



## STA 2171 Statistics for Biology - Section 0003

### Fall 2021 Course Syllabus

Department of Statistics  
Florida State University

#### Class Meeting Information:

Meeting Time: Tuesday & Thursday: 03:05 p.m. - 04:20 p.m.; Friday 09:20 a.m. - 10:10 a.m.

Location: Tuesday & Thursday: HCB 212; Friday: HCB 216

Class Mode: **FLEX** – students have the flexibility to attend class in person or remotely (via synchronous zoom) on any given day.

Final Exam: Dec. 7th Tuesday, 5:30 p.m. - 7:30 p.m.

Instructor: Qing Han

E-mail: [qhan@fsu.edu](mailto:qhan@fsu.edu)

Office hours: Wednesday 3 p.m. - 4 p.m. (via Zoom)

Office: OSB 106B (or by appointment via email if would like to meet in person)

Teaching Assistant: Austin King

E-mail: [ak16u@my.fsu.edu](mailto:ak16u@my.fsu.edu)

Office hours: Thursday 10 a.m. - 11 a.m. (in the office)

Office: OSB 329A (or by appointment via email if would like to meet on Zoom)

#### Required Materials:

- A personal Computer, reliable internet connection, and Chrome or Firefox browser.
- Calculator: TI-84 Plus or equivalent
  - Any scientific calculator that has statistical capabilities may be used, but I will be teaching based on the TI-84 series. You are free to use any calculator you wish, but it is **your responsibility** for learning how to perform the equivalent functions on your calculator. We cannot promise to be able to help with any other type of calculator.
- Class Notes will be provided on Canvas. No textbook is required.

#### Additional Resources:

- The following free online textbook is an additional resource that you might find useful: Introductory Statistics from OpenStax, Print ISBN 1938168208, Digital ISBN 1947172050, <https://openstax.org/details/introductory-statistics>
- *Practice of Statistics in the Life Sciences*, 4th Edition, Author: Baldi, Moore, Publisher: Pearson (It is NOT required for the course. Some notes/lecture examples/exercises will be drawn from the book.)



## Course Description:

**Credit Hours:** 4

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

**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.

## Learning Objectives:

This course has been approved to meet FSU's **Liberal Studies Quantitative and Logical Thinking** requirements and helps 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:
  - (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.  
*The above two competencies will be assessed in the Liberal Studies Quantitative Assessment for STA 2171, which includes a written summary of results.*
  - (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 Structure:**

- **Timed Quizzes (40%)** – There will be 5 quizzes during the semester. Your lowest quiz grade will be dropped, and the other four will equally worth 10% of your grade. The quizzes will be given through Canvas and available from 9 a.m. for 24hrs. Once the quiz has been started, you will have 75 minutes to complete it. You will have maximum 2 attempts for each quiz. Only your highest scoring attempt will be completely graded. No attempts will be completely graded until after the due time.
- **Activities (10%)** – There will be 6 activities covering concepts from lectures throughout the semester. These activities will typically be done in small groups during certain Friday classes. They will not be graded for accuracy. Students will receive full credit if they are present and participating. Missed activities CANNOT be make up. 5 “participate” gives you the full credit for activities.
- **Liberal Studies Quantitative Assessment (10%)** – As you may know, STA 2171 have been certified as one of FSU’s Liberal Studies Quantitative and Logical Thinking courses. As a requirement, we must administer the appropriate Liberal Studies Quantitative Assessment (LSQA) during the semester. This will be a common assessment (not final exam).
- **Homework (10%)** – Homework problems will be given after lecture, but they will NOT be graded. Students will receive full credit if they finish and submit online/turn in before the due time. They are for you to gain practice in preparation for the quizzes. Be careful there might be similar questions in exams! If you complete and submit/turn in ALL the homework, you will earn **1 bonus credit** to your overall grade. Collaboration is allowed.
- **Final Exam (30%)** – The final exam will be administered on Thursday Dec. 7th, 5:30 p.m. – 7:30 p.m.

Final Letter grade will be calculated based on the following chart. I will round your overall course grade UP to the next higher whole number before matching it to a letter grade.

