Long Island University Post Campus
College of Management
MDA 525 (001) Business Statistics with R
Summer 2019

Class Meeting Time and Location

Days	Time	Classroom	Office
M, W	6:35 –9:25 p.m.	LB 230	Suffolk Hall 113

Contact Information
Instructor's Name: Jiamin Wang, Ph.D.
LIU E-mail Address: jiamin.wang@liu.edu (please include "MDA525-1" in the subject)
LIU Office Phone (516) 299-3914; Office Fax (516) 299-3917
Office Hours: (M/W) 5:30 – 6:30 p.m.; other hours by appointment

Catalogue Description: The course is designed to give a fundamental knowledge of the principles, concepts, and techniques involved in the application of probability and statistics to data science and artificial intelligence. Topics covered include descriptive statistics, basic probability theory, the normal distribution, statistical inference (estimation and hypothesis testing), and some basic statistical learning models including linear regression and logistic regression. R, an open-source statistical software package, is used for data analysis and statistical learning. By the end of this course, the student will master the basic statistical concepts, statistical inference techniques and R programming language necessary for analyzing real-world data.

Course Prerequisite(s): Algebra

Intended Audience: students who are required to take an introductory statistics/data analysis class.

Course Learning Goals: Content Related and Skills Related

Content Related Learning Goal: The learning goal of this course is that each student develops basic skills in data analysis and an in-depth understanding of statistical methods with particular emphasis on their applications to analyzing real-world data.

Measurement of Content-Related Learning Goal (Assurance of Learning): Homework assignments, quizzes and exams will serve to measure the achievement of the learning goal.

Skills Related Learning Goals: The course will provide opportunities to develop the following

- Quantitative analysis skills: quantitative analysis skills are essential in statistical studies. Through in-class demonstrations and exercises, this class will help to develop these skills.
- Analytic-thinking skills: data analysis requires strong analytical-thinking skills. In-class and out-of-class exercises will be assigned to enhance these skills.
- Use of information technology: R will be used extensively in this course. Homework assignments will be chosen to enhance the student's use and understanding of information technology.

Contact and Homework Hours: In compliance with NY State Education Department Standards, this 3-credit course will meet for a minimum of 45 hours (50 minutes each) of instruction. It is expected that the student will conduct a minimum of 30 hours of supplementary assignments.

Required Course Materials:

- Diez, Çetinkaya-Rundel and Barr *OpenIntro Statistics*, 4th Edition. The textbook is open-source; the e-book can be downloaded for free from OpenIntro (https://www.openintro.org/stat/textbook.php), while paperback copies (ISBN: 978-1943450077) can be purchased on Amazon for $20.00.
- Lecture notes in *Microsoft PowerPoint* format and R notebooks will be posted on the GitHub course repository (https://github.com/postmda/MDA525) on an ongoing basis.

Assignments will be chosen to reinforce the learning objectives of the course. For successful completion of this course, it is essential that the student should independently complete all assignments.

Types of Assignments:

1. Reading Assignments: there will be a reading assignment after each lecture.

2. Homework Assignments: there will be four homework assignments. Each assignment should be handed in at the beginning of the class on the day it is due. Late submission will generally not be accepted. The key to each assignment will be handed out shortly after its due date. The instructor will make every effort to return the assignments one week after they are collected. Please follow the instructions below in preparing your homework assignments.

   • Your assignments should be typed in Microsoft Word and provided on 8.5 by 11 inch paper.
   • All answers and conclusions should be clearly explained.
   • Computer output should be attached if necessary.
   • Assignments should be done independently.

3. Post-class Quizzes: there will be four post-class quizzes that help students test their mastery of the material covered in class. Each quiz should be handed in at the beginning of the class on the day it is due. Late submission will generally not be accepted. The instructor will go over selected quiz questions in class.

Evaluation (Grade Determination)

Mid-term Exam	20%
Final Exam	30%
Homework Assignments	30%
Attendance and Participation	5%
Quizzes	15%

Student Withdrawal and Unauthorized Withdrawal: A "W" or a "UW" indicates a "student-initiated" or an "unauthorized" withdrawal respectively. A "W" grade cannot be obtained after August 22, 2019.

Incomplete Grades A grade of "INC" indicates that some of the course requirements have not been completed. The INC is given only in rare instances where the course cannot be completed for a valid reason (as determined by the instructor) and the student is passing the course. An "INC" grade cannot be used as a means of avoiding a poor course grade. An "INC" grade must be completed (not by repeating the course) by the end of Fall 2019 semester.

Plagiarism Statement: Academic dishonesty is unacceptable, and condemned in the strongest possible terms. It undermines the bonds of trust and honesty between members of the community and defrauds those who may eventually depend upon our knowledge and integrity. Such dishonesty consists of any of the following: cheating, fabrication, plagiarism, and facilitating academic dishonesty. Academic dishonesty is punishable by a range of penalties, including a failure or lower grade for an assignment/exam or for the course, and expulsion from the University. Detailed information on the academic conduct policy standards can be found on the LIU Post website at http://www.liu.edu/CWPost/StudentLife/Services/Counseling/AcadPolicies/Conduct/Standards.

Support Service Options for Students with Disabilities Statement: If you are a student with a documented disability, medical condition, or think you may have a disability, and will need accommodations, academic adjustments, auxiliary aids, or other services, please contact Marie Fatscher in Disability Support Services (Post Hall, Lower Level, C10) at 516-299-3057 or marie.fatscher@liu.edu to request services, accommodations or for additional information. Additional information is also available on the DSS website: www.liu.edu/post/dss

The Center for Healthy Living offers supportive psychological and nutritional services Monday – Friday 9 a.m. to 5 p.m. and is located in Post Hall, Lower Level – South Entrance (parking lot side of building.) Additional information is available by emailing post-healthyliving@liu.edu or calling Lynne Schwartz at (516) 299-4162.

Other Information/Class Policies:

Late Assignments: No late homework assignments or post-class quizzes will be accepted. If the student misses class on the day an assignment is collected, the instructor must receive the collected assignment before the scheduled class time.

Cell Phones: Please turn off or put your cell phone on "airplane" mode in class. Students are NOT permitted to use their cell phone as a calculator.

Attendance Policy: Class attendance is mandatory. Two or more unexcused absences may result in a course grade no higher than "B-".

Exams: One mid-term exam and one final exam will be given. The final exam will be given on August 28.

Make-up Exams: No make-up exams will be given unless the student has an extremely good reason for missing the exam and has notified the instructor within 12 hours. If the student fails to notify the instructor in time (regardless of the validity of the excuse), or if the student misses the exam without a valid excuse, a make-up will not be allowed and the student will earn a score of zero (0). On the date of make-up, the student must provide written documentation for missing the exam.

MDA 525 (001) Tentative Schedule

Date	Topics
7/29	Chapter 1 Introduction to Data Chapter 2 Summarizing Data
7/31	Chapter 3 Probability Section 4.1 Normal Distribution
8/5	Sections 5.1 & 7.1 Sampling Distributions
8/7	Chapter 6 Inference for Categorical Data
8/12	Chapter 7 Inference for Numerical Data
8/14	Review **Mid-term Exam**
8/19	Chapter 8 Introduction to Linear Regression
8/21	Chapter 9 Multiple and Logistic Regression
8/26	Review
8/28	**Final Exam**