**Evidence for Policy Decisions**
**Syllabus**

*Note: Assignments in this syllabus may be revised. Please consult Canvas for the latest version.*

**Content of the Course**

In this course, we will learn how social science research knowledge is used and can better be used as evidence in decisions on public policies, including decisions on social interventions: their formulation and design, their selection, their implementation, and their fate based on evaluations and experience.

Despite many requirements that policies and programs show evidence of their effectiveness, much relevant research is not used or worse: policies are adopted that fly in the face of rigorous scientific findings. Why is there such a gap between social science research and public policy making? And how do we bridge that gap?

This course will address these questions. We will investigate the importance of producing quality research, communicating results in more understandable terms, and brokering research results through think tanks, lobbyists, and advocacy groups. But we will see that much more must be involved to bridge the gap.

The goal of the course is to equip future policymakers and those who may advise them with the knowledge to promote the responsible use of scientific research as evidence in public policy. Such knowledge is scattered across many disciplines and fields, including political science, government and public affairs, business management, economics, statistics, sociology, social psychology, philosophy, education, social welfare, criminal justice, environmental studies, quality control, engineering, organizational learning, and systems analysis. This course will bring together relevant knowledge from across these fields.

We begin by addressing fundamental questions [*Using Science as Evidence in Public Policy*, (NRC, 2012)]:

• Why use scientific knowledge in policy making?
• Does it lead to better policies?
• In what sense?

And what do we mean by use? In particular, when is scientific knowledge evidence?

We then take an historical journey to see where it all started and how we got to where we are. We will see how some agencies made use of policy analysis and gave rise to units devoted to that purpose, while some agencies did not. (Rivlin, 2015)

We will see how evaluations of medical therapies with randomized experiments led to randomized controlled trials as the "gold standard" for evaluation of social welfare programs (Gueron and Rolston, 2013) and how the Cochrane Collaboration to synthesize research evidence on the effectiveness of health care served as a model for the Campbell Collaboration to synthesize research evidence on the effects of many social interventions.

We will briefly review steps that the previous administration took to foster evidence-based policymaking, including the Social and Behavioral Sciences Team in the White House Office of Science and Technological Policy (OSTP, 2015), the President's Executive Order on using behavioral science insights to better serve the American people (White House, 2015a, 2015b), and the Evidence and Innovation Agenda of the Office of Management and Budget (OMB, 2013; SIRC, 2014).  We will discuss the effects these initiatives have had on agencies and prospects for evidence-based policymaking in the current administration.  We will also review the forthcoming report of the Evidence-Based Policymaking Commission (U.S. Congress, 2016).

Next, we will review some of the major social science research designs that are often used in evidence, starting with the three broad categories of observational studies, experiments, and quasi-experiments.  Topics to be covered include

•        Methods of evaluation: randomized controlled trials and alternatives [*Assessing Evaluation Studies* (NRC, 1992)]

•        Dealing with selection bias:  regression analysis with covariates, instrumental variables, regression discontinuity designs.

•        What outcomes to measure and how, spillover effects, long-term outcomes

•        Cost-benefit analysis and cost-effectiveness analysis [*Advancing the Power of Economic Evidence to Inform Investments in Children, Youth, and Families.* (National Academies, 2016a)],

as well as other approaches, including meta-analysis and research synthesis, qualitative research, and computational social science ("Big data").

We will investigate problems and pitfalls in the implementation of social interventions and why implementation may be more important than a rigorous evaluation.  (Kellam and Langevin, 2003; Fixsen et al., 2005)

Next, we will learn some of the basic findings from social psychology/behavioral economics and their implications for policy design and policy argumentation. (Kahneman, 2011; Thaler and Sunstein, 2009), including System I and System II thinking, prospect theory (Losses often loom larger than gains.  People tend to be risk averse when faced with choices among gains

and more willing to take risks when faced with choices among losses), anchoring, neglecting the base rate, hindsight bias, confirmation bias, and availability bias.

