

COURSE OUTLINE

**Health Policy and Management 874
Clinical and Administrative Data Analysis**

**Thursdays, 4:10pm - 7:00pm
University of Kansas Medical Center
Orr-Major 1015, Fall 2005**

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(Available by appointment)

TEXTS

available at the KUMC bookstore:

Required:

Ranjit Kumar. Research Methodology. A Step-By-Step Guide for Beginners. Sage Publications, 1999/2005.

Andy Field. Discovering Statistics: Using SPSS for Windows. Sage Publications, 2000.

Other handouts will be placed on reserve in the Department of Health Policy and Management office in 5008 Student Center or will be distributed in class.

ACCESSIBILITY

Any student in this course who, because of a disability, needs an accommodation in order to complete the course requirements should contact the instructor or the ADA/504 Coordinator (913-588-7813; TDD 913-588-7960).

OVERVIEW

This course presents concepts and techniques in study design, statistical analysis and information management to help understand and use clinical and administrative health services data. Ways in which both these and population-based data can be used as management and research tools will be discussed and demonstrated. Implications for improving patient care and health services delivery will be emphasized. Labs will stress the use of manipulative techniques such as merging, matching, sorting, and file construction, as well as focused analyses using univariate, bivariate, and multivariate techniques. Recent methodology related to outcomes, case-mix, and performance assessment will be presented, as will their application to health services administration. A semester project requires each student to make use of an existing large data set to conduct valid health services research, resulting in a final paper suitable as a draft for future publishable findings.

COURSE OBJECTIVES

By the end of the course, students should be able to:

- recognize the strengths and limitations associated with the use of clinical and administrative data in applied research;
- identify both broad and specific policy implications related to health services research;
- use SPSS to manipulate and analyze data following established principles of validity;
- understand research design issues with the use of large data sets;
- construct scientifically valid and defensible research hypotheses;
- synthesize health service research findings into publishable reporting formats;
- understand the strategic significance of valid and interpretable research within health service organizations.

COURSE REQUIREMENTS AND GRADING

The course will include readings, lectures, written and laboratory assignments, and a final paper. Students are expected to attend and participate in all classes and assignments. **No late work will be accepted for credit without instructor approval in advance.** Grades will be calculated as follows:

	<u>Points</u>
Attendance and Class Participation	50
Concept Paper and Literature Review / Critique	100
Written Homework Assignments	100
Lab Assignments	100
Final Research Project (paper and presentation)	<u>250</u>
Total Possible	600
Letter Grades:	
A = 90 - 100%	540 - 600 points
B = 80 - 89%	480 - 539 points
C = 70 - 79%	420 - 479 points
Below 420 points is failing	

ATTENDANCE AND PARTICIPATION

Each student is expected to attend and participate. More than two unexcused absences for the semester will result in a failing grade.

Students are expected to be prepared for class each day and be punctual. The participation grade will be determined by punctual attendance and active, informed involvement in class labs, lectures, and discussions.

PREREQUISITES

Previous coursework in graduate statistics and outcomes management is required. Knowledge of database management and use of statistical microcomputer applications or coursework in MIS will be extremely helpful.

RESEARCH PROJECT

Each student will be responsible for developing an individual health services research project from conception to draft write-up. The intent of this project is to familiarize students with all phases of the research process. While data analysis will be central to this work, other aspects of research (see below) will be equally important. The final paper should be a draft for a publishable article describing research findings from the data analysis.

Research will make use of existing clinical or administrative data **that have either already been collected or reside in an organization's management information system**. The steps in developing the research and in writing the final paper are as follows:

I. Concept. What are policy relevant, clinically valid issues within a particular area of health services that require scientifically sound research? How can these issues be framed as meaningful research concepts and questions?

II. Background. What work has been done previously looking at some of the issues? What is the nature of our understanding of the issue at present?

III. Research Design. What would be a feasible research strategy making use of existing data sources which could address the issue or help answer the research questions? How valid - both conceptual and statistical - will results be? What needs to be done to access and manage the data?

IV. Analysis. What type of analysis appears best to implement the research design and answer the original research questions? How would it do this? Develop shells of tables that lend themselves to describing your analyses in ways that illustrate the statistics used.

