



THE OHIO STATE UNIVERSITY

JOHN GLENN COLLEGE OF PUBLIC AFFAIRS

Fall 2019

PA7505: Wicked Policy Problems (3 Credits) - Section Number

Instructors: Joshua D. Hawley, Associate Professor, John Glenn College of Public Affairs (Office 250 Page Hall); Office Hours by appointment, Hawley.32@osu.edu and 614-247-8140. @Hawleyjosh and SLACK Channel OSU-PA7505

Meeting Days, Time, and Classroom: (Mondays 9:30-12:15); Location (Room 40: Page Hall)

Student Learning Goals and Objectives:

1. Improve understanding of Policy Analysis as a science;
2. Assemble a toolkit for conceptualizing Decision Sciences;
3. Improve understanding of Systems Science methods, including System Dynamics, Agent-Based Modeling, and Network Science.

Course Description

The course will describe a class of policy problems that are complex and difficult to address. Examples include 1) improving student achievement, 2) solving poverty, or 3) reducing drug crimes. Wicked problems are distinguished by both a high degree of scientific uncertainty as well as moral complexity (Balint et al, 2011). Problems that are wicked, and not simply complex, often also involve power in a substantive way. Business stands to benefit from reducing drug crimes if pot is legal, but also profited from the dramatic rates of incarceration in the 1990s as the three-strike laws were enacted across the U.S. Individual poverty drains communities of talented people, but also is driven by economic models of production, cheap goods coming from China generating fewer and fewer jobs. Improving student achievement is practically very hard, as we have found few “silver” bullets that will dramatically increase individual outcomes.

Wicked problems are increasingly addressed with tools from complexity or system science. These tools include System Dynamics, Agent Based Models, and Network Models - all of which require a view of problems as generated by emergent behavior. This class will provide an overview of some key policy problems that are unusually complex, as well as providing a language and methodology from complexity to address these issues.

If you want to buy some books that we will read a significant part of, please look at these ones. I have copies online for each of these materials for the specific chapters.

Balint, et al. (2011). Wicked Environmental Problems (Island Press)

Miller and Page (2007). Complex Adaptive Systems: An Introduction to Computational Models of Social Life (Princeton Press)

Borshchev, A. (2013). The Big Book of Simulation Modeling: Multimethod Modeling with Anylogic

Sterman, J (2000). Business Dynamics: Systems Thinking and Modeling for a Complex World

There is a Youtube video list, its here; https://www.youtube.com/playlist?list=PLwkYd_8uD-J7DYZROg4m-pU230KEYLGW

Other materials are available on the Carmen site.

Students can access textbook information via the Barnes & Noble bookstore website: www.shopOhioState.com as well as from their BuckeyeLink Student Center. This information is disseminated by B&N to all area bookstores. You may buy from a store of your choice and/or shop for books (always use ISBN# for searches) on line.

Course Assignments (including grading requirements):

Attendance, participation, and discussion - 10% of grade: Student attendance will be recorded and used as the basis for assigning 10% of the grade. Part of the discussion grade is participation your classmate's presentations.

Two kinds of Assignments:

1. Individual Writing. Each worth 10 points. Weight of 40% of final grade.

Assignment 1: Defining Wicked Problems (9/2/19)

Assignment 2: Definitions (9/9/19)

Assignment 3 Swamping Insight (9/20/19)

Assignment 7: GMB (11/11/19)

2. Group Exercises and Writing. Each worth 20 points. 50% of final grade

Assignment 4: SIR Model Example (9/30/19)

Assignment 5: SIR Agent Based (10/14/19)

Assignment 6: Network Model (10/21/19)

Grading scale:

93 – 100	A	80 - 82	B-	68 – 69	D+
90 – 92	A-	78 - 79	C+	64 – 67	D
88 - 89	B+	73 – 77	C	63 & below	E
83 - 87	B	70 - 72	C-		

Note on Attendance:

Attendance is required. I will be taking attendance each class. It is your responsibility to sign the attendance sheet. After missing 2 classes a student grade will be reduced a full letter grade, for instance from a B to a C or a B+ to a C+. Excused absences (for illness or job interview) are accepted and are not penalized. Just make sure you let me know. Doctor’s notes are not accepted, per OSU student health services policy.

Note on Technology:

Laptops, are required for this class. Limit laptop and tablet use in class for class purposes only (ex. note taking). Cell phones can be used in class but kept on silent. My expectation is that if you are using your phone or computer in class they are for activities in class. If a fellow student is using technology in a way that impacts your learning, please say something or let me know.

Academic Misconduct

The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University’s Code of Student Conduct and that all students will complete all academic and scholarly assignments with fairness and honesty. Failure to follow the rules and guidelines established in the University’s Code of Student Conduct may constitute “Academic Misconduct.” Sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.

Glenn College Diversity Values Statement.

The Glenn College is committed to nurturing a diverse and inclusive environment for our students, faculty, staff, and guests that celebrates the fundamental value and dignity of everyone by recognizing differences and supporting individuality. We are dedicated to creating a safe space and promoting civil discourse that acknowledges and embraces diverse perspectives on issues and challenges that affect our community.

Disability Services Statement.

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on

your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. **SLDS contact information:** slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.”

Mental Health Statement

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student’s ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know is suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the **Office of Student Life Counseling and Consultation Services (CCS)** by visiting <https://ccs.osu.edu/> or calling 614-292- 5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on call counselor when CCS is closed at 614--292--5766 and 24 hour emergency help is also available through the 24/7 National Suicide Prevention Hotline at 1--800--273--TALK or at <https://suicidepreventionlifeline.org/>. Also, the OSU Student Advocacy Center is a resource to help students navigate OSU and to resolve issues that they encounter at OSU – visit <http://advocacy.osu.edu/> .

