STA 2122 Introduction to Applied Statistics
Section 0014 & 0015
Spring 2020

BASIC INFORMATION
Class time: MW 5:15PM – 6:30PM (Section 0014)
   MW 6:45PM --8:00PM (Section 0015)
Class location: OSB 108
Class website: Canvas
Instructor: Kai Qi
E-mail: kq15b@my.fsu.edu
Office location: LOV (Love Building), room 0428
Office hour: Wed 14:30 PM –15:30 PM. Or by appointment.
Classroom policy: Come to the class on time.
Final Exam: TUESDAY, April 28th at 12:30-2:30 pm, location TBA

COURSE DESCRIPTION:
Prerequisite: A grade of "C-" or better in MAC 1105 College Algebra (or equivalent).
Credit Hours: 3
Special Note: Subsequent credit for STA 5126 is not permitted. No credit is 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 the 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.

MATERIALS:
1. Introduction to the Practice of Statistics, Ninth Edition, 2017, by Moore McCabe Craig. **(No required).** You will need to print out class notes from Canvas and take them to class.
2. A calculator of type TI-84 Plus or equivalent is necessary.

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 STA 2122, 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.

TOPICS COVERED:

1. Simple random sample;
2. Graphs: histograms (sketch and interpret), segmented bar charts (sketch and interpret).
3. Summary Statistic: mean, quartiles, range, standard deviation, five-number summary, boxplot, IQR, z-score as the number of std devns from the mean, identifying outliers; Empirical rule.
4. Normal Distribution: forward and backward problems; Central Limit Theorem
5. One-sample Mean: obtain and interpret z-intervals and t-intervals, the concept of confidence level, sample size calculation, carry out and interpret results of z-test, t-test and p-value; Type I & II error.
6. One-way ANOVA F-test; Two-way ANOVA F-test.
7. Correlation; Simple Linear Regression.
8. Simple Linear Regression Inference; Multiple Linear Regression Inference.
9. Chi-square Test of Independence.
10. Non-parametric Tests.

EMAIL:

1. Please check your @my.fsu.edu email every day.

2. Send assessment-related questions at least 24 hours before the assessment is due to begin.

3. Be aware that email sent from outside the FSU domain may not get through to us, so if you send an email and you don't get a response within two working days, please try to meet us in person before class, or after class, or during office hours.

ATTENDANCE:

1. First-day attendance is mandatory per university regulations.

2. Punishment will be applied to students who missed or early-leave on a certain amount of lectures without documentations.

3. Students shall, upon notifying their instructor by formal **self-written-and-signed letter at least one week before the holiday**, be excused from class to observe a religious holy day of their faith.

ASSESSMENT:

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 give it your all during the term. During quizzes and the final exam, we will ask you to move to another seat if we suspect that you, or persons around you, are cheating. **This will be a subjective judgment on our part.**

1. **Cumulative Final Exam** (45%)
a. TUESDAY, April 28th at 12:30-2:30 pm, location TBA
b. You may use TWO hand-written two-sided 8.5"x11" sheets of notes.
c. You may bring a calculator. However, cell phone is not allowed to use as a calculator. Sharing calculator is not allowed either.

2. **Quizzes** (45%)
a. Three quizzes during class meeting time.
b. You may use ONE hand-written two-sided 8.5"x11" sheets of notes.

c. You may bring a calculator. However, cell phone is not allowed to use as a calculator. Sharing calculator is not allowed either.

d. Each quiz contributes 15% of your overall grades.
3. **Attendance** (10%)
a. If you miss five or more classes without documents, you will not be able to get the 10%. If you miss more than three but less than five, you will get only 5%.

b. Random attendance check.
6. Plagiarism and cheating will not be tolerated and will be seriously treated.

MISSED ASSESSMENT:

Quizzes: If you were absent for one of the Quizzes with acceptable documentation, you may make it up during my office hours on the following Wednesday or email me to make an appointment. Please note that
(1) you can only make up one quiz,
(2) you must have acceptable documents and
(3) you need to make it up within one week (before the following Wednesday class).

Assessments that are not taken, and assignments that are not submitted, will receive a grade of zero. When a missed assessment/assignment is made up, the zero will be replaced with the earned grade.

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 take it to the Dean of Arts and Sciences office at 010 LON to get it approved, and
   (iii) bring the approved form back to me **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.

OVERALL COURSE GRADE:

1. If you believe that a paper was improperly graded, report to me right after the class you received your quiz paper. The delayed report will not be resolved.

2. If a grade is not posted within one week after the quiz, we will do our best to locate your missing grade. The delayed report will not be resolved.

Overall numerical course grade:

Letter	Final Grade	Letter	Final Grade
A	93-100	C	73-76
A-	90-92	C-	70-72
B+	87-89	D+	67-69
B	83-86	D	63-66
B-	80-82	D-	60-62
C+	77-79	F	0-59

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.)

AMERICANS WITH DISABILITIES ACT:

Students with disabilities needing academic accommodation should:
(1) register with and provide documentation to the Student Disability Resource Center. **This can be accomplished by logging in to the AIM system and electing to receive academic accommodations in this class so that an email notification will be sent to the instructor**; and

(2) bring a letter to the instructor indicating the need for accommodation and what type. Please note that instructors are not allowed to provide classroom accommodation to a student until appropriate verification from the Student Disability Resource Center 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:

Student Disability Resource Center
874 Traditions Way

108 Student Services Building
Florida State University
Tallahassee, FL 32306-4167
(850) 644-9566 (voice)
(850) 644-8504 (TDD)
sdrc@admin.fsu.edu
http://www.disabilitycenter.fsu.edu/

FREE TUTORING FROM FSU:
On-campus tutoring and writing assistance is available for many courses at Florida State University. For more information, visit the Academic Center for Excellence (ACE) Tutoring Services' comprehensive list of on-campus tutoring options - see http://ace.fsu.edu/tutoring or contact tutor@fsu.edu. High-quality tutoring is available by appointment and on a walk-in basis. These services are offered by tutors trained to encourage the highest level of individual academic success while upholding personal academic integrity.

SYLLABUS CHANGE POLICY:
Except for changes that substantially affect the implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice.

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/), or University Health Services (https://uhs.fsu.edu/).

SCHEDULE:

	Monday	Wednesday		Monday	Wednesday
W1	Introduction Jan 6	Simple Random Sample/ Graphs Jan8	**W9**	Quiz 2 Mar 2	Two-way ANOVA Mar 4
W2	Summary Statistics Jan 13	Summary Statistics Jan 15	**W10**	Simple Linear Regression Mar 9	Simple Linear Regression Mar11
W3	No Class Jan 20	Normal Distribution Jan 22	**W11**	No Class Mar 16	No Class Mar 18
W4	Normal Distribution Jan 27	Central Limit Theorem & Recitation Jan 29	**W12**	SLR Inference *ENAR Mar 23	SLR Inference Mar 25
W5	Quiz 1 Feb 3	Central Limit Theorem Feb 5	**W13**	SLR Inference Mar 30	MLR & Recitation Apr 1
W6	One-sample Confidence Interval Feb 10	One-sample Confidence Interval Feb 12	**W14**	Quiz 3 Apr 6	MLR Apr 8
W7	One-sample Hypothesis Tests Feb 17	One-sample Hypothesis Tests Feb 19	**W15**	Chi-square Test Apr 13	Chi-square Test Apr 15
W8	One-way ANOVA Feb 24	One-way ANOVA & Recitation Feb 26	**W16**	Non-parametric Tests Apr 20	Review Apr 22

Final Exam: TUESDAY, April 28th at 12:30-2:30 pm, location TBA