

STA2171: Statistics for biology

Section 0007/0008

Spring 2024

Florida State University, Department of Statistics

Main office 214 OSB, phone 850-644-3218.

FSU Police non-emergency: 850-644-1234.

Emergency: 911.

All times stated on the syllabus, on Canvas, in my emails, etc, will be Eastern Time.

Course Information

Name: Statistics for Biology

Course Code: STA 2171 Section: 0007/0008

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.

Format: Online Synchronous

Class Meeting Days, Times, Locations:

Section 0008:

Day	Time	Location
Monday	03:05 PM-04:20 PM	Zoom
Wednesday	03:05 PM-04:20 PM	Zoom
Friday	03:05 PM-03:55 PM	Zoom

Section 0007:

Day	Time	Location
Monday	04:50 PM-06:05 PM	Zoom
Wednesday	04:50 PM-06:05 PM	Zoom
Friday	04:50 PM-05:40 PM	Zoom

Students will need to follow the University's current health and safety guidelines when they attend class. Please note that, for each class period, if no students show up within the first 15 minutes, or if there is a 15-minute stretch of time when no students show up after the last student has left, then the rest of the period

will be canceled. The next lesson will begin where the canceled period would have left off, and the next assessment will include the material that would have been taught in the canceled period.

Instructor Information

Name: Runzi Liao

Email: rl21f@fsu.edu

You may expect a response from me within two workdays in Fall/Spring or one workday in Summer.

Office Hours & Locations: Monday 01:30 PM-02:30 PM on Zoom or by appointment

Course Access

- Course website: <https://canvas.fsu.edu>

- Canvas Support

Email: canvas@fsu.edu

Phone: 850-644-8004

Website: <https://support.canvas.fsu.edu/home/>

Hours: 8 am-5 pm, Mon-Fri

- Please turn on the course notifications on Canvas by going to Account/Notifications and selecting the *Notify immediately* option for all of the items under Course Activities.
- Please check your FSU email, your Canvas Inbox, and the course announcements on Canvas every day.
- If you communicate with me via email, please use your @fsu.edu account.
- We will not use Honorlock.

Course Description

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 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.

The above two competencies will be assessed in the Liberal Studies Quantitative Assessment (LSQA) which includes a written summary of results. The LSQA forms a mandatory ten percent of the course grade. If you do not take it, you will not be permitted to pass the class, regardless of how well you perform on the other assessments. The LSQA will be an online assessment graded for accuracy; two attempts will be allowed; collaboration is not permitted; no internet sources are allowed apart from the course Canvas.

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.

Required Materials

- A personal computer, reliable internet connection, and Chrome or Firefox browser.
- A TI-84 Plus or equivalent calculator. We will teach you how to use a TI-84 series calculator, but we cannot promise to be able to help with any other type of calculator.

A textbook is not required for this class. The instructor will provide all required course notes and exercises. Please note that the materials provided by the instructor were put together for your individual use only. While you may share these materials with classmates, we ask that you do not share them with third parties who are not enrolled in this class. If you seek help outside of class, you may allow your helper to see the materials, but please do not allow them to make copies or in any other way take our material. We appreciate your co-operation in protecting our material. Thank you!

Additional Resource

The following free online textbook is an additional resource that you might find useful: Introductory Statistics from OpenStax, Print ISBN 1938168208, Digital ISBN 1947172050, www.openstax.org/details/introductory-statistics.

Video/audio recordings

Please note that any recordings provided by the instructor 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 recordings with any person or entity outside of this class. Copyrights of the recordings are reserved by the creators of the recordings and Florida State University.

Note on Technology-dependent Assessments

This course is 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.

Completing missed assessments in order and in a timely manner so that you can stay on track

Please note that missed assessments need to be completed in order. Therefore, an extension on a specific assessment will not be granted if you have prior outstanding assessments. For example, if you request an extension on Assessment 8 but you did not complete Assessment 3, then you will be denied an extension on Assessment 8 but you may receive an extension on Assessment 3. The last day of classes will be the deadline for all assessment submissions, including assessments where extensions were granted, but not including the final assessment. In addition, since this is a semester-long college course, designed to be taken one step at a time throughout the semester rather than hurriedly over the span of a few days, or a few weeks, we will not allow extensions on due dates during the last two weeks of classes unless you have completed at least eighty percent of the assessments given up to that point, including the LSQA. For example, if the LSQA and nine other assessments have been given by the start of the last two weeks of classes, then you will need to have completed the LSQA and at least seven other assessments in order to receive any extensions on due dates during the last two weeks of classes.

Grades

Assessments that are not completed will receive a grade of zero. When makeup is completed, the zero will be replaced with the earned grade. If you believe that the grade you received on an assessment is incorrect, please bring it to my attention within two workdays after the grade has been made available to you. If no issues are raised during that time frame, then it will be assumed that the grade is accepted and subsequent requests for a grade review may not be granted.

Attendance 5%

Since this course is taught synchronously online, attendance at Zoom meetings is required. While I will try to provide additional materials online for further study, I suggest you consider this content a supplement to – not a substitute for regular, in-person attendance. Ultimately, it is important that you stay engaged with the course and do not fall behind. I will randomly check attendance.

Liberal Studies Quantitative Assessment (LSQA) 10%

The LSQA forms a mandatory ten percent of the course grade. You **must** complete it in order to pass the class. The LSQA will be an online assessment graded for accuracy, given through Canvas; two attempts will be allowed; collaboration is not permitted; no internet sources are allowed apart from the course Canvas. There is no penalty for makeup.

