

Complexity in Public Policy & Management
Analysis for Adaptive Complex Public Enterprises
School of Public Affairs, Arizona State University

Spring 2015

Class Hours: Monday, 6:00-8:45 pm
Class Location: UCENT 259, Phoenix Campus
Class Website: Blackboard (<http://my.asu.edu>)

Instructor: Yushim Kim, Ph.D. (School of Public Affairs)
Office: UCENT 445
Office hours: Monday 3:00-5:00 pm, and by appointment
Email: ykim@asu.edu

Course Objectives

That the world we inhabit is complex is not a new idea. The novelty is that we now have a better understanding of complexity, thanks to new underlying concepts and research approaches. This seminar course is designed to identify, articulate and discuss the “value-adds” of complexity perspective to public policy and management. In this semester, the course focuses on understanding two concepts (i.e., equifinality and emergence) and how Qualitative Comparative Analysis and Agent-Based Modeling help us capture such a causal complexity in the context of public policy and management problems. Applications focus on the recent studies of environmental justice and public-private-partnership. This course invites you to this new adventure.

Course Format

The general format of this course includes reviews of reading materials, discussions, and modeling exercise. Prior to each class, students are expected to read the required texts and articles. Students are responsible for content included in the readings, even if it is not explicitly reviewed in class. Students are expected to participate actively in class discussions and modeling exercises. Assignments include weekly readings, four memos, two projects, and participation.

Readings

Required

- [L] Lejano, R.P. (2006). *Frameworks for Policy Analysis*. Routledge
- [KK] Koppenjan, J., & Klijn, E-H. (2004). *Managing Uncertainties in Networks*. Routledge
- [WH] Williams, B., & Hummelbrunner, R. (2011). *Systems Concepts in Action*. Stanford University Press

Optional Book

Mitchell, M. (2009). *Complexity: A Guided Tour*, Oxford University Press

We will also read various articles and excerpts during the semester. These articles are noted with [On] in the reading assignment section of this syllabus. Check the blackboard. Articles noted with [W] can be directly accessed online.

Modeling Tools and Manual

Qualitative Comparative Analysis

- Go to the website and install the following software
<http://www.compass.org/software.htm>
Tosmana, version 1.3.2.0
fsQCA version 2.5
<http://www.r-project.org/> (If you prefer R)
R
Install “QCA” package
- Required to read R and QCA package manual in R

Agent-Based Modeling

- Install the most recent NetLogo in your laptop
<http://ccl.northwestern.edu/netlogo/>
- Required to read NetLogo tutorial before the class on January 30
<http://ccl.northwestern.edu/netlogo/docs/>
 - NetLogo Tutorial #1: Models
 - NetLogo Tutorial #2: Commands
 - NetLogo Tutorial #3: Procedures

Grading

There will be no incompletes given, with the exception of serious *unexpected* events that prevent course completion. If I find that your progress is unsatisfactory, I will inform you in person or via email in the middle of the semester. Your final grade will be based on the following assignments:

1. Reading Reflection Memos (4 Memos)	20%
2. Midterm Project	20%
3. Final Project and Presentation	50%
4. Class Participation and Discussion	10%

Final grade is decided based on a total score earned. Substantively, A indicates excellent, B indicates average, and C indicates below average. For graduate students, grades of C and D lead to failure of the course. To earn above a B, you should present excellence beyond the requirements.

Class Assignments & Evaluations

1. Reading Reflection Memos [20%]

I expect you to be critical on the weekly readings and to share your understanding with others. You are asked to write four reflection memos in an essay format. Don't frequently recite sentences from the readings. You should assume that I have read the materials. You also must write one or two question(s) at the end of your memo. For example, what questions are raised from the readings? You should study unfamiliar concepts by yourself using various resources (i.e. internet, books, and other faculties) prior to class. Appropriate questions might be on the issues, problems, limitations, and weaknesses of the book.

Limit your memo to single-space two pages in length. Keep it simple and succinct. Post your memo to the blackboard (Discussion Board) Saturday, noon, prior to the class of the book that will be discussed. For example, Memo 1 for first book in Week 3 (January 26) must be posted to the blackboard site before noon on January 24 (Saturday). This helps me prepare for the class.

