

**Syllabus**  
**ECON 3313Q: Elementary Economic Forecasting**  
**Fall 2021**

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<b>Pronouns:</b>	He/him/his
<b>Office hours:</b>	TuTh 13:30 – 14:30 or by appointment, on Oak hall 320
<b>Lectures:</b>	TuTh 9:30 – 10:45, on Mchugh hall 302

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**Course Description:**

This course provides an upper-level undergraduate introduction to forecasting, broadly defined to include all aspects of predictive modeling, in economics and related fields. Although we will make heavy use of general econometrics/statistics, this course is much more sharply focused. It explicitly and exclusively about economic prediction, or forecasting, as opposed to general econometrics/statistics, or anything else. Emphasis will be on forecast construction, evaluation, and combination. Mathematics of econometrics will be introduced only as needed and will not be a central focus.

**Prerequisites:** ECON 2202 or 2212Q; ECON 2311Q; MATH 1071Q or 1110Q or 1125Q or 1131Q or 1151Q or 2141Q; and STAT 1000Q or 1100Q.

**Textbooks:**

The main textbook will be used for this course:

- Diebold, F. X., *Elements of Forecasting*, 4<sup>th</sup> Edition, Cengage Learning.

Besides the main textbook, the following textbooks are recommended:

- Diebold, F. X., *Forecasting in Economics, Business, Finance and Beyond*, Department of Economics, University of Pennsylvania.

The PDF version of both books are available on [HuskyCT](#) to download. In addition to the recommended textbooks, a series of lecture notes which follow the material presented in class will be posted on [HuskyCT](#). You should check this page regularly.

**Grading Policy:**

Participation (10%), Homework (30%), Midterm I (20%), Midterm II (20%), Final Project (20%). I will generally follow the following grading scheme, however, I reserve the right to make adjustments as necessary. You will be noticed if adjustments are made.

$\geq 93.00$	<i>A</i>	73.00 – 76.99	<i>C</i>
90.00 – 92.99	<i>A–</i>	70.00 – 72.99	<i>C–</i>
87.00 – 89.99	<i>B+</i>	67.00 – 69.99	<i>D+</i>
83.00 – 86.99	<i>B</i>	63.00 – 66.99	<i>D</i>
80.00 – 82.99	<i>B–</i>	60.00 – 62.99	<i>D–</i>
77.00 – 79.99	<i>C+</i>	$\leq 59.99$	<i>F</i>

### **Class Requirements:**

- **Participation:** Regular attendance is essential and expected. Attendance check will be given to random selected classes periodically throughout the semester.
- **Homework Assignments:** There are six homework assignments in total including computer exercises. These assignments with lecture notes are key materials for reviewing the main contents of the lectures and preparing for the exams. While cooperation and discussion is encouraged, homework assignments, including computer work, must be the work of the student whose name appears on them (i.e., your own). Please do not copy the answers from the solution manual or students who took my class before, or you will receive zero credit. Homework will be collected at the beginning of the section on the due date.
- **Exams and Final Project:** Two midterm exams and one final project. Dates are TBA. The Midterm exams will be held on our regular class time. There will be no computer work on the midterm exams. For the final project, you need to write a term paper based on your interest using the forecasting tools we have learned through the semester. More instructions will be given about the final project in class.

**Makeup Exam Policy:** Only students with legitimate excuses will be allowed to make up missed exams. The date and time for student to take a makeup exam will be arranged on a case by case basis.

### **Cheat Sheet:**

Two pages (single sided, 8.5 × 11 inches) of paper are allowed for each midterm exam. They can either be printed or handwritten.

### **Statistical Software:**

We will use the statistical package R which is free and open source. R is a programming language and free software environment for statistical computing. To install RStudio, first download and install R from <http://cran.r-project.org/>. Second, download and install RStudio by visiting <http://rstudio.org/download/desktop> and clicking the link listed under "Recommended for Your System." Please let me know if you have encountered any problem in installing R and RStudio in your computer.

### **Academic Integrity:**

You are responsible for acting in accordance with the University of Connecticut's [Student Code](#). Review and become familiar with these expectations. In particular, make sure you have read the section that applies to you on [Academic Integrity](#). Cheating and plagiarism are taken very seriously at the University of Connecticut. As a student, it is your responsibility to avoid plagiarism.

