

# STA 2023: Fundamentals of Business Statistics

Summer 2013, Section 1

Monday to Friday, 8:00 AM to 9:20 AM, Oceanography and Statistics Building (OSB) 110

**Prerequisites:** MAC 1105 (College Algebra) or equivalent

## Instructor:

**Name:** Ajay Gupta

**Office:** Oceanography & Statistics Building (OSB) 104F

**Office Hours:** by appointment

**Walk-In Office Hours:** TBD, in Carothers (MCB) 315

The front desk in Carothers 315 will not know where to find your instructor, but you should try cubicles right of the entrance if you do not see him helping students at the computers.

**E-Mail:** [ajgupta@stat.fsu.edu](mailto:ajgupta@stat.fsu.edu)

**E-Mail Policy:** Check your my.fsu.edu E-mail every day to stay aware of updates to class meetings and assignments. If you send the instructor E-mail, include your full name and "STA 2023" somewhere in the E-mail.

## Materials and Resources:

**(Optional) Textbook:** Moore, McCabe, Duckworth, and Alwan, *The Practice of Business Statistics: Using Data for Decisions*, 2nd Edition, 2008, ISBN-10: 142922150X, ISBN-13: 978-1429221504

**Course Website:** <http://stat.fsu.edu/~ajgupta/2023/>

**Blackboard:** Class notes, assignments, and grades will be available at [campus.fsu.edu](http://campus.fsu.edu), where you should log in using your FSUID and find Fundamentals of Business Statistics (STA 2023) under the Courses section.

## Course Content:

This course will provide students a background on probability and applied statistical techniques for problem-solving in business settings. It will involve calculation, but also include choosing an appropriate technique for a situation and interpreting calculated numbers. It will also require that students be able to use computer-based statistics for looking up probabilities.

At the end of this course, a student should be able to do the following:

- Explain what a statistic is, what a parameter is, and what these have to do with the problem for various situations on the job
- Explain what a random variable is, what a probability distribution is, and how these relate to specific situations on the job
- Apply proper techniques for creating samples and research studies
- Use summary statistics and graphs to draw conclusions about data

- Calculate common statistics that describe the center, position, and variation of data
- Produce and interpret regression lines and regression equations
- Calculate probabilities for situations involving normal or binomial probability distributions, including approximate probabilities using the Central Limit Theorem
- Calculate probabilities and parameters for random variables and for combinations of random variables
- Calculate and interpret confidence intervals for averages of unknown quantities
- Set up, calculate, and interpret significance tests for averages, proportions, and two-way tables

**Tentative Schedule:**

The following schedule is subject to update and refers to sections of the course textbook. For more information, please see the lecture notes on Blackboard.

Week	Monday	Tuesday	Wednesday	Thursday	Friday
1	<b>1.Intro, 3.1, 3.3:</b> data, variables, parameters, statistics, populations, samples	<b>1.1, 1.2:</b> unweighted means, medians, quartiles, IQRs, ranges, boxplots	<b>4.1, 4.2:</b> randomness, probability models, random variables	<b>4.3:</b> probability distributions, weighted means	<b>1.Intro, 1.1:</b> data distributions, graphs
2	<b>1.1, 2.1, 5.1:</b> scatterplots, outliers, probability rules	<b>5.4:</b> conditional probability	<b>5.1:</b> independence	<b>1.2, 4.3:</b> variances, standard deviations	<b>1.3, 4.2:</b> normal distributions
3	<b>2.4, 3.Intro, 3.1:</b> sample/survey design	<b>2.Intro, 3.Intro, 3.2:</b> experimental design	<b>2.2, 2.3, 2.4:</b> correlation, simple linear regression	<b>2.3, 2.4:</b> simple linear regression	<b>5.2:</b> binomial distributions
4	<b>5.2:</b> binomial distributions	<b>3.3, 4.4:</b> sampling distributions of means	<b>4.4:</b> convergence	<b>6.1, 7.1:</b> confidence intervals of means	<b>8.1, 8.2:</b> sampling distributions of proportions
5	<b>6.2, 6.3, 6.4:</b> significance tests	<b>6.2, 8.1:</b> significance tests: proportions	<b>7.1, 8.1, 8.2:</b> significance tests: proportions	<b>8.1:</b> significance tests: proportions	<b>6.2, 7.1:</b> significance tests: means
6	<b>7.1:</b> significance tests: means	<b>6.1:</b> bootstrapping	<b>2.5, 9.1:</b> significance tests: two-way tables	<b>9.2:</b> significance tests: two-way tables	final exam due

## Grading:

The instructor may, by discretion, set the ranges for each letter grade to include lower grades than the ones from the tables below, but the worst possible letter grades for each range of scores are described below.

