

STA – 2023 (SECTION 18) SYLLABUS – Spring, 2020



DEPARTMENT OF STATISTICS

STA2023 - FUNDAMENTAL BUSINESS STATISTICS

SEC – 18 SYLLABUS FOR SPRING,2020

3 SEM HRS CREDIT

CLASSES MEET JAN - 6th to APRIL - 24th

T, TH - 9:30 AM – 10:45 AM : Rm 108 - OSB

FINAL EXAM - APRIL 27th - MAY 1ST (exact time, location TBA)

INSTRUCTOR INFO

Instructor: Ms. Pivali Basak

Email pb15d@my.fsu.edu

Office location : Room 359 of Love building

Office Hours : To be announced every week.

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.

~ The syllabus is intended to be an agreement between you (student) and us (instructor).

~ The presence of your name on your section roster after drop/add ends indicates that you have read and understood all of the information and documents posted under Syllabus on our STA 2023 Spring,20 website on University learning Management system, you have had your questions about them answered, and you accept and will abide by our policies.

~ Please understand that we deal with hundreds of students each semester, and 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.

~ 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 best of them.

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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/>).

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.

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 communities through a broad and critical engagement with the world in which they live and work. Liberal Studies thus offers a transformative experience. This course has been approved as meeting the Liberal Studies requirements for Quantitative and Logical Thinking and thus is designed to help you become a **critical analyzer 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.

COURSE DESCRIPTION:

Prerequisite: None, but we recommend two years of high school algebra.

Credit Hours: 3

Special Note: High school students who earn a "3" or better on the AP Statistics exam will be given credit for STA 2023.

The course covers statistical applications in business, involving graphical and numerical descriptions of data, data collection, correlation and simple linear regression, elementary probability, random variables, Binomial and Normal distributions, sampling distributions, and confidence intervals and hypothesis tests for a single sample.

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

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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 2023, 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) Describe the goals of various statistical methodologies conceptually.

(6) Apply statistical techniques in the context of business processes, everyday life, and further studies in their discipline.

(7) Develop a healthy skepticism toward statistical studies and their results based on a sensible consideration of the techniques employed.

COURSE TOPIC:

- Terminology/Initial Ideas: population, sample, parameter, statistic, categorical, quantitative
- Simple random sample
- Graphs: histograms (sketch and interpret)
- Graphs: stemplots (sketch and interpret)
- Graphs: bar charts (sketch and interpret), pie charts (interpret)
- Summary Statistics: mean, quartiles, range, standard deviation, five-number summary, boxplot
- Summary Statistics: IQR, identifying outliers
- Empirical Rule

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- Normal Distributions: forward problems (finding area under the curve/percentage of data)
- Normal Distributions: backward problems (finding cutoff points given area)
- 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)
- Probability: random processes, four rules, probability models, addition rule for mutually exclusive events
- Probability: multiplication rule for independent events
- Probability: multiplication rule for dependent events, contingency tables and conditional probability, problems may be presented with Venn diagrams, contingency tables, tree diagrams, etc
- Random Variables: definition, expected value
- Random Variables: standard deviation/variance
- Random Variables: rules for combining means and standard deviations/variances of up to two independent and dependent random variables
- Binomial Distributions: binomial coefficients, binomial probability formula, mean and variance (Normal approximation is optional)
- One-sample mean: obtain and interpret z-intervals
- One-sample mean: obtain and interpret t-intervals
- One-sample mean: understand the concept of confidence level; sample size calculations; effects of changing std dev (changing n), confidence levels and margin of error
- One-sample mean: carry out and interpret results of z-test, interpret P-value
- One-sample mean: carry out and interpret results of t-test
- Type I & II errors: explain in context
- Correlation: what the sign and absolute value of r imply, correlation does not imply cause-and-effect
- Simple Linear Regression: read scatterplots, given equation make prediction, interpret R^2
- Simple Linear Regression: calculate and interpret R^2 /slope/y-intercept, make prediction from equation or use \bar{y} as appropriate .

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REQUIRED MATERIALS

You will need to read each set of class notes carefully after we cover them in lecture.

Recommended Textbook : The basic Practice of Statistics (seventh edition).

Class notes: You will need to print out class notes from our University learning Management system STA class website

and bring them to class on a regular basis, so please budget some money for printing.

Writing materials: Notepaper and sharpened pencils.

Calculator: TI-84 Plus or equivalent.

ATTENDANCE, ABSENCE AND DROP/WITHDRAWAL

~ We fully expect to see you at every class meeting. First-day attendance will be taken electronically via University learning Management system, however we still expect to see you in class on the first day.

~ Drop and Withdrawal deadlines are given in the University's academic calendar.

~ If you miss class, I expect you to keep up-to-date with the lessons, activities and announcements by getting in touch with a classmate or with me.

~ If you miss any quiz , immediately email me. You will be allowed to make up a quiz (within 1 week) only with documentation, and the final exam (within 1 working day) , only if you have acceptable documentation.

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EMAIL & COMMUNICATION

- ~ please check the Class website in University learning Management system every day to keep up with what's happening in class
- ~ please check your [@my.fsu.edu](mailto:my.fsu.edu) email every day for emails from us
- ~ if you email us, please send from your [@my.fsu.edu](mailto:my.fsu.edu) account
- ~ always include your name , and section when you send email to me.
- ~ 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 me in person before class, or after class, or during office hours.

