

Introduction to Biostatistics

PLB 360 - Spring 2016

Course Outline and Class Information

Time: MWF 9:00 - 9:50 am
Classroom: 430 Life Sciences II
Professor: Dr. Loretta Battaglia
Office: 411 Life Sciences II
Office Hours: MW 1-4pm

OTHER TIMES ARE AVAILABLE BY APPOINTMENT.

Phone: 453-3216
email: lbattaglia@plant.siu.edu

TA: Ms. Brook Krings
Office: 401 Life Sciences II
Office Hours: MW 2-5pm
email: krings@siu.edu

Required Textbook: Biostatistics for the Biological and Health Sciences, by Triola & Triola.
You will also need a scientific calculator, which you should bring to all lectures and exams.

Main aims of PLB 360

- to introduce undergraduate students in biology and related fields to basic statistical terms, concepts, and mechanics
- to acquaint students with the hand calculator and computer-generated output as tools for conducting and interpreting statistical analyses
- to emphasize hypothesis testing, selection and use of the correct statistical techniques, and correct interpretation of results from such tests
- to give students hands-on experience utilizing these concepts and techniques

Attendance

- Students are expected to attend all lectures in this course. We will be covering a wide variety of material throughout the semester, and I will be working through example problems in class. **Missing class and failing to work through problems in class and for homework are the quickest ways to fall behind.** Past experience demonstrates that attendance and participation in class are positively associated with high scores on homework assignments and exams.
- Students should make every effort to take exams. **There are NO make-ups for exams missed.**

Conduct

- All students have the right to attend class in an environment that is conducive to learning. It is the responsibility of the instructor to maintain that environment in the classroom.
- Talking during lectures and disruptive behavior are not acceptable.
- **Please turn off cell phones and pagers BEFORE entering the classroom.**
- Students are expected to adhere to the SIU code of conduct.

Computer Lab

- Students will have access to the PLB computer lab in LS 2, Rm. 449 to do homework and work on the class project.
- The lab is available for classwork during the TA's office hours.
- There are four additional computers in the PLB lunchroom that are available from 8:30-4:30 each day. To use these computers, you must sign in and out with the secretary in the PLB office next door to the lunchroom.

Exam Dates

- Exams 1-3: (TBA - these will be announced in class a minimum of one week in advance.)

Assessment

1) Exams: There will be four exams in this course, each of which is worth 100 points. Exams will test the student's understanding of definitions, concepts, and their ability to work through problems and interpret results. The final exam is NOT comprehensive.

2) Project & Presentation: Students will work in pairs, and each pair will design a small project where they identify an interesting biological question, develop hypotheses, collect data, analyze the data appropriately, and interpret the results. They will then write up a short paper (minimum of 5 pages) that presents the study objectives, methodology used, results, and a short discussion of their findings. The paper will follow the format of a scientific manuscript (see paper guidelines for additional information). Each pair will also develop a short (10 minutes) Power Point presentation and present it orally to the class.

3) Homework: Homework problem sets will be given out in class. Students are expected to work individually and turn in their own work.

Allocation of Points

| Item | Points |
|-----------------------|--------|
| Exam 1 | 100 |
| Exam 2 | 100 |
| Exam 3 | 100 |
| Exam 4 | 100 |
| Project Report | 50 |
| Presentation | 50 |
| Homework Problem Sets | 150 |
| Total | 650 |

Grading Scale (No Extra Credit)

| | |
|---|------------|
| A | 89.5-100% |
| B | 79.5-89.4% |
| C | 69.5-79.4% |
| D | 59.5-69.4% |
| F | < 59.5% |

Course Outline

| Topic | Chapter |
|--|---------|
| Introduction | 1 |
| Describing, Exploring, and Comparing Data | 2 |
| Probability | 3 |
| Discrete Probability Distributions | 4 |
| Normal Probability Distributions | 5 |
| Estimates and Sample Sizes with One Sample | 6 |
| Hypothesis Testing with One Sample | 7 |
| Inferences from Two Samples | 8 |
| Analysis of Variance | 11 |
| Regression and Correlation | 9 |
| Multinomial Experiments and Contingency Tables | 10 |

IMPORTANT DATES *

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|--|------------------|
| <u>Semester Class Begins</u> | 01/19/2016 |
| <u>Last day to add a class</u> (without instructor permission):..... | 01/24/2016 |
| <u>Last day to withdraw completely and receive a 100% refund</u> | 01/31/2016 |
| <u>Last day to drop a course using SalukiNet</u> | 04/03/2016 |
| <u>Last day to file diploma application (for name to appear in Commencement program)</u> | 02/12/2016 |
| <u>Final examinations</u> | 05/09-05/13/2016 |

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

SPRING SEMESTER HOLIDAYS

Martin Luther King, Jr.'s Birthday Holiday 01/18/2016

Spring Break 03/12—03/20/2016

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/catalog/undergraduatecatalog.html>

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/catalog/undergraduatecatalog.html>

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

Student Conduct Code http://srr.siu.edu/student_conduct_code/

Guidelines for Faculty <http://pvcaa.siu.edu/common/documents/Plagiarism/Guide%20to%20Preventing%20Plagiarism.pdf>

MORRIS LIBRARY HOURS

<http://www.lib.siu.edu/about>

SAFETY AWARENESS FACTS AND EDUCATION

Title IX makes it clear that violence and harassment based on sex and gender is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources here: <http://safe.siu.edu>

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://salukicare.siu.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 as an essential preparation for any career. For more information please visit: <http://www.inclusiveexcellence.siu.edu/>

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://math.siu.edu/courses/course-help.php>

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://pvcaa.siu.edu/>

SIU ONLINE: <http://online.siu.edu/>