

Educational Statistics (EDFN 501): Syllabus
Western Kentucky University
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Spring, 2009

Course Overview:

Educational Statistics is an introductory graduate course in using quantitative methods for inquiry in the social and behavioral sciences. Students will be exposed to the fundamental concepts and procedures of descriptive and inferential statistics. Students will develop competence in reading and understanding statistics topics from sources such as texts, dissertations, journals, or technical reports. The course includes an introduction to the use and interpretation of SPSS, and a statistics lab component will be required.

General Course Objectives:

The student will be able to:

1. understand the role of descriptive and inferential statistics as part of quantitative research methodology.
2. demonstrate the usefulness of descriptive and inferential statistics as part of quantitative research methodology.
3. describe quantitative results using descriptive statistics.
4. use inferential statistics to test hypotheses.
5. design research hypotheses for testing.
6. develop competence in the use of SPSS for classifying and describing data, as well as for inference.
7. retrieve information from library and Internet resources relevant to statistical procedures.
8. compare statistical procedures for different purposes.
9. plan and carry out basic statistical analyses of research data.
10. choose appropriate statistical methods according to circumstances.

Content

The course focuses on several basic competencies in statistical analysis.

Students will be introduced to content related to:

- a. Frequency distributions and graphing
- b. Measures of central tendency
- c. Measures of variation
- d. Comparison of sample means
- e. Correlation
- f. Sampling and probability
- g. Power and sample size
- h. Simple regression
- i. Chi-square tests

Text (required):

Hinkle, D. E., Wiersma, W., & Jurs, S. G. (2003). *Applied statistics for the behavioral sciences* (5th ed.). New York: Longman.

Text (recommended):

Field, A. P. *Discovering statistics using SPSS* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Additional Resources

Lynes, J. R. H. (2008). *The effects of social class, social capital, parenting style, and Ogbu's oppositional identity on Black college placement scores*. Unpublished doctoral dissertation, University of Louisville. (Available from Instructor electronically)

A pocket calculator with a square root key is required (does NOT have to be a graphing calculator or other expensive investment).

Graph paper and a straight edge.

It is recommended that the student purchase SPSS, version 16.0. This is available in the Lab but if you plan on doing any significant analysis, you should have this on your home computer. NOTE: Student version of SPSS is not recommended. The full version is not much more expensive but the student version is very limited in the size and complexity of data sets that it can handle.

Assessment/Grading Criteria:

1. Exam I (25%)
2. Exam II (25%)
3. Computer assignments (25%)
4. Course project (25%--analysis and write up of a data set. Must be approved by Instructor)

Criteria for Determination of Grade

Each of the four components is assigned a letter grade. Those letter grades equate to the following numerical values:

A = 4 points

B = 3 points

C = 2 points

D = 1 point

Final grades are therefore determined as follows:

Convert each assessment (test or assignment) grade to the scale above, add the 4 numerical scores, divide by 4, convert back to a letter grade on the original letter-points scale, and round to the nearest whole number.

Test questions will require problem solving and may include multiple choice and matching. Material covered on each exam is specific for that exam only. All tests are open-book, open-note. The grading procedure outlined here may be changed due to extenuating circumstances.

The Course Project

The student will analyze a data set, demonstrating mastery of the concepts and techniques learned in the class. The data can come from a source available to the student or may be obtained from the Instructor. In either case, the data must be **pre-approved** by the Instructor. Details of the project will be given during the course.

Student Policies:

The following sections are taken from the 15th Edition of WKU's Faculty Handbook:

Plagiarism:

To represent ideas or interpretations taken from another source as one's own is plagiarism. Plagiarism is a serious offense. The academic work of a student must be his or her own. One must give the author(s) credit for any source material used. To lift content directly from a source without giving credit is a flagrant act. To present a borrowed passage after having changed a few words, even if the source is referenced, is also plagiarism.

Cheating:

No student shall receive or give assistance not authorized by the instructor in taking an examination or in the preparation of an essay, laboratory report, problem assignment, or other project, which is submitted for purposes of grade determination.

Disposition of Offenses:

Students who commit any act of academic dishonesty may receive from the instructor a failing grade in that portion of the course work in which the act is detected or a failing grade in the course without possibility of withdrawal. The faculty member may also present the case to the University Disciplinary Committee through the Office of the Dean of Student Life for disciplinary sanctions. A student who believes a faculty member has dealt unfairly with him/her in a course involving academic dishonesty may seek relief through the Student Complaint Procedure.

Other Types of Academic Dishonesty:

Other types of academic offenses, such as the theft or sale of tests, should be reported to the Office of the Dean of Student Life for disciplinary action.

Weekly schedule of assignments and activities Educational statistics EDFN 501 Spring 2009

The assignments listed below represent a best estimate of content to be covered. Rate of progress through this material may be modified by the Instructor as the semester proceeds. The syllabus and schedule are subject to change in the event of extenuating circumstances. No change will occur, however, unless proper and prior notice is given to students.

Reading assignments are labeled as follows.

HWJ = Hinkle, Wiersma, and Jurs text

Field = SPSS manual (recommended)

Lynes = Lynes' dissertation (available electronically)

Note:

1. Students are responsible for Exercises in HWJ chapters. Other assignments will be given in class.
2. Sessions in the Lab and information related to computer-aided analysis (e.g., Field) will be noted in class.

Wednesdays, 5:15-8 PM, WKU Campus, TPH 0422

Jan. 28	Introduction to Statistics and Basic Concepts	HWJ, Ch. 1
Feb. 4	Organizing and Graphing Data	HWJ, Ch. 2
Feb. 11	Descriptive Statistics	HWJ, Ch. 3
Feb. 18	The Normal Distribution	HWJ, Ch. 4

Feb. 25	Correlation	HWJ, Ch. 5
Mar. 4	Simple Linear Regression	HWJ, Ch. 6
Mar. 11	Spring Break	
Mar. 18	Exam I	
Mar. 25	Introduction to Inferential Statistics: Sampling, Probability, and Sampling Distributions	HWJ, Ch. 7
Apr. 1	Hypothesis Testing: One Sample Mean	HWJ, Ch. 8
Apr. 8	Estimation: One Sample Mean	HWJ, Ch. 9
Apr. 15	Hypothesis Testing: Two Sample Mean	HWJ, Ch. 11
Apr. 22	Power and Sample Size	HWJ, Ch. 13
Apr. 29	Chi-square Analysis	HWJ, Ch. 21
May 6	Thinking about Statistical Analysis Project Due	Review; Lynes, Appendix C
May 13	Exam II	

Accommodation of Disabilities:

Students with disabilities who require accommodations (academic adjustments and/or auxiliary aids or services) for this course must contact the Office for Student Disability Services, Room 445, Potter Hall. The OFSDS telephone number is (270) 745-5004 V/TDD. Please DO NOT request accommodations directly from the professor or instructor without a letter of accommodation from the Office for Student Disability Services.

Extra Help:

The instructor will be available as need is indicated. Students are encouraged to discuss any questions or problems with the instructor.

Course Adjustments:

The instructor reserves the right to modify the course requirements, schedule, and syllabus. No change will occur after the beginning of the semester, however, unless proper, timely, and prior notice is given to the students.

Date Prepared and by Whom:

Course syllabus prepared Dec.5, 2008 by Stephen Miller.