**Quantitative Methods for Policy Analysis (07B:370:001)**

**Department of Educational Policy and Leadership Studies**

**Fall 2007**

**Tuesdays 4:30-6:50**

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**Purpose and Objectives**

Quantitative investigations of social problems apply statistical methods to examine policy-relevant propositions about public life. Such investigations may include calculations of health risks for specific populations, descriptions of traffic patterns, assessments of educational opportunities, or evaluations of the effectiveness of specific instructional practices. By quantifying observations and comparing numeric representations of social phenomena against statistical (and often moral) standards, quantitative researchers seek to inform policy makers and influence the policy making process. The purpose of this course is to help you expand your knowledge of quantitative methods, apply your knowledge to policy-relevant questions (especially in the area of education), and evaluate critically the claims of those who use quantitative research to promote specific policies. We will examine a range of methodological strategies used by quantitative researchers to investigate social problems and programs, particularly secondary data analysis, quasi-experimental designs, and regression analyses. Issues of validity will be explored (conclusion, internal, construct, and external), as well as questions about the usefulness of quantitative evidence in promoting just and effective public policies. Although the focus of the course will be on educational matters, students from other disciplines with applied quantitative traditions also will find the course relevant to their area of study.

A basic premise of the course is that you will come to a deeper understanding (and hopefully appreciation) of quantitative methods through the actual application in investigations of education problems and policies. Consequently, you will be required to not only design relevant analyses but also interpret results and communicate policy considerations to classmates and the instructors as part of the course.

We will use two datasets for this course. The primary dataset we will use for analytic exercises and classroom activities is the National Education Longitudinal Study (NELS:88). NELS:88 is a general-purpose survey conducted by the National Center for Education Statistics (NCES). It is the third in a series of major studies conducted by NCES to investigate “the educational, vocational, and personal development of students at various grade levels, and the personal, familial, social, institutional, and cultural factors that may affect that development.” We have derived two datasets from NELS:88. The first dataset focuses on three waves of student data: 1988, 1990, and 1992, when students were 8th, 10th, and
12th graders respectively. You can use these data to examine student learning over time, as well as the role of family background and school experiences in shaping achievement. The second dataset focuses on postsecondary concerns. These data include three waves of student data: 1992, 1994, and 2000, when students were 12th graders, two years out of high school, and eight years out of high school. You can use these data to examine the role of family background and high school experiences on postsecondary attitudes and behaviors. We also are able to provide you with access to the full NELS:88 dataset; however, these data are not as “clean” and require additional data processing. You may use your own data for the final project, provided the data are structured for the types of quantitative applications covered by the course.

We also will provide you access to the latest longitudinal study by NCES. The Education Longitudinal Study of 2002 (ELS:2002) is designed to monitor the transition of a national sample of young people as they progress from tenth grade through high school and on to postsecondary education and/or the world of work. To date, NCES has made 10th and 12 grade available for public use. We will show you how to access these data if you would prefer to use them for your final paper.

Prerequisites

You must already have acquired an understanding of statistical reasoning and basic statistical techniques before enrolling in the course. At a minimum, you should have a statistical background that includes a basic understanding of theories of measurement, measures of central tendencies and variance, theories of probability, population sampling, and hypothesis testing. We require that you complete 07P:143 (or its equivalent) and recommend that you complete 07P:243 (or its equivalent) prior to taking this course. Students who have completed 07P:244 and other students who have a more advanced knowledge of ordinary least squares (OLS) and logistic regression may find the course useful if they have not had an opportunity to apply these techniques to an investigation of social or education problems. A basic understanding of quantitative research designs and statistical software (e.g., SPSS) is useful but not required. If you are uncertain about whether you have the necessary prerequisites, you should discuss your prior preparation with the instructor.

Valuing Diversity

It is our belief that the diversity you bring to this class is a valuable resource because varied backgrounds and opinions enhance discussion. Research, including some of our own, suggests that learning is improved by exposure to diversity in the classroom. It is our intent to present materials and activities that utilize and are respectful of diversity: gender, sexual orientation, disability, age, socio-economic status, ethnicity, race, culture, perspective, and other background characteristics. Your suggestions about how to improve the value of diversity in this course are encouraged and appreciated. Please let us know of ways to improve the effectiveness of the course for you or for other students or student groups.