Percentage points are not rounded, but points exactly on a boundary will earn the higher of two grades from the table above. For example, someone with 100% for homework but 82% overall will get a B, and someone with 100% for homework but 81.99% overall will get a B-.

If a student has a homework grade of 80% or higher, then percentage points will be converted to letter grades as follows:

A	92-100	B+	88-90	B-	80-82	C	72-78	D+	68-70	D-	60-62
A-	90-92	B	82-88	C+	78-80	C-	70-72	D	62-68	F	0-60

If a student has a homework grade less than 80% but 50% or higher, then percentage points will be converted to letter grades as follows:

C	72-90	C-	70-72	D+	68-70	D	62-68	D-	60-62	F	0-60
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If a student has a homework grade less than 50%, then percentage points will be converted to letter grades as follows:

F	0-75
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### Components of Grade:

Final Exam: 50%, Homework: 50%

#### Final Exam:

The final exam will be due on Blackboard by June 21 at 3:00 PM. Students have one attempt, and their answers will be treated as final at the deadline time even if left blank.

The source for the material on the exams will be topics similar to the homework on Blackboard and an associated bank of practice questions, also on Blackboard. The final exam covers all the material for the semester, but not weighted equally by lecture.

Students are to work alone during the exam, but will be allowed to use any notes, homework solutions, calculators, or computers. The exam will be a 100-question, multiple-choice (four choice) exam. All questions are given equal weight.

#### Homework:

Homework will be assigned on Blackboard and due the day after the relevant class at 12:00 PM. The student can resubmit the homework any number of times before the deadline without a penalty. The student will receive the highest grade of those from multiple submissions for the same assignment.

The student also has the opportunity to do an identical homework assignment on Blackboard within the 48 hours following the due date, which will earn 90% of the credit that would have been earned. No credit will be given for later submissions, unless excused by the instructor.

Students can work with others on homework, but must submit the answers themselves. Students are allowed to use calculators, computer programs, the Internet, notes, and textbooks on homework.

## **Policies:**

**Attendance:** First-day attendance is mandatory, by university rules. Missing the first day will result in a student getting dropped from the class. Afterward, attendance is not required, but it is part of the attendance grade.

**Lateness:** Please attempt to come in quietly if arriving late. Homework will have a specific due date and time for submission on Blackboard, as detailed earlier.

**Missing Grades and Grade Appeals:** Students are responsible for checking their grades on Blackboard, and providing notice of a missing grade or a written statement appealing the grade within 6 days of the grade posting.

**Extra Credit:** There is no extra credit, except for extra credit given by the instructor as a reward for identifying an error in the homework or final exam. The reward is given at the instructor's discretion, but if given, will be a bonus worth the value of that question for the final exam, or double the value of that question for homework.

**Feedback:** Students should visit Blackboard's grades section to find details on how they scored by question on the homework and final exam. The final exam results will not be available until the instructor releases them, which will be after the due date.

## **Academic Honor Code:**

Students are expected to uphold the Academic Honor Code published in The Florida State University Bulletin and the Student Handbook. The Academic Honor System of The Florida State University is based on the premise that each student has the responsibility (1) to uphold the highest standards of academic integrity in the student's own work, (2) to refuse to tolerate violations of academic integrity in the university community, and (3) to foster a high sense of integrity and social responsibility on the part of the university community.

## **Students with Disabilities:**

Students with disabilities needing academic accommodation should; (1) register with and provide documentation to the Student Disability Resource Center; (2) bring a letter to the instructor indicating the need for accommodation and what type. This should be done during the first week of class. For more information about services available to FSU students with disabilities, contact the:

Student Disability Resource Center, Dean of Students Department  
108 Student Services Building  
Florida State University  
Tallahassee, FL 32306-4167  
(850)644-9566 (voice)  
(850) 644-8504 (TDD)  
SDRC@admin.fsu.edu

## **Syllabus:**

This syllabus is subject to change with advance notice. The most recent copy of the syllabus can be found on Blackboard.