

BSC 412 – Quantitative Biology

Instructor: Dr. JP Slovak

Office: Science 231 **Hours:** MWF 9-10,11-12

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Course Description: The objective of this course is to develop a proper understanding of statistics. Emphasis will be placed on the interpretation of data. The student will also become familiar with several different statistical techniques and their proper usage.

Student learning outcomes

- The students will be able to understand statistical reasoning and how to make appropriate decisions.
- The student will become proficient is utilizing software to analyze data.

Grading

Exam 1	50 points
Exam 2	50 points
Exam 3	50 points
FINAL Comprehensive EXAM	100 points
Homework Assignments	25 points
Final Project	25 points
Total	300 points

A >270

B 240-269

C 210-239

D 180-209

Textbook: Statistics Explained by Steve McKillup. Cambridge University Press. ISBN 978-0-521-54316-3

Homework: homework will be assigned most weeks. Homework will be due the following class meeting. No late work will be accepted.

Final Project: This will entail students analyzing an existing data set and testing their hypotheses. The student will be responsible for developing their own hypotheses and finding the appropriate data to analyze. I will give further instruction during class.

Graduate Students: To receive graduate credit for this class the final project must entail the collection of original data in the field or lab. You will not receive credit for analyzing existing data. This should be documented by your graduate advisor.

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment (see Student's Guide Handbook, Policies and Procedures, Conduct).

Plagiarism is a criminal activity. You must cite all sources of information. Copying of material, whether parts of sentences, whole sentences, paragraphs or entire articles, will result in a score of zero for your assignment and can result in further disciplinary action

Students with Disabilities: The Americans with Disabilities Act (ADA) is a federal antidiscrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact: **Office of Student Disability Resources and Services, Texas A&M University-Commerce, Gee Library, Room 132, Phone (903) 886-5150 or (903) 886-5835, Fax (903) 468-8148, StudentDisabilityServices@tamu-commerce.edu**

Schedule (Tentative)

Introduction(1)
Hypotheses and Experiments(2)
Computers and Analysis(notes)
Collecting and displaying data(3)
Experimental design(4)
Probability(5)
Samples(6)
The normal distribution(7)
Type I and II Errors(8)
ANOVA(9)
Multiple comparisons(10)
2 factor ANOVA(11)
Other ANOVA designs(12,13)
Correlation and regression(14,15)
Non-parametric tests(17,18)
Choosing a Test(19)
Ethics(20)

Attendance and Absences: You are expected to attend ALL scheduled lectures and labs and take the exams as scheduled. You will be held responsible for all information covered in lecture. Sign-in sheets will be circulated; please sign your name clearly. Do not sign anyone's name but your own... signing in for someone else is a form of academic dishonesty and will not be tolerated. Excessive unexcused absences will

result in loss of points from your grade. For each five unexcused absences a reduction of ten (10) points will be subtracted from your final grade.

Final Exam Schedule:

<http://web.tamuccommerce.edu/admissions/registrar/academicCalendars/finalExamSchedule.aspx>