V. Findings. Present and discuss results of the analysis in a cogent manner. Utilize tables, graphs, charts, and other ways to **clearly** present what the research found. What are limitations or potential biases with the study design, data, or other factors that may qualify interpretation of the findings?

VI. Discussion. How do the findings answer the research questions? What are implications associated with results? How do these results build upon our existing knowledge of the issue? What are other areas that need to be addressed to help get at the issue further?

VII. Summary. Briefly summarize the entire research project. This should be the basis for your 200 word (maximum) abstract that could be used to preface a published article.

VIII. References. Usually APA (American Psychological Association) format, but depending on the targeted journal, others are used also (i.e., AMA, MLA, etc.).

IX. Tables/Charts/Graphs cited in the text.

A 200 word (max) abstract should accompany the final paper.

Papers will be presented to the class the final two weeks of the semester. Presentations should be "conference quality," in which PowerPoint projections or other techniques help to clearly guide the audience through the research. Presentations will count 50 points towards the final project grade.

Though papers may vary in length according to the complexity of the project selected, consistent with most publication guidelines, they should be NO MORE THAN 15 - 18 pages of typed, double spaced text (no more than 3,000 words), not including references or illustrations.

All material, relevant conversations, or other sources must be properly cited (APA, MLA, AMA, etc.). Of course, all work must be done by you and be original for this course. *Though you may work with others in the class on this project, individual research and writing contributions must be clearly delineated in the final paper for which students are to be evaluated.*

Because health service research tends to be a collaborative endeavor, students will be encouraged to solicit comments and review on their projects from others in the class through regularly scheduled "project meetings." These will provide opportunities to raise issues and questions with other students of varying backgrounds and exchange different perspectives on research strategies. Part of the "concept paper" grade will be a brief written critique of another student's proposed study.

The concept paper for your project and beginning literature review is due on September 29th.

Late submission of this work **will not be accepted without previous approval from the instructor.**

The following week (**October 6th**), your one page critique of a classmate's paper will be due, which you will share with both the instructor and your classmate. The concept paper and literature review should provide the body of what will be the first two sections of your final paper, as well as most of its references. It should be no longer than 5 - 7 pages (1,000 words), typed and double-spaced. It should

include justification, background, and research questions for your particular topic.

The final, completed paper is due at the beginning of class on December 1st, 2005. Late submissions will require advance permission from the course instructor in order to be accepted without a major reduction in grade.

WRITTEN ASSIGNMENTS

Questions will be assigned during the early part of the course that relate to the readings. A one page (max), typed response will be due in class the following week. **Late submissions will not be accepted without advance permission of the instructor.** The objectives of these assignments are to synthesize important concepts and articulate them in a concise and readable manner. Grading will evaluate both understanding and composition.

LABORATORIES

Computer laboratories will be devoted to hands-on information processing. Appropriate print-outs and a brief (1 page max) description of relevant research and policy issues will be due the week following lab. **As with assignments, laboratory write-ups will not be accepted late without advance permission of the instructor.**

SCHEDULE OF CLASS TOPICS AND READINGS

- August 18** Data, Research, and Information Use
- Readings (due August 25th):
1. Kumar: Chapters 1 – 3; pages 1-33.
 2. *Does X Really Cause Y?* Academy Health manuscript. Bryan Dowd and Robert Town. September, 2002. <http://hcfo.net/pdf/xy.pdf>
- August 25** Research Design - Validity and Reliability; Identifying the Research Question(s)
Assignment #1 Due
- Additional Readings:
1. Kumar: Chapters 4, 6, 7, 8 & 11; pages 34-45, 63-99, 136-143
 2. Schwartz and Grady, Medical Effectiveness Research Data Methods, pages 1-8 ("What Do We Do When the Data for Medical Effectiveness Research Are Not Perfect?"); pages 37-56 ("Overcoming the Curses of Imperfect Data")
 3. Fox, Phua, "Using Medicaid Claims Data to Evaluate a Large Physician Fee Increase." Health Services Research, 29:3, August 1994, pages 315 – 340 (skim)
 4. DiIorio, Yeager, et.al. The epilepsy medication and treatment complexity index: reliability and validity testing. *Journal of Neuroscience Nursing*. June 2003 v35 i3 p155(8).

