

INTERNATIONAL UNIVERSITY OF JAPAN  
Public Management and Policy Analysis Program  
Graduate School of International Relations

**PHDC3501 (2 Credits)**  
**Advanced Public Policy Modeling**  
Spring 2019

Classroom: C-201	Instructor: Hun Myoung Park
Time: 14:40-17:50 on Tuesday	Office: 311
<a href="http://www.sonsoo.org/policy/advanced/">http://www.sonsoo.org/policy/advanced/</a>	Telephone: (025) 779-1464
Office Hour: 13:30-14:30 (Tuesday)	E-mail: <a href="mailto:kucc625@iuj.ac.jp">kucc625@iuj.ac.jp</a>

**Prerequisites:** Students are expected to have basic knowledge of college level statistics (statistical inferences and probability theory), (matrix) algebra, and some calculus.

## INTRODUCTION

This Advanced Public Policy Modeling is a policy analysis course that employs mathematical and statistical methods to analyze policy issues. The emphasis here is given to natures of policy analysis as art and craft and “modeling” or a *scientific way of thinking* about policy and management problems rather than specific methods, techniques, and skills. In fact, it is unlikely, due to the nature of “publicness” in the public sector, that all aspects of individual models are directly applied to actual policy problems. However, their core concepts and logics provide important implications for policy analysis and management in both public and private sectors. This course minimizes burdensome technical details like LP’s simplex method and instead focuses on understanding and application of individual models.

Students are trained to improve their abilities to identify and analyze policy problems correctly; formulate policy problems properly; and interpret results professionally. Students are also asked to present results professionally in order to successfully communicate with audience (senior managers and citizens) who do not have sufficient modeling and mathematics knowledge. As future policy analysts, students need to recognize the “client oriented” nature of policy analysis and to improve their ways of thinking for policy analysis.

## CLASS ORGANIZATION

This course is based on a series of lectures and discussions. Students are encouraged to participate in class actively. Students are recommended to take advantage of discussing with the instructor during office hours or by setting up appointments.

## ASSESSMENT (COURSE REQUIREMENT)

**Attendance:** Students should attend ALL classes. Students who missed 30 percent (or more) of class MAY NOT pass this course.

**Discussion and Participation (10%):** Students must read required readings before the class. Students are required to actively participate in class. Good questions and answers will be taken into account to measure preparation and participation in discussion.

**Term Paper (30%):** Students are expected to conduct a simple policy analysis and write a term paper. Use the memo template (available on the course Web page) and write up to 7 pages including references. The term paper is due Friday, June 7 (week 10).

A selected public policy should be explained effectively by what is discussed in this course. A good candidate is one whose policy objective (policy problem), policy instrument (solution), necessary resources (e.g., budget, labor, equipment), and expected consequences (e.g., monetary and non-monetary benefits) are relatively easier to be specified. Do not choose too big/complicated one or too small/trivial one.

A memorandum must include (1) a brief background of the policy in order to explain why the policy was initiated, (2) policy problem and objectives: highlight the gap between the current state and desired state (future state), (3) policy instrument (measure or solution) to achieve the policy goal (Do not simply list policy instruments but explain how they are expected to achieve the policy objective. The causal relationship between a policy instrument and a policy objective needs to be validated, if it is not clear enough), and (4) resources to be mobilized: describe whether the policy is plausible with special respect to resources available (e.g., labor force, equipment, technology, knowledge, time limit, and others).

**Exams (60%):** There will be mid-term (30%) and final exams (30%). These take-home exams will respectively cover the topics and materials of the first 5 weeks and later 5 weeks.

**Late Penalties:** Late assignments or exam answers will be accepted with a penalty of 10 percent discount if submitted within a day after the time due. Under no circumstances will late assignments be accepted after one day of the due date without prior authorization from the instructor.

**Format and Styles:** All group project memos should be written in electronic forms (Microsoft Word, LibreOffice Writer, ...). Use the default format and styles (A4, default margin, Time and Roman font, 12 point, single-spaced, etc.). If you are not sure, please download the template file from the course Web page. Use a period (.), NOT a comma (,), to indicate the decimal point (e.g., **3.14**, NOT **3,14**); adjust the number format in Excel properly, if necessary.

## GRADING

The final grade is based on a composite of course requirements mentioned above. Their weights are:

- (1) Midterm exam 30%
- (2) Final exam 30%
- (3) Term paper 30%
- (4) Discussion and participation 10%

Your final score is the sum of the three components above. The final grade will be “Pass” if the final is greater than or equal to 60 out of 100 and “Not pass” otherwise. A student may not pass this course if he/she is absent (or late longer than 30 minutes) in three or more weeks.

