APPLICATION FOR CHANGE IN EXISTING COURSE: MAJOR & MINOR

1. Submitted by College of Education Date January 22, 2002
Department/Division offering course Educational and Counseling Psychology

2. Changes proposed:
(a) Present prefix & number EDP 557 Proposed prefix & number EDP 557
(b) Present Title Educational Statistics
New Title Gathering, Analyzing, and Using Educational Data
(c) If course title is changed and exceeds 24 characters (Including spaces), include a sensible title (not to exceed 24 characters) for use on transcripts:
(d) Present credits: 3 Proposed credits: 3
(e) Current lecture: laboratory ratio
Proposed:
(f) Effective Date of Change: (Semester & Year) Fall 2002

3. To be Cross-listed as: EPE 557 Prefix and Number

4. Proposed change in Bulletin description:
(a) Present description (including prerequisite(s):
A study of the applications of statistical and graphical methods to educational data. Basic descriptive statistics, correlation, the normal distribution, and hypothesis testing will be covered. Prereqs: MA 109 or equivalent; undergraduate or graduate status in College of Education; or consent of instructor.
(b) New description:
The course covers applications of statistical and graphical methods for educational and evaluation data. Basic descriptive statistics, correlation, normal distributions and hypothesis testing will be covered. An emphasis is placed on exploratory data analysis and interpretation of results within the broad contexts of education and evaluation.
(c) Prerequisite(s) for course as changed: MA 109 or equivalent; undergraduate (with permission) or graduate status in College of Education; or consent of the instructor.

5. What has prompted this proposal?
Two separate strands of introductory statistics courses are currently offered in the College; by cross-listing, students will have greater flexibility in scheduling.

6. If there are to be significant changes in the content or teaching objectives of this course, indicate changes:
There will be no changes whatsoever in the teaching of these courses, the only change is that they will be cross-listed and now have the same name and description.

7. What other departments could be affected by the proposed change?
All departments in the College of Education (by giving students greater flexibility).

8. Will changing this course change the degree requirements in one or more programs?*
   Yes ☐ No ☑
   If yes, please attach an explanation of the change.*

9. Is this course currently included in the University Studies Program?
   Yes ☐ No ☑
   If yes, please attach correspondence indicating concurrence of the University Studies Committee.

10. If the course is a 100-200 level course, please submit evidence (e.g., correspondence) that the Community College System has been consulted.

*NOTE: Approval of this change will constitute approval of the program change unless other program modifications are proposed.
11. Is this a minor change?  
   (NOTE: See the description on this form of what constitutes a minor change. Minor changes are sent directly from the Dean of the College to the Chair of the Senate Council. If the latter deems the change not to be minor, it will be sent to the appropriate Council for normal processing.)
   □ Yes  □ No

12. Within the Department, who should be consulted for further information on the proposed course change?
   
   Name: Eric M. Anderman
   Phone Extension: 7-7532

Signatures of Approval:

[Signatures and dates]

**Undergraduate Council

**Graduate Council

**Academic Council for the Medical Center

**Senate Council

**If applicable, as provided by the Rules of the University Senate.

ACTION OTHER THAN APPROVAL

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The Minor Change route for courses is provided as a mechanism to make changes in existing courses and is limited to one or more of the following:

a. change in number within the same hundred series;
b. editorial change in description which does not imply change in content or emphasis;
c. editorial change in title which does not imply change in content or emphasis;
d. change in prerequisite which does not imply change in content or emphasis;
e. cross-listing of courses under conditions set forth in item 3.0;
f. correction of typographical errors. [University Senate Rules, Section III - 3.1]
EDP/EPE 557-003 - EDUCATIONAL STATISTICS

Fall 2000
Wednesday, 4:00-6:30
246 Taylor Education Building

Dr. Eric Anderman
249 Dickey Hall
Phone: 257-7532; E-mail: eande1@pop.uky.edu
Office Hours: Wed. 2:00-3:30 or by appointment.

Required Materials


Coursepack available at Johnny Print, 547 S. Limestone, 254-6139. Coursepack is required. You will need one 3.5 inch floppy disk to store the class data set. You also should keep a backup copy on another disk.

General Description of Course

EDP/EPE 557 is designed to provide students with a working knowledge of basic techniques in statistics. This course is designed so that students can become reflective decision makers when using and reading about statistical techniques that are used in research. At the completion of this course, you should be able to critically examine basic statistical techniques for use in your own research. You also should be able to critically read research that uses these techniques.

This course will not emphasize the memorization of formulas; rather, the course focuses on developing your conceptual understanding of statistics, and developing your ability to apply and interpret statistics in meaningful ways. Since this course is offered through the department of Educational and Counseling Psychology, many of the examples will be taken from educational and psychological research. However, the same techniques are used in other disciplines, and I will make an attempt to use examples from other fields as well, based on class enrollment.

I have structured the course to try to minimize stress for those students who identify themselves as "math" or "number" phobic. The course does require an understanding of basic algebra, so completion of MA 109 or the equivalent is a prerequisite. No knowledge of calculus is assumed or required. You will need a calculator, but there is no need to buy an expensive, fancy statistical calculator; an inexpensive calculator that can add, subtract, multiply, divide, do square roots, and has some storage capacity is sufficient for this course. There is a computer component involved in this course. We will be using SPSS for Windows. This software is available in our classroom during class. The latter part of class will generally be devoted to time for working on computer problems. You also can have access to SPSS in the Instructional Technology Center in 151 Taylor Education Building. Assignments will involve both problems to be done on the computer, as well as problems that will be done by hand. In addition, some of the "problems" will ask you to interpret data (as a real researcher would have to), rather than to merely use data in problems. There will be a class data set that we will use to do the problems. This will be copied on to your floppy disk during class. The class data set also can be accessed via the UK College of Education Instructional Technology Center server.

