Fordham University
Department of Economics
Spring 2022

ECON 2140 R20 Statistics I **Instructor: Chunyu Qu**

Class Hours: MR 10:00 to 11:15 AM @ FMH 315
Office Hour: Tuesday 10:00-12:00 Online
E-mail: cqu9@fordham.edu

1. Course Policy

Course Objectives: By the end of the term, students are expected to achieve a good knowledge of visual and statistical descriptions of data, data collection and sampling methods, probabilities, discrete and continuous distributions, sampling distributions, estimation from sample data and hypothesis testing using sample means and proportions. Students should be able to use statistical software selecting the appropriate techniques to make their own research, to interpret the output and draw conclusions based on their statistical results.

Required Text: Ronald M. Weiers, *Introduction to Business Statistics*, 2008—7th edition.

Attendance: Attendance is not mandatory but highly encouraged.

Tutoring Center: The Economics Department supports a Tutoring Center which is open to all students taking Basic Macro, Basic Micro, Stats I and Statistical Decision Making. The Center is open five days a week generally from 10 to 5. The tutors accept students as walk-ins or by signing up for a tutoring session on the Economics Department website. You are all invited to take advantage of this service and I highly recommend taking advantage of it.

Make-up Exams: Examinations are to be taken at the time indicated in class. A make-up examination may be given only in the instance where you have notified me and the Dean's office of the reason for your absence prior to the examination. Any student taking a make-up exam for a missed exam will receive 90% of the grade earned. Based on COVID condition, we may have online exams if a certain number of students are tested positive or have obvious symptoms.

CHEATING in any manner on an exam will result in a failing grade for the course. Any suspicious actions during an exam will be construed as cheating. A person being copied from will receive the same penalty as the one who is copying answers on an exam.

Students with Disabilities: Under the Americans with Disabilities Act and Section 504 of the Vocational Rehabilitation Act of 1973, all students, with or without disabilities, are entitled to equal access to the programs and activities of Fordham University. If you believe that you have a disability that may interfere with your ability to participate in the activities, coursework, or assessment of the object of this course, you may be entitled to accommodations. Please schedule a meeting to speak with someone at the Office of Disability Services (Rose Hill - O'Hare Hall, Lower Level, x0655 or at Lincoln Center – Room 207, x6282).

Important sources of information for all faculty and students:
Disability Services
http://www.fordham.edu/campus_resources/student_services/disability_services_/

Sexual Misconduct Policy and Procedures
http://www.fordham.edu/info/21366/policies/2719/sexual_misconduct_policy_and_procedures

Health Services
http://www.fordham.edu/info/20022/health_center

Academic Integrity
http://www.fordham.edu/info/20881/academics/4342/academic_integrity

2. Coursework

Chapter Problems: Problems from Weiers are listed in this course outline. You are expected to complete the problems listed at the end of each reading assignment. Solutions in Word format for edition 7 will be posted on my website. If you wish, I will collect this homework and review it. However, no grade is assigned. Exam questions may be based on problems from the text.

Software: We will be using Excel for your practice homework and the statistical software package R, which is free.

Calculator: If you are familiar with TI 83/84/89, that will be great. Otherwise, you can use Wolfram Alpha on your smartphone

Problems Sets: There will be 3 problem sets collected. The problems are based on the Chapter Problems. Each problem set is counted 100 pts.

Midterm Exams: Monday, March 21st. All multiple choices. In class, 75 minutes. You may bring two pages of notes and your calculator.

Final Exam: **TBD.** The final exam is cumulative but focus more on the topic after midterm. All multiple choices. In class, 90 minutes. You may bring two pages of notes and your calculator.

Extra Credits: Some will be assigned with midterm and final and some randomly.

Grading:

Problem Sets	200 pts
Extra Credits	40 pts.
Midterm:	150 pts
Final Exam:	150 pts.
Total	500 (+40)

Letter grades based on total accumulated points:

A	460 points or more	(92.0%+)	C+	390 - 399 points	(78.0% - 79.9%)
A-	450 - 459 points	(90.0% - 91.9%)	C	360 - 389 points	(72.0% - 77.9%)
B+	440 - 449 points	(88.0% - 89.9%)	C-	340 - 359 points	(68.0% - 71.9%)
B	410 - 439 points	(82.0% - 87.9%)	D	300 - 339 points	(60.0% - 67.9%)
B-	400 - 309 points	(80.0% - 81.9%)	F	less than 300	(less than 60%)

3. Course Outline

Chapter 1: Introduction

Section 1.1-1.3	A Preview of Business Statistics
Section 1.4	Types of Variables and Scales of Measurement
Section 1.5	Statistics in Business Decisions

Chapter 2: Visual Description of Data

Section 2.1-2.2	The Frequency Distribution
Section 2.4	Other Method Visual Representations of the Data
Section 2.5	The Scatter Diagram

Chapter 3: Statistical Description of Data

Section 3.1-3.2	Measures of Central Tendency
Section 3.3	Measures of Dispersion
Section 3.4	Additional dispersion topics
Section 3.5	Descriptive Statistics from grouped data
Section 3.6	Statistical Methods of Association

Chapter 4: Data Collection and Sampling Methods

Section 4.1-4.5	Research Basics
Section 4.6-4.7	The Basics of Sampling

Problem Set 1

Chapter 5: Probability: Review of Basic Concepts

Section 5.1-5.2	Terms and Approaches
Section 5.3	Union and Intersection of Events
Section 5.4	Addition Rules for Probability
Section 5.5	Multiplication Rules for Probability
Section 5.6	Bayes' Theorem and the revision of Probabilities
Section 5.7	Counting Rules

Chapter 6: Discrete Probability Distributions

Section 6.1	Introduction
Section 6.2	The Binomial Distribution
Section 6.3	The Hypergeometric Distribution
Section 6.4	The Poisson distribution
Section 6.5	Simulating observations

Midterm

Chapter 7: Continuous Probability Distributions

Section 7.1	Introduction
Section 7.2	The Normal Distribution
Section 7.3	The Standard Normal Distribution
Section 7.4	The Normal Approx. to the Binomial Distribution
Section 7.5	The Exponential Distribution
Section 7.6	Simulating observations

Problem Set 2

Chapter 8: Sampling Distributions

Section 8.1-8.2	Previews of Sampling Distributions
Section 8.3	Sampling Distribution of the Mean
Section 8.4	The Sampling Distribution of the Proportion
Section 8.5	Sampling Distributions when the Population Is Finite
Section 8.6	Computer simulation

Chapter 9: Estimation from Sample Data

Section 9.1-9.3	Introductory sections
Section 9.4	Interval Estimates for the Mean: σ known
Section 9.5	Interval Estimates for the Mean: σ unknown
Section 9.6	Interval Estimates for the Population Proportion
Section 9.7	Sample Size Determination
Section 9.8	When the population is Finite

Chapter 10: Hypothesis Testing

Section 10.1-10.2	Introductory sections
Section 10.3	Testing a Mean: σ known
Section 10.4	Confidence Intervals and Hypothesis Testing
Section 10.5	Testing a Mean: σ unknown

Section 10.6 Testing a Proportion

Problem Set 3

Final