

STA 2171: Statistics for Biology

Fall 2021 – Section 0005

Course Information

Class Times and Location: TuTh 3:05pm - 4:20pm OSB 0110; Fr 6:35pm - 7:25pm OSB 0110

Meeting Dates: Monday August 23rd ~ Friday December 3rd (15 weeks)

Lecture Delivery Mode: This class will be taught in **FLEX** delivery mode. “**FLEX**” means that the student with the flexibility to attend class in person or remotely (e.g., via synchronous Zoom) on any given day. The instructor must attend in person every session (except for quiz days) in the assigned classroom as scheduled regardless of how many students show up in person.

Every lecture will be recorded automatically and the recordings will appear under Cloud Recordings on the Canvas Zoom tab. Students participating remotely could access the Zoom live lecture through Canvas Zoom at class time. Assessments will be taken on Canvas. Grades will be posted on Canvas. Announcements will be announced on Canvas. Students will be given 24 hours to complete every assessment.

Instructor Information

Name: Linxi Meng

Email: lm16e@fsu.edu

Office: OSB 324

Office Hours: Live session on Zoom every Friday, 1:30 PM - 2:30 PM – *see the Zoom link in the Navigation Menu on the left when you enter the course on Canvas*, or by appointment

Note: I will be in office during office hour. If you need meet in person, feel free to drop by my office.

Grader Information

Name: Miranda Mathewson

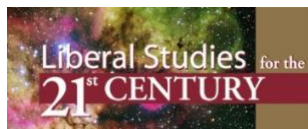
Email: mm21cn@my.fsu.edu

Office Hours: Live session on Zoom every Monday, 12:00 PM – 1:00 PM, or by appointment

Zoom Link: <https://zoom.us/j/92703458112?pwd=QjRjdjdSd1RZeTkbERWU2pyRDM4Zz09>

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 this 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.

Required Course Resources

A personal Computer, reliable internet connection, and Chrome or Firefox browser.



Class notes: A textbook is not required for this class. However, you will need to read each set of *completely filled in* class notes carefully after we cover them in lecture and before the next assessment. We will fill in the class notes during lectures.

Calculator: TI-84 Plus or equivalent, or a free 90-day trial version of the TI Emulator downloadable from <https://education.ti.com/en/software/details/en/FFEA90EE7F9B4C24A6EC427622C77D09/sda-ti-smartview-ti-84-plus>.

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.

Canvas Class Website: Grades, assessments, notes, announcements and other pertinent information will be available through this site. You are responsible for assignments and announcements posted on this website, as well as those sent through your FSU email.

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,

[https://urldefense.com/v3/_http://www.openstax.org/details/introductory-statistics_!!Epnw ITfSMW4!9XmSirq63Ar_8H3j00_FqvGJxjy0r_kv01jnFMNXfBaBWbvj7PZd_spaVTMvsFbBA\\$.](https://urldefense.com/v3/_http://www.openstax.org/details/introductory-statistics_!!Epnw ITfSMW4!9XmSirq63Ar_8H3j00_FqvGJxjy0r_kv01jnFMNXfBaBWbvj7PZd_spaVTMvsFbBA$.)

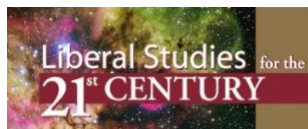
Important dates

- First Day Attendance: Please complete the “First-day Attendance” quiz on canvas by Aug 23rd, 5pm, otherwise you will be dropped from the class automatically.
- Drop/Add: Aug 21st – Aug 26th.
- 4 Quizzes, LSQA and Final Exam: Please see details in Tentative Pacing Schedule.
- Holidays: Labor Day (Sep 6th); Homecoming (Oct 22nd after 1:00pm); Veterans' Day (Nov 11st); Thanksgiving (Nov 24th – Nov 28th).
- The last Day of Classes: Dec 3rd.

Assessments & Grading

The Academic Honor Policy applies to all graded material in this class. Students are expected to follow the Academic Honor Policy when working on all graded material.

Assessment	Count	Weight	Total Weight
Quizzes	4	15%	60%



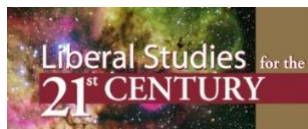
Liberal Studies Quantitative Assessment (LSQA)	1	10%	10%
Final Exam	1	30%	30%
Total			100%

Due dates are given on the Tentative Pacing Schedule.

