

01:202:307 Criminal Justice Research Methods
Criminal Justice Department
Rutgers University
Syllabus, Spring 2006
(draft, January 9, 2006)

Professor

Dr. Anne Morrison Piehl
Department of Economics
413 New Jersey Hall
(732) 932-8067
apiehl@economics.rutgers.edu (set subject as: 202:307)

Office Hours

Office hour times and locations will be announced on the course web site. You do not need to make an appointment to come to the regular office hours. If you have course or work conflicts with the regularly scheduled times, send an email to schedule an appointment.

Course Overview

This course introduces tools of quantitative reasoning and statistics that can be used to address problems in basic research and policy in criminology and criminal justice. Wherever possible, classes will focus on criminal justice applications.

The primary objectives are:

- to build familiarity with ideas and concepts of empirical investigation and modeling;
- to develop technical skills for describing, analyzing, and presenting quantitative data;
- to appreciate the role of judgment in drawing inferences from data and analysis.

In comparison to other courses that satisfy the research methods requirement for the criminal justice major, this course provides more depth in statistics and probability at the sacrifice of some of the breath of coverage into different research methods.

Prerequisites

This course is limited to degree students. It requires 01:202:201 or 09:012:201& 01:640:112 or 01:640:115 or placement test in calculus. The course does not assume any background in probability or statistics.

Course Expectations

There are two 80-minute classes each week: Monday and Wednesday 1:40-3:00pm in LCB – 102.

You are expected to attend class, do the required reading, and do the assigned homework. Check the course web site for announcements and copies of problem sets and handouts.

Many students find the material difficult the first time through, so it is essential to give yourself the opportunity to see the material more than once (e.g., read the book, attend lecture, review the book, work the homework and book problems).

Because class preparation is essential, I have purposely kept the required reading list relatively short. This should allow you adequate time to work problems.

I encourage you to form a study group in which you can discuss the material and puzzle through problems. Small groups seem to work best. With more than four participants, some members inevitably do a lot more listening and following than thinking and contributing. Note that all work that you submit for credit must be your own work. This means that you are required to write up your work by yourself, not with your study group. If you are looking for a study group, send an email to me.

Readings

There is one required text for the course, available at the Livingston bookstore.

Statistics for Criminology and Criminal Justice, Ronet Bachman and Raymond Paternoster, second edition, McGraw Hill, ISBN 0-07-251844-8, 2004.

You do not need to purchase the version that comes with SPSS software.

Other required readings will be available either by handouts or via electronic resources. Links or instructions for the latter will be provided on the course web site.

Problem Sets

There will be eight problem sets to be completed over the semester. Problem sets will provide further practice with analytic techniques introduced in class. Problem sets will be distributed through the course web site, as will solution keys.

Problem sets are due on Wednesdays at the beginning of class. They will not be graded in their entirety. Instead, a randomly selected problem or two will be graded (with other problems scanned for completeness). Students are responsible for reviewing the solution sets to be sure their understanding is correct. Completion of problem sets will be particularly important in deciding cases where students are on the borderline between grades. Late problem sets will not be accepted for credit, but to allow for unexpected circumstances, students will be allowed to drop their lowest problem set grade (including zero) without penalty.

Be sure to show your work so that I can understand your thinking. Partial credit for incorrect answers will be generous if I can see you had a logical answer.

Software

Problem sets may contain exercises designed to teach students the basics of using a spreadsheet to aid empirical analysis. The course will support Microsoft Excel spreadsheet software (though you are free to use other comparable software products). Any data distributed will be in Excel format on the course web site. Most other spreadsheet programs, and other versions of Excel, can convert these files. Students who have had no prior experience with using spreadsheets should contact the professor for help with a basic introduction.

Exams

- An 80-minute midterm exam will take place in class on Monday, February 20.
- Another 80-minute midterm exam will take place in class on Wednesday, April 5.
- A final exam will be given during the university-scheduled exam slot, tentatively set to be May 9 from noon – 3pm.
- You may bring a calculator and a list of equations to the exam. Books, notes and computers will not be permitted.

Exams must be taken on the assigned day unless you present a valid, written excuse *before* the exam or have an absence approved by the Dean's office and the professor.

Grading

The overall grade for the course will be based on:

Problem sets	10%
2 Midterm exams	50%
Final exam	40%

The calculation of the course grade will be made using the scores from each required assignment. That is, the grades of each assignment will not be averaged, the scores underlying the grades will be averaged (using the weights above). Therefore, if you earn a high B+ on one of the midterms, this may lead to a higher course grade than if you earn a low B+ on that midterm.

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Class	Date	Topic	Assignment	Readings
		Part I – Describing Data		
1	Wed., Jan. 18	Course Introduction		BP chapter 1
2	Mon., Jan. 23	Descriptive Statistics, Graphical Representations of Data		BP chapter 2
3	Wed., Jan. 25	Data Distributions, Graphical Representations of Data - 2 -		BP chapter 3
4	Mon., Jan. 30	Measures of Central Tendency		BP chapter 4
5	Wed., Feb. 1	Measuring Dispersion	PS#1	BP chapter 5
		Part II – Introduction to Probability		
6	Mon., Feb. 6	Introduction to Sampling & Basic Probability		BP chapter 6
7	Wed., Feb. 8	Compound Probability and the Binomial Distribution	PS#2	BP chapter 6
8	Mon., Feb. 13	Using the Binomial Distribution		BP chapter 6
9	Wed., Feb. 15	Review	PS#3	
10	Mon., Feb. 20	1st Midterm	Exam	
11	Wed., Feb. 22	Compound Probability		Readings to be announced
12	Mon., Feb. 27	Conditional Probability		Readings to be announced
13	Wed., Mar. 1	Application of Bayes' Rule	PS#4	Readings to be announced
		Part III – Statistical Inference		

14	Mon., Mar. 6	The Normal Distribution		BP chapter 6
15	Wed., Mar. 8	The Central Limit Theorem	PS#5	BP chapter 9
		Spring Break		
16	Mon., Mar. 20	Point Estimation and Confidence Intervals		BP chapter 7
17	Wed., Mar. 22	Introduction to Statistical Tests		BP chapter 8
18	Mon., Mar. 27	One-sample Tests for Means and Proportions		BP chapter 8
19	Wed., Mar. 29	One-sample Tests for Means and Proportions -2-	PS#6	BP chapter 8
20	Mon., Apr. 3	Review		
21	Wed., Apr. 5	2nd Midterm	Exam	
22	Mon., Apr. 10	Testing Hypotheses with Categorical Data: The Chi-square Test		BP chapter 9
23	Wed., Apr. 12	Testing Hypotheses with Categorical Data: The Chi-square Test -2 -		BP chapter 9
24	Mon., Apr. 17	Two-Sample Hypothesis Testing: independent samples		BP chapter 10
25	Wed., Apr. 19	Hypothesis Testing with Paired Data	PS#7	BP chapter 10
26	Mon., Apr. 24	Measures of Association & Introduction to Regression		BP chapter 12
27	Wed., Apr. 26	Experiments and Non-experimental Study Design	PS#8	Readings to be announced
28	Mon., May. 1	Review		
	Tues., May 9 12 noon - 3pm	Final	Exam	