

MBA526: Regression and Forecasting

Canisius College
Spring 2012

Tuesday 6-8:45pm
OM223

Instructor: Scott W. Hegerty

Office: CT 308

Office Hours: W 12-2pm, R 4-5pm and by appointment

hegertys@canisius.edu

Quantitative skills are highly valuable in today's business world. Applied statistical analysis can be used in virtually all business decisions. This course will introduce students to two main topics: *Regression analysis*, which examines predictive relationships among sets of variables, and *time-series analysis*, which deals with individual variables or sets of variables over time. By the end of the course, students will be able to correctly specify, analyze, and interpret real models using techniques that are commonly employed in industry. In addition, students will work with Eviews, a popular econometric software package.

Prerequisites: MBA503 or MBA822 (Minimum grade of C-). More importantly, it is expected that you are taking the class because you are interested in learning these statistical tools and are willing to put in a substantial amount of effort to do so.

Texts: There are two texts. One is F.X. Diebold, *Elements of Forecasting*, 4e (Cengage).

The second is a custom publication, available at the Canisius Bookstore, containing chapters 4-7 and 14-16 from Stock and Watson, *Introduction to Econometrics*, 3e (Pearson). You can buy the whole book if you like through the publisher or online.

Software:

We will use Eviews for this class. It is available on campus, or you can purchase a student edition from the company. We will discuss this in class. We may also do examples in Excel.

Grading:

Your grade will be assigned based on the following formula:

Assignments	50%
Midterm Exam	20%
Final Exam	20%
Conduct and Professionalism	10%

Homework will involve analyzing and reporting real data using the concepts from class. Each will involve data manipulation, software use, and applying multiple concepts from the course. There will be at least one assignment for each of the two course halves.

Exams will assess students' mastery of the material, as well as analytical thinking and communication skills. The Midterm will cover regression, while the Final will mostly cover time-series analysis. Much of the tests will involve critical thinking and interpretation rather than mathematical calculations.

Main Topics: The following constitute the main lecture themes. These roughly correspond to the weeks of the course. The first class is January 17 and the last class is May 1. The Final will most likely be May 8. There will be no class February 21 or March 13. Most lectures will have a substantial component devoted to the use of software.

Note: SW = "Stock and Watson," FXD = "Francis X. Diebold"

- Week 1: Review of Statistics: Variables, Distributions, Hypothesis Testing
- Week 2: Univariate Regression: Assumptions, Concepts, and Estimation (SW 4)
- Week 3: Univariate Regression: Inferences, Diagnostics, Dummy Variables (SW 5)
- Week 4: Multivariate Regression: Concepts, Estimation, and Diagnostics (SW 6)
- Week 5: Hypothesis Testing and Model Specification (SW 7)
- Week 6: Violations of the Assumptions: Heteroskedasticity and Autocorrelation (SW 5, 14)
- Week 7: MIDTERM EXAM (March 6 or March 20)
- Week 8: Introduction to Time Series: Time series properties; trend, cycle, seasonality (FXD 4-6)
- Week 9: Stationarity and Unit-Root Testing (SW 14, FXD 13)
- Week 10: ARIMA Analysis and the Box-Jenkins Procedure (FXD 7-9)
- Week 11: ARIMA Analysis; Evaluating Forecasts (FXD 9-10, 12)
- Week 12: Vector Autoregressions, Cointegration and Time-Series Regression (SW 16, FXD 11)
- Week 13: Modeling Volatility (FXD 14)
- Week 14: Special Topics (May be covered in the week preceding the Midterm)

Note about Attendance: Please let the instructor know if you will be absent. While you cannot be penalized for missing class, keep in mind that this is a fairly advanced mathematical and statistical course. You are responsible for all material whether you were present for class or not. The class will not slow down because you were out of town or haven't had a chance to study. Waiting until test time to review the material will most likely be too late.

Conduct and Professionalism: In all aspects of the class (behavior, e-mail correspondence, etc.), you are expected to behave professionally. A good rule of thumb: Ask yourself, "If I did this to my boss or at work, would I get written up or fired?" If the answer is "yes," then do not be surprised if you receive a low grade in the course. Students who spend excessive time texting or otherwise not engaging in class will lose 10 points of their final grade.

The Office of Disability Support Services serves as the college's advocate for students with disabilities and it responsible for arranging necessary support. Any student who needs academic accommodations should contact the office at (716) 888-3748. If you have a disability for which accommodations are necessary, please also inform the instructor. For more information about the DSS Office or academic accommodations, please visit www.canisius.edu/dss or call 888-3748.

Academic Honesty will be *strictly* enforced. Expectations will be explained in class, and are available at www.canisius.edu/integrity/.