

ECON 8310 (BSAD 8080) – Business Forecasting

Date & Time – Room: TBA

Instructor: Dustin White
MH 332M
Phone: 402-554-3303

Office Hours: TBA, and by appointment.

Materials: Course Slides (hosted on Blackboard)
Course Notes (also hosted on Blackboard)
Python (I recommend Anaconda, since it comes prepackaged with most of the numeric and analytic libraries we will use)

Prerequisites: ECON 2200, BSAD 8150, or equivalent
BSAD 2130 or equivalent

No previous programming experience is required, but some experience programming is highly advantageous. We will be creating our own forecasts, and my examples will use Python. You are welcome to use any other statistical software (such as R), but **I will not provide support for other software or languages.**

Description: The course will cover forecasting tools and applications applied to business settings. We will cover traditional Econometric forecasting methods in the first half of the class. In the second half of the course, we will focus on models in predictive analytics and machine learning, since these models are quickly becoming critical tools for forecasters in many settings. The course will include lecture and lab time, and labs will be focused on teaching students how to implement the models discussed in lectures.

Course Outline: Time Series Models

Review of OLS, Tools for Class 1 day
Time Series Models - ARIMA and ARIMAX approx 1 day

Time Series Models - VAR approx 1 day

Predictive Models

Classification and Naive Bayes approx 1 day

Entropy, Histograms and Decision Tree Classifiers approx 2 days

Support Vector Machines approx 1 day

Midterm Exam 1 day

Ensemble Methods approx 2 days

Neural Networks - Introduction approx 1 day

Neural Networks - Deep Neural Nets approx 1 day

Simulation approx 2 days

Final Exam 2 days

Grade Policy: Lab Completion 300 points

Midterm Exam 100 points

Final Exam 100 points

Project 1 250 points

Project 2 250 points

Grades will be distributed according to the following grade scale:

| Score | Letter Grade | Score | Letter Grade |
|-------|--------------|-------|--------------|
| A | > 939 | C+ | 775 - 799 |
| A- | 900 - 939 | C | 725 - 774 |
| B+ | 875 - 899 | C- | 700 - 724 |
| B | 825 - 874 | D | 600 - 699 |
| B- | 800 - 824 | F | < 600 |

Course Objectives: After this course, students should be capable of:

1. Understanding the respective strengths and weaknesses of the models pre-

sented in class

2. Implementing Econometric forecasting models
3. Applying machine learning algorithms in a forecasting setting

Grading: All assignments are to be submitted through the appropriate dropboxes on the course website. Rubrics will be posted, and will contain detailed information on the assignment grading policy.

Homework: Late work is not accepted, except as outlined in University policy.

Academic Honesty: UNO's requirements for Academic Integrity and Behavior All students are required to adhere to the highest standards of academic integrity and behavior and must satisfy the UNO Academic Integrity Policy www.unomaha.edu/student-life/student-conduct-and-community-standards/policies/academic-integrity.php and Student Code of Conduct www.unomaha.edu/student-life/student-conduct-and-community-standards/policies/code-of-conduct.php. It is the student's responsibility to read, understand and abide by these policies. If I find that you have plagiarized, been dishonest in completing your assignments, or cheated on an exam or assignment, then I reserve the right to award you no points on the entire exam, project, or assignment and to report the behavior to the university. If this behavior is repeated, I reserve the right to award a failing grade, independent of your score on other assignments. Academic integrity is essential to education, and I take it very seriously.

Extra Help: Do not hesitate to come to my office during office hours or by appointment to discuss a homework problem or any aspect of the course.