Economics 490: Predictive Analytics Syllabus
Spring 2021

Contact Information

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Office Hours:	Wednesdays from 16:00 to 18:00 time of Urbana, IL. To schedule office hours, send me an email with the subject "Econ490 Office Hours."

Course Websites

- **Compass**
  - https://compass2g.illinois.edu
  - Here, you will find
    - The slides I use in this class
    - Short videos explaining specific concepts
    - The homework assignments
    - The exams
    - Grades will be posted in the section "gradebook."
- **Piazza**
  - This is the discussion forum regarding course content.
  - **You are not permitted to post or solicit solutions of assignments that have not been graded yet.**
  - Posts should remain focus on course content.

Material

- **Textbooks (not mandatory, just for reference).**
  - Prince, Jeff. *Predictive Analytics for Business Strategy*. 2019. Mc Graw Hill Education.
  - Wackerly et. al., *Mathematical Statistics with Applications*. 7th Ed. Cengage.

- **Calculator**
  - Basic financial or statistical calculator.
  - The standard calculator is BAII Plus.
  - Calculators with functionality beyond BAII Plus are not allowed.
  - You should have your calculator in every class.
  - **Graphing calculators are not allowed!**

Course Objective

This course will introduce students to the standard statistical models that professionals use to analyze, interpret, and evaluate data to inform decision-making processes.

At the end of this course, students will be able to do the following:

1. Construct models of standard probabilistic environments
2. Estimate those models using least squares, maximum likelihood, and the method of moments.
3. Use the estimated version of those models to extrapolate and interpolate predictions.

Grading

The scale used to assign letter grades in the course will be the standard 90/80/70/60 scale with +/- grades given at +/- 3% around these cutoffs. Curves are at the discretion of the Professor. Once grades are assigned by the instructor at the end of the course, no exceptions will be made. We do not round grades. The following table summarizes the standard grading scale:

Final Score	Final Grade
97.00 – 100	A +
93.00 – 96.99	A
90.00 – 92.99	A –
87.00 – 89.99	B +
83.00 – 86.99	B
80.00 – 82.99	B –
77.00 – 79.99	C +
73.00 – 76.99	C
70.00 – 72.99	C –
67.00 – 69.99	D +
63.00 – 66.99	D
60.00 – 62.99	D –

Grade Distribution Undergraduates

Midterm 1	20%
Midterm 2	20%
Final Exam	20%
Homework	20%
Project Part A	20%

Grade Distribution Graduate Students (MSPE)

Midterm I	20%
Midterm II	20%
Final Exam	20%
Homework	20%
Project Part A	10%
Project Part B	10%

Instructional Activities

- **Homework**
  - There are 5 homework assignments. The lowest grade among all your homework assignments will be substituted by the second lowest grade.

- **Exams**
  - There will be three exams (two midterms and a final). Each mid-term will only cover the material since the last exam. The final exam will be comprehensive. Basic calculators will be permitted.
  - The are no make-ups for midterm exams. If your absence to a midterm exam is properly documented, the weight of the midterm is transferred to the final exam. This policy applies at most once.

Academic Integrity

Violations of academic integrity as given in the Code on Campus Affairs will be taken extremely seriously. Students found cheating in the course (or helping others to cheat) will be penalized according to the Code's guidelines.

Course Schedule

Week	Topics
25/01 – 31/01	Introduction
01/02 – 07/02	Binomial Distribution
08/02 – 14/02	Poisson Distribution
15/02 – 21/02	Geometric Distribution
22/02 – 28/02	Uniform Distribution
01/03 – 07/03	Normal Distribution
08/03 – 14/03	Gamma and Beta Distributions
15/03 – 21/03	Review
22/03 – 28/03	Simple Linear Regression: Part I
29/03 – 04/04	Simple Linear Regression: Part II
05/04 – 11/04	Multiple Linear Regression
12/04 – 18/04	Discrete Response Models
19/04 – 25/04	Review
26/04 – 01/05	Non-linear Models
03/05 – 05/05	Data Problems

Date	Assignment
14/02	Homework 1 is due.
28/02	Homework 2 is due.
14/03	Homework 3 is due.
From 19/03 to 21/03	Midterm Exam 1
04/04	Homework 4 is due.
18/04	Homework 5 is due.
From 23/04 to 25/04	Midterm Exam 2
05/05	Homework 6 is due.