civil rights laws should contact the Assistant Vice Chancellor, [Human Resource Services](#), University of Missouri-Columbia, 130 Heinkel Building, Columbia, Mo. 65211, 573/882-4256, or the Assistant Secretary for Civil Rights, U.S. Department of Education.

## AMERICANS WITH DISABILITIES ACT

The University of Missouri complies with the guidelines set forth in the Americans with Disabilities Act of 1990.

*Students with Disabilities:*

*If you anticipate barriers related to the format or requirements of this course, if you have emergency medical information to share with me, or if you need to make arrangements in case the building must be evacuated, please let me know as soon as possible.*

*If disability related accommodations are necessary (for example, a note taker, extended time on exams, captioning), please register with the Office of Disability Services (<http://disabilityservices.missouri.edu>), S5 Memorial Union, 882-4696, and then notify me of your eligibility for reasonable accommodations. For other MU resources for students with disabilities, click on "Disability Resources" on the MU homepage.*

## PSYCH 9001-07 Course Readings

### WEEK 1 AUGUST 25<sup>TH</sup> AND 27<sup>TH</sup>

#### BIASES IN MEDICAL DECISION MAKING

1. Klein, J. G. (2005). Five pitfalls in decisions about diagnosis and prescribing. *BMJ*, 330, 781-783.
2. Arkes, H. R. (2013). The consequences of the hindsight bias in medical decision making. *Current Directions in Psychological Science*, 22, 356-360.
3. Norman, G. (2014). The bias in researching cognitive bias. *Advances in Health Science Education*, 19, 291-295.
4. Croskerry, P., Singhal, G., & Mamede, S. (2013). Cognitive debiasing 1: Origins of bias and theory of debiasing. *BMJ Quality and Safety*, 22, ii158-ii64.
5. Fagerlin, A., Zikmund-Fisher, B. J., & Ubel, P. A. (2005). Cure me even if it kills me: Preferences for invasive cancer treatment. *Medical Decision Making*, 25, 614-619.
6. Gamliel, E. (2013). To end life or not to prolong life: The effect of message framing on attitudes toward euthanasia. *Journal of Health Psychology*, 18, 693-703.

### WEEK 2 SEPTEMBER 1<sup>ST</sup> AND 3<sup>RD</sup> (NO CLASS 9/1)

#### HEURISTICS

7. Poses, R. M. & Anthony, M. (1991). Availability, wishful thinking, and physicians' diagnostic judgments for patients with suspected bacteremia. *Medical Decision Making*, 11 (3), 159-168.
8. Brannon, L. A. & Carson, K. L. (2003). The representativeness heuristic: Influence on nurses' decision making. *Applied Nursing Research*, 16, 201-204.
9. Poses, R. M., Bekes, C., Copare, F. J., & Scott, W. E. (1990). What difference do two days make? The inertia of physicians' sequential prognostic judgments for critically ill patients. *Medical Decision Making*, 10 (1), 6-14.
10. Senaym, I. & Kaphingst, K. A. (2009). Anchoring and adjustment bias in communication of disease risk. *Medical Decision Making*, 29, 193-201.

### WEEK 3 SEPTEMBER 8<sup>TH</sup> AND 10<sup>TH</sup>

#### PROBABILISTIC REASONING

11. Kroenke, K. (2013). Diagnostic testing and the illusory reassurance of normal results. *JAMA Internal Medicine*, 173(6), 416-417.
12. Eddy, D. M. (1982). Probabilistic reasoning in clinical medicine: Problems and opportunities. In D. Kahneman, P. Slovic, & A. Tversky (Eds.), *Judgment under uncertainty: Heuristics and biases* (pp. 249-267). Cambridge, UK: Cambridge University Press.
13. Arkes, H. R. & Gaissmaier, W. (2012). Psychological research and the prostate cancer screening controversy. *Psychological Science*, 23, 547-553.
14. Gigerenzer, G., Gaissmaier, W., Kurz-Milcke, E., Schwartz, L. E., Woloshin, S. (2008). Helping doctors and patients make sense of health statistics. *Psychological Science in the Public Interest*, 8(2), 53-96.

### WEEK 4 SEPTEMBER 15<sup>TH</sup> AND 17<sup>TH</sup>

#### EXPERTISE

15. Einhorn, H.J. & Hogarth, R.M. (1978). Confidence in judgment: The illusion of validity. *Psychological Review*, 85, 395-416.
16. Dawson, N. V., et al. (1993). Hemodynamic assessment in managing the critically ill: Is physician confidence warranted? *Medical Decision Making*, 13, 258-266.