We will learn the importance of communication, framing, and knowledge brokering (Bogenschneider and Corbett, 2010; Olejniczak et al., 2016). And we will investigate the roles of policy analysis and evaluation units and of statistics agencies in the federal government.

Our next excursion will be how to think in systems and how doing so enables us to think differently about designing and evaluating social interventions. We will learn some basic principles of systems and look at examples of a systems perspective applied to public policy, such as Geoffrey Canada's Harlem Children's Zone, and "Shape Up Somerville" (Curatone and Esposito, 2014).

We will review the classic methods to weigh evidence in making decisions, such as Bayesian methods, and, with the knowledge we have learned from behavioral economics, identify and illuminate common pitfalls in decision making.

We will consider some organizational issues that affect how evidence is used, including the cultures of organizations, and discuss how organizations can be made more effective in using evidence. One question to be addressed is why some federal agencies have evaluation or policy analysis units and why some do not.

We will also see how research evidence is used and weighed by the courts and how that differs from other public policy settings.

Finally, we will identify what research is needed on the topics of using evidence in public policy and making government a learning organization.

## Conduct of the Course

The course will be conducted as a graduate seminar. We will read major works and discuss them in class. In some classes, guests with relevant careers will be invited to impart their experiences and participate in our discussions.

As all of us are to learn from the discussions, it is important that you read assigned materials in advance so you can be prepared to engage in the discussions. For each class, one or two of us will be selected to present the key issues in a set of readings–not a summary of the material, but rather the major findings and issues raised–and to prepare some questions for discussion. Reading assignments will be posted on *Canvas*, the Virginia Tech website to which *Scholar* has migrated.

You will also be asked to prepare some written assignments for class discussion. Examples include preparing an op-ed or letter to the editor (no more than 800 words) based on

your review of a newspaper or magazine article on a particular public policy and preparing a policy brief of one or two pages in which you present evidence relevant to a current or potential policy.

An assignment may be made to groups of three or more. For example, each group may be asked to select a policy that has been adopted or under consideration and map evidence claims to that policy with an assessment of how evidence was used and the extent to which knowledge covered in this course was relevant. Each group will prepare a five- to ten-page paper of its findings and present it in class.

Unless otherwise specified, written assignments should be at the level of a knowledgeable but lay congressional staffer. A printout of an assignment must be handed in at the end of the class at which it is due, with an electronic copy to follow by the next day.

There will be no final exam. You are asked, however, to save our usual meeting time during exam week for either a make-up class or to review what we have learned.

*Materials*

Most of the works we will draw upon are available online without cost and the PDFs or Word files of a few articles will be placed on *Canvas*. For two major works, however, it will be necessary for you to acquire the books. Reading assignments will be made from all of these works and you will be expected to engage with the rest of us in a spirited discussion of the material.

Here are the two books you will need to acquire:

Kahneman, Daniel (2013). *Thinking, Fast and Slow*. New York: Farrar, Straus and Giroux. Reprint (paperback) edition.

Thaler, Richard H. and Sunstein, Cass. R. (2009). *Nudge: Improving Decisions About Health, Wealth, and Happiness*. Revised and expanded edition. New York: The Penguin Group.

We will also have assignments from two other books which are available online, including downloads, through the Virginia Tech Library and JSTOR:

Bogenschneider, Karen and Corbett, Thomas J. (2010). *Evidence-Based Policymaking: Insights from Policy-Minded Researchers and Research-Minded Policymakers*. New York: Routledge–Taylor and Francis Group. Available at https://login.ezproxy.lib.vt.edu/login?url=http://www.tandfebooks.com/doi/book/10.4324/9780203856390

Rivlin, Alice M. (2015).  *Systematic Thinking for Social Action*.  Updated edition.  Washington,
        D.C.: Brookings Institution Press.  Available at
        http://www.jstor.org.ezproxy.lib.vt.edu/stable/10.7864/j.ctt7zsvmc

Reading assignments from Bogenschneider and Corbett include, in addition to page numbers,
quotes from the beginning and end of each assignment, so that the relevant section can be
searched on an e-book.