My main goal for this course is to convey to you how statistics can be important, useful, and practical. I will provide as many "real-world" examples as possible, and I will do my best to convince you that statistics is not something to dread!!
EDP 557 is offered for students enrolled in the College of Education. Other students may be admitted, with instructor permission, on a space-available basis.

Objectives of EDP 557

1. To be able to make reflective and well-informed decisions about statistical analyses.
2. To develop a conceptual understanding of how and why researchers use statistics.
3. To be able to understand how statistics are used in various research studies.
4. To plan and carry out simple statistical analyses, both by hand and via computer.
5. To develop an understanding of the assumptions, limitations, and abuses of statistics.

Course Requirements

1. **Attendance** at the class sessions is extremely important. The first part of each class will be spent reviewing problem sets and/or computer assignments, or doing some practice review questions. The second part usually will be spent discussing new material. The final part of class will be devoted to using the computer to do analyses. I will be available to work with you and to assist you. If you have an excused absence, you will be given the opportunity to make up any missed work. Class participation is also extremely important -- do not be shy! If you have a question, ask!

2. **Required readings** -- the reading for this course is minimal, but it is extremely important. The text that we will be using (Sprinthall) is an excellent text -- it is very easy to read and easy to understand, and it makes a lot of "sense" to people who have not done statistics before. Please try to do the reading before class -- this is for your benefit. If you have done the reading before class, the lecture/discussion/application of the new techniques each week will be much easier for you, and you will have a much easier time doing the assignments.

3. **Assignments** are due by the beginning of class on the date each assignment is due. All submitted work must be your own. While you are encouraged to work on assignments together and to study together, each student must turn in individual assignments. Cheating or plagiarism carries a minimum penalty of a failing grade in the course. Assignments are due at the beginning of class, and late assignments will not be accepted unless prior arrangements have been made with the instructor. If you have difficulties doing an assignment, it is better to hand in what you have done than to not hand in anything at all. Make sure you show all of your work and answer all parts of the questions on the problem sets -- don't lose points because of carelessness. Once we have gone over an assignment in class, you no longer may turn it in to receive credit. On many of these assignments, you will be asked to describe in your own (non-statistical) words exactly what each of these techniques does -- in other words, to describe for a non statistical person why what you have learned is important.

4. **Exams** -- There will be two exams in this course. The questions on the exams will be of a similar level of difficulty as the problems given in the assignments. The exams will consist of multiple choice, true/false, and fill in the blank-type questions, as well as actual problems that you will be asked to do. In addition, you will be asked to "describe" some of the techniques that we have learned to somebody who knows nothing about statistics (just like in some of the assignments). Be sure to bring a calculator to the exams. Make up exams will only be given in the case of an illness that is documented by a note from a doctor.

5. **Quizzes** -- There will be several quizzes given throughout the semester. Quizzes are announced on the syllabus, and are closed-book.
## Evaluation

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
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<tbody>
<tr>
<td>Midterm examination</td>
<td>100</td>
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<tr>
<td>Final examination</td>
<td>100</td>
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<tr>
<td>Homework assignments</td>
<td>160</td>
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<tr>
<td>Quizzes</td>
<td>80</td>
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<td><strong>Total</strong></td>
<td><strong>450</strong></td>
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## Grading Scale:

- A = 409-450 points
- B = 364-408 points
- C = 318-363 points
- E = 317 or fewer points

## Class Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Reading</th>
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<tbody>
<tr>
<td>August 23</td>
<td>Overview of Course, Basic Concepts in Statistics, Statistical Notation, Scales of Measurement, Introduction to SPSS and the computer</td>
<td>Chapter 1</td>
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<tr>
<td></td>
<td>Find one misleading use of statistics in the media for next Wednesday.</td>
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<tr>
<td>August 30</td>
<td>Organizing and Displaying Data, Measures of Central Tendency, Introduction to NELS data set</td>
<td>Chapter 2</td>
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<td>September 6</td>
<td>Variability: Variance and Standard Deviation</td>
<td>Chapter 3, Quiz #1</td>
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<tr>
<td>September 13</td>
<td>The Normal Curve and Z-Scores</td>
<td>Chapter 4, Homework #1 due</td>
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<td>September 20</td>
<td>Transformations Involving the Normal Curve, Probability</td>
<td>Chapter 5, Chapter 6</td>
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<tr>
<td>September 27</td>
<td>Correlation</td>
<td>Chapter 11, Quiz #2</td>
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<td>October 4</td>
<td>EXAM #1</td>
<td>Homework #2 due</td>
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<tr>
<td>October 11</td>
<td>The Logic of Inferential Statistics, Sampling Distributions</td>
<td>Chapter 7</td>
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<td>October 18</td>
<td>Hypothesis Testing, One Sample t-tests</td>
<td>Chapters 8</td>
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<td>October 25</td>
<td>Two Sample t-tests</td>
<td>Chapter 10</td>
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<td>Chapter</td>
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<td>November 1</td>
<td>One Way Analysis of Variance</td>
<td>Chapter 12</td>
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<td>Post Hoc Tests</td>
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<td>November 8</td>
<td>Chi Square</td>
<td>Chapter 13</td>
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<td>Quiz #3</td>
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<td>November 15</td>
<td>Regression Analysis</td>
<td>Chapter 14</td>
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<td>November 22</td>
<td>NO CLASS, THANKSGIVING BREAK</td>
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<tr>
<td>November 29</td>
<td>Regression Analysis</td>
<td>Chapter 14</td>
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<td>Catch-up day</td>
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<td>December 6</td>
<td>Mock Exam</td>
<td>Homework #4 due</td>
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<tr>
<td>December 13</td>
<td>Exam #2</td>
<td></td>
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