

IT223 Data Analysis

Autumn 2018/19 Course Syllabus

Instructor Enes Yilmaz, PhD

Class: LEWIS 1511

Meeting time: Tu 5:45PM - 9:00PM

Office Hour/Contact Hours: Tuesday at 9:00 – 10:30 pm or by appointment

Email: eyilmaz@depaul.edu

Course website: <https://d2l.depaul.edu/>

Course Description

Application of statistical concepts and techniques to a variety of problems in IT areas and other disciplines, using a statistical package for simple data analysis. Course topics include descriptive statistics, elementary probability rules, sampling, distributions, confidence intervals, correlation, regression and hypothesis testing.

The objectives of this course are:

- to develop an understanding of the basic concepts of probability and statistics,
- to help students to be informed and critical readers of quantitative arguments,
- to provide sufficient skills to apply simple statistical techniques with the aid of a computer,
- to appreciate the role of statistics in empirical research and scientific study,
- to gain flexible problem-solving skills applicable to unfamiliar statistical settings.

Prerequisites: Students are expected to understand basic mathematical notation and be familiar with college algebra concepts (Algebra 1 or Intermediate Algebra).

Required Textbook and Printed Resources:

Introduction to the Practice of Statistics, Ninth Edition, by D.S. Moore, G.P. McCabe and B. Craig. (Previous editions of the book are also fine)

An excellent online resource is the free statistics book at

<http://onlinestatbook.com/2/index.html>

Notes and video tutorials about Excel and Python, as well as other resources will be posted on the course website on D2L. It is the student's responsibility to download and be familiar with all the course documents and notes posted.

Software: The statistical packages used in this course are Excel and Python. They are available in all DePaul labs. More information about the software will be posted on the course website

Grading:

There will be 6 Assignments (40%), a Midterm (20%) and one Final Exam/Project (40%).

Final grades are determined by averaging scores from: Best 5 Assignments, Midterm and a Final Exam/Project. The lowest assignment score will not be included in the final score calculations, provided you have taken all six assignments administered during the semester. Should you decide to not to take all assignments given during the semester, your average will be calculated based on the assignments you have taken and zeros for the assignments you have not taken. In this case, the lowest score will not be dropped from the calculation of the final average. You **may not pass** the class if you do not receive a passing grade on the final exam.

The dates for Midterm and Final Exam/Project could be adjusted at the discretion of the instructor. No make-up assignments will be given. **Late work** will be accepted at the instructor's discretion.

Grading Scale

A	94 and above
A-	90 - 93
B+	87 - 89
B	84 - 86
B-	80 - 83
C+	77 - 79
C	74 - 76
C-	70 - 73
D+	67 - 69
D	64 - 66
D-	60 - 63
F	Less than 60

Week by Week Schedule

Week 1:

Syllabus and overview of course, Graphing / Charting, Measures of center (mean, median)

Week 2:

Measures of Spread, Standard Normal Table, Z-Scores - Excel

Week 3:

Variation contd, 68-95-99.7 Rule, Introduction to Scatterplots - Python Introduction

Week 4:

Correlation and Regression – Python Pandas/Numpy/Matplotlib

Week 5:

Causation, Principles in Study Design - Python Pandas/Numpy/Matplotlib

Week 6:

Midterm Exam

Week 7:

Probability - Python Pandas/Numpy/Matplotlib

Week 8:

Probability continued - Python SciKitLearn / Linear Regression

Week 9:

Introduction to Inference and Central Limit Theorem, Confidence Intervals

Week 10:

Hypothesis Testing, Review of Final Exam – Final Exam/Project Details

Week 11:

Final Exam/Project

School policies:**Changes to Syllabus**

This syllabus is subject to change as necessary during the quarter. If a change occurs, it will be thoroughly addressed during class, posted under Announcements in D2L and sent via email.

Online Course Evaluations

Evaluations are a way for students to provide valuable feedback regarding their instructor and the course. Detailed feedback will enable the instructor to continuously tailor teaching methods and course content to meet the learning goals of the course and the academic needs of the students. They are a requirement of the course and are key to continue to provide you with the highest quality of teaching. The evaluations are anonymous; the instructor and administration do not track who entered what responses. A program is used to check if the student completed the evaluations, but the evaluation is completely separate from the student's identity. Since 100% participation is our goal, students are sent periodic reminders over three weeks. Students do not receive reminders once they complete the evaluation. Students complete the evaluation online in CampusConnect.

Academic Integrity and Plagiarism

This course will be subject to the university's academic integrity policy. More information can be found at <http://academicintegrity.depaul.edu/> If you have any questions be sure to consult with your professor.

Academic Policies

All students are required to manage their class schedules each term in accordance with the deadlines for enrolling and withdrawing as indicated in the University Academic Calendar. Information on enrollment, withdrawal, grading and incompletes can be found at <http://www.cdm.depaul.edu/Current%20Students/Pages/PoliciesandProcedures.aspx>.

Students with Disabilities

Students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussions will remain confidential.

To ensure that you receive the most appropriate accommodation based on your needs, contact the instructor as early as possible in the quarter (preferably within the first week of class), and make sure that you have contacted the Center for Students with Disabilities (CSD) at:

Lewis Center 1420, 25 East Jackson Blvd.

Phone number: (312) 362-8002

Fax: (312) 362-6544

TTY: (773) 325.7296