    Additional references will be given for further, optional reading.  Where our materials do
not adequately cover a topic, a lecture based on these references will supplement the assigned
readings.

    For some materials, permissions for our use have been granted with restrictions.  Please
do not place any of our PDFs or other electronic files on any public website or share them with
others.  Where links are given to the original works, as is the case for reports of the National
Academies of Sciences, Engineering, and Medicine, you may, of course, share the links.

    A few educational modules were recently developed under the guidance of the National
Academies in order to help future policymakers and students in public policy and other
professional schools understand the role of science in decision making.  We will draw upon these
and you may want to make use of one or more of the modules.  They are also available without
cost.

## Course Schedule:
## Required Readings for Class Discussion and Other Assignments

*Please read the materials in advance of the class under which they are listed and be prepared to
discuss them.*

**Class 1:** What is evidence?  Why is it important?  What do we mean by its use in public policy?

*Using Science as Evidence in Public Policy* (National Research Council, 2012).
        Summary, pp. 1-6.
        Chapter 4:  Research on the Use of Science in Policy: A Framework, pp. 53-63.

*Systematic Thinking for Social Action* (Rivlin, 2015).
        Foreword, Preface, and Chapters 1-2, pp. 1-37.

**Class 2:** The origins of policy analysis

*Systematic Thinking for Social Action* (Rivlin, 2015).
        Chapters 3 through 6, pp. 38-123.

**Class 3:** Evaluation of social welfare programs

*Fighting for Reliable Evidence* (Gueron and Rolston, 2013).
    Chapter 1: Introduction: The Issue, the Method, and the Story in Brief, pp. 1-21.

*The Politics of Evidence* (Parkhurst, 2017).
    Chapters 1 and 2, pp. 1-37.

*Evidence-Based Policymaking* (Bogenschneider and Corbett, 2010).
    Pages 260 – 262 of Chapter 11.  From the second paragraph on p. 260 ("Researchers are interested in whether something works . . . .") through the third paragraph on p. 262 (". . . should we assess the efficacy and effectiveness of those policies?  If so, how should we do so?")

**Class 4:**  Initiatives in the administration and the Congress to foster evidence-based policymaking.

Posted materials to read include

Social and Behavioral Sciences Team Annual Report (OSTP, 2016).
    Executive Summary, pp. VIII – XIII, and Introduction, pp. 1-2

The President's Executive Order on using behavioral science insights (White House, 2015a, 2015b)

The Evidence and Innovation Agenda of the Office of Management and Budget (OMB, 2013; SIRC, 2014)

The Evidence-Based Policymaking Commission Act of 2016 (U.S. Congress, 2016).  Relevant excerpts will be included among posted materials.

*Nudging Change in Human Services* (Administration for Children and Families, 2017).
    Executive Summary, pp. 1-9.

**Class 5:** Part1:  Models and research designs as evidence in the policy process.

Fisher et al. (2016).  Selected pages.

Pasqual, Pasky (2016).  Bayesball: A primer on Bayesian modeling.  Video online at
https://vimeo.com/172590307

Pasqual, Pasky (2016).  Causal models, epistemic frames and policy-making.  Video online at
https://vimeo.com/172595963

Pasqual, Pasky (2015).  Case Study 2: EPA air standards.  How Modeling Can Inform Strategies to Improve Population Health: A workshop for the Roundtable on Population Health Improvement, Board on Population Health and Public Health Practice, 9 April 2015.  National Academies of Sciences, Engineering, and Medicine.  Video online at http://iom.nationalacademies.org/Activities/PublicHealth/PopulationHealthImprovementRT/2015- APR-09/Videos/6-Pascual-Video.aspx

**Class 5:**  Part 2:  A review of some of the major social science research designs that are often used in evidence.

Lecture notes (posted material)

*Using Science as Evidence in Public Policy* (NRC, 2012).
      Appendix A:  Selected Major Social Science Research Methods: Overview, pp. 91-99.

*Assessing Evaluation Studies* (NRC, 1992).
      Chapter 6: Conclusions and Recommendations, pp. 101-106.