- Quizzes 60%
 - Quiz will occur after every Activity. There will be four quizzes covering different topics.
 - The quizzes will be taken and submitted on Canvas.
 - Quizzes will be “open-book” which means that the following resources may be used during quizzes: class notes, homeworks, personal notes (these are notes that you can take while preparing/studying for quizzes), textbooks.
 - **Collaboration are not permitted.** Resources that **may not** be used during quizzes: people (including classmates etc.), the internet.
 - Each quiz may only have two attempts.
 - Each quiz will have a 24-hour time frame in which they will be available to take on Canvas. Each quiz will be timed for approximately 2 hours per attempt.
- Liberal Studies Quantitative Assessment (LSQA) 10%
 - This one quiz occurs because this class is in the Liberal Studies program
 - All the guidelines mentioned above for Quizzes, except the first bullet point, also apply to the LSQA Quiz. LSQA will be timed for approximately 1 hour per attempt.
- Final Exam 30%
 - There will be a (cumulative) final exam.
 - All the guidelines mentioned above for Quizzes, except the first bullet point, also apply to Final exam.
 - If you need to miss the final, you must notify the instructor as soon as possible. There should be absolutely no late submission for Final Exam.

Note:

- 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. 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.
- 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.**

Overall Course Grade

Please ignore the grade totals or averages that you may see on the course website; they are not correct. In this class, we only store and display individual assessment grades on the course website, we do not do grade calculations there. Your letter grade will be selected from the table below after rounding the overall numerical course grade UP to the next higher whole number.

FSU does not award A+	B+	87-89	C+	77-79	D+	67-69		
A	93-100	B	83-86	C	73-76	D	63-66	F
A-	90-92	B-	80-82	C-	70-72	D-	60-62	

Course Policy

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.

Recorded Lectures Policy:

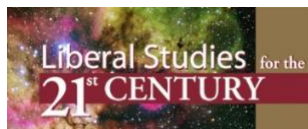
Please note that the recorded lectures are the property of Florida State University and are made available only to the students enrolled in this class. Students are not permitted to share the recorded lectures with any other persons outside of this class. Copyrights of the recorded lectures are reserved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

Grade Appeal Policy:

After a grade is posted, you have 5 workdays to request a grade change. After a grade has been posted for one week, no grade changes will be made. If you believe that a correct answer was counted as incorrect on a quiz, [please email instructor about it within 24 hours after you submit the quiz](#). If it turns out that your answer was correct, you will be given credit for it.

Make-up Policy:

Make-ups are for being unable to submit one or more attempts for an assessment during its availability due to excused absences*. Make-ups will not be given due to undesired performance on an assessment.



If you are unable to submit one or more attempts for an assessment during its availability, then please email me immediately. You will have until Friday of the following week to make up the missed assessment unless you have a documented reason for being unable to do so. **You only have TWO chances to make up for the missed assessments without providing documentation, but you must provide documentation for all further make-up opportunities.** If you do not complete a make-up according to the above guidelines, then the missed assessment will receive a grade of zero.

No make-ups will be given after the Last Day of Classes. If you are unable to submit the Final Exam during its availability, then you must email me immediately.

**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.*

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/students/undergraduate/forms-requiring-deans-approval/rescheduling-final-examination> 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.

Receiving a grade of “Incomplete”:

A request for a grade of “Incomplete” will

~ NOT be granted if you have completed the coursework, including the final exam and excluding the 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 exam, and (2) your overall average excluding the final exam is a passing grade (70% or above).

Attendance, Absence And Drop/Withdrawal

- Drop and Withdrawal deadlines are given in the University's academic calendar at <https://registrar.fsu.edu/calendar/>.
- **First-day attendance** will be taken electronically on the course website.
- You are expected to adhere to all assessment deadlines.
- Lack of future planning, or mismanagement of time and other resources, are not acceptable reasons for missing assessment deadlines.
- Bear in mind that the opportunities presented in this class are made equally available to all students in the class and it is up to each individual to make the most of these opportunities.
- In the interests of fairness, we will not do for one student what we cannot do for all students who are likely to request the same.
- Documentation for missing assessment deadlines will not be accepted after the Last Day of Class.

