

ECON 8310 – Business Forecasting

Days and Times: FILL IN EACH TERM

Classroom: FILL IN EACH TERM

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.

Office Hours

I will hold office hours in person or remotely by zoom by appointment. Since you all have work schedules, we will do our best to find time in which we can meet together. I will also be available by Slack on weekdays during business hours.

Grading

This course will be graded as follows:

- 20% percent of your grade will be based on reading assignments for each lesson
- 30% percent of your grade will be based on homework assignments (4 in total)
- 30% percent will be based on two semester projects, to be described in class (one after lesson 6, and the other after lesson 12, each project occupying 2 weeks of class time)
- 20% percent will be based on participation in the course (participation in lab time and slack discussions for in-person sections, and slack discussions only for online sections)

Final grades will be based on the total points you earn, and distributed according to the following scale.

Letter	Percent
A	94.0 - 100.0
A-	90.0-93.9
B+	87.0 - 89.9
B	84.0 - 86.9
B-	80.0 - 83.9
C+	77.0 - 79.9
C	74.0 - 76.9

Letter Percent

C- 70.0 - 73.9

D+ 66.0 - 69.9

D 60.0 - 65.9

F < 60.0

Reading and Homework Assignments

In order to give students as many opportunities as possible to learn and practice the concepts being taught in class, there will be reading assignments as well as homework assigned for each topic (totaling 12 reading assignments and 4 homework assignments). No late homework or reading submissions will be accepted.

Projects

The best way to learn is to do, and so we will focus on *actively using* the tools we discuss in class. I don't expect you to know how to code when the semester starts, but the course will be based on writing code, so I do expect you to learn as the course progresses. I will help you do so, and will make the process as painless as possible. The primary goal is to help you *do* data analysis. Your entire grade is based on coding projects and assignments, so please make sure that you schedule time to remain for *all* of class each week.

Participation

In addition to doing coding, being an active member of our learning community is important for you AND for your classmates. Asking questions helps everyone to gain a clearer understanding of the content. Answering questions helps you to strengthen your own understanding by formalizing your thoughts on a topic. No matter your comfort level with the material, you will benefit from participating. Without participating in this course (there will be many opportunities to participate every week), you will not be able to earn the grade you want (or, more importantly, learn the material as well as you want)!

Every week, I will provide a prompt for the class chat. The minimum expectation for participation in the course is to respond to that prompt, and to reply to someone else's post on the topic. For in-person sections, attendance and participation in class will also factor into your participation grade. More than one unexcused absence from class will cause your participation grade to fall. Absences will only be excused where required by university policy.

I will NOT post weekly grades. Your participation grade will therefore be a holistic assessment of your involvement in the course earned throughout the entire term. I will make every effort to accommodate different styles of participation, but every student will be expected to participate.

Course Schedule

Part 1: Time Series Models

- 1 - Introduction, Review of OLS
- 2 - ARIMA3 - ARIMA Variants
- 4 - VARMA Models5 - GAMs6 - Exponential Smoothing

Midterm Project

Part 2: Predictive Models

- 7 - Lasso and Feature Selection
- 8 - Decision Trees
- 9 - Random Forests

Part 3: Bayesian Models

- 10 - Bayesian Models Part 1
- 11 - Bayesian Models Part 2
- 12 - Bayesian Models Part 3

ACADEMIC INTEGRITY

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 <http://www.unomaha.edu/student-life/student-conduct-and-community-standards/policies/academic-integrity.php> (Links to an external site.) and Student Code of Conduct <http://www.unomaha.edu/student-life/student-conduct-and-community-standards/policies/code-of-conduct.php> (Links to an external site.). 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.

RESPECT

This class should be a place where EVERYONE is comfortable. In taking this course, you agree to be a respectful member of our classroom community. As your professor, I also commit to being available to help you however I can. If I am unable to help you, I will help you find campus resources that can help you. Many important student services can be found at these links:

- Student support services: <https://www.unomaha.edu/online-learning/resources/student-support-services.php> (Links to an external site.)
- Student life: <https://www.unomaha.edu/student-life/index.php>