

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 emails, etc, will be Eastern Time.

Course Information

Term Year: Spring 2025

Name: Introduction to Applied Statistics

Code: STA 2122

Sections: 0001/0002

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:

Sections 0001: classes will meet Jan 6 to Apr 25, MWF: 9:20-10:10 AM, HCB_0217

Sections 0002: classes will meet Jan 6 to Apr 25, MWF: 10:40-11:30 AM, HCB_0217

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

PRE Program @ ACE: Free Academic Assistance

This class will be participating in the Proactive Referral and Engagement (PRE) program

(<https://ace.fsu.edu/pre-student-faq>). The purpose of this program is to give you early academic assistance and advice so that you succeed in this class. Therefore, your course instructor may share information about your class performance with the PRE program director, who may reach out to you via email or phone. The PRE program director and ACE staff can connect you to one-on-one assistance with study skills tutors to discuss time management, develop a study plan, find tutoring, and/or connect with offices to support your success.

Instructor Information

Name: Xinxuan(Karen) Qian

Email: xq23a@fsu.edu

You may expect a response from me within two work days.

Office Hours & Locations: **Tuesday 8:30am-9:30am** in Room **0106A OSB**. If you are unable to come at this time, please email me to set up an appointment.

Office hours will begin in the second week of classes and end in the last week of classes. However, if you need to see me in the first week of classes or in final exams week, please email me to set up an appointment.

Grader Information

Name: Meng Yuan

Email: my23j@fsu.edu

Please be aware that all Teaching Assistants who have been assigned to work with the instructor of this class will have access to your grades and academic accommodations information since it is not possible for the

instructor alone to perform all of the duties related to grading and the provision of academic accommodations.

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: 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 account.
- We will not use an online proctoring service.

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.

Student Learning Outcomes

This course has been approved to meet CoreFSU's **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.
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 or app. 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 post all required course notes and exercises on Canvas. Please note that the materials provided by the instructor were put together for your individual use

only. We ask that you do not distribute the materials to third parties. If you seek help from someone other than the instructor or TA, you may allow your helper to see the materials, but please do not allow them to take pictures or 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 must 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 until you have completed Assessment 3. The last day of classes will be the deadline for all assessment submissions, including assessments where extensions were granted (makeups), 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 grant extensions during the last two weeks of classes unless you have completed the QLT assessment and at least eighty percent of the other assessments given up to that point. For example, if the QLT assessment and ten other assessments have been given by the start of the last two weeks of classes, then you will need to have completed the QLT assessment and at least eight other assessments by that point in order to be granted any extensions (makeups) during the last two weeks of classes.

Grades

~ The use of AI (artificial intelligence) and unsanctioned internet sources is not permitted on any of the assessments in this class. All internet sources are considered unsanctioned unless the instructor specifically states in writing that a given source is sanctioned.

~ You will be allowed a second attempt on some or all of the online assessments so that you can correct any errors you may spot after you submit the first attempt. We cannot promise to be able to provide assistance with the material between attempts.

~ An initial grade of zero will be assigned to missed or incomplete assessments, including attendance absences. When the assessment 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 work days after the grade has been made available on Canvas. If no issues are raised during that time, then it will be assumed that the grade is accepted and subsequent requests for a grade review may not be granted.

~ Grade structure:

| Component/Category | Percentage Weight | Graded for | Individual work /Group work | Number of submissions permitted |
|----------------------|-------------------|---------------|--------------------------------|---------------------------------|
| QLT Assessment | 10% | Accuracy | Individual – no help permitted | 2 |
| Quizzes | 65% | Accuracy | Individual – no help permitted | 2 |
| Attendance | 10% | --- | --- | --- |
| Collab participation | 15% | Participation | Group work | 1 |
| Total | 100% | --- | --- | --- |

QLT Assessment:

The QLT Assessment is the assessment instrument that the Dept of Statistics has chosen to use to measure student performance on the two CoreFSU Quantitative and Logical Thinking (QLT) student learning outcomes (SLOs). These are the first two SLOs listed on the syllabus. The QLT Assessment grades, broken down by SLO for each student, will be reported to the CoreFSU committee, to be used in their evaluation of how well the SLOs are being achieved. That data is then used for institutional accreditation purposes. Student names are not reported.