17. Dawes, R. M., Faust, D., & Meehl, P. E. (1989). Clinical versus actuarial judgment. *Science*, 243, 1668-1674.
18. Brehmer, B. (1980). In one word: Not from experience. *Acta Psychologica*, 45, 223-241.
19. Kahneman, D. & Klein, G. (2009). Conditions for intuitive expertise: A failure to disagree. *American Psychologist*, 64(6), 515-526.

**WEEK 5** SEPTEMBER 22<sup>ND</sup> AND 24<sup>TH</sup>

DEBIASING

20. West, R. F., Meserve, R. J., & Stanovich, K. E. (2012). Cognitive sophistication does not attenuate the bias blind spot. *Journal of Personality and Social Psychology*, 103(2), 506-519.
21. Stanovich, K. E. & West, R. F. (2008). On the relative independence of thinking biases and cognitive ability. *Journal of Personality and Social Psychology*, 94(4), 672-695.
22. Arkes, H. R. (1991). The costs and benefits of judgment errors: Implications for debiasing. *Psychological Bulletin*, 110, 486-498.
23. Wilson, T. D. & Brekke, N. (1994). Mental contamination and mental correction: Unwanted influences on judgments and evaluations. *Psychological Bulletin*, Vol 116(1), p. 117-142.
24. Croskerry, P., Singhal, G., & Mamede, S. (2013). Cognitive debiasing 2: Impediments to and strategies for change. *BMJ Quality and Safety*, 22, ii165-ii72.

**WEEK 6** SEPTEMBER 29<sup>TH</sup> AND OCTOBER 1<sup>ST</sup>

MEMORY & NUMERACY

25. Reyna, V. F., Nelson, W. L., Han, P. K., & Dieckmann, N. F. (2009). How numeracy influences risk comprehension and medical decision making. *Psychological Bulletin*, 135, 943-973.
26. Peters, E. (2012). Beyond comprehension: The role of numeracy in judgments and decisions. *Current Directions in Psychological Science*, 21(1), 31-35.
27. Nelson, W., Reyna, V. F., Fagerlin, A., Lipkus, I., & Peters, E. (2008). Clinical implications of numeracy: Theory and practice. *Annals of Behavioral Medicine*, 35, 261-274.
28. Ariely, D. (1998). Combining experiences over time: The effects of duration, intensity changes and on-line measurements on retrospective pain evaluations. *Journal of Behavioral Decision Making*, 11, 19-45.
29. Redelmeier, D. A. & Kahneman, D. (1996). Patients' memories of painful medical treatments: Real-time and retrospective evaluations of two minimally invasive procedures. *Pain*, 66, 308.

**WEEK 7** OCTOBER 6<sup>TH</sup> AND 8<sup>TH</sup>

AFFECT & AFFECTIVE FORECASTING

30. Slovic, P. & Peters, E. (2006). Risk perception and affect. *Current Directions in Psychological Science*, 15(6), 322-325.
31. Ariely, D. & Loewenstein, G. (2006) The heat of the moment: The effect of sexual arousal on sexual decision making. *Journal of Behavioral Decision Making*, 19, 87-98.
32. Rosenbaum, L. (2014). "Misfearing"—Culture, identity, and our perceptions of health risks. *New England Journal of Medicine*, 370(7), 595-597.
33. Connolly, T. & Reb, J. (2005). Regret in cancer-related decisions. *Health Psychology*, 24(4), S29-S34.
34. Ubel, P. A., Loewenstein, G., Schwartz, N., & Smith, D. (2005). Misimagining the unimaginable: The disability paradox and health care decision making. *Health Psychology*, 24(4), S57-S62.
35. Smith, D. M., Loewenstein, G., Jankovich, A., & Ubel, P. A. (2009). Happily hopeless: Adaptation to a permanent, but not to a temporary, disability. *Health Psychology*, 28(6), 787-791.