2. Midterm Project [20%]

Your midterm project for this class is to replicate an analysis based on QCA. I will choose an article and you will be asked to replicate the analysis performed in the article using modeling tools we will learn in class. You also need to write a short reflection essay (no more than one page) on the replication process, the article, *or* the analysis performed in the midterm article. You will conduct this midterm project at home during the designated time below.

The instruction will be posted to the Discussion Board on March 16, noon. You must finish the model replication project between 12:00 PM and 9:00 PM on that day. Post your replication result and reflection essay to the Discussion Board by March 16, 9:00 PM.

3. Final Project and Presentation [50%]

Each student will be asked to design a final project using Agent-Based Modeling (ABM) or Qualitative Comparative Analysis (QCA). It should be your own project for the topic you are interested. Pick a research topic that QCA or ABM can help and conduct your own research during the semester. If you choose an ABM project, your final product is your prototype model with a model description document. If you choose a QCA project, your final product is a research paper using QCA. No more than 9,000 words in MS Word. I will work very closely with you for the final project from the beginning. Please don't hesitate to ask help.

Regardless of your choice of final project, you are asked to create a short video presentation on your final project (approximately 5~10 minutes) and post it to the Discussion Board by April 27, 5:00 PM. In the video, you should cover the main points of your project. On April 27, you are also asked to visit the Discussion Board and review other student's projects. Please comment and evaluate each other's projects between 6:00 PM – 9:00 PM.

4. *Class Participation and Discussion [10%]*

You will be expected to complete all required reading assignments prior to the class meeting. Your attendance, participation in class discussions, and discussions with me via e-mail or during office hours will influence your participation grade. I value good attitude, passion, and process in the learning environment. If you wish to have clarification of anything that you read or hear in class but do not wish to ask a question in class, send me an email and I will respond to it in the following class session.

I understand that some of you might be out of town during the semester. Your absences due to work-related issues will not influence your grades on assignments besides participation. If you miss the class more than twice this semester, the best participation grade you will get is a C.

Schedule of Topics

Week	Date	Topic	Dues/Note
1	1/12	Introduction	
2	1/19	No Class (Holiday Observed)	
3	1/26	<i>Frameworks for policy analysis</i>	Memo #1
	1/30	Special Session on NetLogo	Joint class with PAF691 Decision Theater, 9:30 – TBD
4	2/2	Agent-Based Modeling	
5	2/9	Environmental justice	Memo #2
6	2/16	Language I: Emergence	
7	2/23	Language II: Configuration	
8	3/2	Crisp QCA	
9	3/9	No Class (Spring Break)	
10	3/16	fsQCA	Midterm at home
11	3/23	Public-Private Partnership	
12	3/30	<i>Managing uncertainties in networks</i>	Memo #3
13	4/6	<i>Systems concepts in action</i>	Memo #4
14	4/13	Reflection on complexity and analysis	
15	4/20	No Class	Work on your project at home
16	4/27	Final Presentation (Online)	Post your final project and evaluate other student's projects in the blackboard

Reading Assignments

Week 1 (1/12): Introduction

Introduction – Syllabus

Week 2 (1/19): No Class (Holiday Observed)

Week 3 (1/26): Lejano, *Frameworks for Policy Analysis*

Week 4 (2/2): Agent-Based Modeling

- [On] Gilbert, N. (2005). Chapter 1: Simulation and social science and Chapter 2: Simulation as a method. *Simulation for the Social Scientist*. Open University Press, 1-27
 - [On] Moretti, S. (2002). Computer simulation in sociology: What contribution? *Social Science Computer Review*, 20(1), 43-57
 - [On] Macy, M. W., & Willer, R. (2002). From factors to actors: Computational sociology and agent-based modeling. *Annual Review of Sociology*, 28, 146-166
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Week 5 (2/9): Environmental Justice

- [On] Campbell, H., Kim, Y., Eckerd, A. (forthcoming, 2015). *Rethinking Environmental Justice in Sustainable Cities*. Chapter 1-2.
 - [On] Eckerd, A., Campbell, H., & Kim, Y. (2012). Helping those like us or harming those unlike us: Illuminating social processes leading to environmental injustice. *Environment and Planning B*, 39(5), 945-964.
 - [On] Kim, Y., Campbell, H., & Eckerd, A. (2014). Residential choice constraints and environmental justice. *Social Science Quarterly*, 95(1), 40-56.
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Week 6 (2/16): Language I: Emergence