FSU does not award A+	B+	87 – 89	C+	77 – 79	D+	67 – 69	F	≤59	
A	≥93	B	83 – 86	C	73 – 76	D			63 – 66
A-	90 – 92	B-	80 – 82	C-	70 – 72	D-			60 – 62

**Important Dates:**

- First Day Attendance: Please complete the “First-day Attendance” quiz on Canvas by Aug 24<sup>th</sup> 5 PM, otherwise you will be dropped from the class automatically.
- 5 Quizzes: Please see details in *Tentative Pacing Schedule*, note that they are tentative dates.
- LSQA: October 22 (tentative)
- Holidays: Veteran’s Day: Nov 11; Thanksgiving: Nov 24 - 26.
- Final Exam: Dec. 7th, 5:30 p.m. - 7:30 p.m.



### **Making up a Missed Assessment:**

*The guidelines below only apply to the Timed Quizzes and LSQA:*

- There is one FREE make-up opportunity for every student. If you missed an assessment for the first time, you simply need to e-mail TA **by the following Monday 11:59 PM** to schedule a makeup day & time. No grade penalties.
- After the first time an assessment is missed, documentation indicating a legitimate reason of missing will be needed if you wish to make up for full credit. Please e-mail me by the following Monday 11:59 PM to schedule a makeup day & time.
- If you do not have a legitimate reason for missing the assessment (as determined by the instructor), or documentation, you will be allowed a retake, but your grade on the assessment will be reduced by 15%.
- If you do not e-mail me by **Monday 11:59 PM** after the deadline of the missed assessment, you will not be allowed to make up the assessment, and your grade for it will be a 0.
- We will allow absolutely no make-ups, no extra credit assignments, and in general, no opportunities for grade improvement, after the **Last Day of Class**, so please do your best during the term.

### **Grades:**

Assessments that are not submitted will receive a grade of zero. When a makeup is submitted, the zero will be replaced with the earned grade.

### **Grading Appeals:**

During the course of the term, if you believe that a paper was improperly graded, please come to TA's office hour, (or make an appointment with him) to discuss about it within **ONE WEEK** that the grade is posted on Canvas. If no complaints are voiced within that time frame, it is assumed that the grade is accepted.

### **Email & Communication:**

Please turn on the course notifications in Canvas by going to Account/Notifications and checking the Notify me right away option for all of the items under Course Activities.

You may expect a response to your email within two work days in Fall/Spring, or one work day in Summer.

### **Note on Technology-dependent Assessments:**

This course is heavily technology dependent. While we will do our best to work with you on technology issues, please be aware that if you take an assessment but we can find absolutely no record of the fact, then we will not be able to give you credit for it. Please **DO NOT USE SAFARI** when you take assessments on Canvas – please use Chrome or Firefox.



**Tentative Pacing Schedule:**

Week	Tuesday	Thursday	Friday
1	Syllabus Aug 24	Introduction Aug 26	Sampling, Graphs Aug 27
2	Summary Statistics Aug 31	Summary Statistics Sep 2	Activity 1 Sep 3
3	Probability Sep 7	Probability Sep 9	Quiz 1 Sep 10
4	Random Variables Sep 14	Binomial Distribution Sep 16	Activity 2 Sep 17
5	Normal Distribution Sep 21	Normal Distribution Sep 23	Quiz 2 Sep 24
6	Central Limit Theorem Sep 28	Central Limit Theorem Sep 30	Activity 3 Oct 1
7	Confidence Interval Oct 5	Confidence Interval Oct 7	Quiz 3 Oct 8
8	One-way Hypo Testing Oct 12	One-way Hypo Testing Oct 14	Activity 4 Oct 15
9	Nonparametric Test Oct 19	Nonparametric Test Oct 21	LSQA Oct 22
10	Chi-square Tests Oct 26	Chi-square Tests Oct 28	Activity 5 Oct 29
11	One-way ANOVA Nov 2	One-way ANOVA Nov 4	Quiz 4 Nov 5
12	Two-way ANOVA Nov 9	Veteran's day Nov 11	Activity 6 Nov 12
13	Two-way ANOVA Nov 16	Simple Linear Regression Nov 18	Quiz 5 Nov 19
14	Multiple Linear Regression Nov 23	Thanksgiving Nov 25	Thanksgiving Nov 26
15	Final Exam Review Nov 30	Final Exam Review Dec 2	TBA Dec 3
<b>Final Week</b>			



