PMap 8121
Applied Research Methods and Statistics I

The purpose of this course is to help students develop introductory level skills in conducting statistical analysis of issues concerning public policies, programs, and management. It is designed for students entering the MPA and MPP programs and is a prerequisite for PMap8131 and other courses in these programs. The course is intended to provide you with a foundation of basic statistics and will cover such topics as descriptive statistics, probability theory, sampling, statistical inference, and an introduction to regression analysis. The objective is to help you get comfortable with the basic tools of statistics and how they are applied in public policy and management settings.

Learning Objectives

Students will learn to:

1. Recognize the structure of statistical data sets and the various levels of measurement used to operationalize variables.
2. Run basic statistical analysis using SPSS software.
3. Calculate and interpret absolute, relative, and cumulative frequency distributions.
4. Calculate and interpret three measures of central tendency (the mode, the median, and the mean) and three measures of dispersion (the range, the variance, and the standard deviation).
5. Use the normal distribution table to calculate probabilities.
6. Develop hypotheses, choose appropriate statistics to test them, and describe the results correctly in a short research paper.
7. Understand the sampling distributions of the sample mean and sample proportion and explain how they provide the logic for hypothesis tests and confidence intervals.
8. Calculate, interpret, and explain hypothesis tests for means, proportions, differences of means, and differences of proportions.
9. Calculate, interpret, and distinguish among column, row, and total percentages.
10. Calculate the gamma and chi-square statistics.
11. Demonstrate the direction and strength of relationships between ordinal-level variables, using both column percentages and the gamma statistic.
12. Determine when we can generalize a relationship from a sample to the population.
from which the sample was drawn using the chi-square statistic.

13. Control for one variable at a time to determine the direct effect of an independent variable on the dependent variable.

14. Use scatterplots and correlation coefficients to show the direction and strength of relationships between interval-level variables.

15. Interpret regression coefficients on interval-level and dummy independent variables in bivariate regression.

Use of SPSS

We will use SPSS, a very user-friendly statistical software program widely used in the social sciences and in public and nonprofit agencies as well as research organizations to perform applied statistical analysis, as a vehicle for learning how to apply the statistical techniques we learn in the course. Thus, you will be expected to learn the basics of SPSS as we move through the course, and we will use it frequently both in class and in graded assignments to analyze data from a wide variety of data sets. Three graded assignments utilizing SPSS with three different data sets will weigh heavily on course grades, as shown below. While SPSS may be purchased from IBM in a variety of options, it is on the GSU computer system and is available in all computer laboratories on campus as well as on GRA work stations.

Calculators

While we will use SPSS to apply statistical techniques, it is essential to understand the basic computations that go into these techniques in order to be able to apply them correctly. Thus, use of a hand calculator will be necessary for many portions of this course. Since examples done in class, homework problems, and exams will all involve hand computations with small numbers of observations, students should get in the habit of bringing a calculator to every class meeting, including exam nights. Only the most basic arithmetic functions including a square root function will be required.

uLearn

The course will be managed through uLearn, an internet-based information display system. Course materials, exhibits, statistical tables, data sets, assignments, and grades will all be posted on the uLearn page for the course. From time to time, I may broadcast announcements to the class via uLearn between weekly class sessions, so you should check in on the uLearn page every day or two to be sure that you are up to date regarding course messages. However, you should not use the uLearn site to contact me with questions or concerns regarding the course.
Class Attendance and Participation

Many students find this course to be demanding in terms of the quantitative emphasis and workload, and therefore regular class attendance and keeping up with assignments are of paramount importance. Rest assured that the course assumes no prior knowledge of computers, research methods, or statistics. The class is fairly fast paced, however, and attending class, reviewing class notes, and doing homework problems are essential for most students, because class sessions build steadily on past sessions. If you fall behind by missing classes or not doing homework, it can be extremely difficult to do well in this class.

While everything that you will be responsible for will be taught directly in class sessions, readings are assigned to reinforce subjects that are covered in class, and it is a good idea to read assigned readings before the class sessions when those topics will be discussed. In addition, students are encouraged to form study groups to discuss course notes, go over homework problems together, and study for exams. You may also want to work together in analyzing data with SPSS as required for the three graded SPSS assignments, but each student must submit an individual report on each of these assignments that is solely the product of his or her own work. (See the policy on academic honesty referenced below in this regard.)

If you must miss a class session, you are encouraged to notify me ahead of time as a courtesy via email if possible. SPSS assignments must be submitted on their due dates, and exams must be taken during the class sessions in which they are scheduled. Exceptions to this policy will only be made in extreme circumstances, given prior notification to the instructor.

