

Professor Jocelyn Elise Crowley
Public Policy Program
Office: Room 549, 33 Livingston Ave.
Phone: (732) 932-2499 X872
E-mail: jocelync@rci.rutgers.edu
Office Hours: Tues. 11am-1pm
 Thurs. 2:15pm-4:15pm
And By Appointment
Prerequisite Course: Methods I. 833:530
TA: Ben Husch- huschbh2@eden.rutgers.edu

833:630
Thursdays, 4:30pm-7:10pm.
Classroom 113

METHODS II

As a policy analyst you will be called upon to address complex social problems. This course, which builds on the concepts of Methods I, will provide you with the tools that you need to conduct comprehensive evaluations of these problems. Briefly, we will focus on three main methodological techniques/strategies which are heavily used in political and policy research: (1) Regression Analysis, (2) Qualitative Methods, and (3) Survey Methods. Significant emphasis will be placed on practical applications of these techniques in “the real world.”

The objectives of this course are as follows:

- Develop advanced methodological skills used in the field of public policy
- Learn to interpret quantitative and qualitative results across techniques
- Learn to write about methodological techniques and results in “readable” formats
- Develop a basic understanding of how to use SPSS in regression analysis

While for some students this course will be their final exposure to methodological techniques in the Public Policy Program, for others, this course will serve at the gateway to advanced methods training. Students are thus encouraged to consider their proficiencies, preferences, and future career goals throughout this course so that they can select their next methodology classes with these issues in mind.

Grades will be calculated based on a 100-point scale as follows:

1. Homework: 3 Sets at 20 points each-60 points
2. In-class group work: 10 points
3. Final Exam: 30 points-30 points

GRADING POLICY: 90-100:A; 87-89:B+; 80-86:B; 77-79:C+; 70-76:C; 69 and below is a failing grade. Assignments are due *in hard copy* at the *beginning of class* (not more than 5 minutes after the start of class). Late assignments immediately result in a 3-point penalty per day late (i.e. the best grade you would get for a 20 point assignment is a 17). The final exam will be based on course readings, problem sets, and lectures. Please note that you will need a scientific calculator for this class (one that does exponents, logs, etc.)

As you can see, completing each homework assignment is critical to your success in the class. Many of these assignments will ask you to interpret and analyze information from the readings.

It is therefore essential that you complete the week's readings prior to coming to class. You MUST work alone on all assignments. You are encouraged to discuss class material with your colleagues in a general sense, but not the specifics of the assignment. If you are having trouble with a specific problem, please see the class TA or me.

Plagiarism is the outright copying of someone's words, or the use of someone's ideas, writings, or data without proper attribution. University policy states that plagiarism of any kind can result in an F for the class; plagiarism is also considered a Level 4 separable offense from the University.

Due Dates for Assignments:

Homework #1: February 14

Homework #2: March 27

Homework #3: April 10

The following required books must be purchased at the bookstore on Albany Street. All other readings and the data set will be available on Sakai: <http://sakai.rutgers.edu/>.

Required Books:

Berman, Evan M. 2007. *Essential Statistics for Public Managers and Policy Analysts*, 2nd ed. Washington, DC: CQ Press.

Stewart, David, Prem N. Shamdasani and Dennis Rook. 2006. *Focus Groups: Theory and Practice*, 2nd ed. Newbury Park: Sage Publications.

Czaja, Ronald and Johnny Blair. 2005. *Designing Surveys: A Guide to Decisions and Procedures*, 2nd ed. Thousand Oaks, CA: Pine Forge Press.

1. Overview/Introduction to Methods II (Week 1-January 24)

--How to Write a Policy Memo

2. Regression Methods

- REVIEW: Data Displays, Review of Measures of Central Tendency, Review of Distributions, Z-scores, chi-square (Week 2-January 31)
Berman, Chps. 6-7; 9.
Morin, Stephen, et al. 2002. "Responding to Racial and Ethnic Disparities in Use of HIV Drugs: Analysis of State Policies." *Public Health Reports* 117(May/June): 263-272.
- Testing Differences Between Means: Sample Mean v. Population Mean, 2 Sample Means, ANOVA (Week 3-February 7)
Berman, Chp. 11; 16.
- Correlation Coefficients and Introduction to the Bivariate Regression Model (Week 4-February 14). **HOMEWORK #1 DUE.**
Berman, Chp. 12.