**WEEK 8** OCTOBER 13<sup>TH</sup> AND 15<sup>TH</sup>

## CHOICE ARCHITECTURE

36. Schwartz, B. (2000). Self-determination: The tyranny of freedom. *American Psychologist*, 55(1), 79-88.
37. Johnson, E. J., Shu, S. B., Dellaert, B. G. C., Haubl, G., Larrick, R. P., Payne, J. W., Peters, E. Schkade, D., Wansink, B., & Weber, E. U. (2012). Beyond nudges: Tools of a choice architecture. *Marketing Letters*, 23, 487-504.
38. Johnson, E. J. & Goldstein, D. (2003). Do defaults save lives? *Science*, 302, 1338-1339.
39. Hanoch, Y., Wood, S., Barnes, A., Liu, P., & Rice, T. (2011). Choosing the right Medicare prescription drug plan: The effect of age, strategy selection, and choice set size. *Health Psychology*, 30(6), 719-727.
40. Probst, C. A., Shaffer, V. A., & Chan, Y. R. (2013). The effect of defaults in an electronic health record on laboratory test ordering practice for pediatric patients. *Health Psychology*, 32(9), 995-1002.
41. Szrek, H. & Bundorf, M. K. (2014). Enrollment in prescription drug insurance: The interaction of numeracy and choice set size. *Health Psychology*, 33(4), 340-348.

**WEEK 9** OCTOBER 20<sup>TH</sup> AND 22<sup>ND</sup>

- Annual meeting of the Society for Medical Decision Making
- NO CLASS this week

**WEEK 10** OCTOBER 27<sup>TH</sup> AND 29<sup>TH</sup>

## CLINICAL DECISION SUPPORT

42. Grove, W. M., Zald, D. H., Lebow, B. S., Snitz, B. E., & Nelson, C. (2000). Clinical versus mechanical prediction: A meta-analysis. *Psychological Assessment*, 12(1), 19-30.
43. Mehl, P. E. (1986). Causes and effects of my disturbing little book. *Journal of Personality Assessment*, 50(3), 370-375.
44. Garg, A. X., Adhikari, N. K. J., McDonald, H., Rosas-Arellano, P. M., Devereaux, P. J., Beyene, J...Haynes, R. B. (2005). Effects of computerized clinical decision support systems on practitioner performance and patient outcomes. *JAMA*, 293, 1223-1238.
45. Arkes, H. R., Shaffer, V. A., Medow, M. A. (2007). Patients derogate physicians who use a computer-assisted diagnostic aid. *Medical Decision Making*, 27, 189-202.
46. Shaffer, V. A., Probst, C. A., Merkle, E. C., Arkes, H. R. & Medow, M. A. (2013). Why do patients derogate physicians who use a computer-based diagnostic system? *Medical Decision Making*, 33, 108-118.

**WEEK 11** NOVEMBER 3<sup>RD</sup> AND 5<sup>TH</sup>

## SHARED DECISION MAKING &amp; PATIENT DECISION AIDS

47. Elwyn, G., Frosch, D., Volandes, A. E., Edwards, A., Montroi, V. M. (2010). Investing in deliberation: A definition and classification of decision support interventions for people facing difficult health decisions. *Medical Decision Making*, 30, 701-711.
48. O'Connor, A. M., Wennberg, J. E., Legare, F., Llewellyn-Thomas, H. A., Moulton, B. W., Sepucha, K. R...King, J. S. (2007). Toward the 'Tipping Point': Decision aids and informed patient choice. *Health Affairs*, 26(3), 716-725.

49. Stigglebout, A. M. et al., (2012). Shared decision making: Really putting patients at the centre of healthcare. *BMJ*, 344,e256-e257.
50. O'Connor, A. M., Bennett, C., Stacy, D., Barry, M. J., Col, N. F., Eden, K. B...Rovner, D. R. (2007). Do patient decision aids meet effectiveness criteria of the International Patient Decision Aids Standards collaboration? A systematic review and meta-analysis. *Medical Decision Making*, 27, 554-574.
51. Volandes, A. E., Barry, M. J., Wood, F., & Elwyn, G. (2013). Audio-video decision support for patients: The documentary genre as a basis for decision aids. *Health Expectations*, 16(3), e80-e88.

