EPSY 506 – INFERENTIAL STATISTICS

COURSE SYLLABUS

COURSE INFORMATION

Texts (Optional)


Computer Program:
SPSS v.20.0 (v. 10.0 or later acceptable). Can share or use in any computer lab. SAS or Minitab can be substituted

Calculator:
Simple calculator with memory, square root key (do not need graphing functions)

Web Site:
Desire2Learn [https://online.siu.edu](https://online.siu.edu) (Lecture materials or other notes will be placed on this web site. Check often to ensure you are not missing anything important!)

COURSE GOAL AND OBJECTIVES

This course introduces (a) basic measurement and scaling considerations applicable to researches in social/behavioral science or other disciplines, (b) descriptive statistics (central tendency, variability, tables & plots), (c) hypothesis testing (estimation, confidence intervals, chi-square and t-test), and (d) bivariate correlation and linear regression with an introduction to analysis of various. Additionally, the course will instruct students in appropriate use of the SPSS program for these techniques.

The primary goal of the course is to assist the student in learning to perform descriptive and inferential analyses of data from single and multi-factor experiments. After completion of the course, the student will be able to (1) differentiate, utilize and apply statistical description and inference to applied research in behavioral sciences or other disciplines, (2) understand and be able to utilize various forms of charts and plots useful for statistical description, (3) understand and utilize the concept of statistical error and sampling distribution, (4) use a statistical program (e.g., SPSS) for data analysis, (5) select statistical procedures appropriate to the type of data collected and the research questions hypothesized, (6)distinguish between Type I and Type II errors in statistical hypothesis testing, (7) understand the concepts statistical power and the influence of sample size on inference, and (8) interpret SPSS output so that it can be written up and understood by a non-statistician.

OVERVIEW OF COURSE REQUIREMENTS

<table>
<thead>
<tr>
<th>Course Requirements:</th>
<th>% of Grade</th>
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<tbody>
<tr>
<td>Quiz</td>
<td>10%</td>
</tr>
<tr>
<td>Homework</td>
<td>30%</td>
</tr>
<tr>
<td>Exam I</td>
<td>20%</td>
</tr>
<tr>
<td>Exam II</td>
<td>20%</td>
</tr>
<tr>
<td>Exam III (Final)</td>
<td>20%</td>
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</table>
Quiz: Very short quizzes (usually takes about 10-15 min) will be given at the start of class on random dates, which will not be announced ahead of time. During the semester there will be a total of 6 quizzes, of which the 5 best grades will be recorded. No make-up quizzes will be provided. Also, please note that these are timed tests and you will be allowed only the allotted time to complete the work.

Homework: You will be assigned a number of homework problems, which will involve hand calculation or computation (with SPSS). Short keys will be posted on the course website for these assignments, but you are responsible/expected to work out the complete solution and get ready to submit. It is the responsibility of the student to solve all of the assigned homework problems independently (which means by yourself, on your own). However, you can always come and ask me if you have questions regarding the homework. The experience gained from doing these problems is necessary for the understanding of the material we shall be covering.

Exam: There will be three close-book, close-notes, in-class exams throughout the course. You are allowed to bring two-page double-sided cheat (or formula) sheets. Please also note these are timed exams and you will be allowed only the allotted time to complete the work. Additionally you may NOT share information or calculators with other students during the exam. You may NOT use a computer unless explicitly allowed. All exams require hand computations or interpretation of SPSS outputs. Homework assignments offer the best test preparation.

Grading: Letter grades will be assigned as indicated below.

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percent Grade</th>
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<tbody>
<tr>
<td>A</td>
<td>90-100</td>
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<tr>
<td>B</td>
<td>80-89</td>
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<tr>
<td>C</td>
<td>70-79</td>
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<tr>
<td>D</td>
<td>60-69</td>
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<tr>
<td>F</td>
<td>0-59</td>
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Note: Incompletes are only given toward the end of the semester to students who are maintaining a passing grade and cannot complete the course due to reasons beyond their control (such as health or family reasons). To get the approval for an incomplete, a written and signed request has to be made one week before the final exam. The student has to provide a reason for the request and a specific plan (including date) for completing the course requirements.

COURSE CURRICULUM BY EACH WEEK (Tentative)

NOTE: Each date below indicates the day that a particular topic will be covered for class discussion. Content is flexible depending upon class progress.

<table>
<thead>
<tr>
<th>Week #</th>
<th>Topic, project, test</th>
<th>Howell</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction &amp; overview, Math notation</td>
<td></td>
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<tr>
<td>2</td>
<td>Frequency distributions</td>
<td>1, 2</td>
</tr>
<tr>
<td>3</td>
<td>Measures of Central Tendency, Dispersion, Skewness, and Kurtosis</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Z-score, Normal Distribution</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>Scatter plot, correlation</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>Sampling Distribution, Standard Error of the Mean, Confidence Intervals</td>
<td>9</td>
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<tr>
<td>7</td>
<td>Hypothesis Testing, Type I &amp; Type II Error</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>Basics of Probability</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td>Exam I</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Inference about Relationship between two Categorical Variables: Chi-square Test</td>
<td>6</td>
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### UNIVERSITY REQUIRED STATEMENTS

**Statement for Academic Dishonesty**
Academic dishonesty is fundamental to the activities and principles of a university. All members of the academic community must be confident that each person’s work has been responsibly and honorably acquired, developed, and presented. Any effort to gain advantage not given to all students is dishonest whether or not the effort is successful. The academic community regards academic dishonesty as an extremely serious matter, with serious consequences that range from probation to expulsion. When in doubt about plagiarism, paraphrasing, quoting, or collaboration, consult the course instructor.