- September 1** Research Design – Risk, Measurement, and Data Management Techniques
Assignment #2 Due
- Readings:
1. Kumar: Chapters 5, 9, 10 & 14; pages 46-62, 103-135, 189-196
 2. Schwartz and Grady, Medical Effectiveness Research Data Methods, pages 83 - 118 ("Risk Adjustment for Medical Outcomes Studies;" and, "The Relationship Between Use of Health Care Services and Health Status")
 3. Stroup & Teutsch, Chapter 2: "Basic Concepts of Statistics", Nancy D. Barker.
- September 8** Monitoring Health of Populations through the Use of Large Data Sets
Assignment #3 Due
- Readings:
1. Schwartz and Grady, Medical Effectiveness Research Data Methods, pages 57 - 81 ("...Problems and Approaches to Dealing with Large Administrative Data Sets...").
 2. Fox MH, Foster CH, Lindaman K. Gender, ethnic and geographic variations in psychotropic drug use among children enrolled in Medicaid. *Journal of Gender, Culture, and Health*. 4:4:293-305. Spring, 2000.
 3. Short PF, McCormack L, Hibbard J, Harris-Kojetin L, Fox MH, Cleary P, Damiano P, Uhrig JD. Similarities and Differences in Choosing Health Plans. *Medical Care*. 40(4):289-302. April, 2002.
- September 15** Database Management: Introduction to SPSS; Data Manipulation Techniques
Assignment #4 Due
- Readings:
1. Kumar: Chapter 15; pages 199-224
 2. Schwartz and Grady, Medical Effectiveness Research Data Methods, pages 119 - 135 ("Record Linkage").
 3. Field: Chapter 1; pages 1-34
- Lab #1 Begin
- September 22** Descriptive Statistics: Univariate and Bivariate Analysis
- Readings:

1. Kumar: Chapter 16; pages 225-240
2. Field: Chapters 2 (portion) & 6; pages 33-49, 206-242

Complete Lab #1

September 29 Establishing Relationships: Correlation, Factor Analysis, Discriminant Analysis
Concept Paper and Lab #1 Write-Up Due

Readings:

1. Singh, Yu, "Adverse Pregnancy Outcomes: Differences between US and Foreign Born Women in Major US Racial and Ethnic Groups." American Journal of Public Health, 86:6, June 1996, pages 837-843.
2. Fox, Phua, "Do Increases in Payments for Obstetrical Deliveries Affect Prenatal Care?" Public Health Reports, 110:3, May-June 1995, Pages 319-326.
3. Lee, Tian, et.al. "Psychometric properties of the drinking expectancy questionnaire: a review of the factor structure and a proposed new scoring method." *Journal of Studies on Alcohol*. May 2003 v64 i3 p432(5).
4. Field: Chapters 3 and 11, excerpt from Chapter 10; Pages 71-102, 423-470, and 412-415

Lab #2 Begin

October 6 Establishing Relationships - Complete Laboratory #2
Critique of Classmate's Concept Paper Due

October 13 **No class. Fall break**

October 20 Advanced Statistical Techniques: ANOVA, Multiple Regression, Logistic/Probit Regression
Lab #2 Write-Up Due

Readings:

1. Fox, et.al., "Risk Factors Among Patients Undergoing Repeat Aorta-Coronary Bypass Procedures." Journal of Thoracic and Cardiovascular Surgery 93:1, January 1987, pages 56-61.
2. Field: Chapters 4, 5 & 7; Pages 103-162, 163-204, 243-292

Lab #3 Begin

October 27 Advanced Statistical Techniques - Complete Laboratory #3

November 3 Non-Parametric Statistics and Survival Analysis
Lab #3 Write-Up Due

Readings:

1. Singer and Willet, "Modeling the Days of Our Lives: Using Survival Analysis When Designing and Analyzing Longitudinal Studies of Duration and the Timing of Events." Psychol. Bulletin, 110:268-290, 1991.

2. Field: Chapter 2 (portion); pages 49-69

November 10 Non-Parametric Statistics and Survival Analysis

November 17 Individual Conferences

November 24 **No class. Thanksgiving break**

December 1 Presentations Begin
FINAL RESEARCH PAPER DUE

December 8 Class Presentations Continue or Conclude

December 15 Class Presentations Conclude