UP 504: Quantitative Planning Methods

Winter 2017

Time and Location: MW 1:00–2:30PM, 1227 A&AB
Instructor: Eric Seymour
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The syllabus is subject to change. The most recent version is posted at the Canvas web site.

Course Description

This course introduces quantitative planning techniques commonly used in planning practice and research. Although urban planners do not have a single established body of quantitative skills that all need to know, manipulating numbers and making logical deductions are fundamental skills found throughout the profession. To be effective professionals, urban planners must be able to find appropriate data, analyze data with suitable techniques, reach sensible conclusions from their analyses, and present their results convincingly to a wide range of audiences, including the general public, clients, community leaders, public officials, and other planners. Using a variety of methods, this course prepares students to summarize, analyze, and present data they have collected themselves or have obtained from secondary sources. It also provides students with skills to critically review and evaluate quantitative analyses and recommendations from others such as consultants and scholars.

Prerequisites

The course is designed for students that have completed a graduate-level course in introductory statistics comparable to UP 503, with skills that include bivariate regression analysis. In addition, students need a basic level of competency with personal computers, including the ability to search and interact with online databases, familiarity with the fundamentals of spreadsheets, and skills in backing up and managing data files.

Course Texts

Required Texts

1. Berry, W. & Sanders, M. (2000). *Understanding multivariate research: A primer for beginning social scientists.* Boulder, CO: Westview Press.

2. Klosterman, R. E. (1990). *Community analysis and planning techniques.* Savage, MD: Rowman & Littlefield.

Recommended Texts

1. Dretzke, B. (2011). *Statistics with Microsoft Excel* (5 edition). Boston: Pearson.

Assignments and Evaluation

No.	Item	Weight
1	Critique of planning report	5%
2	Regression assignment	12%
3	Census data local area analysis	14%
4	Inequality analysis	12%
5	Population projection	14%
6	Economic analysis	10%
7	Final exam	25%
8	Quizzes & participation (including attendance)	8%

Assignments

Assignments give you practice in manipulation, analysis, or interpretation of data. Assignments will be graded on the basis of getting the numbers right and communicating a message effectively with writing and figures. Note that some assignments are weighted more than others. Unless noted otherwise on an assignment, you may work individually or with one or two partners (i.e., no more than three to a group). Although I do not strictly require it, I strongly encourage you to work with a partner. All members of a group will receive the same grade. Assignments are posted at Canvas, including due dates and times. SUBMISSIONS: All assignments will be submitted through Canvas. If you work in a group, one of you should submit (a) all materials through Canvas and (b) a note in the Canvas textbox indicating the name of your partner(s); other group members need not submit. **Late submissions will be penalized 15% for each day late, with no credit after five days.**

Final Exam

The final exam will be a take-home cumulative exam that will be due by the start of the scheduled final examination time. The exam is an individual effort and will require students to address what they have learned to a number of hypothetical, but representative planning situations typically aided by one or more of the quantitative planning methods introduced in this course. **This means coasting on group assignments will have a harmful effect on your exam performance.**

Class Attendance, Conduct, and Participation

I expect you to arrive to class on time, attend all sessions, and demonstrate an ongoing, active involvement in discussions. Be prepared to discuss the readings in detail: compare and contrast, question, and confront key issues with evidence. My minimum expectations are that you read closely all required readings before class; you demonstrate good preparation; you offer interpretations and analysis, not just facts; and you demonstrate consistent and ongoing involvement. Good participation takes a step beyond this: you demonstrate an ability to analyze and synthesize, making connections among readings, discussions, and your own experiences; you keep discussion focused and respond thoughtfully to your colleagues; you offer new creative directions and foster a supportive learning environment. **Expect pop quizzes testing basic familiarity with assigned readings.**

Lab Sections

This course does not include separate formal lab time. Since familiarity with the topics covered in the course will benefit from basic demonstrations and in-class consultation time with the instructor and GSI, I will occasionally hold lab sessions during scheduled class time. Labs will be divided into time devoted to instructor demonstration and work on assignments. Students should come to class with their laptops and any data required for those labs already downloaded and accessible.

University Policies

In addition to those specified here, policies which apply to students in this class include those of the Urban and Regional Planning Program, Taubman College, students' home academic units, and the University.

Academic Integrity

Taubman College Policy on Plagiarism:

> Plagiarism is knowingly presenting another person's ideas, findings, images or written work as one's own by copying or reproducing without acknowledgment of the source. It is intellectual theft that violates basic academic standards. In order to uphold an equal evaluation for all work submitted, cases of plagiarism will be reviewed by the individual faculty member and/or the Program Chair. Punitive measures will range from failure of an assignment to expulsion from the University.

Students will be provided guidance in class about how to cite data sources and document analyses. Students with additional questions should contact the course instructor.