**Statement for ADA**
If you have a disability and need accommodations (for example, extended testing time, note taking, large print materials), please inform your instructor privately as soon as possible. In most circumstances, students with disabilities seeking academic accommodations should also contact the Disability Support Services (DSS) office, Woody Hall B-150, 618/453-5738. As necessary, the DSS Office will review documentation about your disability and about the need for accommodations you are requesting. The DSS Office will then assist in planning for any necessary accommodation.
IMPORTANT DATES *
- Full Session Courses Begin: 06/09/2014
- Last day to add a class (without Dean’s permission): 06/15/2014
- Last day to withdraw completely and receive a 100% refund: 06/22/2014
- Last day to drop a course using SalukiNet: 07/13/2014
- Final examinations: 07/31/2014 – 08/01/2014
- Commencement: Ceremonies now held only in May & December

Note: For outreach, internet, and short course drop/add dates, visit Registrar’s Academic webpage: http://registrar.siu.edu/

FALL SEMESTER HOLIDAYS
- Independence Day Holiday: 07/04/2014

WITHDRAWAL POLICY ~ Undergraduate only
Students who officially register for a session may not withdraw merely by the stopping of attendance. An official withdrawal form needs to be initiated by the student and processed by the University. For the proper procedures to follow when dropping courses and when withdrawing from the University, please visit http://registrar.siu.edu/pdf/ugradcatalog1314.pdf

INCOMPLETE POLICY ~ Undergraduate only
An INC is assigned when, for reasons beyond their control, students engaged in passing work are unable to complete all class assignments. An INC must be changed to a completed grade within one semester following the term in which the course was taken, or graduation, whichever occurs first. Should the student fail to complete the course within the time period designated, that is, by no later than the end of the semester following the term in which the course was taken, or graduation, whichever occurs first, the incomplete will be converted to a grade of F and the grade will be computed in the student's grade point average. For more information please visit: http://registrar.siu.edu/grades/incomplete.html

REPEAT POLICY
An undergraduate student may, for the purpose of raising a grade, enroll in a course for credit no more than two times (two total enrollments) unless otherwise noted in the course description. For students receiving a letter grade of A, B, C, D, or F, the course repetition must occur at Southern Illinois University Carbondale. Only the most recent (last) grade will be calculated in the overall GPA and count toward hours earned. See full policy at http://registrar.siu.edu/pdf/ugradcatalog1314.pdf

GRADUATE POLICIES
Graduate policies often vary from Undergraduate policies. To view the applicable policies for graduate students, please visit http://gradschool.siu.edu/about-us/grad-catalog/index.html

DISABILITY POLICY
Disability Support Services provides the required academic and programmatic support services to students with permanent and temporary disabilities. DSS provides centralized coordination and referral services. To utilize DSS services, students must come to the DSS to open cases. The process involves interviews, reviews of student-supplied documentation, and completion of Disability Accommodation Agreements. http://disabilityservices.siu.edu/

PLAGIARISM CODE

SALUKI CARES
The purpose of Saluki Cares is to develop, facilitate and coordinate a university-wide program of care and support for students in any type of distress—physical, emotional, financial, or personal. By working closely with faculty, staff, students and their families, SIU will continue to display a culture of care and demonstrate to our students and their families that they are an important part of the community. For Information on Saluki Cares: (618) 453-5714, or siucares@siu.edu, http://saluki.caressiu.edu/index.html

EMERGENCY PROCEDURES
Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. We ask that you become familiar with the SIU Emergency Response Plan and Building Emergency Response Team (BERT) programs. Emergency response information is available on posters in buildings on campus, available on BERT’s website at www.bert.siu.edu, Department of Safety’s website at www.dps.siu.edu (disaster drop down) and the Emergency Response Guideline pamphlet. Instructors will provide guidance and direction to students in the classroom in the event of an emergency affecting your location. It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency.

INCLUSIVE EXCELLENCE
SIU contains people from all walks of life, from many different cultures and sub-cultures, and representing all strata of society, nationalities, ethnicities, lifestyles, and affiliations. Learning from and working with people who differ is an important part of education as well an essential preparation for any career. For more information please visit: http://www.inclusiveexcellence.siu.edu/

MORRIS LIBRARY HOURS
http://www.lib.siu.edu/about

LEARNING AND SUPPORT SERVICES
Help is within reach. Learning support services offers free tutoring on campus and math labs. To find more information please visit the Center for Learning and Support Services website:
- Tutoring: http://tutoring.siu.edu/
- Math Labs: http://tutoring.siu.edu/math_tutoring/index.html

WRITING CENTER
The Writing Center offers free tutoring services to all SIU students and faculty. To find a Center or Schedule an appointment please visit http://write.siu.edu/

AFFIRMATIVE ACTION & EQUAL OPPORTUNITY
Our office's main focus is to ensure that the university complies with federal and state equity policies and handles reporting and investigating of discrimination cases. For more information visit: http://diversity.siu.edu/

Additional Resources Available:
- SALUKINET: https://salukinet.siu.edu/cp/home/displaylogin
- ADVISEMENT: http://advisement.siu.edu/
- PROVOST & VICE CHANCELLOR: http://pvca.siu.edu/
- SIU ONLINE: http://online.siu.edu/