**WEEK 12** NOVEMBER 10<sup>TH</sup> AND 12<sup>TH</sup>

RISK COMMUNICATION & PATIENT NARRATIVES

52. Fagerlin, A., Zikmund-Fisher, B. J., & Ubel, P. A. (2011). Helping patients decide: Ten steps to better risk communication. *Journal of the National Cancer Institute*, 103(19), 1436-1443.
53. Fagerlin, A., Zikmund-Fisher, B. J., & Ubel, P. A. (2005). How making a risk estimate can change the feel of that risk: Shifting attitudes toward breast cancer risk in a general public survey. *Patient Education and Counseling*, 294-299.
54. Zikmund-Fisher, B. J., Fagerlin, A., & Ubel, P. A. (2010). Risky feelings: Why a 6% risk of cancer does not always feel like 6%. *Patient Education and Counseling*, 81, S87-S93.
55. Shaffer, V. A. & Zikmund-Fisher, B. J. (2013). All stories are not alike: A purpose-, content-, and valence-based taxonomy of patient narratives in decision aids. *Medical Decision Making*, 33, 4-13.
56. Shaffer, V. A., Hulseley, L., & Zikmund-Fisher, B. J. (2013). The effects of process-focused versus experience-focused narratives in a breast cancer treatment decision task. *Patient Education and Counseling*, 93(2), 255-264.
57. Betsch, C., Ulshöfer, C., Renkewitz, F., & Betsch, T. (2011). The influence of narrative v. statistical information on perceiving vaccination risks. *Medical Decision Making*, 31, 742-753.
58. Volandes, A. E., Paasche-Orlow, M. K., Barry, M. J., Gillick, M. R. Minaker, K., Chang, Y...Mitchell, S. L. (2009). Video decision support tool for advance care planning in dementia: Randomised controlled trial. *BMJ*, 338, b1964-b1971.

**WEEK 13** NOVEMBER 17<sup>TH</sup> AND 20<sup>TH</sup>

PREFERENCES & VALUES

59. Slovic, P. (1995). The construction of preference. *American Psychologist*, 50, 364-371.
60. Zikmund-Fisher, B. J., Fagerlin, A., & Ubel, P. A. (2004). "Is 28% good or bad?" Evaluability and preference reversals in health care decisions. *Medical Decision Making*, 142-148.
61. Pieterse, A. H., de Vries, M., Kunneman, M., Stigglebout, A. M., & Feldman-Steward, D. (2013). Theory-informed design of values clarification methods: A cognitive psychological perspective on patient health-related decision making. *Social Science & Medicine*, 77, 156-163.
62. Llewellyn-Thomas, H. A. & Crump, R. T. (2013). Decision support for patients: Values clarification and preference elicitation. *Medical Care Research and Review*, 70(1), 50S-79S.
63. Marks, M. A. Z. & Arkes, H. R. (2008). Patient and surrogate disagreement in end-of-life decisions: Can surrogates accurately predict patients' preferences? *Medical Decision Making*, 28, 524-531.

**WEEK 14** NOVEMBER 24<sup>TH</sup> AND 26<sup>TH</sup>

- Annual meeting of the Society for Judgment and Decision Making
- THANKSGIVING BREAK: NO CLASS

**WEEK 15** DECEMBER 1<sup>ST</sup> AND 3<sup>RD</sup>

THE ONES I COULDN'T LEAVE OUT

64. Swets, J. A. (1992). The science of choosing the right decision threshold in high-stakes diagnostics. *American Psychologist*, 47 (4), 522-532.
65. Arkes, H. R., Dawson, N. V., Speroff, T., Harrell, F. E., Alzola, C., Phillips, R., Desbiens, N., Oye, R. K., Knaus, W., & Connors, A. F. (1995). The covariance decomposition of the probability score and its use in evaluating prognostic estimates. *Medical Decision Making*, 15, 120-131.
66. Goldman, L., et al. (1963). The value of the autopsy in three medical eras. *New England Journal of Medicine*, 308 (17), 1000-1005.
67. Werner, P. D., Rose, T. L., & Yesavage, J. A. (1983). Reliability, accuracy, and decision-making in clinical predictions of imminent dangerousness. *Journal of Consulting and Clinical Psychology*, 51 (6), 815-825.
68. Chapman, L. J., & Chapman, J. P. (1967). Genesis of popular but erroneous psychodiagnostic observations. *Journal of Abnormal Psychology*, 72, 193-204.
69. Taylor, S. E. & Brown, J. D. (1988). Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin*, 103(2), 193-210.
70. Ubel, P. A. (2002). Is information always a good thing? Helping patients make "good" decisions. *Medical Care*, 40(9), V39-V44.
71. Volk, M. L. & Ubel, P. A. (2011). Less in more: Better off not knowing. *Archives of Internal Medicine*, 171(6), 487-488.

Other topics to consider: The rule of rescue and the identifiable victim effect

**WEEK 16** DECEMBER 8<sup>TH</sup> AND 10<sup>TH</sup>

Presentations

**WEEK 17** FINALS WEEK