Due Dates for Assignments:

Date	Topic	Reading	Assignments
8/26/19	Overview, Definitions of wicked problems	<p>Rittel and Webber (1973), Dilemmas in a general theory of planning, <i>Policy Sciences</i>, 4(2) 153-169</p> <p>B. Guy Peters (2017) What is so wicked about wicked problems? A conceptual analysis and a research</p>	<p>Install AnyLogic PLE</p>

		program, <i>Policy and Society</i> , 36:3, 385-396,	
9/2/2019	Uncertainty in decision making: Examples from environmental science	Balint, et al. (2011). <u>Wicked Environmental Problems</u> (Island Press); chapters 1-3 Schelling (1978). <u>Micromotives and Macrobehavior</u> (chapter 3) “Sorting and Mixing”	Assignment 1: Defining wicked problems
9/9/2019	Limitations of causal thinking: why model?	Page, Scott, “Model Thinker Chapter 1” Joshua Epstein, “Why Model?” Sterman (2000), <u>Business Dynamics</u> , chapter 1	Assignment 2: Definitions
9/16/2019	Concept Models, Mental Models, Examples from welfare and climate	Ghaffarzadegan, Lyneis & Richardson (2011), “How small system system dynamics models can help the public policy process” <u>System Dynamics Review</u> 27(1) 22-44 Sterman (2008). “Risk Communication on Climate: mental models and mass balance” <u>Science</u> 322, 532-535	Assignment 3: Concept model (Swamping insight) memo (due 9/20/19)
9/23/19	System Dynamics 1, Causal Loop Diagrams, Mental Health Care example	Sterman (2000), <u>Business Dynamics</u> , chapter 5 Hannigan & Coffey (2011) “Where the wicked problems are: The case of mental health.” <u>Health Policy</u> 101, 220-227	

9/30/19	System Dynamics 2: SIR Model	Grigoryev (2018) <u>Any Logic in Three Days: System Dynamics Modeling Chapter</u>	Assignment 4: SIR Model Exercise and Memo
10/7/19	Agent Based Models 1: Segregation Review; AIR Agent Based,	Wilensky & Rand (2015). <u>An Introduction to Agent-Based Modeling</u> . Chapter 0,1	
10/14/19	Agent Based Models 2:	Miller and Page (2007). <u>Complex Adaptive Systems: An Introduction to Computational Models of Social Life</u> , Chapters 1-2; Ghaffarzadegan, Larson, Hawley (2017) “Education as a Complex System,” <u>Systems Research and Behavioral Science</u> 34(3) 211-15 Maroulis et al (2010) “Complex systems view of education policy research” <u>Science</u> 330 (1 October). 38-39	Assignment 5: SIR Agent Based
10/21/19	Network Models 1: Research Policy, Neuroscience and research productivity	Owen-Smith (2017) “Networks: The Basics, in Foster et al, <u>Big Data and Social Science</u> , chapter 8 Lane, Owen-Smith, Rosen & Weinberg (2015). “New Linked Data on research investments: Scientific workforce, productivity and public value” <u>Research Policy</u> 44 (1659-1671)	Assignment 6: Network Model Example TBD
10/27/19	Hybrid Models	Guest – Dr. Julie Maurer	
11/4/19	Network Models 2: Case of job matching	Granovetter (1995) <u>Getting a Job</u> Hur, Maurer & Hawley (2019). “The role of education, occupational match on job satisfaction in the behavioral and social science workforce” <u>Human Resource Development Quarterly</u>	

11/11/19	Group Model Building, infant mortality	<p>Niyousha Hosseinichimena, Rod MacDonald, Ayaz Hyder, Alireza Ebrahimvandi, Lauren Porter, Becky Reno, Julie Maurer, Deborah Andersen, George Richardson, Josh Hawley, David Andersen. Group Model Building Techniques for Rapid Elicitation of Parameter Values, Effect Sizes, and Data Sources, <u>System Dynamics Review</u>, 33,1 (71-84),</p> <p>Hovmand et al (2012) “Group Model Building Scripts” <u>Systems Research and Behavioral Science</u> 29 (179-193)</p>	Assignment 7: GMB Questions
11/18/19	Systems Science Theory	<p>Hieronymi (2013) “Understanding Systems Science : A Visual and Integrative Approach” <u>Integrative Approach” Integrative Approach” Systems Research and Behavioral Science</u> 30 (580-595)</p> <p>Desai (2012), “Public Policy Inquiry and Simulations” in, <u>Simulation for Policy Inquiry</u> (chapter 1)</p> <p>Paris and Reynolds (1983) <u>The Logic of Policy Inquiry</u>, Chapter 6: Interpretive Policy Inquiry</p>	
11/25/19	Power and Wicked Problems	<p>Robert Caro (2012). <u>The Years of Lyndon Johnson: The Passage of Power</u>, Chapter 6: Power is where power goes</p> <p>“From LBJ to Robert Moses: Robert Caro on Writing About Political Power & Its Impact on the Powerless” with Amy Goodman (Democracy Now, April 29, 2019),</p>	

12/2/19	Future steps for simulation and modeling in solving wicked problems	No Readings	Final discussion:
---------	---------------------------------------------------------------------	-------------	-------------------