We also understand that you may celebrate religious holidays that conflict with the class schedule and may have a disability that requires special accommodations. You will not be penalized because of observances of your religious beliefs. Whenever possible, you will be given reasonable time to make up any academic assignment that is missed due to participation in a religious observance. It is your responsibility to inform us as soon as possible of any intended absences for religious observances. If you have a documented disability that is relevant to the work that you will do in this course, please contact us as soon as possible so that appropriate accommodations can be made. Student Disability Services (3101 Burge Hall, 335-1426, http://www.uiowa.edu/~sds/) also is available for consultation with students with disabilities.
Academic Honesty

You are expected to abide by the code of academic integrity throughout this course. We encourage you to collaborate with others as you think about, outline, and proofread your work. However, oral and written work must be your own. You must acknowledge any scholars or classmates whose work you quote or refer to in any way. According to the College of Education’s Policy on Student Academic Misconduct, examples of plagiarizing or cheating include: presenting someone else’s written or spoken words or ideas as one’s own; using direct quotes with no quotation marks, paraphrasing without crediting the source or in some other way suggesting someone else’s work is one’s own; copying all or part of someone else’s paper; and knowingly allowing another student to copy one’s work or submit one’s work as his or her own. In addition, you must not turn in any written work for which you have already received credit in another course. Any sort of academic misconduct is a very serious offense, and may result in a grade reduction and/or other serious penalties. For more information see the University’s Policy on Student Academic Misconduct available online at: http://www.uiowa.edu/~coedean/policies/student_ac_misconduct/index.htm .

Concerns

If you have any suggestions or concerns, either positive or negative, about this class, please do not hesitate to see me during my office hours or make an appointment. It is our hope that we will be able to resolve the issue. In the event that we are unsuccessful, College policy suggests that you contact the EPLS department executive officer, Larry Bartlett (N491 Lindquist Center, 335-5307 or 335-5303). He will be able to help you and give further guidance. You also may wish to refer to the college policy on student complaints and dispute resolution. A copy of Student Complaint Procedures is available online at http://www.uiowa.edu/~coedean/policies/student_complaint/index.htm.

Dropping the Course

This course is given by the College of Education. This means that class policies on matters such as requirements, grading, and sanctions for academic dishonesty are governed by the College of Education. If you wish to add or drop this course after the official deadline, you must receive the approval of the Dean of the College of Education. Prior to dropping the course, we encourage you to speak with us. We will do whatever we can to find a solution that will allow you to remain in the course and continue your progress toward degree completion. Additional information on dropping the course and details of the University policy of cross enrollments may be found at http://www.uiowa.edu/~provost/deos/crossenroll.doc.

Readings

Required (available at the bookstore or amazon.com; also on reserve at Main Library)

Useful Websites
Information about NELS:88: http://nces.ed.gov/surveys/nels88/
Resources for learning SPSS:
http://www.ats.ucla.edu/stat/spss/default.htm (learning modules are a great way to help learn SPSS syntax)
http://www.indiana.edu/~statmath/stat/spss/win/index.html
Additional readings. In addition to the required texts listed above, you will read additional book chapters and articles. We have made most of these readings (noted with a * in the course outline) available on our ICON course website (can be accessed using your hawkid at http://icon.uiowa.edu/index.shtml). You also may benefit from having access to basic and advanced statistics books. You already may have one or more of these books in your personal library; they may serve as useful references to you during the course. Please understand that we do NOT expect anyone to purchase these books. The following list is provided only as a guide and represents a wide range of texts in terms of complexity, style of presentation, and cost. We have placed most of these on reserve in the Main Library.


Light, R. J., Singer, J. D., & Willett, J. B. (1990). *By design: planning research on higher education*. Cambridge, MA: Harvard University Press. -This book focuses on the process of conducting quantitative research. Although described as a book about planning research in higher education, materials are relevant to a broad range of research studies.


**Statistical Software**

Statistical software is available at many University of Iowa computing locations. Many servers provide you with access to both SPSS (what we will be using in class) and SAS for Windows software. You may find it helpful to purchase your own copy of statistical software since doing so will make it possible to work with data off-campus. SPSS is sold in modules (we will be using the Basic, Professional, and Advanced modules). The graduate set of modules will provide you with software that is sufficient for doing a dissertation. The student set of modules is cheaper but limited and not recommended. A graduate student version of the SPSS (version 15) modules may be purchased from Journey Ed (http://www.journeyed.com/itemDetail.asp?ItmNo=72391573R) for $199.98 (plus shipping). Please check system requirements and platform compatibility before purchasing any software. We will talk about how to gain access to software and datasets on- and off-campus during class.

