

Department of Statistics
Florida State University
Fall 2018



STA 2171- Statistics in Biology- Section 3

Class Times: TR TR 3:35 PM 4:50 PM OSB 0110
F 1:25 PM 2:15 PM HCB 0310

Instructor: Younghwan Brian Cho

Email: ybc17@my.fsu.edu

Office Location: Building: Biounit1
Room: 302

Office Hours:
Wednesday- 10am- 11am or
by appointment if necessary

Course Materials

Textbook (optional) : Samuels, Myra L., and Jeffrey A. Witmer, *Statistics for the Life Sciences*, 5th Edition, 2016, ISBN-10: 0-321-98958-9, ISBN-13: 978-0-321-98958-1

Class notes: Class notes during the lecture will be posted on Canvas. (however, correction or modification to lecture notes can be made during the lecture)

Calculator: TI- 84 plus or equivalent is required.

University Learning Management System: Grades, announcements and other important information will be post on the Canvas. You are responsible for assignments and announcements posted on this website, as well as those sent through your FSU email. Check your FSU mail every day.

COURSE DESCRIPTION:

Prerequisite: MAC 2311 Calculus I and Biology major status, or departmental approval.

Credit Hours: 4

Special Note: No credit is given for STA 2171 if a "C-" or better has been previously earned in STA 3032 or QMB 3200.

This course provides an introduction to statistics emphasizing applications in Biology. Topics include descriptive statistics, elementary probability, the binomial and normal distributions, confidence intervals and hypothesis tests for means and proportions, correlation and regression, contingency tables and goodness-of-fit tests, analysis of variance and non-parametric tests.

The purpose of this course is to prepare students for further study and job preparation in the field of Biological Sciences including Medicine, Dentistry, other healthcare professions, Veterinary Medicine, Zoology and Botany. It will emphasize understanding

of data and interpretation of statistical analyses. It will require students to think of data, and report the results of their analyses, in context.

Course Objectives

This course has been approved to meet FSU's Liberal Studies **Quantitative and Logical Thinking** requirements and is designed to help you become a critical analyst of quantitative and logical claims.

In order to fulfill the State of Florida's College mathematics and computation requirement the student must earn a "C-" or better in the course.

By the end of the course, students will demonstrate the ability to:

- (1) Select and apply appropriate methods (i.e., mathematical, statistical, logical, and/or computational models or principles) to solve real-world problems.
- (2) Use a variety of forms to represent problems and their solutions.
- (3) Use descriptive statistics and graphical methods to summarize data accurately.
- (4) Use inferential statistics to make valid judgments based on the data available.
- (5) Select the appropriate statistical tools to analyze a particular problem.
- (6) Describe the goals of various statistical methodologies conceptually.
- (7) Develop a healthy skepticism toward statistical studies and their results based on a sensible consideration of the techniques employed.

Grade Composition

Exams (90%) – There will be 4 exams covering material from preceding lectures, of which the lowest grade including the missed one will be dropped. Exams are not cumulative.

LSQA (10%) – LSQA will be given on TBA, and will count as 10% of your overall grade. Exact coverage will be announced in at least one week's notice.

Grade Appeals

During the term, if you believe that your instructor or grader improperly graded a paper go to your Instructors office hours to see your paper and discuss it with them.

Grade Breakdown

Grade can be curved according to overall class performance, but you are expected to get at least the following.

Letter	Num. Grade	Letter	Num. Grade	Letter	Num. Grade	Letter	Num. Grade	Letter	Num. Grade
		B+	≤87, 90<	C+	≤77, 80<	D+	≤67, 70<	F	<60

A	≥93	B	≤83, 87<	C	≤73, 77<	D	≤63, 67<		
A-	≤90, 93<	B-	≤80, 83<	C-	≤70, 73<	D-	≤60, 63<		

Policies for Make-Up

No make-ups are allowed in this course. In the event that you miss exams or LSQA because of circumstances beyond your control, which may include medical illness, deaths in family, legal issues, etc., you need to consult with me ASAP or you will get 0 for the missed assessment.

University Attendance Policy

Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

Academic Honor Policy

The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to "...be honest and truthful and...[to] strive for personal and institutional integrity at Florida State University." □ (Florida State University Academic Honor Policy, found at <http://fda.fsu.edu/academic-resources/academic-integrity-and-grievances/academic-honor-policy>.)

Americans With Disabilities Act

Students with disabilities needing academic accommodation should:

- (1) register with and provide documentation to the Student Disability Resource Center; and
- (2) bring a letter to the instructor indicating the need for accommodation and what type. Please note that instructors are not allowed to provide classroom accommodation to a student until appropriate verification from the Student Disability Resource Center has been provided.

This syllabus and other class materials are available in alternative format upon request. For more information about services available to FSU students with disabilities, contact the:

Student Disability Resource Center
 874 Traditions Way
 108 Student Services Building
 Florida State University
 Tallahassee, FL 32306-4167

(850) 644-9566 (voice)
 (850) 644-8504 (TDD)
 sdr@admin.fsu.edu
<http://www.disabilitycenter.fsu.edu/>

Syllabus Change Policy

Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice

Pacing Schedule

	Tuesday	Thursday	Friday	
8/27- 8/31	Prerequisite math skills	Prerequisite math skills, Introduction	Introduction	
9/3	Introduction	Summary statistics	Summary statistics	
9/10	Summary statistics	Probability	Probability	
9/17	Probability	Probability	Random Variable	
9/24	Exam1	Random Variable	Random Variable	
10/1	Random Variable, Binomial Dist	Binomial Dist	Binomial Dist	
10/8	Normal Dist	Normal Dist	Normal Dist	
10/15	Central limit Theorem	Central limit Theorem	Homecoming Holiday	
10/22	Exam2	Central limit Theorem, Confidence interval	Confidence interval	
10/29	Confidence interval	Hypothesis test	Hypothesis test	
11/5	Paired- t test	Linear regression	Linear regression	

11/12	LSQA	Nonparametric test	Nonparametric test	
11/19	Exam3	Thanksgiving Holiday	Thanksgiving Holiday	
11/26	Chi-square test	Chi-square test	ANOVA	
12/3	ANOVA	Two-way ANOVA	Multiple linear regression	
12/10		Exam4 (final)		