**Appealing the Grade:** If you object to any grading decisions, you may appeal the grade to the instructor. The appeal must be given along with original documents (e.g., quiz and exam) to the instructor no later than 24 hours after the grade is released.

## CLASS POLICY

**Attendance and Lateness:** Students should attend each class and be present before each class begins. Being 30 minutes late is considered absent from the class. Excused absences for special circumstances (e.g., sickness) may be arranged in advance and will not influence the attendance grade. There is no formal seating chart.

**Academic Misconduct:** Students should not only gain knowledge and skills, but also build their character. Particularly, public managers should equip themselves with high and strict professional standards and ethics. All students should complete their own work and be evaluated based upon their work. Students should avoid academic dishonesty and misconduct including *plagiarism*, *fabrication* (falsification), and *cheating* (collaboration). A student must not reproduce ideas, phrases, or sentences of another person without appropriate acknowledgment. Students must give credit to the originality of others and acknowledge an indebtedness whenever they quotes/paraphrases another person's actual words, either oral or written; employs another person's idea, opinion, or theory; or borrows facts, statistics, or other illustrative materials. The penalty for violation ranges from sanctions of 0 score for particular assignment/exam and immediate F for final grade, and up to expulsion from the university.

**Course Feedback:** Given diversity in their backgrounds, students are always encouraged to make comments and suggestions on this class (e.g., readings, lecturing, presentation, and class discussion) in order to improve this course. If you don't feel comfortable studying in the class, do not hesitate to talk to the instructor. Any form of communication (e.g., walk-in, phone, email, facebook, etc.) will do. A constructive feedback may be awarded extra credits. No feedback will influence your grade negatively in any circumstance.

**Use of Electronic Devices:** Before each class and lab begins, students MUST turn off their cellular phone (smart phone), netbook (mini laptop), iPad, Galaxy tablet, and/or CD/MP3/DMB players that may distract the instructor and their classmates. But students may use an electronic dictionary.

**Computer Literacy:** Students should be able to access computers in IUJ computer clusters and use Web browser (e.g., Firefox) to navigate Web sites and download materials. This course will use Microsoft Excel Solver (version 2003 or later), SAS, and/or Stata.

**IUJ Electronic Mail:** All students must use the university electronic mail to communicate with the instructor and other classmates. Students SHOULD peruse emails that the instructor sends in order for additional explanation and comments. You may not misuse email (e.g., a message without sender's identity, a message containing irrelevant expressions and infringement of privacy, and a message sent to receivers who are not related to the subject).

**Course Web Page:** <http://www.sonsoo.org/policy/advanced/> provides the latest course schedule, announcements, and various course materials including lecture notes. Students MUST visit this Web page time to time to check announcements and materials available.

## READING MATERIALS

You MUST have the following required textbook that can be purchased from online bookstores like amazon.co.jp. A hardcopy (as opposed to electronic forms like PDF) of the textbook is necessary.

Hillier, Frederick S., and Mark S. Hillier. 2014. *Introduction to Management Science: A Modeling and Case Studies Approach with Spreadsheets*. 5<sup>th</sup> ed. (International Edition) McGraw-Hill. ISBN 978-1259010675.

Majone, Giandomenico. 1989. *Evidence, Argument, and Persuasion in the Policy Process*. New Haven: Yale University Press. ISBN 978-0300052596.

You are also asked to read some book chapters and journal articles listed in the course schedule below. Students should read all required readings (e.g., journal articles and book chapters) before class. Related video clips and Internet resources are available in the course Web page.

This course has following recommended readings that are available at the MLIC Library reserve for 3-hour checkout.

Albright, S. Christian, and Wayne L. Winston. 2005. *Spreadsheet Modeling and Applications: Essential of Practical Management Science*. Belmont, CA: Thomson. ISBN 978-0534380328.

Anderson, David R., Dennis J. Sweeney, Thomas A. Williams, Jeffrey D. Camm, and James J. Cochran. 2015. *An Introduction to Management Science: Quantitative Approaches to Decision Making*. 14<sup>th</sup> ed. South-Western. ISBN 978-1111823610.

Anderson, Virginia, and Lauren Johnson. 1997. *Systems Thinking Basics: From Concepts to Causal Loops*. Waltham, MA: Pegasus Communications. ISBN 978-1883823122.

Bardach, Eugene, and Eric M. Patashnik. 2016. *A Practical Guide for Policy Analysis: The Eightfold Path to More Effective Problem Solving*, 5th ed. Sage & CQ Press. ISBN: 978-1483359465.