The QLT Assessment will be based on the *Confidence Intervals for Mu* material and will be given after the material is taught. It will not be the final assessment. The QLT assessment 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 QLT assessment will be an individual-work open-book online quiz graded for accuracy; two timed attempts will be allowed; collaboration is not permitted; no AI or unsanctioned internet sources are allowed apart from the course Canvas. The correct answers will not be published.

Quizzes

- + open book, graded for accuracy
- + online on Canvas, available two to three days, except the final test which will be available during final exam week
- + two timed attempts permitted within the above time frame
- + collaboration and internet sources, except the course Canvas, are not permitted
- + correct answers are not published
- + Canvas will show which questions you got partial credit on but will not identify the specific parts of each question that you got wrong
- + questions that need to be graded manually will be graded after the test closes
- + tests must be taken in ascending numerical order
- + the lowest two test grades will be dropped and due dates will be extended if warranted but the last two tests grades cannot be dropped.
- + extensions must be requested within three days of the original due date but not after the last day of classes

+ your attendance average and **QLT** completion will be taken into consideration when extensions are requested

Attendance

- + Consists of attending every class, staying for the entire period.
- + Students who have an attendance accommodation certified by the OAS will be excused whenever they are absent due to a disability-related reason. To be excused, please email me and specifically state, "I missed class on mm/dd/2024 due to a disability-related reason." You will fill in the appropriate month and day.
- + FSU athletes will be excused whenever they are absent due to sports events that we are directly notified of by FSU Athletics.

Collab participation

- + Consists of participating fully in the group collaborations every Friday(depends on situation).
- + Groups will consist of 3 or fewer persons.
- + Problems will be assigned by the instructor and each group will submit one set of neatly handwritten solutions. Each member of the group should write out at least one solution.
- + Not graded for accuracy; however, a good-faith attempt must be made on all of the problems.
- + The lowest two collaboration grade will be dropped but the last two collaborations grades cannot be dropped.
- + Each collaboration grade will be one of the following:
0 = absent;
1 = present but arrived late or left early, or present for the entire period but did not participate;
2 = present and participated for the entire period but did not complete all of the problems;
3 = present and participated for the entire period, and submitted all of the problems.
- + Students who have an attendance accommodation certified by the OAS and miss a collaboration due to a disability-related reason, and FSU athletes who miss a collaboration due to sports events that we are directly notified of by FSU Athletics, can recover the collaboration grade by submitting their handwritten solutions within one week but not after the last day of classes.

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, 100]% 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)% |
|----------------------------------|---|---|---|--------------|

Incomplete Grade Policy

Incomplete ("I") grades will be recorded only in exceptional cases when a student, who has completed a substantial portion of the course and who is otherwise passing, is unable to complete a well-defined portion of a course for reasons beyond the student's control. Students in these circumstances must petition the instructor and should be prepared to present documentation that substantiates their case. Incomplete grades will not be granted to allow students to do extra coursework in an effort to increase their grade.

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 written 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.

Attendance is expected at all class meetings, regardless of whether there is a grade associated with attendance or not. While I will post completed course notes on Canvas, the notes are not intended to be a textbook and there will inevitably be information conveyed face-to-face in class that will not be reflected in the notes.

Academic Honor Policy

The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of student's 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 accommodation for all persons with disabilities in a manner that is consistent with the academic standards of the course while empowering the student to meet the 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 an 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 (CAPS)

Florida State University's Counseling and Psychological Services (CAPS) primary mission is to address psychological needs and personal concerns, which may interfere with students' academic progress, social development, and emotional well-being. The following in-person and virtual (tele-mental health) services are available to all enrolled students residing in the state of Florida:

1. Individual therapy
 2. Group therapy
 3. Crisis Intervention
 4. Psychoeducational and outreach programming
 5. After hours crisis-hotline
 6. Access to community providers for specialized treatment
- Call 850-644-TALK (8255) for more information on how to initiate services.