- Multivariate Regression Model, Part I. Models with more than One Independent Variable, Dummy Variables (Week 5-February 21)
Berman, Chp. 13.
 - Multivariate Regression Model, Part II. Interaction Terms, Predicted Values and Overall Model Statistics (Week 6-February 28)
Okpala, Comfort O, Amon Okpala, and Smith, Frederick E. 2001. "Parental Involvement, Instructional Expenditures, Family Socioeconomic Attributes, and Student Achievement." *Journal of Educational Research* 95 (2): 110-115.
Grinstein-Weiss, Michal, Jami Curley, and Charles Pajarita. 2007. "Asset Building in Rural Communities: The Experience of Individual Development Accounts." 72(1):25-46.
 - Violations of the OLS Model and Review of OLS (Week 7-March 6)
Hess, Frederick M. and David L. Leal. 2003. "Technocracies, Bureaucracies, or Responsible Politics? Urban School Systems and the Politics of School Violence Prevention." *Social Science Quarterly* 84(3): 526-542.
Obach, Brian K. 2002. "Labor-Environmental Relations: An Analysis of the Relationship between Labor Unions and Environmentalists." *Social Science Quarterly* 83(1):82-100.
 - Introduction to Logit Analysis (Week 8-March 13)
Berman, Chp. 14.
Heberlig, Eric S. and Bruce A. Larson. 2007. "Party Fundraising, Descriptive Representation, and the Battle for Majority Control: Shifting Leadership Appointment Strategies in the U.S. House of Representatives, 1990-2002." *Social Science Quarterly* 88 (2): 404-421.
- 3. Qualitative Research Methods**
- The Comparative Method and the Case Study Method (Week 9-March 27)
HOMEWORK #2 DUE.
Yin, Robert K. 2003. *Case Study Methods: Design and Methods*. Thousand Oaks, CA: Sage Publications. Chapters 1 and 2.
Lijphart, Arend. 1971. "Comparative Politics and the Comparative Method." *American Political Science Review* 65(3):682-693.
 - Focus Groups (Week 10-April 3)
Stewart and Shamdasani, Entire book.
 - Interviews Basics (Week 11-April 10) **HOMEWORK #3 DUE.**
Rubin, Herber J., and Irene S. Rubin. *Qualitative Interviewing: The Art of Hearing Data*. Thousand Oaks, CA: Sage Publications, Chps. 7-9.
Arendell, Terry. 1997. "Reflections on the Researcher-Researched Relationship: A Woman Interviewing Men." *Qualitative Sociology* 20(3): 341-368.

4. Survey Methods

- Overview of Survey Research, Stages in the Survey Process and Survey Modes (Week 12-April 17)
Czaja and Blair, Chps 1-3.
- Question Wording & Questionnaire Design (Week 13-April 24)
Czaja and Blair, Chps. 4-6.
- Sampling, Survey Implementation & Ethics; Final Exam Review and Course Evaluations.
(Week 14-May 1)
Czaja and Blair, Chps. 7-9 and Appendix C.

*******FINAL EXAM. May 8.**

HOMEWORK

HOMEWORK #1-METHODS II

Professor Crowley

Instructions: Set up all problems and use calculators only for computational purposes. Work ALONE. Please see the TA or me with any questions that you have. **Show ALL work to receive full credit.** Each problem is worth 2 points.

1. The bottom and top grades on the Methods II exam final are 50 and 92. There are 30 students in the class. Can you determine the range for this data set? Can you determine the median? If so, for each question, provide an answer.
2. Bob asked 5 of his friends who they voted for in the last election. Two friends said Kerry and three said Bush. What is the mode for this data set?
3. A researcher has to study political attitudes of women in the state of New Jersey between the ages 40-45. What would be the advantages of studying *the population over a random sample*?
4. The Department of Education is investigating the performance record of schools in the nation based on an average achievement score for each school. The Department looked at a population of 2000 schools in a certain region. Assume that the measurements are normally distributed. If the mean and standard deviation of achievement scores from these 2000 schools are 75% and 3% respectively, describe the distribution of the schools. That is, what are the bounded values of the achievement scores that fall within 68% of the mean? 95% of the mean? 99% of the mean?
5. You collect data on an *entire population* of disadvantaged youth who take a test on health knowledge. Their scores are normally distributed, and the mean score of this population is 500 (i.e. $\mu=500$), and the standard deviation is 100 (i.e. $\sigma=100$). What percentage of students score between 340 and the mean? Draw a picture of the distribution and label the mean, the standard deviation, and the area between 340 and the mean with your answer.
6. The voter turnout in a city has equaled 650 for every 1000 voters in past years. This year a random sample of 5 precincts from this same city shows a turnout of 635, 655, 640, 643, and 620 per 1000 voters. Do these data indicate an overall average of less than 650? (Set up with H_0 and H_1). Let $\alpha=.05$. Show all steps of the HIRA method.
7. An experiment was conducted to investigate the effect of two diets on the weight gain of 14 year old children suffering from malnutrition. Ten children were given Diet I and nine were given Diet II. Did the diets produce different mean weight gains? Use data from the following table and use $\alpha=.05$. Show all steps of the HIRA method.

	Diet 1	Diet 2
Sample Mean	12.78	15.27
Sample Variance	13.88	12.81
Sample Size	10	9

8. A poll of 100 members of Congress was taken to determine their opinions concerning a bill to raise the ceiling on the national debt. Each member of Congress was then classified according to political party affiliation and opinion on the policy. Test the null hypothesis that these classifications are independent of one another, i.e., that opinions on the bill are independent of party affiliation. Use $\alpha=.10$. Show all steps of the HIRA method.