Birkland, Thomas A. 2015. *An Introduction to the Policy Process: Theories, Concepts, and Models of Public Policy Making*. Routledge. ISBN 978-0765646620.

Boardman, Anthony E., David H. Greenberg, Aidan R. Vining, and David L. Weimer. 2011. *Cost-Benefit Analysis: Concepts and Practice*. 4<sup>th</sup> ed. Boston: Prentice Hall. ISBN 978-0137002696.

Brewer, Garry D., and Peter DeLeon. 1983. *The Foundations of Policy Analysis*. Homewood, IL: Dorsey Press. ISBN 978-0256023237.

Bromell, David. 2017. *The Art and Craft of Policy Advising: A Practical Guide*. Springer. ISBN 978-3319849164.

Clemen, Robert T., and Terence Reilly. 2013. *Making Hard Decisions with Decision Tools Suite*, 3th ed. South-Western College. ISBN 978-0538797573;

Clemen, Robert. 1996. *Making Hard Decisions: An Introduction to Decision Analysis*, 2nd ed. Belmont, CA: Duxbury Press.

Dewey, John (edited by Melvin L. Rogers). 2016. *The Public and Its Problems: An Essay in Political Inquiry*. Swallow. ISBN: 978-0804011662; Dewey, John. 1927. *The Public and Its Problems*. New York: Henry Holt and Company.

Dunn, William N. 2012. *Public Policy Analysis*. 5<sup>th</sup> ed. Upper Saddle River, NJ: Pearson Education. ISBN 978-0205-252572.

- Guess, George M., and Paul G. Farnham. 2011. *Cases in Public Policy Analysis*, 3th ed. Georgetown University Press. ISBN 978-1589017344.
- Hillier, Frederick, and Gerald Lieberman. 2014. *Introduction to Operations Research*. 10<sup>th</sup> ed. McGraw-Hill. ISBN 978-9814577205.
- Kraft, Michael E., and Scott R. Furlong. 2017. *Public Policy: Politics, Analysis, and Alternatives*. CQ Press. ISBN 978-1506358154.
- Meadows, Donella H. 2008. *Thinking in Systems: A Primer*. White River Junction, VT: Chelsea Green Publishing. ISBN 978-1603580557.
- Morgan, M. Granger. 2017. *Theory and Practice in Policy Analysis: Including Applications in Science and Technology*. New York: University Printing House. ISBN 978-1316636206.
- Ragsdale, Cliff. 2017. *Spreadsheet Modeling & Decision Analysis: A Practical Introduction to Business Analytics*. 8<sup>th</sup> ed. Cengage Learning. ISBN 978-1305947412.
- Sherwood, Dennis. 2002. *Seeing the Forest for the Trees: A Manager*. London: Nicholas Brealey Pub. ISBN 978-1857883114.
- Stevenson, William J., and Ceyhun Ozgur. 2007. *Introduction to Management Science with Spreadsheets*. McGraw-Hill. ISBN 978-0073252902.
- Stroh, David Peter. 2015. *Systems Thinking for Social Change*. White River Junction, Vermont: Chelsea Green Publishing. ISBN 978-1603585804
- Weick, Karl E. 1979. *The Social Psychology of Organizing*. 2<sup>nd</sup> ed. Reading, MA: Addison-Wesley Pub. Co. ISBN 978-0075548089.
- Weimer, David L., and Aidan R. Vining. 2017. *Policy Analysis: Concepts and Practices*. 6<sup>th</sup> ed. Routledge. ISBN 978-1138216518.
- Wildavsky, Aaron. 1987. *Speaking Truth to Power: The Art and Craft of Policy Analysis*, 2nd ed. New Brunswick, NJ: Transaction Publishers. ISBN 978-0887386978.; Wildavsky, Aaron. 2018. *The Art and Craft of Policy Analysis*. Palgrave MacMillan. ISBN 978-3319586182.
- Winston, Wayne L. 2004. *Operations Research: Applications and Algorithm*. 4<sup>th</sup> ed. Duxbury Press. ISBN 978-0534380588.

In order to get the electronic copy of a journal article, (1) visit IUJ's E-journal portal, (2) provide a journal name (e.g., *Public Administration Review*), (3) choose a source (e.g., JSTOR and EBSCO) of the journal, and then (4) find out the paper using its title, author name, year of publication, volume, and/or number.

## WEEKLY SCHEDULE

\* This schedule is tentative and subject to change. Students should check the latest schedule on the course Web site from time to time. All class notes and some required readings other than Hillier & Hillier (H&H) (2014) are available on the course Web site.