Resource Materials

There is no textbook per se for this course. However, the two books below have been ordered at the GSU Bookstore for the course and will be used as supplementary resource materials for class sessions on particular topics:


Office Hours

Dr. Poister maintains regular office hours in Room 358 AYSPS Building from 1:30 PM to 3:30 PM on Tuesdays and Wednesdays, and appointments can be scheduled for other times. The best was to contact me is via E-mail at tpoister@gsu.edu. You can also call me at 404-413-0129 if need be.
Grading Policy

Two examinations will be given in this course, including a midterm and a second exam which will not be a comprehensive final exam. Overall grades for the course will be determined as follows:

- 2 Exams, 25% each 50%
- First SPSS assignment 10%
- Second SPSS assignment 20%
- Third SPSS assignment 20%

Numerical course grades will be converted to letter grades for the course using the following scale:

A+ 98 – 100
A  90 – 97.99
B+ 88 – 89.99
B  80 – 87.99
C+ 78 – 79.99
C  70 – 77.99
D+ 68 – 69.99
D  60 – 67.99
F  Less than 60

Academic Honesty

Standards of academic conduct are set forth in the Georgia State University Graduate Catalog 2011-12, page 59. See (http://www.gsu.edu/imnage/Downloadable/Catalog.Graduate.11-12.pdf) for more details. By registering for this course, you acknowledge your awareness of the Academic Honesty code, and you must become familiar with your rights and responsibilities as defined by the code. Any violation of the University’s academic honesty policy will result in a minimum penalty of a “0” for the assignment or exam in which it occurred.
Course Syllabus

Tuesday, August 21  Introduction to Statistical Data Sets
Suggested Reading:
Meier, Brudney, and Bohte, Chapter 1, Chapter 2, pp. 23-29.
Morgan et al., pp.8-31.

Tuesday, August 28  Descriptive Statistics
Suggested Reading:
Meier, Brudney, and Bohte, Chapters 4,5, and 6.
Morgan et al., pp. 31-50, pp. 69-72.

Tuesday, September 4  Introduction to Inferential Statistics
Suggested Reading:
Meier, Brudney, and Bohte, Chapters 8 and 11

Tuesday, September 11  Single Sample t Tests
Suggested Reading:
Meier, Brudney, and Bohte, Chapter 12
Morgan et al., pp. 172-173.

Tuesday, September 18  Difference in Means Test
Suggested Reading:
Meier, Brudney, and Bohte, Chapter 14, pp. 219-228

SPSS #1 Due
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<tr>
<th>Date</th>
<th>Topic</th>
<th>Suggested Reading</th>
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<tr>
<td><strong>Tuesday, September 25</strong></td>
<td>Difference in Means Test continued</td>
<td>Meier, Brudney, and Bohte, Chapter 14, pp. 228-231.</td>
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<td>Morgan et al., pp. 173-177.</td>
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<td><strong>Tuesday, October 2</strong></td>
<td>Midterm Exam</td>
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<td><strong>Tuesday, October 9</strong></td>
<td>Crosstabulations, Chi Square, and Cramer’s V</td>
<td>Meier, Brudney, and Bohte, Chapter 15, Chapter 16, pp. 264-269</td>
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<td>Morgan et al., pp. 136-140.</td>
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<td><strong>Tuesday, October 16</strong></td>
<td>Associations Between Ordinal Measures: Gamma</td>
<td>Meier, Brudney, and Bohte, Chapter 16, pp. 270-284.</td>
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<td><strong>Tuesday, October 23</strong></td>
<td>Elaborating Crosstabular Analysis</td>
<td>Meier, Brudney, and Bohte, Chapter 17.</td>
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<td><strong>Tuesday, October 30</strong></td>
<td>Elaborating Crosstabular Analysis continued</td>
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<td><strong>Tuesday, November 6</strong></td>
<td>Simple Regression Analysis</td>
<td>Meier, Brudney, and Bohte, Chapter 18.</td>
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Tuesday, November 13  Simple Regression Analysis continued

Meier, Brudney, and Bohte, Chapter 19.

Morgan et al., pp. 149-163.

SPSS #2 Due

Tuesday, November 20  No Class – Thanksgiving Vacation

Tuesday, November 27  Second Exam

Tuesday, December 4  SPSS #3 Due in the instructor’s office by 5 PM.

NOTE: This syllabus provides a general plan for the course. Modifications or deviations may be made as the semester progresses.

SPECIAL ACCOMMODATIONS

If you have any condition, such as a physical or mental disability, which will make it difficult for you to carry out the work as outlined above or which will require extra time on examinations, please notify me in the first two weeks of the course so that we may make appropriate arrangements. Students who wish to request accommodation for a disability may do so by registering with the Office of Disability Services. Students may only be accommodated upon issuance by the Office of Disability Services of a signed Accommodation Plan and are responsible for providing a copy of that plan to instructors of all classes in which an accommodation is sought.