PARTY	Approve of bill	Do not approve of bill	No opinion	TOTAL
Republican	28	14	5	47
Democrat	19	28	6	53
TOTAL	47	42	11	100

9. Three groups of students were given tests to measure their knowledge of statistics. These were Bloustein School students (n=6), Kennedy School students (n=12), and Woodrow Wilson School students (n=9); each group of students was exposed to a different teaching method at these schools. The following ANOVA table was created to reflect their performance. However, the computer printer jammed up, and the degrees of freedom column, as well as the f-test column were left blank. First, completely fill in the degrees of freedom column.

ANOVA RESULTS

Source	Sum of Squares	Degrees of freedom	Mean Square	F-test
Between Samples	360		180	
Within Samples	324.5		13.52	
Total	684.5			

10. Now, continuing with these ANOVA results, fill in the f-test column. Is this result statistically significant? Explain IN WORDS your conclusion regarding the statistical significance (or insignificance) of this finding with respect to the performance of these 3 groups of students. Show all steps of the HIRA method.

HOMEWORK #2-METHODS II

Professor Crowley

Instructions: Set up all problems and use calculators only for computational purposes. Work ALONE. Please see me with any questions that you have. **Show ALL work to receive full credit.** Each problem is worth 2 points.

1. The correlation coefficient between the amount of money people give to PETA (People for the Ethical Treatment of Animals) and the amount of money they use to buy fur is -.76. Is there ANY TYPE of a relationship between these 2 variables? Why or why not? If there is a relationship, what kind of relationship is it (give direction and shape)?
2. Analyze the Hess and Leal article in your reading packet. A. What is the dependent variable and how is the dependent variable measured? B. What are the independent variables and how are they measured?
3. Continue with the Hess and Leal article. A. Are there dummy variables? If so, which one (s) are they? B. Using Table 1, write out the specific regression equation suggested in this article (i.e., fill in the coefficients and intercept).
4. Using Table 1 from Hess and Leal, answer the following questions. A. Which variables are statistically significant? Interpret IN WORDS (one sentence) the impact of the “District Enrollment” independent variable on the dependent variable, holding all of the other variables constant. B. Interpret IN WORDS (one sentence) the impact of “South” on the dependent variable, holding all other variables constant.
5. Interpret in words the Adjusted R² statistic in Table 1 of Hess and Leal. Would you expect the R² statistic to be higher or lower? Why?
6. Continue with Hess and Leal. Can you tell if the model is statistically significant as a whole just by looking at Table 1 (no calculations)? Why or why not? Just by looking at Table 1 again (no calculations), can you tell how much on average we miss in predicting the dependent variable? Why or why not?
7. Consider the following prediction equation, where x₁=age (in years) and x₂=education (in years), and the dependent variable is the number of gray hairs on an individual’s head:
$$\hat{y} = \hat{b}_0 + \hat{b}_1x_1 + \hat{b}_2x_2 + \text{error}$$
 - A. Is this prediction equation written correctly? Why or why not?
 - B. Predict the value of the dependent variable, given an individual who is 30 years old and has 10 years of education, and an intercept coefficient of 5, an age coefficient of 1, and an education coefficient of 5.
8. Use data Set gss91.sav in Sakai. There is a codebook there as well explaining the independent and dependent variables. We are interested in the predictors of occupational prestige scores, and think that the respondent’s age, mother’s education, race, and presence of a drinking problem matters. ATTACH OUTPUT for questions 8 and 9.
 - A. Run descriptive statistics (option “descriptives” to produce means, etc.) for the independent variables and dependent variable.
 - B. Produce a Pearson bivariate correlation matrix, with a two-tailed test. Do we have to worry about multicollinearity (based only on this output) in our model? Why or why not?
9. Run this regression in SPSS.
 - A. Which variables are statistically significant? Interpret the coefficient on “race” in words.
 - B. Consider all 4 summary statistics we talked about in class (R², Adjusted R², f-statistic, and standard error of y). Discuss how “good” our model is in light of these summary statistics.
10. You are given the partial findings from an SPSS regression output table, below, which represent 2 out of 10 independent variables used to predict whether or not a woman will have a non-marital birth (hint: what kind of regression is this?). Age is measured in years, and income is measured in

thousands of dollars. Write two interpretive statements for a one unit increase in each of these variables on the dependent variable.

Variable	B	Exp (B)
Age	-.0693	.933
Income	.0243	1.02

HOMWORK #3—METHODS II

I am now the governor of New Jersey. I am considering a proposal to impose a new educational requirement on the cities--more specifically, lower student-to-teacher ratios--to improve average standardized test scores across the state. I have collected data on average standardized test scores in 2 states, New York and Maryland, as well as other possible influences on test performance. Based on this data, prepare a policy memo for me and recommend what I should do. Be sure to indicate what the dependent, rival, and key independent variables are. Specify why you think the following independent variables were collected (state the direction of their hypothesized relationship with the dependent variable and thus why they were controlled), and if you think we should collect additional independent variables (if so, which ones?). Remember that you are not designing a study for NJ itself; you are simply using the study below to suggest recommendations for action based on the relationships among the variables that you can establish and refine.

STATE	Average standardized test score	Average student-to-teacher ratio	Average spending per pupil per year	Presence of a strong after-school program	Average family income
New York	85%	20:1	\$2000	YES	\$30,000
Maryland	70%	25:1	\$2100	YES	\$32,000