### 1<sup>st</sup> Week: Introduction to Policy Modeling (04/05)

#### Required:

- Weimer & Vining (2010) Chapter 2.
- Landau, Martin. 1977. The Place of Policy Analysis in Political Science: Five Perspectives--The Proper Domain of Policy Analysis. *American Journal of Political Science* 21(2): 423-427.

#### Optional:

- Albright & Winston (2005) Chapter 1, 2.
- Boardman, Greenberg, Vining, and Weimer (2011) Chapter 1.
- Dewey (1927).
- Dunn (2012) Chapter 1-2.
- Guess and Farnham (2011) Chapter 1 (Policymaking Process).
- Lowi, Theodore. 1988. Foreword: New Dimensions in Policy and Politics. In *Social Regulatory Policy: Moral Controversies in American Politics*. Edited by Raymond Tatalovich and Byron W. Daynes, x-xxi. CO: Westview Press.
- Weimer & Vining (2010) Chapter 14, 15.

## **2<sup>nd</sup> Week: Art and Craft of Policy Analysis (04/12)**

**Required:** Wildavsky (1987) Introduction (pp. xxiii-xxxvii), Introduction (Analysis as Art, pp. 1-19), Part I Resources versus Objectives Chapter 1 (pp. 21-40), Chapter 16 (Analysis as Craft, pp. 385-406).

### **Optional:**

- Krutilla, Kerry. 2005. Using the Kaldor-Hicks Tableau Format for Cost-Benefit Analysis and Policy Evaluation. *Journal of Policy Analysis and Management* 24(4): 864-875.
- Bardach and Patashnik (2016) Part I (pp. 1-82).

## **3<sup>rd</sup> Week: Policy Arguments (04/19)**

### **Required:**

- Majone (1989) Ch. 1-4.
- Dunn (2012) Ch. 8 “Developing Policy Arguments.”

### **Optional:**

- Bardach and Patashnik (2016) Part II (pp. 83-111).
- Dunn (2012) Ch. 9 “Communicating Policy Analysis.”

## **4<sup>th</sup> Week: Linear Programming 1 (04/26)**

**Required:** H&H (2014) Chapter 2, 5.

### **Optional:**

- Albright & Winston (2005) Chapter 3-4.
- Stevenson & Ozgur (2007) Chapter 3-4.

## **5<sup>th</sup> Week: Linear Programming 2 (05/03)**

**Required:** H&H (2014) Chapter 3, 7, and 15 (in CD-ROM).

### Midterm exam

## **6<sup>th</sup> Week: Systems Thinking for Policy Analysis 1 (05/10)**

### **Required:**

- Anderson & Johnson (1997).

- Weick (1979) Chapter 3 (Interdependence and organizing).

Optional:

- Meadows (2008) Chapter 1 (pp. 1-34).
- Sherwood (2002) Chapter 4, 7, 11.
- Stroh, David Peter (2015).

### **7<sup>th</sup> Week: Systems Thinking for Policy Analysis 2 (05/17)**

Required:

- Masuch, Michael. 1985. Vicious Circles in Organizations. *Administrative Science Quarterly* 30(1): 14-33.

Optional:

- Maruyama, Magoroh. 1963. The Second Cybernetics: Deviation-Amplifying Mutual causal processes. *American Scientist* 51(2): 164-179.
- Wender, Paul H. 1968. Vicious and Virtuous Circles: The Role of Deviation Amplifying Feedback in the Origin and Perpetuation of Behavior. *Psychiatry* 31(4): 309-324.

### **8<sup>th</sup> Week: Decision Analysis and Utility Theory (05/24)**

Required: H&H (2014) Chapter 9.

Clement (1996) Chapter 12 and 13.

Optional: Albright & Winston (2005) Chapter 8.

Stevenson & Ozgur (2007) Chapter 11.

### **9<sup>th</sup> Week: Markov Model (05/31)**

Required: Hillier & Lieberman (2010) Chapter 16 (pp. 723-748).

Optional:

- Stevenson & Ozgur (2007) Chapter 12 (pp. 630-649).
- Winston (2004) Chapter 17.
- Stevenson & Ozgur (2007) Chapter 12 (pp. 606-630).

### **10<sup>th</sup> Week: Queuing Model (06/7)**

Required: H&H (2014) Chapter 11 (pp. 433-476).

Optional:

- Albright & Winston (2005) Chapter 11.
- Hillier & Lieberman (2010) Chapter 17.
- Stevenson and Ozgur (2007) Chapter 13.

Final exam