Syllabus For Math 50:960:283

Spring 2022
Rutgers University-Camden

COURSE TITLE: 50:960:283 Introduction to Statistics I

TEXT: *Introduction to Business Statistics*, by Ronald M. Weiers, 7th edition.

COURSE DESCRIPTION: This 3-credit course is the first of a two-term series that introduces students to fundamentals of statistics and its applications. Topics include: Introduction to business statistics; data visualization and descriptive statistics; data collection and sampling methods; basic notions in probability; discrete and continuous probability distributions such as the Poisson and normal distributions; sampling distributions and estimation; hypothesis tests involving one or two sample means or proportions. This course covers Chapter 1-11 of the textbook. Prerequisites of the course is: Pre-Calculus for Business and Economics (640:113) or Precalculus College Math (640:115).

INSTRUCTION PLAN: This class is conducted through remote instruction for the first two weeks and returns to in-person mode on January 31, 2022. Canvas, Zoom, emails and other digital tools will be used to aid the instruction and communication. Students are expected to have access to: (1) high speed internet; (2) a laptop/desktop computer or a tablet/iPad together with built-in or separate microphone; (3) a scanner, or a phone camera with an app for producing pdf documents; (4) Microsoft Excel.

LEARNING GOALS: This course satisfies the General Education requirements under the category of Logic and Quantitative Reasoning (LQR). Through studying basic principles and methods of statistics, students of this course will be proficient and conversant in techniques commonly used in statistical data collection, analysis, and reporting. The students will learn: (1) how to analyze and evaluate mathematical or logical arguments; (2) how to propose and validate models, as well as use them for predicting future outcomes; and (3) how to formulate well-organized conclusions supported by quantitative evidence and statistical inference.

COURSE INFORMATION:

- Instructor: Siqi Fu
- Office: BSB 426
- Office hours: MW 10:00 am-11:00 am (in-person or through Zoom) or by appointments
- Phone: (856) 225-2349.
- E-mail: sfu@camden.rutgers.edu
- Web page: http://people.camden.rutgers.edu/sfu.
- Lectures: ATG-212, MW 12:30 am-1:50 pm

ASSESMENT: There will regular quizzes and homework assignments. Students are asked to submit their work through Canvas Assignments. There will also be two in-class midterm tests and a comprehensive final exam.

Grades will be assigned based on students' performance in the assignments, mid-term tests, and the final exam. Your course grade will be determined according to the following weights:

- Attendance, quizzes, and homework assignments: 20%
- Test I (Monday, 02/28/2022): 25%
- Test II (Monday, 04/11/2022): 25%
- Final Exam: 30%

ATTENDANCE POLICY: Attendance will be checked and is expected for every class period with exception for illness, court appearance, and other legitimate emergency. See the Rutgers University Attendance Policy.

CODE OF CONDUCT AND ACADEMIC INTEGRITY: Rutgers University-Camden seeks a community that is free from violence, threats, and intimidation; is respectful of the rights, opportunities, and welfare of students, faculty, staff, and guests of the University; and does not threaten the physical or mental health or safety of members of the University community, including in classroom space, and a community in which students respect academic integrity and the integrity of your own and others' work.

As a student at the University you are expected adhere to the Student Code of Conduct and Academic Integrity Policy. Please review the Academic Integrity Policy and Code of Conduct.

STUDENTS WITH DISABILITIES: If you are in need of academic support for this course, accommodations can be provided once you share your accommodations indicated in a Letter of Accommodation issued by the Office of Disability Services (ODS). If you have already registered with ODS and have your letter of accommodations, please share the letter with this instructor early in the course. If you have not registered with ODS and you have or think you have a disability (learning, sensory, physical, chronic health, mental health or attentional), please contact ODS by first visiting their website.The website will further direct you who to contact and how to contact them depending on the free, confidential services you are in need of. Please Note: Accommodations will be provided only for students with a Letter of Accommodation from ODS. Accommodation letters only provide information about the accommodation, not about the disability or diagnosis.

FACE COVERINGS: In consistent with university policy, face coverings are required in classrooms (unless there is a change of university policy). Please referee to documents Guide to Returning to Rutgers and Navigating Our Classrooms and Student spaces for details.

TENTATIVE SCHEDULE:

Lecture	Sections	Topics
1	1.1-1.6	Descriptive versus inferential statistics, types of variables and scales of measurement
2	2.1-2.3	Frequency distribution and histogram, Stem-and-Leaf display and dotplot
3	2.4-2.6	Other data visualization methods, scatter diagram, tabulation, Excel PivotTable
4	3.1-3.3	Measures of central tendency and dispersion
5	3.4-3.6	Additional dispersion topics, descriptive statistics, statistical measures of association
6	4.1-4.3	Research basics and survey research
7	4.4-4.6	Experimentation and observational research, secondary data, and basics of sampling
8	4.7-5.2	Sampling methods, basic notions in probability
9	5.3-5.5	Union and intersection of events, addition and multiplication rules for probability
10	5.6-5.7	Bayes' theorem, permutations and combinations
11	6.1-6.3	Binomial distribution and hypergeometric distribution
12	Review	Catch up, review for Test 1
13	Test 1	Covers Chapters 1-5
14	6.4-6.5	Possion distribution and simulation for discrete distributions
15	7.1-7.3	Normal distribution
16	7.4-7.6	Normal approximation to the binomial distribution, exponential distribution, simulation
17	8.1-8.3	Preview of sampling distributions, sampling distribution of the mean
18	8.4-8.6	Sampling distribution of proportion, sampling distribution with finite population
19	9.1-9.3	Point estimates and preview of interval estimates
20	9.4-9.6	Confidence interval estimates
21	9.7-9.8	Sample size determination, estimation when the population is finite
22	10.1-10.3	Hypothesis testing, testing a mean when population standard deviation is known
23	Test 2	Covers Chapters 6-9
24	10.4-10.6	Confidence intervals, testing a mean when population standard deviation is unknown
25	10.7-11.2	The power of a hypothesis test, pooled-variances t-Test
26	11.3-11.4	Unequal-variances t-test, z-test
27	11.5-11.7	Comparing two means, two sample proportions, and variances of two independent samples
28	Review	Catch up, review for the Final exam