Counseling and Psychological Services
250 Askew Student Life Center
942 Learning Way
(850) 644-TALK (8255)
Walk-in and Appointment Hours:
M-F 8 am – 4 pm
<https://counseling.fsu.edu/>

Services at UHS are available to all enrolled students residing in Florida:

The mission of University Health Services (UHS) is to promote and improve the overall health and well-being of FSU students. UHS provides a coordinated continuum of care through prevention, intervention, and treatment. Services include general medical care, priority care, gynecological services, physicals, allergy injection clinic, immunizations, diagnostic imaging, physical therapy, and a medical response unit. The Center for Health Advocacy and Wellness (CHAW) assists students in their academic success through individual, group, and population-based health and wellness initiatives. Topics include wellness, alcohol and other drugs, hazing prevention, nutrition and body image, sexual health, and power based personal violence prevention. For more information, go to uhs.fsu.edu.

University Health Services
Health and Wellness Center
960 Learning Way
Tallahassee, FL 32306
Hours: M-F, 8 am – 4 pm
(850) 644-6230
<https://uhs.fsu.edu/>

Disaster

At times of severe weather or other disasters, please check your FSU email, your text messages, the Seminole Safe App and FSU Alert (<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 will not 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 be held. 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 laws. 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 to 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 recordings 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.

If you wish to make recordings of this class, please read the FAQs below very carefully before you make your first recording.

https://fda.fsu.edu/sites/g/files/upcbnu636/files/Media/Files/Fall-2021-Guidance/FAQ_STUDENTS_HB%20233.pdf

Guide to resolving academic problems

<https://provost.fsu.edu/sites/g/files/upcbnu3446/files/2021-08/Academic-Problem-Solving-Flowchart-Binder.pdf>

Resources at the Office of Faculty Development and Advancement

(some of the resources are for students too)

<https://fda.fsu.edu/academic-resources>

Tentative Pacing Schedule

| Week | MONDAY | WEDNESDAY | FRIDAY | SATURDAY |
|------|---|---|---|--------------------------------|
| 1 | Syllabus, Introductions, Rounding (1/6) | Preliminary Definitions (1/8) | Collab 1 (1/10) | |
| 2 | Summary Statistics (1/13) | Summary Statistics (1/15) | Summary Statistics (1/17) | Test 1 Due Tue 1/21 |
| 3 | MLK Jr Day no class(1/20) | Summary Statistics (1/22) | Collab 2 (1/24) | Test 2 Due Tue 1/28 |
| 4 | Normal Distributions (1/27) | Normal Distributions (1/29) | Normal Distributions (1/31) | Test 3 Due Tue 2/4 |
| 5 | Collab 3 (2/3) | Central Limit Theorem (2/5) | Central Limit Theorem (2/7) | |
| 6 | Central Limit Theorem (2/10) | Collab 4 (2/12) | Confidence Intervals for mu (2/14) | Test 4 Due Tue 2/18 |
| 7 | Confidence Intervals for mu (2/17) | Confidence Intervals for mu (2/19) | Collab 5 Drop date(2/21) | QLT Assessment Due Tue 2/25 |
| 8 | Hypothesis Tests for mu (2/24) | Hypothesis Tests for mu (2/26) | Hypothesis Tests for mu (2/28) | |
| 9 | Hypothesis Tests for mu (3/3) | Hypothesis Tests for mu (3/5) | Collab 6 (3/7) | Test 5 Due Tue 3/9 |
| 10 | Spring Break no class (3/10) | Spring Break no class (3/12) | Spring Break no class (3/14) | |
| 11 | One-way Anova (3/17) | One-way Anova (3/19) | Collab 7 (3/21) | |
| 12 | Simple Linear Regression (Basics)(3/24) | Simple Linear Regression (Basics)(3/26) | Simple Linear Regression (Basics)(3/28) | Test 6 Due Tue 4/1 |
| 13 | Collab 8 (3/31) | Simple Linear Regression (Inference)(4/2) | Simple Linear Regression (Inference)(4/4) | |
| 14 | Simple Linear Regression (Inference)(4/7) | Simple Linear Regression (Inference)(4/9) | Collab 9 (4/11) | Test 7 Due Tue 4/22 |
| 15 | Chi-Square Test of Independence(4/14) | Chi-Square Test of Independence(4/16) | Collab 10 (4/18) | |
| 16 | One-proportion Inference (4/21) | One-proportion Inference (4/23) | One-proportion Inference (4/25) | Test 8 Due Tue 4/29 |