*Advancing the Power of Economic Evidence to Inform Investments in Children, Youth, and Families* (National Academies, 2016a).
      Summary, pp. 1-12.

*Assignment* (due at Class 6):  Based on your review of a newspaper or magazine article on an issue relevant to public policy, write an op-ed or letter to the editor (no more than 800 words) laying out an argument for or against a policy or a revision of it.

**Class 6:**  Implementation

Kellam, S.G. and Langevin, D.J. (2003).  A Framework for Understanding "Evidence" in Prevention Research and Programs. *Prevention Science*, 4(3), 137-153.

*Implementation Research:  A Synthesis of the Literature* (Fixsen et al., 2005).
      Chapter 4:  Core Implementation Components, pp. 23-34.
      Chapter 7:  Conclusions and Recommendations, pp. 68-77.

**Class 7:**  Findings from social psychology/behavioral economics

*Thinking, Fast and Slow* (Kahneman, 2013).
      Chapters 1-18, pp. 19-195

**Class 8:**  Implications of behavioral economics for public policy

*Thinking, Fast and Slow* (Kahneman, 2013).
      Chapters 19-20, pp. 199-221

Chapter 26, pp. 278-288
Chapter 30-31, pp. 322-341
Conclusions, pp. 408-413

*Nudge: Improving Decisions About Health, Wealth, and Happiness* (Thaler and Sunstein, 2009).
Chapters 4-6, pp. 74-119
Chapter 11, pp. 177-184

*The Politics of Evidence* (Parkhurst, 2017).
Chapter 5, pp. 84-103.

*Assignment* (due at Class 9):  Divide into groups.  Each group will be assigned one or more policy issues, from those in *Nudge* and others, including the autosave features of the Pension Protection Act of 2006 (Beshears et al., 2009), to summarize and present to the class for discussion.

**Class 9:**  The disconnect between research and policy

Presentation and discussion of assignments on policy issues

*Evidence-Based Policymaking* (Bogenschneider and Corbett, 2010).  Preface, Foreword, and Chapters 1 - 2, pp. ix to xvi and 1 - 54.

*Assignment* (due at Class 11):  Each group will to select another policy that has been adopted or under consideration and map evidence claims to that policy with an assessment of how evidence was used and the extent to which knowledge covered in this course was relevant.  Each group will prepare a five- to ten-page paper of its findings and present it to the class,  Work on this assignment is to be done over two weeks.

**Class 10:**  Closing the gap between research and policy making.

*Evidence-Based Policymaking* (Bogenschneider and Corbett, 2010).
Chapter 4, Summary, pp. 97-98.  (From "Those discussing the underutilization of research . . ." through "The real question is how our more complex model plays out in the ways that real people think and act and communicate.  We move to that question in the next chapter.")

Chapter 5, Why Research is Underutilized in Policymaking:  *Community Dissonance Theory*, pp. 99-128.

Chapter 6, Summary and Key Concepts, pp. 146-147.  (From "We believe that this chapter addresses an issue that is fundamental . . . ." through "In the next chapter, we turn to observations of the policymaking process, many of which are obvious to insiders but often surprising to outsiders.")

Optional reading:  Chapter 7, pp. 149-173.

**Class 11:**  Part 1:  Communicating with policymakers

Presentations by groups on policy examples and the use of evidence in them.

*Evidence-Based Policymaking* (Bogenschneider and Corbett, 2010).
    Chapter 9, through recommendation one, pp. 193-198.  (From the beginning of Chapter 9 through ". . . but we were working toward a common goal—to improve the quality of policy decisions.  We each had expertise that could support the other's agenda.")

*Communicating Science Effectively: A Research Agenda* (National Academies, 2017).
    Report Highlights (December 2016).  Download separately from the report.

Notes on the preparation of a policy brief (posted material).

*Assignment* (due at Class 12):  Prepare a policy brief of one or two pages in which you present evidence relevant to a current or potential policy *for a politician*.  For a distinction between politician and agency/department head, see "Knowledge Brokers:  Description of Users" from Olejniczak et al. (2016), to be posted on *Canvas*.