**Course Expectations**

You should plan not only on attending all classes, but also on setting aside additional time to complete required readings, analytic exercises, and a final project. Because the course places a heavy emphasis on the actual application of statistical techniques, you will have to spend time outside of class exploring datasets, constructing measures, running statistical analyses, and writing up results. You will complete 5 analytic exercises and a final study or project. Because most assignments are sequential, keeping up with assigned deadlines is critical.

The course will employ a variety of approaches of instruction and will rely on student participation and discussion. You will be evaluated on the following items:

1. **Class participation**—(10%) You are expected to attend and to be actively involved in the class. You are expected to participate in discussions in a manner that demonstrates thoughtful reflection and understanding of the subject matter, as well as respect for your colleagues in the class. To do so, you must complete the readings that are assigned for each session of the class prior to attending that class session. Active participation also means that each participant is willing to listen to other points of view and to change his or her mind. This means you must listen to others, respond thoughtfully, demonstrate an understanding of the issues, and show a willingness to learn and grow.

2. **Analytic exercises**—(50%) The five analytic exercises involve completion of tasks associated with quantitative studies of policy-relevant phenomena. The exercises include: (1) exploratory data...
analysis, (2) missing data analysis, (3) construction of composite measures, (4) presentation of regression analyses, and (5) the development of a brief research proposal. Each exercise involves writing a 3-5 page memorandum (more about these below and in class). All but the fifth must be completed individually.

3. Final project—(40%) The final project is meant to be a summative experience for you. You will design and complete a quantitative analysis of a policy-relevant question using either NELS:88, ELS:2002 or, with the approval of the instructor, an alternative dataset. The results of the study are to be presented in a 15-20 page paper suitable for presentation at a professional conference. Papers should mirror the format of a journal article and, therefore, include a brief description of the problem or phenomena under investigation, a brief overview of the theoretical framework guiding the research, a description of the data and relevant measures used in the study, an explanation of the analytic strategy or method, a presentation of results, and a brief discussion of the study’s implications. You will present your paper to your classmates during the final week of the course (We may request a few to present the week prior in order to accommodate everyone). You may complete the final project individually or, with the permission of the instructor, in teams of two. The paper will account for 30% of your grade and the in-class presentation will account for 10%. We will discuss the final project in greater detail in class.

- You will submit all assignments to the “Dropbox” on the ICON course website. Be sure to put your assignment in the appropriate folder that we have created. We will make all of our comments in the space designated on the website.
- All assignments should be turned in on at the beginning of class on the day they are due unless other arrangements are made well in advance of deadlines. We WILL NOT accept any late assignments.
- All formal written work should adhere to APA style as described in the Publication Manual of the American Psychological Association (5th Ed.).
- A Strong Recommendation—Work with a partner or a small group of peers in the class to read and critique each other’s written assignments. It has been our experience that multiple drafts and revisions of our written work are always necessary. As part of this process, we have found that thoughtful critiques from our peers provide us with insight and information that is extremely helpful as we seek to improve as writers. We will do whatever we can to facilitate this process. Just ask us.

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<th>Grading</th>
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<tr>
<td>Your final grade for this class will be based upon the following:</td>
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<tr>
<td>Class participation…10 points</td>
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<tr>
<td>Analytic Exercises………..50 points (10 points each)</td>
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<tr>
<td>Final Study…………40 points</td>
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</tbody>
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Your final grade will be calculated using the following scale:

92—100 points………………A
90—91 points………………A-
88—89 points………………B+
82—87 points………………B
80—81 points………………B-
78—79 points………………C+
72—77 points………………C
70—71 points………………C-

We strongly discourage incomplete grades. We have seen numerous cases where students become overwhelmed trying to wrap-up incomplete grades. However, if it is absolutely necessary for you to take an incomplete, you must arrange it with us prior to November 15.
**Instructor Responsibilities**

I have high expectations not only for you but also for myself. You should expect that I will:

- Be prepared for class, read and return your work in a timely manner, and be interested and engaged in your work;
- remember that each of you brings a different background, experience, and perspective to this course;
- learn from you;
- meet with you individually or in groups upon request and be available in person, by telephone, and by e-mail;
- and work hard, have fun, and empower students to develop greater understandings of the topics that are covered in this course.