Accommodations for Students with Disabilities

It is Taubman College policy to "meet the educational needs of all persons, including those with physical or perceptual limitations, who are interested in the study of architecture, urban planning

and/or urban design." If you think you need an accommodation for a disability, please let me know at your earliest convenience. Some aspects of this course, the assignments, the in-class activities, and the way the course is usually taught may be modified to facilitate your participation and progress. As soon as you make me aware of your needs, we can work with the Services for Students with Disabilities (SSD) office to help us determine appropriate academic accommodations. SSD (734-763-3000; http://ssd.umich.edu) typically recommends accommodations through a Verified Individualized Services and Accommodations (VISA) form. Any information you provide is private and confidential and will be treated as such.

Accommodations for Religious Holidays and Observances

University Policy: "Students who expect to miss classes, examinations, or other assignments as a consequence of their religious observance shall be provided with a reasonable alternative opportunity to complete such academic responsibilities. It is the obligation of students to provide faculty with reasonable notice of the dates of religious holidays on which they will be absent. Such notice must be given by the drop/add deadline of the given term."

Tentative Schedule

1 Fundamentals of Research Design

Wed 1/4	Introductions and course overview **Assignment #1 Start**
Mon 1/9	Conceptualization, operationalization, and measurement Readings: • Babbie, E. R. (2011). *The basics of social research.* Belmont, CA: Wadsworth / Cengage Learning (Chs 4 & 5: Research design; Conceptualization, operationalization, and measurement) • Aneshensel, C. S. (2002). *Theory-based data analysis for the social sciences.* Pine Forge series in research methods and statistics. Thousand Oaks, CA: Pine Forge Press (Ch 1: Introduction to theory-based data analysis)
Wed 1/11	Applications in planning research Readings: • Galster, G., Hanson, R., Ratcliffe, M. R., Wolman, H., Coleman, S., & Freihage, J. (2001, January). Wrestling sprawl to the ground: Defining and measuring an elusive concept. *Housing Policy Debate*, *12*(4), 681–717 • Hodge, G. (1963). Use and mis-use of measurement scales in city planning. *Journal of the American Institute of Planners*, *29*(2), 112–121
Mon 1/16	MLK, Jr. Day **No Class**

Wed 1/18	Critiquing a planning report **Assignment #1 Due** Readings: • Booth, W. C., Colomb, G. G., & Williams, J. M. (2008). *The craft of research.* Chicago: University of Chicago Press (Ch 7: Making good arguments) • Cortright, J. (2008). The city dividends: How cities gain by making small improvements in metropolitan performance. *CEOs for Cities* • Detroit Blight Removal Task Force. (2014). *Detroit Blight Removal Task Force plan* (Chs 3 & 4: What do we know?; How does this information guide us?)

2 Regression Analysis

Mon 1/23	Fundamentals and bivariate regression **Assignment #2 Start** Readings: • Berry & Sanders, Chs 1 & 2
Wed 1/25	Multiple regression Readings: • Berry & Sanders, Chs 3 & 4
Mon 1/30	Multiple regression in practice Readings: • Berry & Sanders, Ch 5 • Galster, G., Tatian, P., & Accordino, J. (2006). Targeting investments for neighborhood revitalization. *Journal of the American Planning Association*, *72*(4), 457–474 • Ottensmann, J. R. (1992). Central city dominance in metropolitan areas and the availability of affordable housing. *Journal of Planning Education and Research*, *11*(2), 96–104
Wed 2/1	Lab session Readings: • Dretzke, Chs 2 & 11: Entering, editing, and recoding information; Regression

3 Using the U.S. Census

Mon 2/6	Introduction to the U.S. Census: History, politics, and data **Assignment #2 Due** Readings: • Williamson, C. (2008). *Planners and the census: Census 2010, ACS, Factfinder, and understanding growth.* Planning Advisory Service report. Chicago, IL: American Planning Association (Chs 1 & 2: Background to promote a better understanding and use of Census data; Census geographies and subjects) • Myers, D. (1992). *Analysis with local census data: Portraits of change.* Boston: Academic Press (Ch 3: Concepts, definitions, linkages, stop at section 4.0; Ch 4: Data available for local area analysis, stop at section 3.3.)
Wed 2/8	Using the U.S Census: Local area housing and population characteristics **Assignment #3 Start** Readings: • Myers, D. (1992). *Analysis with local census data: Portraits of change.* Boston: Academic Press (Ch 1: Using Census data for local portraits; Ch 6: Local housing conditions)
Mon 2/13	Using the American Community Survey (ACS) Readings: • U.S. Census Bureau. (2008). *A compass for understanding and using American Community Survey data: What general data users need to know.* Retrieved from https://www.census.gov/content/dam/Census/library/publications/2008/acs/ACSGeneralHandbook.pdf (Skip pp. 16–25) • MacDonald, H. (2006). The American Community Survey: Warmer (more current), but fuzzier (less precise) than the decennial census. *Journal of the American Planning Association*, *72*(4), 491–503
Wed 2/15	Lab

