



Spring 2023

Florida State University, Department of Statistics

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

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

Emergency: 911.

### Course Information

Name: Introduction to Applied Statistics

Course Code: STA 2122 Section: 0016

Credit-hours: 3

Prerequisites: A grade of "C-" or better in MAC 1105 College Algebra (or equivalent).

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.

Format: F2F

Class Meeting Days, Times, Locations:

Section 0016: MoWeFr 10:40 AM – 11:30 AM, HCB 0217

Students will need to follow the University's current health and safety guidelines when they attend class.

Final Exam Day & Time: Tuesday May 2nd, 3:00-5:00pm. (We may do online quizzes on 05/02 in same period).

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 cancelled. The next lecture will begin where the cancelled lecture would have left off, and the next assessment will include the material that would have been taught in the cancelled lecture.

### Instructor Information

Name: Ranran Tao

Email: [rt19f@fsu.edu](mailto:rt19f@fsu.edu)

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

Office Hours & Locations: 2:00 PM – 3:00 PM, Monday / by appointment (If you are unable to come at this time, please email me to set up an appointment). Rogers Building (OSB) 310.

### Course Access

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

- Canvas Support

Email: [canvas@fsu.edu](mailto:canvas@fsu.edu)

Phone: 850-644-8004

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

Hours: 8am-5pm, 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](mailto:@fsu.edu) account.

- We will not use Honorlock.

## Course Description

This 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.

## 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 cooperation 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](http://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 assessments in a timely manner so that you can stay on track**

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 therefore 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. Please note that the 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.

**Grades**

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

**Your overall course grade will consist of the following:**

Assessment	Weight
<b>Liberal Studies Quantitative Assessment (LSQA):</b> - Canvas Notes ARE allowed. Outside sources/ Collaboration ARE NOT allowed. - 2 timed attempts (1 hour) are allowed. - cannot be dropped. - <b>Can't pass without taking this.</b>	<b>10%</b>
<b>Timed Quizzes (TQ):</b> - Canvas Notes ARE allowed. Outside sources/ Collaboration ARE NOT allowed. - 2 timed attempts (1 hour) are allowed for each quiz. - the lowest percentage grade will be dropped at the end of the semester.	<b>80%</b>
<b>Open Quizzes (OQ):</b> - Collaboration/Participation work. - Practice problems will be uploaded each week or after each section is covered. - Collaboration is allowed and encouraged. - Will not be graded for accuracy. If 1 <sup>st</sup> attempt submitted by the required certain date, you will get 1 point. We will have more than 10 times OQ, and one or two of them may be dropped.	<b>10%</b>
<b>Extra Credit (EC)</b>	<b>5%</b>

- Assessments (LSQA&TQ) that are not submitted will receive a grade of zero. **For late submission, when a makeup is submitted, the zero will be replaced with the 90% of earned grade in the first coming week. Then, each week later will lead to 10% more deduction of your earned grade.** If any time conflict or other reason led to absent or can not attend the assessments in limited time periods, please inform me earlier than the start of those assessments. No make-ups will be allowed after the Last Day of Classes – this applies to all assessments given during the term.
- **Extra Credit**  
Bonus points for knowledge application games and shot quizzes in class. Or application project may also assign for extra credit.
- **Cheating will not be tolerated.**

### Grading scale (percent)

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).

### Tentative Pacing Schedule: (Pace and schedule of classes and quizzes may change due to the progress and feedback during the semester)

Week	Monday	Wednesday	Friday	Assessment
1 (Jan 9 – Jan 13)	Syllabus	Introduction	Introduction	
2 (Jan 16 – Jan 20)	Martin Luther King, Jr. Day. No classes.	Summary Statistics	Summary Statistics	Timed Quizzes: Introduction (Due at 11:59PM, 01/23)
3 (Jan 23 – Jan 27)	Summary Statistics	Summary Statistics/ Normal Distributions	Normal Distributions	Timed Quizzes: Summary Statistics (Due at 11:59PM, 01/30)
4 (Jan 30 – Feb 3)	Normal Distributions	Central Limit Theorem	Central Limit Theorem	Timed Quizzes: Normal Dist (Due at 11:59PM, 02/06)
5 (Feb 6 – Feb 10)	One-sample Confidence Intervals	One-sample Confidence Intervals	One-sample Confidence Intervals	Timed Quizzes: Central Limit Theorem (Due at 11:59PM, 02/13)
6 (Feb 13 – Feb 17)	One-sample Confidence Intervals	One-sample Confidence Intervals	Homecoming. No classes.	Timed Quizzes: One-sample Confidence Intervals (Due at 11:59PM, 02/20)
7 (Feb 20 – Feb 24)	One-sample Hypothesis Tests	One-sample Hypothesis Tests	LSQA	Timed Quizzes: LSQA (Due at 11:59PM 02/27)

8 (Feb 27 – Mar 3)	One-sample Hypothesis Tests	One-sample Hypothesis Tests	One-sample Hypothesis Tests	Timed Quizzes: One-sample Hypothesis Tests (Due at 11:59PM 03/06)
9 (Mar 6 – Mar 10)	One-way ANOVA	One-way ANOVA	One-way ANOVA	Timed Quizzes: One-way ANOVA (Due at 11:59PM 03/13)
(Mar 13 – Mar 17)	Spring Break. No classes.			
10 (Mar 20 – Mar 24)	Two-way ANOVA	Two-way ANOVA	Two-way ANOVA	Timed Quizzes: Two-way ANOVA (Due at 11:59PM 03/27)
11 (Mar 27 – Mar 31)	SLR Basics	SLR Basics	SLR Basics	
12 (Apr 3– Apr 7)	SLR Inference	SLR Inference	Multiple Regression	Timed Quizzes: SLR Inference, SLR Basics, (Due at 11:59PM 04/10)
13 (Apr 10 – Apr 14)	Multiple Regression	Multiple Regression	Chi-Square Tests	Timed Quizzes: Multiple Linear Regression (Due at 11:59PM 04/17)
14 (Apr 17 – Apr 21)	Chi-Square Tests	Chi-Square Tests	Chi-Square Tests	Timed Quizzes: Chi-Square Tests (Due at 11:59PM 04/24)
15 (Apr 24 – Apr 28)	Selected Topics (Random Variables/Binomial Distributions/Non-parametric Tests)	Selected Topics (Random Variables/Binomial Distributions/Non-parametric Tests)	Selected Topics (Random Variables/Binomial Distributions/Non-parametric Tests)	
16 (May 1 – May 5)	<b>Final week. No Class.</b> <b>Final Exam will be Timed Quiz (may related to all learnt knowledge or only related to the content in the last chapter) due at 5pm Tuesday May 2<sup>nd</sup></b>			

### 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 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%20to%20Reschedule%2001032022.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 above 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 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](mailto: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 verification 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 <a href="https://dsst.fsu.edu/vap">https://dsst.fsu.edu/vap</a>	Counseling and Psychological Services Askew Student Life Center, 2nd floor 942 Learning Way (850) 644-8255 <a href="https://counseling.fsu.edu/">https://counseling.fsu.edu/</a>	University Health Services Health and Wellness Center (850) 644-6230 <a href="https://uhs.fsu.edu/">https://uhs.fsu.edu/</a>
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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 don'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.