**Role of the Teaching Assistants**

The role of the teaching assistants is to support students in successfully achieving the objectives of the course. They will:

- Provide a weekly, optional lab for students who would like extra help. During the lab the TAs will lead short SPSS lessons and/or activities that reinforce the topic being studied and be available to answer questions regarding classes and assignments.
- Teach specific topics during the semester and present in-class exercises to illustrate the topic being studied and how to use SPSS to conduct analyses.
- Answer technical questions and help students think about statistical methods related to class topics and assignments (TAs available during class and lab, via email, or by appointment).

**Course Schedule**

The schedule is organized around some of the basic steps involved in conducting a quantitative study. We proceed generally, considering issues of data management using SPSS, exploratory data analysis, selection of an analytic sample, and the development of quantitative measures of policy-relevant phenomena. Then, we begin to examine in detail the logic of quantitative applications to policy analysis; we will then focus much of our time on OLS regression and regression techniques with categorical outcomes. Our time also will be spent focusing on the application of these techniques to policy analyses. Unless noted, we will be meeting in the PC lab (N186 Lindquist).

Meyers et al. (MGG in course outline) serves as the primary textbook. It describes the statistical procedures we will be covering in the course and outlines how to conduct analyses in SPSS. We encourage you to read it carefully. Einspruch (Einspruch in course outline) describes how to use SPSS to and the fundamental processes you will need to know to manage data. Allison (Allison in the course outline) offers a straightforward and easy to understand explanation of regression.

The course website also will contain all supporting materials (e.g., readings, descriptions of analytic exercises) for the class. A * indicates that the reading is available on the course website. We will post the slides by noon the day of class on the ICON course website (can be accessed using your hawkid at http://icon.uiowa.edu/index.shtml).

**Week 1, August 28**

**Getting started.** We’ll begin with a brief overview of the course and syllabus. Why do we use quantitative methods to analyze policies? What quantitative research designs are best to employ? Why do we need to use techniques like regression? We will begin to answer these questions, as well as provide you with
insights into the logic of the course and syllabus, and present a case study of a quantitative application (the Perna study listed below).

Required reading:
*Perna, L. W. (2003). The private benefits of higher education: An examination of the earnings premium. Research in Higher Education, 44(4), 451-471. (Example of a policy-relevant study we will use to discuss the research process.)

Week 2, September 4
Overview of the research process. We will discuss foundational and epistemological principles underlying quantitative methods, present a construct map that highlights key steps in quantitative analyses and describe some of the basic skills required to conduct quantitative research. We also will introduce you to the NELS:88 and ELS:2002 datasets and the statistical software that we will use for the course (SPSS).

Required readings:
MGG – Chapters 1 & 2 (p. 1-42). (Basic overview of the logic of multivariate design.)
Einspruch – Chapters 1-5 (p. 1-60) (Easy to digest description of SPSS.)

Skim the following:
*Quick guide to using NELS:88/2000 data
ELS website: http://www.nces.ed.gov/surveys/els2002/

Week 3, September 11
Exploring data and relationships. We will discuss one of the first steps in quantitative applications, exploratory analyses. We also will discuss both technical and conceptual issues that researchers often face in assessing the suitability of a dataset for analyzing policies or proposed research questions, examining theoretical propositions, and exploring possible statistical relationships.

Required readings:
MGG - Chapter 3 (p. 43-106). (Good description of how to screen and clean data.)
Einspruch – Chapters 6-8 (p. 61-120)

Select ONE (examples of descriptive analyses):

Optional readings:
These links take you to a four-part seminar on how to use syntax to run SPSS. Each part of the seminar was recorded as a movie and can be run online. There are many advantages to using syntax rather than the conventional “point-and-click” technique to run SPSS, so we’ll be encouraging you to use syntax as part of the course. The second and third links provide examples of SPSS output and syntax for generating descriptive statistics and correlations.
Statistical Computing Seminars: Beyond Point and Click: SPSS Syntax. Available on the Web at:
http://www.ats.ucla.edu/stat/spss/seminars/spss_syntax/default.htm
Annotated SPSS Output- Descriptive Statistics. Available on the Web at:
http://www.ats.ucla.edu/stat/spss/output/descriptives.htm
Annotated SPSS Output - Correlation. Available on the Web at:
http://www.ats.ucla.edu/stat/spss/output/corr.htm

Week 4, September 18
Improving measures/Data reduction. Most of the work in conducting a policy study focuses on the construction and selection of measures that tap key constructs. The actual analysis of data occurs only after securing an appropriate sample and set of measures. This week we will talk about ways to improve measures using data-reduction techniques to create composites. We will discuss how to examine the reliability of a set of measures, as well as how to combine them into a single composite using factor score weights. We also will discuss strategies (and issues) for transforming the distributions of measures to more closely approximate normal distributions.