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### **Sexual Misconduct and Title IX Reporting:**

As an instructor, I am obliged to report all instances of sexual misconduct that I become aware of to the University's Title IX Director; I cannot hold such information confidential. If you would like to discuss your situation in confidence, you may contact the Victim Advocate Program (<https://dos.fsu.edu/vap/>), Counseling & Psychological Services (<https://counseling.fsu.edu/>), the Employee Assistance Program (<https://eap.fsu.edu/>), University Health Services (<https://uhs.fsu.edu/>), or pastoral counselors.

### **Final Exam Rescheduling Policy:**

*You may not take the final exam before final exams week.* Individual students who need to reschedule the final exam for a different time during final exams week will need to

- (i) talk to me about it first and get my permission to reschedule,
- (ii) fill out the "Request to Reschedule Final Examination" form at [https://artsandsciences.fsu.edu/sites/g/files/upcbnu321/files/2020-09/Request\\_to\\_Reschedule\\_revised.pdf](https://artsandsciences.fsu.edu/sites/g/files/upcbnu321/files/2020-09/Request_to_Reschedule_revised.pdf) and get it approved by the Dean of Arts and Sciences office, and
- (iii) let me have the approved form by the last day of classes.

If you experience a documented emergency that prevents you from observing the above deadline, contact me as soon as you are able to, and we'll take it from there.

### **Lecture videos and other recordings:**

Please note that the recorded lectures and other recordings are the property of Florida State University and are being made available only to the students enrolled in this class. Students are not permitted to share the recorded lectures or other recordings with any other persons outside of this class. Copyrights of the recorded lectures and other recordings are reserved by the instructor and Florida State University.

### **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.





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### **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>)

### **ACADEMIC SUCCESS:**

Your academic success is a top priority for Florida State University. University resources to help you succeed include tutoring centers, computer labs, counseling and health services, and services for designated groups, such as veterans and students with disabilities. The following information is not exhaustive, so please check with your advisor or the Dean of Students office to learn more.

### **AMERICANS WITH DISABILITIES ACT:**

Florida State University (FSU) values diversity and inclusion; we are committed to a climate of mutual respect and full participation. Our goal is to create learning environments that are usable, equitable, inclusive, and welcoming. FSU is committed to providing reasonable accommodations for all persons with disabilities in a manner that is consistent with academic standards of the course while empowering the student to meet integral requirements of the course.

To receive academic accommodations, a student:

- (1) must register with and provide documentation to the Office of Accessibility Services (OAS);
- (2) must provide a letter from OAS to the instructor indicating the need for accommodation and what type; and,
- (3) should communicate with the instructor, as needed, to discuss recommended accommodations.

A request for a meeting may be initiated by the student or the instructor.

Please note that instructors are not allowed to provide classroom accommodations to a student until appropriate verification from the Office of Accessibility Services 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



Office of Accessibility Services

874 Traditions Way

108 Student Services Building

Florida State University

Tallahassee, FL 32306-4167

(850) 644-9566 (voice)

(850) 644-8504 (TDD)

[oas@fsu.edu](mailto:oas@fsu.edu)

<https://dsst.fsu.edu/oas>

**CONFIDENTIAL CAMPUS RESOURCES:**

Various centers and programs are available to assist students with navigating stressors that might impact academic success. These include the following:

Victim Advocate Program

University Center A, Rm. 4100

(850) 644-7161

Available 24/7/365

Office Hours: M-F 8-5

<https://dsst.fsu.edu/vap>

Counseling and Psychological Services

Askew Student Life Center, 2nd floor

942 Learning Way

(850) 644-8255

<https://counseling.fsu.edu/>

University Health Services

Health and Wellness Center

(850) 644-6230

<https://uhs.fsu.edu/>