Instructor: John Rohrbaugh

Classes: Monday, 5:45 – 8:45 p.m.
012 Husted Hall

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Hours: Monday, 3:00 - 5:30 p.m.; Thursday, 3:00 – 5:30 p.m.
(and by appointment)

Overview: This course is an introduction to the use of descriptive and inferential statistics in policy analysis and management. Students are not expected to have studied statistics previously, but basic competency in mathematics and algebra is assumed. Students who wish to be introduced to statistics primarily through probability theory are encouraged to investigate appropriate courses in the Department of Mathematics and Statistics.

Topics introduced in this course are covered under three general sections, each receiving approximately equal treatment: univariate descriptive statistics; bivariate/multivariate correlation and regression; and inferential statistics. The approach taken to these topics will be more oriented to application in management and policy making than to an exploration of the theoretical foundations of the field.

Several of the key objectives to be achieved through this course include: 1) developing an appreciation of the importance of statistics in contemporary public inquiry, 2) gaining increased sophistication as a statistical "consumer" who understands the strengths and limitations of statistical analysis, and 3) viewing key elements of research design from an administrative perspective in which the costs and benefits of alternative data gathering options are considered.

Schedule:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Textbook</th>
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<tbody>
<tr>
<td>1</td>
<td>Introduction to course; collecting information; building databases</td>
<td>1, 2 (10-15)</td>
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<tr>
<td>2</td>
<td>Frequencies, proportions, percentages; histograms, polygons, ogives</td>
<td>2 (16-33)</td>
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<tr>
<td>3</td>
<td>Statistics of central tendency; mode, median, arithmetic mean</td>
<td>3</td>
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<tr>
<td>4</td>
<td>Statistics of dispersion (variability); range, variance, standard deviation</td>
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<tr>
<td>5</td>
<td>Midterm I</td>
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Bivariate/Multivariate Statistics

6 10/7 Scatter diagrams; covariance; bivariate correlation
7 10/21 Bivariate regression; regression line; statistical prediction and forecasting
8 10/28 Multivariate correlation and regression with two uncorrelated predictor measures
9 11/4 Multivariate correlation and regression with two or more correlated predictor measures
10 11/11 Midterm II

Inferential Statistics

11 11/18 Normal distribution; standard normal distribution table; standard normal curve
12 11/25 Research design: one-sample problems; Type I and Type II errors
13 12/2 Research design: two-sample problems; significance and confidence levels
14 12/9 Research design: estimation; margin of error; confidence intervals
15 12/16 Final examination

Grading: The final grade in this course will be calculated from four weighted components:

- Midterm I (9/30) 25%
- Midterm II (11/11) 25%
- Final examination (12/16) 25%
- Intersession assignments 25%

If a midterm examination is missed, its weight in the final grade is added to the final examination. The intersession assignment for each week is due at the beginning of class in the following week. Late assignments will be accepted with a grade penalty of 10% for each passing day; no intersession assignment will be accepted in electronic form. The grade earned by each student does not depend in any way on the distribution of others’ grades; there is no penalty for assisting and supporting other students in this course (excepting violations of the academic rules and regulations of this university).


Computer Support: Virtually all statistical analyses are performed by computers. An important element of this course is the use of spreadsheets to reduce considerably the amount of time needed for tedious "hand" calculations. Any recent spreadsheet software with which you are familiar can be used to assist your work. All computer support (hardware and software) needed for this course is available in the Dewey Library.
Assignment due Monday, September 12

1. Read Part I, Chapter 1 and Chapter 2 (10-15)

2. Complete the orange sheet (both sides).

3. For the following six measures in the Credenza School District database, create appropriate coding categories (see Chapter 2, page 12), code the data for the 72 employees into these categories, and display the frequency (f) for each category:
   - GENDER (M or F)
   - BRTHYR (year of birth)
   - YRSEEMPL (years employed with district)
   - UNION (RL, DM, CC, or NU)
   - BIWKLY (gross pay per period)
   - BUILDING