- [On] Bedau, M.A., & Humphreys, P. (2008). Introduction to scientific perspectives on emergence, In *Emergence*. Cambridge: The MIT Press. 209-219
- [On] Schelling, T. (2008). Sorting and mixing: Race and sex, In *Emergence*. Cambridge: The MIT Press. 235-248
- [On] Simon, H. (2008). Alternative views of complexity, In *Emergence*. Cambridge: The MIT Press. 249-258
- [On] Goldstein, J. (1999). Emergence as a construct: History and issues. *Emergence*, 1(1), 49-72

Week 7 (2/23): Language II: Configuration

[On] Schneider, C.Q., & W. C. *Set-Theoretic Methods for the Social Sciences*. pp.1-54

Week 8 (3/2): Crisp QCA

[On] Krook, M.L. (2010). Women's Representation in Parliament: A Qualitative Comparative Analysis. *Political Studies*, 58: 886-908

[W] Legewie, N. (2013). An Introduction to Applied Data Analysis with Qualitative Comparative Analysis (QCA). *Qualitative Social Research*, 14(3)
(<http://www.qualitative-research.net/index.php/fqs/article/view/1961/3594>)

[W] Schneider, C.Q, & Wagemann, C. (2010). Standards of Good Practice in Qualitative Comparative Analysis (QCA) and Fuzzy-sets. *Comparative Sociology*, 9: 1-22
(http://www.uni-frankfurt.de/47932932/Schneider_Wagemann_2010.pdf?)

[On] Schneider, C.Q., & Grofman, H. (2006). An Intuitive Approach to the Presentation of QCA and FS/QCA results. (Online)

Week 9 (3/9): No Class (Spring Break)

Week 10 (3/16): fsQCA: Midterm Exam

Week 11 (3/23): Public Private Partnership

[On] Verweij, S., & Klijn, E-H., Edelenbos, J., & van Buuren, A. (2013). What Makes Governance Networks Work? A Fuzzyset Qualitative Comparative Analysis of 14 Dutch Spatial Planning Projects. *Public Administration*, 91(4): 1035-1055.

[On] Verweij, S., & Gerrits, L.M. (2014). How Satisfaction is Achieved in the Implementation Phase of Large Transportation Infrastructure Projects: A Qualitative Comparative Analysis into the A2 Tunnel Project. *Public Works Management & Policy*, 20(1): 05-28.

Week 12 (3/30): Koppenjan & Klijn, *Managing Uncertainties in Networks*

Week 13 (4/6): Williams & Hummelbrunner, *Systems Concepts in Action*

Week 14 (4/13): Reflection on Complexity and Analysis

[On] Bunge, M. (2006). Chapter 1: A systemic perspective on crime. In P-O H. Wikström and R.J. Sampson. *The explanation of crime: Context, mechanism and development*. New

- York: Cambridge University Press.
- [W] Brian Heath, Raymond Hill, and Frank Ciarallo, A Survey of Agent-Based Modeling Practices (January 1998 to July 2008). *Journal of Artificial Societies and Social Simulation* 12, no. 4 (2009), <http://jasss.soc.surrey.ac.uk/12/4/9.html>
- [On] Byrne, D. (2005). Complexity, Configurations and Cases, *Theory, Culture & Society*, 22(5): 95-111
- [On] Gerrits, L. & Verweij, S. (2013), Critical Realism as a Meta-Framework for Understanding the Relationships Between Complexity and Qualitative Comparative Analysis, *Journal of Critical Realism*, 12(2): 166-182.
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Week 15 (4/20): **No Class**

Week 16 (4/27): **Final Presentation (Online)**

Academic Integrity

Both the university and I take issues related to academic integrity very seriously. If you have any questions about how to cite someone else's work, please ask. Though it may be acceptable to cut and paste without attribution into documents or reports, the academic community has a different set of standards in this regard. If I find that a student has plagiarized on an assignment, the possible consequences are: failure on the assignment; failure in the course; course failure with a mark of academic dishonesty, which cannot be removed from the transcript; or dismissal from the graduate program. If you fail a class assignment, you can restore some points by working harder in other assignments. However, *once you violate the academic conduct guidelines, there is no way that you can reverse the damage*. Please be alert to the academic integrity guidelines.

Notes

1. Please turn off your cell phone before class.
2. Do not expect email response from the instructor during the weekend.
3. It is your responsibility to check information on the class website.
4. The syllabus is subject to change by the instructor.