Individual Homework 70%

There will be one individual work homework quiz per topic this semester. It is allowed to discuss with others about homework. However, every student should write their homework by themselves. Copying others' homework is prohibited. It is allowed to resubmit the homework, but only the last submission will be graded. If you miss the deadline for your homework, you can only get 90% of the credit.

Collaboration Quizzes 20%

Collaboration quizzes are weekly group activities in class. The grade is based on participation rather than accuracy. However, a good-faith attempt must be made to answer all the questions. The lowest three scores will be dropped, and three makeups allowed. Grading: 100% credit if present and participating; 50% credit if present but not participating; 0% if absent.

Final grade:

It will be determined by a weighted average of the following items: (1) Attendance 5%, (2) LSQA 10%, (3) Homework 70%, (4) Collaboration quizzes 20%.

Grading scale (percent)

Your letter grade will be selected from the grading scale below after rounding your overall numerical course grade up to the next higher whole number.

A = [93, 105]% A- = [90, 93)%	B+ = [87, 90)% B = [83, 87)% B- = [80, 83)%	C+ = [77, 80)% C = [73, 77)% C- = [70, 73)%	D+ = [67, 70)% D = [63, 67)% D- = [60, 63)%	F = [0, 60)%
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A request for a grade of "Incomplete" will

~ not be granted if you have completed the coursework, including the assessments that cannot be dropped and excluding the drops and allowable absences.

~ be granted only if both of the following conditions are satisfied:

- (1) the only assessment that you have yet to take is the final assessment, and
- (2) your overall average excluding the final assessment is a passing grade (70% or above).

Final Exam Rescheduling Policy

("Final Exam" means final exam or final test or final quiz or other final assessment)

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 should talk to me about it first to get my approval and then fill out and follow the instructions on the "Request to Reschedule a Final Examination" form at [https://artsandsciences.fsu.edu/sites/g/files/upcbnu321/files/2022-01/Request to Reschedule 01032022.pdf](https://artsandsciences.fsu.edu/sites/g/files/upcbnu321/files/2022-01/Request_to_Reschedule_01032022.pdf).

The form needs to be submitted to the College of Arts and Sciences before 5pm on the last day of classes. If you experience a documented emergency that prevents you from observing the deadline, contact me as soon as you are able to, and we'll take it from there.

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.

Drop and Withdrawal deadlines are given in the University's Academic Calendar at <https://registrar.fsu.edu/calendar/>.

If you are absent often or absent for an extended period of time, and/or you do not respond to emails from the instructor over an extended period of time, the instructor reserves the right to deny access to assessments or limit the number of allowed attempts until attendance and/or contact is resumed.

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 Department of Student Support and Transitions 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.

Students with disabilities needing academic accommodation should:

- (1) register with and provide documentation to the Office of Accessibility Services; and
- (2) request a letter from the Office of Accessibility Services to be sent to the instructor indicating the need for accommodation and what type; and,
- (3) meet (in person, via phone, email, skype, zoom, etc...) with each instructor to whom a letter of accommodation was sent to review approved accommodations.

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 the latest version of this statement and 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

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

Academic accommodations will be provided as soon as possible after email notification from the OAS is received. Academic accommodations are not retroactive, so they will not apply to lectures/lessons and assessments that took place before the notification was received.

Sexual Misconduct and Title IX Reporting

As an instructor, I am obliged to report all instances of sexual misconduct and other Title IX issues 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. If you would like to submit a report to the University's Title IX Director, please go to <https://report.fsu.edu/>.

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/
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Disaster

At times of severe weather or other disasters, please check your FSU email, your text messages, the Seminole Safe App and FSU Alerts (<https://alerts.fsu.edu/>) as often as you can to keep yourself informed. In the

absence of internet access, you may call 850-644-4636 for updates. Check for the latest information every day before you leave home so that you won't miss any last minute announcements. If the University closes due to a disaster, we will all be informed via the above means, and classes and office hours will be automatically cancelled even if I don't announce it. As long as the University remains open, classes will still be on. However, please practice safety first. If it will be unsafe or impracticable for you to come to class or complete an assignment due to the effects of a disaster, please do not attempt to do so. You will not be penalized, we will work with you.

You can sign up to receive alerts via SMS text messages here: <https://emergency.fsu.edu/services/fsu-alert-emergency-notification-warning-system/fsu-alert-sms-text-messages>.

See here for other ways in which FSU delivers warnings: <https://emergency.fsu.edu/services/fsu-alert-emergency-notification-warning-system>.

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.

Classes Subject to HB233 Recording

In this class, consistent with state law and university policy, students are permitted to make recordings of class lectures for personal use only. As noted, sharing, posting, or publishing classroom recordings may subject you to honor code violations and legal penalties associated with theft of intellectual property and violations of other state law. Moreover, students and educators have expressed concern that recording classroom activities may negatively impact the learning experience for others, especially in classes that involve questions, discussion, or participation. To protect a learning environment in which everyone feels free to experiment with ideas, we ask you refrain from recording in ways that could make others feel reluctant to ask questions, explore new ideas, or otherwise participate in class. Students must monitor their recording so that they do not include participation by other students without permission. Students with disabilities will continue to have appropriate accommodations for recordings as established by the Office of Accessibility Services.