4 Data Visualization

Mon 2/20	Figures, tables, and presentation strategies Readings: • Tufte, E. R. (1983). *The visual display of quantitative information.* Cheshire, CT: Graphics Press (Ch 4: Data-ink and graphical design) • Myers, D. (1992). *Analysis with local census data: Portraits of change.* Boston: Academic Press (Ch 5: Strategies of presentation)

Wed 2/22	Overview of mapping and spatial analysis **Assignment #3 Due Friday 3PM** Readings: • Peters, A. H. & MacDonald, H. I. (2004). *Unlocking the Census with GIS*. Redlands, Calif.: ESRI (Ch3: Using the census to analyze demographic and social conditions)
Mon 2/27	Spring Break **No Class**
Wed 3/1	Spring Break **No Class**

5 Measuring Inequality and Segregation

Mon 3/6	Gini coefficients, Lorenz curves **Assignment #4 Start** Readings: • Alker, H. R. (1977). Measuring sociopolitical inequality. In J. M. Tanur (Ed.), *Statistics: A guide to political and social issues*. Holden-Day series in probability and statistics. San Francisco: Holden-Day (**NOTE:** Focus on Lorenz and Gini measures.) • Bee, A. (2012). *Household income inequality within US counties: 2006–2010*. Retrieved from http://www.census.gov.edgekey-staging.net/prod/2012pubs/acsbr10-18.pdf • Weinberg, D. H. (2011). *U.S. neighborhood income inequality in the 2005–2009 period*. Retrieved from https://www.census.gov/prod/2011pubs/acs-16.pdf
Wed 3/8	Dissimilarity, Exposure, and Isolation indices Readings: • Massey, D. S. & Denton, N. A. (1988). The dimensions of residential segregation. *Social Forces*, *67*(2), 281–315 (**NOTE:** Skip analysis section, pp. 297–309. Focus on concepts, not formulas.) • Logan, J. R. & Stults, B. J. (2011). *The persistence of segregation in the metropolis: New findings from the 2010 census*. Retrieved from https://s4.ad.brown.edu/Projects/Diversity/Data/Report/report2.pdf • Population Studies Center. Institute for Social Research. (n.d.). Calculation formula for segregation measures. Retrieved from http://enceladus.isr.umich.edu/race/calculate.html

6 Population Projections

Mon 3/13	Introduction to estimates, projections, and forecasts Readings: • Klosterman, Chs 1 & 2 • Isserman, A. M. (1984). Projection, forecast, and plan on the future of population forecasting. *Journal of the American Planning Association*, *50*(2), 208–221 • Urban Institute. (2015). *Mapping America's Futures*. Retrieved from http://urbn.is/AmericasFutures
Wed 3/15	Cohort-Component analysis Readings: • Klosterman, Chs 4–7
Mon 3/20	Lab **Assignment #4 Due** **Assignment #5 Start** Readings: • Klosterman, Appendix A

7 Economic Analysis

Wed 3/22	Economic base projection and location quotient approaches Readings: • Klosterman, Chs 9 & 10 (**Note:** Read only to page 134.) • Mattoon, R. (2014, July 29). Economic development in Detroit. Retrieved from http://michiganeconomy.chicagofedblogs.org/?p=615
Mon 3/27	Shift-Share analysis **Assignment #5 Due** **Assignment #6 Start** Readings: • Blakely, E. J. & Bradshaw, T. K. (2002). *Planning local economic development: Theory and practice*. Thousand Oaks, CA: Sage (Ch5: Analytical techniques for planning local development. Focus on introduction and shift-share analysis.)
Wed 3/29	Lab

8 Housing Needs Assessments

Mon 4/3	Housing cost burden and the basics of housing needs assessments Readings: • Joint Center for Housing Studies. (2016). *State of the nation's housing 2016*. Retrieved from http://www.jchs.harvard.edu/research/state_nations_housing (Ch 6: Housing challenges) • czb Associates. (2015). *Housing affordability and economic equity - analysis: Washtenaw County, Michigan*. Retrieved from http://www.ewashtenaw.org/government/departments/community-and-economic-development/plans-reports-data/housing-and-infrastructure/2015/washtenaw-county-affordability-and-economic-equity.pdf (Executive Summary; Part 2: Quantitative analysis)
Wed 4/5	Housing needs assessments, cont.; Lab Readings: • So, F. S. & Getzels, J. (1988). *The Practice of local government planning*. Municipal management series. Washington, D.C.: Published for the ICMA Training Institute by the International City Management Association (Ch 12: Planning for housing)

9 Conclusion

Mon 4/10	Catch-up day **Assignment #6 Due**
Wed 4/12	The politics and ethics of numbers Readings: • Stone, D. (2001, July 20). *Policy paradox: The art of political decision making* (3rd edition). New York: W. W. Norton & Company (Ch 3: Efficiency) • Wachs, M. (1989). When planners lie with numbers. *Journal of the American Planning Association*, *55*(4), 476
Mon 4/17	Review
Wed 4/19	University Study Day
Mon 4/24	**Final Exam Due–time and place TBA**