STA 2023 – FUNDAMENTAL BUSINESS STATISTICS
SECTION / SEMESTER
(MEETING TIMES)
MODE OF INSTRUCTION: TRADITIONAL

Instructor: XXXX
Email: XXXX
Office: XXXX
Phone: XXXX
Office Hours: XXXX
Course Location/Website:
https://cas.fsu.edu/cas/login?service=https%3A%2F%2Fmy.fsu.edu%2Fc%2Fportal%2Flogin

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.

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.

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 MATERIALS:

Instructional Technologies:
~ Calculator: TI-84 Plus or equivalent type
~ Textbook: The Practice of Statistics for Business and Economics, 4th ed. by Moore McCabe Alwan Craig Duckworth

Concerning Required Readings: You will need to read certain sections of the textbook - sections will be specified on the course website. You will also need to read some course notes that will be posted on the University learning management system. Hardcopies of the course notes will not be provided.

COURSE ASSIGNMENTS AND EVALUATION:

Quizzes (50%): 6 quizzes given in class. You may use a calculator, an 8½”x11” notesheet, statistical tables and scratch paper. You may not share calculators and you may not use a cell phone as a calculator. The quizzes are not cumulative in nature.

Activities (20%): 6 group activities given in class. For each activity, you will get 100% for being present and participating, 50% for being present but not participating and 0% for being absent. Also, if you arrive more than 15 mins late or leave more than 15 mins early you will only get 50%.

Final Exam (30%): the final exam is cumulative.

GRADE CALCULATION:
Quiz Average 50%
Activity Average 20%
Final Exam 30%

GRADING SCALE:
A 93% or above
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%)

COURSE SCHEDULE:

<table>
<thead>
<tr>
<th>WEEK</th>
<th>TOPICS TO BE COVERED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sampling</td>
</tr>
<tr>
<td>2</td>
<td>Graphs</td>
</tr>
<tr>
<td>3</td>
<td>Summary Statistics</td>
</tr>
</tbody>
</table>
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/academic-resources/academic-integrity-and-grievances/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; 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/
This assessment is designed to assess the Liberal Arts Quantitative and Logical Claims Competencies and Goals. Students who successfully complete the assessment will have demonstrated the ability to (1) analyze and address problems drawn from real world scenarios by applying appropriate mathematical, statistical, logical, and/or computational models or principles, and (2) interpret and evaluate data and information as presented in a variety of modes (such as tables, graphs, and charts), using appropriate technology. They will also be able to clearly communicate a summary of their findings to peers.

**Note:** This assessment will be graded out of 20 points, but each instructor will scale this number to fit her/his course grade structure.

You may use your calculator.

**Real world question:**
We know from various studies that the number of beers consumed has an effect on the average Blood Alcohol Content (BAC) of an individual. Your task is to report on the nature of this relationship.

1. Let us suppose that twelve different records of beers consumed and BAC provided the following information. A graph is provided on the next page.

(Note: the data below was obtained from persons who weighed 160 lbs. The relationship between BAC and number of beers consumed may be different for persons who do not weigh 160 lbs.)

<table>
<thead>
<tr>
<th>BAC (%)</th>
<th>Number of Beers Consumed (beers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.05</td>
<td>3</td>
</tr>
<tr>
<td>0.08</td>
<td>3</td>
</tr>
<tr>
<td>0.10</td>
<td>6</td>
</tr>
<tr>
<td>0.11</td>
<td>5</td>
</tr>
<tr>
<td>0.13</td>
<td>6</td>
</tr>
<tr>
<td>0.14</td>
<td>7</td>
</tr>
<tr>
<td>0.09</td>
<td>5</td>
</tr>
<tr>
<td>0.14</td>
<td>6</td>
</tr>
<tr>
<td>0.06</td>
<td>3</td>
</tr>
<tr>
<td>0.11</td>
<td>6</td>
</tr>
<tr>
<td>0.07</td>
<td>4</td>
</tr>
<tr>
<td>0.15</td>
<td>7</td>
</tr>
<tr>
<td>Mean</td>
<td>0.1025</td>
</tr>
<tr>
<td>Std Dev</td>
<td>0.0333</td>
</tr>
<tr>
<td>Correlation</td>
<td>0.9195</td>
</tr>
</tbody>
</table>
[4 pts] (a) Use the methods taught in this class to find the slope and y-intercept of the regression line, then write down the equation of the regression line.

[4 pts] (b) Interpret the slope of the regression line, in words, in context.

[4 pts] (c) Interpret the y-intercept of the regression line, in words, in context.
[4 pts] (d) Suppose a person wants to consume only two beers during the evening. What can we expect their BAC to be like? Assume that the model you came up with earlier is a well-fitting model.

[4 pts] 2. The model that you came up with earlier had an $R^2$ of about 85%, and the data used to construct that model included a minimum of 3 and maximum of 7 beers consumed. Let us suppose that the $R^2$ was different but everything else was the same. Which of the cases below would be best suited for using the model to make predictions as you did above? **Circle the correct answer.**

(A) $R^2=6\%$, number of beers consumed=5

(B) $R^2=66\%$, number of beers consumed =5

(C) $R^2=6\%$, number of beers consumed =0

(D) $R^2=66\%$, number of beers consumed=0

For Instructor’s Use. Please do not write in this space.

<table>
<thead>
<tr>
<th>Competency-Skill</th>
<th>Individual Question Scores</th>
<th>C1</th>
<th>C2</th>
</tr>
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<tbody>
<tr>
<td>C1-AA</td>
<td>#1(d)=</td>
<td></td>
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</tr>
<tr>
<td>C12-ACT</td>
<td>#2=</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C12-T</td>
<td>#1(a)=</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C2-C</td>
<td>#1(b)=</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C2-I</td>
<td>#1(c)=</td>
<td></td>
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