Required readings:
MGG – Chapter 12 (p. 465-538) (A good description of the logic of factor analysis using principal components analysis.)

First analytic exercise due.
The scenario: You have been asked to provide information about whether or not there is an achievement gap between minority and non-minority students in the United States. Using the NELS data, conduct an exploratory examination of whether or not there are differences by race in student achievement. Describe the data that you use (e.g., the distributions of the variables), make a table (and/or graph) that presents your results, discuss your findings, and assess the suitability of NELS for such a study in a 3-5 page policy brief. (We will provide more detail for this and all other analytic exercises in class.)

Week 5, September 25 – Review topics covered to date

Week 6, October 2
Missing data analysis. We will discuss problems of external validity posed by sampling error and non-response, as well as strategies used by researchers to address these problems. We will discuss both technical and conceptual issues that researchers often face in assessing the suitability of a dataset for analyzing policies or proposed research questions, examining theoretical propositions, and exploring possible statistical relationships.

Required readings:

Optional reading:
The following link discusses different forms of missing data, how missing data are handled in SPSS, and provides examples of syntax used to address missing data.

SPSS Learning Module – Missing Data. Available on the Web at:
http://www.ats.ucla.edu/stat/spss/modules/missing.htm

Second analytic exercise due.
The scenario: You have been asked to investigate racial/ethnic group differences in preparation. Construct a composite measure using the data provided. Calculate the composite’s reliability and use factor score weights to construct the measure. Transform the measure if necessary to more closely approximate a normal distribution. Test for differences by race (black, white, Asian, Hispanic, and American Indian), gender (male and female), and race by gender (5 x 2) using ANOVA. Describe your analysis and present your results in a 3-5 page paper. Include a graph of any statistically significant interactions. Provide information about differences in the composite measure across groups. Describe the measure and its analytic properties in a 3-5 page paper.

Week 7, October 9
Logic of bivariate regression and introduction to multiple regression. What is regression analysis? This week we will examine the logic of regression analysis and the general linear model for policy studies. We will discuss the basic assumptions of regression analysis, estimation theories, and how to interpret a simple bivariate regression model.

Required readings:
Allison – Chapters 1, 2, & 5
MGG – Chapter 4 (p. 107-146). (Basic explanation of the logic of linear regression.)

Third analytic exercise due.
The scenario: You have been asked to provide additional information regarding your previous analyses. Specifically, you have been asked to comment on the possible external validity of your initial analysis. What was the broader population from which the NELS data were drawn? Perform a missing data analysis. How does the analytic sample (the subjects you used for your analyses) compare to the broader population from which the data were drawn? What would be the implications for an analysis of achievement differences by minority status? By specific racial categories (e.g., White, Black, Asian, Hispanic, and American Indian)? Present your results in a brief 3-5 page paper.

Week 8, October 16
Logic of multiple regression. An investigation of education policy usually involves the construction of a multivariate regression model. In this class we will discuss model building strategies (e.g., blocked entry v. stepwise regression), as well as coding schemes for categorical data (e.g., dummy coding). We also will discuss some of the basics of how to assess the appropriateness of regression models and whether specific assumptions about regression have been met (e.g., residual analyses).

Required readings:
Allison – Chapters 3 & 4
MGG - Chapter 5 (p. 147-220). (Good review of basic logic of multiple regression analysis.)

Optional reading:

Week 9, October 23
Interpretation & presentation of regression results. We will examine in greater detail the interpretation of dummy-coded variables, unstandardized coefficients, and standardized coefficients. We will
explore the issue of statistical significance vs. practical significant. We will discuss how to present regression results in both tabular and graphic formats.

**Required readings:**
Allison – Chapters 6 & 7

**Skim:**
Standards for reporting on empirical research in AERA journals. [http://www.aera.net/opportunities/?id=1850](http://www.aera.net/opportunities/?id=1850)

**Optional reading:**

**Week 10, October 30**
**Interpretation and presentation of regression results (continued) and how to handle complex sample designs in analysis.** In addition to continuing our discussion of interpretation and presentation of regression results, we will discuss issues related to complex sample designs. Many surveys employ a complex a sample design and require you to weights your analysis and/or adjust your standard errors. We will discuss the reasons why we do these things and how to do them.