### **Disabilities and Accommodations:**

In compliance with the University of Connecticut policy and equal access laws, I am available to discuss appropriate academic accommodations that may be required for students with disabilities. Students in need of accommodations should go to the [center for students with disabilities](#) to verify their eligibility for appropriate accommodations. If you are eligible for accommodations such as extra time during exams, please provide documentation and coordinate with me no later than a week prior to every exam.

### **How to Succeed in this Course:**

All students can succeed in this course and I am here to help you along the way. Please do not hesitate to ask questions or attend office hours. All questions are important here. Success in this course program depends heavily on your personal health and well-being. Recognize that stress is an expected part of the college experience, and it often can be compounded by unexpected setbacks or life changes outside the classroom. I strongly encourage you to reframe challenges as an unavoidable pathway to success. Reflect on your role in taking care of yourself throughout the semester, before the demands of exams and projects reach their peak. Please feel free to reach out to me about any difficulty you may be having that may impact your

performance in your courses or campus life as soon as it occurs and before it becomes too overwhelming. In addition to your academic advisor, I strongly encourage you to contact the many other support services on campus that stand ready to assist you.

Consider including links to the [Dean of Students Office](#), [Academic Achievement Center](#), [Writing Center](#), [Quantitative Learning Center](#), [Center for Students with Disabilities](#), [Student Health and Wellness – Mental Health](#), etc.

**Statement on Copyright:**

My lectures, notes, handouts, displays and recordings are protected by state common law and federal copyright law. They are my own original expression and I've recorded them prior or during my lecture in order to ensure that I obtain copyright protection. Students are authorized to take notes in my class; however, this authorization extends only to making one set of notes for your own personal use and no other use.

**Tentative Course Outline:****1. Introduction to Forecasting** (Elements of Forecasting, Chapter 1)**2. Review of Probability and Statistics**

(Elements of Forecasting, Chapter 2)

- (a) Random Variables and Probability Distribution Functions
- (b) Jointly Distributed Random Variables, Covariance and Correlation
- (c) Estimators and Sampling Distributions
- (d) Statistical Inference: Estimation and Hypothesis Testing

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**(Homework 1)**

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**3. Review of Regression analysis and Regression for Forecasting**

(Elements of Forecasting, Chapter 2)

- (a) Simple Linear Regression analysis and Inference
- (b) Multiple Linear Regression analysis and Inference
- (c) Nonlinear Regression analysis and Inference
  
- (d) Regression From a Forecasting Perspective

**4. Six Considerations Basic to Successful Forecasting**

(Elements of Forecasting, Chapter 3)

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**(Homework 2)**

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**5. Graphics, Trend and Evaluating Forecasting Models**

(Elements of Forecasting, Chapter 4 &amp; 5)

- (a) Statistical Graphics for Forecasting
- (b) Modeling and Forecasting Trend
- (c) Selecting forecasting models using the Akaike and Schwarz criteria
- (d) Application: characterizing Canadian employment dynamics

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**(Homework 3 & Midterm I)**

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**6. Modeling and Forecasting Seasonality**

(Elements of Forecasting, Chapter 6)

- (a) The nature and sources of seasonality
- (b) Modeling seasonality
- (c) Forecasting seasonal series criteria
- (d) Application: forecasting housing starts

—————**(Homework 4)**—————

**7. Characterizing and Modeling Cycles** (Elements of Forecasting, Chapter 7 & 8)

- (a) Covariance stationary time series
- (b) White noise, Lag operator and Wold's theorem
- (c) Autocorrelation and Partial Autocorrelation Functions
- (d) Modeling Cycles: MA, AR and ARMA Models
- (e) Application: specifying and estimating models for employment forecasting

—————**(Homework 5)**—————

**8. Forecasting Cycles** (Elements of Forecasting, Chapter 9)

- (a) Optimal forecasts
- (b) Forecasting moving average processes
- (c) Making the forecasts operational
- (d) The chain rule of forecasting
- (e) Application: forecasting employment

—————**(Homework 6 & Midterm II)**—————

**9. Putting it all Together: A Forecasting Model with Trend, Seasonal and Cyclical Components**  
(Elements of Forecasting, Chapter 10)

—————**(Final Project)**—————