**Class 11:**  Part two:  Communicating with policymakers:  The role of knowledge brokers

Evaluation units as knowledge brokers (Olejniczak, Raimondo, and Kupiec, 2016).  *Evaluation*, Vol. 22(2) 168-189.  To be posted on *Canvas*.

**Class 12:**  The roles of evaluation units, policy analysis units, and statistics agencies

Presentation and discussion of policy briefs.

Evidence-Based Policy at the U.S. Department of Labor (Nightingale, 2016).

DHHS Administration for Children and Families Uses Rigorous Evaluation (Goldstein, 2016).

Principles for Managing Social-Science Research in Government (Geweke and Straf, 1999)
    Material to be posted on *Canvas*.

*Principles and Practices for a Federal Statistical Agency, Fifth Edition* (NRC, 2013).
Executive Summary, Introduction, and Part I:  Principles and Practices for a Federal Statistical Agency, pp. 1-24.

*Note:*  The report of the Commission on Evidence-Based Policymaking is expected to be released by October 2017.  Portions may be selected for discussion at this class.

*Assignment* (due at Class 13): Select another current or potential policy and prepare a policy brief of one or two pages in which you present evidence relevant to the policy *for an agency head*. For a distinction between politician and agency/department head, see "Knowledge Brokers: Description of Users" from Olejniczak et al. (2016), to be posted on *Canvas*.

**Class 13:** Part 1: Thinking in systems

Presentation and discussion of policy briefs.

Lecture on systems approaches.

Optional reading: *Thinking in Systems* (Meadows, 2008).

*Assignment* (due at Class 14): Select an issue confronting our nation today and describe how interventions or other public policies to address this issue could benefit by thinking through consequences with a systems perspective. Prepare a brief presentation with written talking points to present for class discussion.

**Class 13:** Part 2: Weighing evidence in making decisions. Bayesian decision making.

Translating Science into Policy: The Role of Decision Science, Educational Module by Paul Brest (National Academies, 2016b). Selected pages.

**Class 14:** Part 1: Organizational issues that affect how evidence is used

Discussion of papers on systems perspectives.

*The Politics of Evidence* (Parkhurst, 2017).
        Chapter 8: From evidence-based policy to the good governance of evidence, pp. 147-174.

*Public Participation in Environmental Assessment and Decision Making*
        Executive Summary, pp. 1-5

        Chapter 9 (Overall Conclusions and Recommendations), Section on Integrating Science, pp. 233-236

*Decision Making for the Environment* (NRC, 2005).
        Executive Summary, section on Institutions for Environmental Governance, pp. 3-4

        Executive Summary, section on Decision-Relevant Science for Evidence-Based Environmental Policy, pp. 6-9

**Class 14:**  Part 2:  Research evidence in court settings

Understanding and evaluating statistical evidence in litigation (Fienberg, Krislov, and Straf, 1995).  Selected pages.

*Optional study*:  The Interpretation of DNA Evidence:  A Case Study in Probabilities, Educational Module by David H. Kaye (National Academies, 2016b).

**Class 15:**  Where do we go from here?  Government as a learning organization.  Research on the use of social science research as evidence in public policy.

*Using Science as Evidence in Public Policy* (NRC, 2012).
          Review Chapter 4, pp. 53-63.

*Evidence-Based Policymaking* (Bogenschneider and Corbett, 2010).
          Third paragraph on p. 262 ("In sum, to avoid looking for the wrong kinds of influence in the wrong places . . . .")

          Chapter 12, Where do we go from here?  Pp. 291-311.

***Assignment*** (due at Class 16):  Prepare a brief list of the topics we have covered in this course that are most salient to you and explain why they are salient.

**Class 16:**  Review of what we have learned

Presentations of review papers.