Email and Communication

- Please check the Class Log on our STA2171 course site on Canvas every day to keep up with what happens in class, especially the announcements part. Please turn on the applicable notification settings on your Canvas course site so that you don't miss anything.
- We will communicate with you by sending emails to your @my.fsu.edu account and posting announcements on the course website. **Please check your FSU email and the Canvas announcements every day.**
- Please refer to Syllabus and other uploaded documents related to this course first whenever you have questions.
- If you email me, please send from your @my.fsu.edu account. **Other emails address will not get a response.**
- Always include your name and section number when you email to the instructor.
- Send assessment-related questions at least 24 hours before the assessment is due, otherwise you may not get a response.

Suggested Syllabus Statement on Public Health Protocols

In our classroom, I will expect everyone to wear a proper, well-fitting mask. As our President has informed the university community, FSU expects everyone on campus to use face-coverings. In regions where virus rates are high, the CDC recommends that even vaccinated individuals wear masks in public indoor spaces, like classrooms, especially where social distancing is not possible. Florida infection and hospitalization rates are greater now than they were at the height of the 2020 surge due to the Delta variant, a more infectious and easily transmissible version of the COVID-19 virus. The best way to protect against serious illness is to be fully vaccinated, but not everyone among us can be. Because the Delta variant can infect



even vaccinated individuals and can be spread by them to others, it poses a special threat to members of the community with underlying health conditions and children at home who are too young for vaccination.

For these reasons, FSU expects each member of the community to comply with the public health protocols our President set forth on August 9, 2021, including (1) wearing masks in public indoor spaces, (2) getting fully vaccinated, (3) being tested for the virus if you have symptoms, and (4) staying home and away from others if you are sick. Please remember that you should NOT attend class in person if you have tested positive for COVID-19 or are quarantining after exposure. Finally, please bear in mind that the COVID-19 situation is fast-moving, and that university guidance on the issue may change at any time.

Suggested Syllabus Statement for 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.

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>

University Counseling Center

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/>

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/Academics/Academic-Honor-Policy>)

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/>), the University Counseling Center (<https://counseling.fsu.edu/>), the Employee Assistance Program (<https://eap.fsu.edu/>), University Health Services (<https://uhs.fsu.edu/>), or pastoral counselors.

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;
- (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

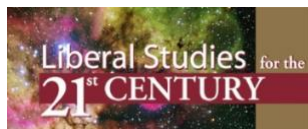
Tallahassee, FL 32306-4167

(850) 644-9566 (voice)

(850) 644-8504 (TDD)

oas@fsu.edu

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



Tentative Pacing Schedule:

Week	Tuesday	Thursday	Friday
1	Introduction Aug 24	Graphs Aug 26	Summary Statistics Aug 27
2	Summary Statistics Aug 30	Summary Statistics Sep 1	Probability Sep 3
3	Probability Sep 7	Random Variables Sep 9	Activity 1 Sep 10
4	Quiz 1 Sep 14	Binomial Distribution Sep 16	Normal Distribution Sep 17
5	Normal Distribution Sep 21	Central Limit Theorem Sep 23	Central Limit Theorem Sep 24
6	Confidence Interval Sep 28	Hypothesis Tests Sep 30	Activity 2 Oct 1
7	Quiz 2 Oct 5	Hypothesis Tests Oct 7	Hypothesis Tests Oct 8
8	Hypothesis Tests Oct 12	Nonparametric Test Oct 14	Nonparametric Test Oct 15
9	LSQA Oct 19	Chi-square Tests Oct 21	Homecoming (No Class) Oct 22
10	Chi-square Tests Oct 26	One-way ANOVA Oct 28	One-way ANOVA Oct 29
11	Two-way ANOVA Nov 2	Two-way ANOVA Nov 4	Activity 3 Nov 5
12	Quiz 3 Nov 9	Veterans' Day (No Class) Nov 11	Simple Linear Regression Nov 12
13	Simple Linear Regression Nov 16	Simple Linear Regression Nov 18	Multiple Linear Regression Nov 19
14	Multiple Linear Regression Nov 23	Thanksgiving (No Class) Nov 25	Thanksgiving (No Class) Nov 26
15	Activity 4 Nov 30	Quiz 4 Dec 2	Final Exam Review Dec 3
16		Final Exam Dec 9	