

STA 2122: INTRODUCTION TO APPLIED STATISTICS

Spring 2021 – Section 0014/0015

Course Information

Instructor: Linxi Meng

Email: lm16e@fsu.edu

Office Hours: Live session on Zoom every Monday&Wednesday, 3:00 PM - 6:00 PM – *see the Zoom link in the Navigation Menu on the left when you enter the course on Canvas*, or by appointment

Times and Locations: Section 0014: Classes meet January 6 ~ April 16, MW, 3:05 PM - 4:20 PM HCB 0215

Section 0015: Classes meet January 6 ~ April 16, MW, 4:50 PM - 6:05 PM HCB 0316

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.

Required Course Resources

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/FFE90EE7F9B4C24A6EC427622C77D09/sda-ti-smartview-ti-84-plus>.

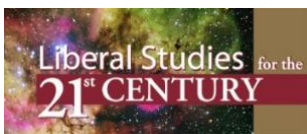
Canvas Class Website: Grades, homework, notes, announcements and other pertinent information will be available through this site. You are responsible for assignments and announcements posted on this website, as well as those sent through your FSU email.

Course Description

Prerequisite: A grade of “C-“ or better in MAC1105 College Algebra (or equivalent).

Credit Hours: 3

Special Note: Subsequent credit for STA 5126 is not permitted. No credit given for STA 2122 if a grade of “C-” or better is earned in STA 2171, STA 3032 or QMB 3200.



The course covers Normal distributions, sampling variation, confidence intervals, hypothesis testing, one-way and two-way analysis of variance, correlation, simple and multiple regression, contingency tables and chi-square tests, non-parametric statistics.

The purpose of this course is to prepare students for further study and job preparation in the field of Natural Sciences. 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:

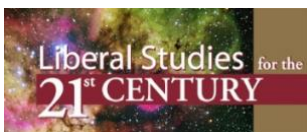
- (1) Select and apply appropriate methods (i.e., mathematical, statistical, logical, and/or computational models or principles) to solve real-world problems.
- (2) Use a variety of forms to represent problems and their solutions.

The above two competencies will be assessed in the Liberal Studies Quantitative Assessment for STA2122, 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.

Tentative Topics:

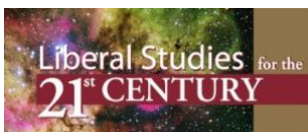
- (1) Summary statistics: mode, mean, quartiles, range, standard deviation, five-number summary, boxplot;
- (2) Normal Distributions: forward problems (finding area under the curve/percentage of data);
- (3) Central Limit Theorem: sampling distributions of \bar{x} , features of the distributions and implications when using a larger/smaller sample to estimate μ , forward problems (finding probabilities);
- (4) One-sample Mean: obtain and interpret z-intervals and t-intervals, concept of confidence level, sample size calculation, carry out and interpret results of z-test, t-test and p-value; Type I & II error;
- (5) One-way ANOVA F-test; Two-way ANOVA F-test;
- (6) Correlation; Simple Linear Regression; Simple Linear Regression Inference;
- (7) Chi-square Test of Independence;
- (8) Non-parametric Tests.



Tentative Pacing Schedule:

	Dates	Monday	Wednesday	Friday
Week 1	Jan. 6 ~ Jan. 8		Prerequisite Math Skills Introduction	
Week 2	Jan. 11 ~ Jan. 15	Summary Statistics	Summary Statistics Open Quiz 1 due	
Week 3	Jan. 18 ~ Jan. 22	Martin Luther King, Jr. Day. No classes	Summary Statistics	
				Open Quiz 2 due
Week 4	Jan. 25 ~ Jan. 29	Normal distribution	Normal distribution	
				Timed Quiz 1 due
Week 5	Feb. 1 ~ Feb. 5	Normal distribution	Central Limit Theorem	
				Open Quiz 3 due
Week 6	Feb. 8 ~ Feb. 12	Central Limit Theorem	Central Limit Theorem	
				Open Quiz 4 due
Week 7	Feb. 15 ~ Feb. 19	One-sample Confidence Interval	One-sample Confidence Interval	
				Timed Quiz 2 due
Week 8	Feb. 22 ~ Feb. 26	One-sample Confidence Interval	One-sample Hypothesis Tests	
			Open Quiz 5 due	
Week 9	Mar. 1 ~ Mar. 5	One-sample Hypothesis Tests	One-sample Hypothesis Tests	
			LSQA due	
Week 10	Mar. 8 ~ Mar. 12	One-way ANOVA	One-way ANOVA	
		Open Quiz 6 due		
Week 11	Mar. 15 ~ Mar. 19	One-way ANOVA	Simple Linear Regression	
		Open Quiz 7 due		
Week 12	Mar. 22 ~ Mar. 26	Simple Linear Regression	Simple Linear Regression	
		Timed Quiz 3 due		Open Quiz 8 due
Week 13	Mar. 29 ~ Apr. 2	SLR Inference	SLR Inference	
				Open Quiz 9 due
Week 14	Apr. 5 ~ Apr. 9	SLR Inference	Chi-square tests	
				Timed Quiz 4 due
Week 15	Apr. 12 ~ Apr. 16	Chi-square tests	Chi-square tests	
				Open Quiz 10 due
Week 16	Apr. 19 ~ Apr. 23	Final Exam at Tuesday April 20th 3:00-5:00pm		