ASSESSMENT AND GRADING

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.”

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.

We reserve the right to impose a penalty on your assessment grade if you violate any of the guidelines below. Please read this entire policy carefully and understand it well, as exceptions will not be allowed.

MARKS DISTRIBUTION :

ATTENDANCE – 10% (THERE WILL BE RANDOM ATTENDANCE CHECKS.)

QUIZ 1 – 3 : - 20% EACH - (DATES TO BE ANNOUNCED.)

FINAL EXAM : 30 %

LETTER GRADE :

A : ≥ 90

A- : 80-89

B : 70-79

B- : 60-69

C : 50-59

C- : 40-49

D : 30-39

F : < 30

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TENTATIVE PACING SCHEDULE :

| | | |
|---------|---|---|
| WEEK 1 | 7 TH JANUARY SUMMARY STATISTICS | 9 TH JANUARY SUMMARY STATISTICS |
| WEEK 2 | 14 TH JANUARY SUMMARY STATISTICS | 16 TH JANUARY EMPIRICAL RULE |
| WEEK 3 | 21 ST JANUARY NORMAL DISTRIBUTIONS | 23 RD JANUARY NORMAL DISTRIBUTIONS |
| WEEK 4 | 28 TH JANUARY NORMAL DISTRIBUTION | <u>30TH JANUARY</u> <u>REVIEW 1</u> |
| WEEK 5 | <u>4TH FEBRUARY</u> <u>QUIZ 1</u> | 6 TH FEBRUARY CLT |
| WEEK 6 | 11 TH FEBRUARY CLT | 13 TH FEBRUARY SLR |
| WEEK 7 | 18 TH FEBRUARY SLR | 20 TH FEBRUARY SLR |
| WEEK 8 | <u>25TH FEBRUARY</u> <u>REVIEW 2</u> | <u>27TH FEBRUARY</u> <u>QUIZ 2</u> |
| WEEK 9 | 3 RD MARCH PROBABILITY, | 5 TH MARCH PROBABILITY |
| WEEK 10 | 10 TH MARCH PROBABILITY | 12 TH MARCH RANDOM VARIABLE |
| WEEK 11 | <u>17TH MARCH</u> <u>SPRING BREAK</u> | <u>19TH MARCH</u> <u>SPRING BREAK</u> |
| WEEK 12 | 24 TH MARCH RANDOM VARIABLE | <u>26TH MARCH</u> <u>REVIEW 3</u> |
| WEEK 13 | <u>31ST MARCH</u> <u>QUIZ 3</u> | 2 ND APRIL BINOMIAL DISTRIBUTIONS |
| WEEK 14 | 7 TH APRIL ONE SAMPLE CONFIDENCE INTERVAL | 9 TH APRIL ONE SAMPLE CONFIDENCE INTERVAL |
| WEEK 15 | 14 TH APRIL ONE SAMPLE HYPOTHESIS TESTING | 16 TH APRIL ONE SAMPLE HYPOTHESIS TESTING |
| WEEK 16 | 21 ST APRIL ONE SAMPLE HYPOTHESIS TESTING | <u>23RD APRIL</u> <u>FINAL REVIEW</u> |

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|---|---|
| During exams, I will ask you to move to another seat if I suspect that you, or persons around you, are cheating. This will be a subjective judgment on my part. | |
| Materials that you need to bring for a quiz | calculator, and a watch to keep track of time, 1 page (two sides) hand-written notes. You may not share your calculator. |
| Materials that you need to bring for your final exam | calculator, and a watch to keep track of time, 2 pages (four sides) hand-written notes. You may not share your calculator. |
| Materials that are <u>not</u> permitted | course materials such as class notes, exercises, etc; cell phones and other remote communication devices You may not use a cell phone as a calculator. |

Test Question Security

A pledge regarding the confidentiality of the exam will be printed on every EXAM (wording may vary slightly). We regret to say that if you do not sign the pledge, we will not grade your paper and your grade will be zero. Please bear in mind that occurrences such as midterm or final exam question disclosures reduce the worth of the degree that you are working toward.

Missing Grades

- ~ be sure to attend the section in which you are enrolled to avoid missing grade issues
- ~ if a grade is not posted, let me know immediately via email. Make sure, you let me know about any such discrepancies within a week for all the exams .

Grading Appeals

During the course of the term, if you believe that a paper was improperly graded, make an appointment to come to my office to see your paper and discuss it with me.

Receiving a grade of “Incomplete”

A request for a grade of “Incomplete” will

- ~ NOT be granted if you have completed all of the coursework.
- ~ be granted only if both of the following conditions are satisfied:

(1) you have completed all the exams , and

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(2) your overall average excluding the final exam is a passing grade.

STUDENTS SWITCHING SECTIONS

When you switch sections, your grades are permanently deleted from your old University learning Management system website. Always inform us before you switch so that we may keep a copy of your previously earned grades.

STUDENTS COMPLETING AN INCOMPLETE OR AUDITING

If you are auditing this course or attending it to complete an "Incomplete" earned in a previous term, make yourself known to me so that I may let you have access to our current University learning Management system websites. If you are auditing, you must register with the University to do so. If you are completing an "Incomplete", let me know who your former instructor was so that I may inform them of your grade at the end of the term.

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.

(2) 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>.)

(3) Americans With Disabilities Act:

Students with disabilities needing academic accommodation should:

- (1) register with and provide documentation to the Student Disability Resource Center; 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/>