**Required readings:**

Visit [http://am.air.org/](http://am.air.org/) to download AM software and review its use. AM adjusts the standard errors from your regression equation to account for design effect. Many packages, such as SAS and STATA allow for you to make these adjustments. SPSS has it as an add-on module for an added price.

**Fourth analytic exercise due.**
The scenario: You have been asked to submit a prospectus to perform a policy study (i.e., your final project for this course). In a 3-5 page paper, provide an overview of your proposed study including the procedures for conducting the study. Make certain that you include brief descriptions of your research questions, the theoretical or conceptual background for the study, a justification for the study’s significance (why should we care about the study), the dataset that you will use, and the quantitative methods that you will employ to address your research question.
Week 11, November 6

Advanced regression models: Nonlinear effects. We will examine how to structure regression models to test for possible interactions between independent variables. If the effects associated with a particular educational experience or program vary with the characteristics of another independent variable or with the value of an individual independent variable, we say that an interaction effect exists. Interactions can have extremely important consequences for policy because they indicate that a policy’s effect depends on specific factors (e.g., characteristics of populations, experience of staff, or duration of treatment). In this class, we will examine how to calculate and interpret linear and nonlinear interactions (also referred to as nonlinear effects) for continuous and dummy-coded independent variables.

Required readings:
Allison – Chapter 8
Select ONE of the following (Good examples of a policy-relevant study that includes nonlinear effects.):

Week 12, November 13

Regression with binary outcomes. Many policy-relevant questions address a binary outcome – that is, either someone did something or did not. As we learned in prior classes, OLS regression assumes a continuous outcome measure. When an outcome is binary, the appropriate multivariate technique is logistic regression. During this class, we will discuss logistic regression, how it is different and similar to OLS regression, as well as how to interpret coefficients.

Required readings:
MGG – Chapter 6 (p. 221-253)

Fifth analytic exercise due.
The scenario: You have been asked to conduct additional analyses on racial/ethnic group differences in preparation. Using the composite from the previous analyses, test for differences by race (black, white, Asian, Hispanic, and American Indian) controlling for possible confounding variables. In other words run a multiple regression model on the composite created in your previous exercise to test for racial/ethnic differences. Describe your analysis and present your results in a 3-5 page paper. Be sure to include a table that presents the results of your regression model.

Week 13, November 20
Thanksgiving Break. No class.
Week 14, November 27
Interpretation and presentation of regression with binary outcomes (continued)
Required readings:
York: Agathon Press. (Good explanation of the basic logic of logistic regression.)
Publications. (Good explanation of issues of model fit and logistic regression.)
between college choice and persistence. *The Journal of Higher Education,* 73(2), 189-236. (A
policy-relevant study that uses logistic regression. Use this to gauge your understanding of logistic
regression.)

Week 15, December 4
Introduction to regression with other types of categorical outcomes.
Required readings:
funding college. *Sociology of Education,* 66(4), 223-244. (A good example of multinomial logit
from sociology.)

Week 16, December 11
Presentation of final projects and course evaluations.

All final projects are due at the beginning of class.
### Course Schedule At-a-glance

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Required readings</th>
<th>Supplemental readings</th>
<th>Assignment due</th>
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<tbody>
<tr>
<td>9/4</td>
<td>Overview of the quantitative research process</td>
<td>MGG – Ch. 1-2</td>
<td>Einspruch – Ch. 1-5 Smart (2005) Skim: Quick guide to NELS ELS website</td>
<td></td>
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<tr>
<td>9/25</td>
<td>Review</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>10/9</td>
<td>Logic of bivariate regression</td>
<td>Allison – Ch. 1, 2, &amp; 5</td>
<td></td>
<td>3rd Analytic ex.</td>
</tr>
<tr>
<td>10/16</td>
<td>Logic of multivariate regression</td>
<td>Allison – Ch. 3 &amp; 4</td>
<td>MGG – Ch. 5</td>
<td>Kennedy (2003)</td>
</tr>
<tr>
<td>11/13</td>
<td>Regression with binary outcomes</td>
<td>MGG – Ch. 6</td>
<td>Pampel (2000)</td>
<td>5th Analytic ex.</td>
</tr>
<tr>
<td>11/20</td>
<td>Thanksgiving break (no class)</td>
<td></td>
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<tr>
<td>12/11</td>
<td>Student presentations</td>
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<td>Final Projects</td>
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