## References for the Readings

Administration for Children and Families (2017).  Nudging Change in Human Services: Final Report of the Behavioral Interventions to Advance Self-Sufficiency (BIAS) Project. Lashawn Richburg-Hayes, Caitlin Anzelone, and Nadine Dechausay with Patrick Landers, authors.  OPRE Report 2017-23 (May 2017).  Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.  Final report and Executive Summary are available at: https://www.acf.hhs.gov/opre/resource/nudging-change-in-human-services-final-report-of-the-behavioral-interventions-to-advance-self-sufficiency-bias-project

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Jeffrey Liebman and David A. Wise, eds.  Chicago, IL: University of Chicago Press, pp. 167 - 195.  Available online at  http://www.nber.org/books/brow08-1

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Curatone, Joseph A., and Esposito, Mark (2014).  A systems-thinking approach to public policy eschews linear model for more holistic understanding of decision-making.  The Impact Blog, London School of Economics and Political Science.  Available online at: http://blogs.lse.ac.uk/impactofsocialsciences/2014/09/25/systems-thinking-approach-to-public-policy/

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Fisher, Elizabeth; Pascual, Pasky; and Wagner, Wendy (2016).  Models:  Scientific Practice in Context.  An educational module prepared for the Committee on Preparing the Next Generation of Policy Makers for Science-Based Decisions of the Committee on Science, Technology, and Law.  National Academies of Sciences, Engineering, and Medicine.  Available online at http://sites.nationalacademies.org/pga/scipol_ed_modules/index.htm

Fixsen, Dean L.; Naomi, Sandra F.; Blase, Karen A.; Friedman, Robert M.; and Wallace, Frances (2005).  *Implementation Research:  A Synthesis of the Literature*.  Tampa, FL: University of South Florida, Louis de la Parte Florida Mental Health Institute, The National Implementation Research Network (FMHI Publication #231).  Chapter 7: Conclusions and recommendations, pp. 67-77.  Available online: http://ctndisseminationlibrary.org/PDF/nirnmonograph.pdf

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Goldstein, Naomi (2016).  DHHS Administration for Children and Families Uses Rigorous Evaluation, *Amstat News,* 1 June 2016.  Available online at http://magazine.amstat.org/blog/2016/06/01/scipol-jun16/

Gueron, Judy, and Rolston, Howard (2013).  *Fighting for Reliable Evidence*.  New York, NY: The Russell Sage Foundation.  Chapter 1: Introduction: The Issue, the Method, and the

Story in Brief, pp. 1-21.  Available online at
https://www.russellsage.org/publications/fighting-reliable-evidence

Kahneman, Daniel (2013).  *Thinking, Fast and Slow*.  New York: Farrar, Straus and Giroux.
Reprint (paperback) edition.

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Prevention Research and Programs. *Prevention Science*, 4(3), 137-153.

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Steuerle and Leigh Miles Jackson, eds.  Committee on Use of Economic Evidence to
Inform Investments in Children, Youth, and Families; Board on Children, Youth, and
Families.  Washington, DC: The National Academies Press.

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Available online at http://sites.nationalacademies.org/pga/scipol_ed_modules/index.htm

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Effectively: A Research Agenda*.  Committee on the Science of Science Communication:
A Research Agenda, Division of Behavioral and Social Sciences and Education.
Washington, DC: The National Academies Press.  Report and Report Highlights
(December 2016) are available at:  https://www.nap.edu/catalog/23674/communicating-
science-effectively-a-research-agenda

National Research Council (1992).  *Assessing Evaluation Studies:  The Case of Bilingual
Education Strategies.*  Michael M. Meyer and Stephen E. Fienberg, eds.; Panel to Review
Evaluation Studies of Bilingual Education, Committee on National Statistics.
Washington, DC:  National Academies Press.  Chapter 6: Conclusions and
Recommendations, pp. 101-106.  Available online at
http://www.nap.edu/catalog/2014/assessing-evaluation-studies-the-case-of-bilingual-
education-strategies

National Research Council (2005).  *Decision Making for the Environment: Social and
Behavioral Science Research Priorities.*  Panel on Social and Behavioral Science
Research Priorities for Environmental Decision Making, G.D. Brewer and P.C. Stern,
editors. Committee on the Human Dimensions of Global Change, Division of Behavioral
and Social Sciences and Education.  Washington, DC: The National Academies Press.

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