Liberal Studies for the 21st Century: Quantitative and Logical Thinking



The Liberal Studies for the 21st Century Program at Florida State University builds an educational foundation that will enable FSU graduates to thrive both intellectually and materially and to support themselves, their families and their commitments through a broad and critical engagement with the world in which they live and work. 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.**

Assessment & Grades

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. All assessments will be open-notes.

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.**

Your overall course grade will consist of the following:

Open Quizzes are open-book, collaboration allowed;

LSQA, Timed Quizzes and Final Exam are open-book, collaboration not permitted.

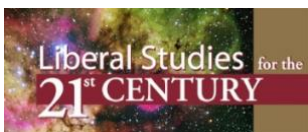
You only have TWO chances to make up for the missed quizzes/exams. Please notify instructor if you need to make up quizzes/exams.

Assessment	Weight
10 Open Quizzes (OQ), unlimited attempts each, lowest two dropped	40%
Liberal Studies Quantitative Assessment (LSQA), timed, 2 attempts, cannot be dropped	10%
4 Timed Quizzes (TQ), timed, 2 attempts each, lowest one dropped	30%
Final Exam, cumulated, timed, 2 attempts, cannot be dropped	20%
Total	100%

Due dates are given on the Tentative Pacing Schedule.

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 0-59
A-	90-92	B-	80-82	C-	70-72	D-	60-62	

How to successfully complete this class:

For each topic:

- ~ watch the relevant lecture video(s),
- ~ if you are able to, fill in the blank notes (on paper or on tablet) as you watch the video(s),
- ~ study thoroughly the information and examples in the filled-in class notes – be aware that the notes are incomplete without the filled-in examples,
- ~ do all of the try-on-your-own exercises in the notes,
- ~ do all of the extra/investigative exercises posted with the notes,
- ~ study the solutions only if you get the answers right because the solutions can provide insights to the problems,
- ~ make sure you know how to use your calculator appropriately,
- ~ go back and finish up the relevant Open Quiz, then take the relevant Timed Quiz. One topic have one relevant Open Quiz. Two topics will be covered in one Timed Quiz.

[Remember that you can email me or come to office hours if you need help.](#)

Grade appeal policy:

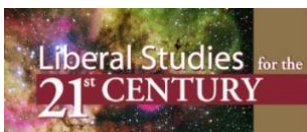
Grades will be posted on Canvas within one week. After a grade is posted, you have 5 workdays to request a grade change. After a grade has been posted for one week, no grade changes will be made. If you believe that a correct answer was counted as incorrect on a quiz, [please email instructor about it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

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).

Lecture Videos:

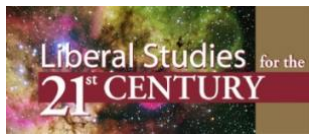
Watching the lecture videos is equivalent to attending class and listening to lectures. We acknowledge that the lecture videos are not short, but remember that class time would have been 50 or 75 mins - not short either. On the bright side, however, you may pause the video at any time and return to it later - you would not have been able to do that with live lectures. Therefore, we fully expect you to watch the lecture videos in their entirety. Pause whenever you need to, but always be sure to return and finish watching the video.

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.

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 STA2122 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.

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/>

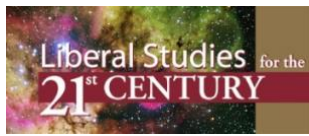
University Health Services

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

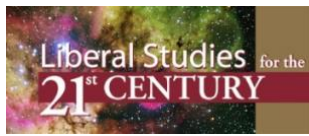
As an instructor, I am obliged to report all instances of sexual misconduct that I become aware of to the University's Title IX Director; I cannot hold such information confidential. If you would like to discuss your situation in confidence, you may contact the Victim Advocate Program (<https://dos.fsu.edu/vap/>),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