Instructor: Dr. Aaron Smallwood

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Course Webpage: http://www.uta.edu/faculty/smallwood/ECON4325spring14.html

Please check the course website before each class, as I will frequently post data that we will work with in class. Students are encouraged to bring their laptops to class so that they can follow the examples directly.

Time and Location: T-Th 9:30 - 10:50, COBA 139.

Office Hours: Tuesday 1:00 - 2:00 (p.m.)
Thur. 5:30 - 6:30 (p.m.)

Textbook: The lectures will be based on the following textbook:

*Forecasting for economics and business*, 1st edition. Author: Gloria Gonzalez-Rivera

Students will be required to obtain the software EViews. The software will be used in forecasting exercises throughout the course. A student version of the software can be obtained for $39.95 directly from the manufacturer at the following URL:

http://www.eviews.com/EViews8/EViews8Student/evstud8.html

Course Description and objectives:

This is a challenging and extremely useful course that employs statistical techniques in developing forecasts for economic and financial data. The course begins with a description of what a forecast is and the tools necessary to evaluate competing forecasts. Various forecasting models are introduced, with emphasis placed on modeling the statistical properties of the data under consideration. As the course progresses, the models become more elaborate as we will introduce so-called “ARMA” and “SARIMA” models, forecasts based on regression models, and ultimately, multivariate techniques. Upon successful completion of the course,

1. The student will understand complicated statistical techniques related to modeling economic and financial data over time.
2. The student will independently be able to develop a model to forecast economic or financial data.
3. The student will be able to compare the relative forecasting ability of various models and choose the most appropriate model among a set of alternatives.
4. The student will gain familiarity with the computer package EViews and will be able to employ this software to develop and analyze forecasts.

Grading: Course grades will be based on the following:

- Assignments 44%
- Midterm 28%
- Final 28%
I. Assignments: There will be a total of 4 assignments, which will be administered throughout the course. The assignments will be intensive in both mathematical and computational analysis associated with the techniques developed in this class. Each assignment is worth 11% of your overall grade. Assignments will be administered on the following dates:
   a. Assignment #1: Administered: January 28, Due: February 6.
   b. Assignment #2: Administered: February 11, Due: February 20.
   c. Assignment #3: Administered: March 25, Due: April 3.
   d. Assignment #4: Administered: April 15, Due: April 24.

II. Exams:
   Exam 1: Scheduled for March 4, 2014
   Exam coverage: determined by pace of the course.
   Final Exam: May 8, 8:00-10:30 am
   Exam coverage: Again determined by the pace of the course.

III. Class participation and attendance
   Group presentations will be given on September 23 and, if need be, on September 26 as well. The group will take the role of a consulting team that has been hired by a firm to provide projections for an important industry variable, notably firm level sales for Fortune 500 companies. Based on the forecasts, the group will be asked to provide recommendations for the firm. More details regarding the presentation will be provided during the second or third week of classes. Students should prepare themselves by acquiring the software EViews, as discussed above, which will be used in the presentations.

III. Participation and attendance
   Formally, there is no attendance policy. However, this is a challenging course, and the lectures cannot be replaced. If you suspect, for any reason, that you may have difficulty attending each class, I would recommend not taking this class.

Drop Policy: It is the student’s responsibility to complete the course or withdraw from the course in accordance with University regulations. Students are strongly encouraged to verify their grade status before dropping a course after their first withdrawal date.

Grade Grievances: You have one calendar year from the date the grade is assigned to initiate any grievance. The normal academic channels are department chair, academic dean, and the Provost.

Non-payment of fees policy: Students who have not paid their fees by the census date and are dropped for non-payment cannot receive a grade for the course under any circumstances. Emergency loans are available from the Financial aid Office.

Academic Dishonesty: The UTA Student Handbook contains the following statement on academic dishonesty:

“It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures.”

“Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusions, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.” (Regents' Rules and Regulations, Part One, Chapter VI, Section 3, Subsection 3.2 Subdivision 3.22)

Reasonable Accommodations: Students with academic disabilities needing accommodations should make an appointment to meet with me in my office during the first week of class. I will do my best to make the necessary accommodations to insure that no student is at a disadvantage because of his/her disability.
**Bomb Threats:** Effective April 8, 1997, the College of Business Administration has adopted a policy to deal with the classroom disruption caused by bomb threats in the building. (A) Section 22.07 of the Texas Criminal Law Statutes governs terrorist threats and classifies bomb threats as Class A misdemeanors. Section 12.21 of the Texas Criminal Law Statutes states that a Class A misdemeanor is punishable by (1) a fine not to exceed $4,000, (2) a jail term of not more than one year, or (3) both such a fine and confinement. (B) If anyone is tempted to call in a bomb threat, be aware that UTA will soon have technology to trace phone calls. (C) Every effort will be made to avoid cancellation of presentation/tests caused by bomb threats. Unannounced alternate sites will be available for these classes. If a student who has a class with a scheduled test or presentation arrives and the building has been closed due to a bomb threat, the student should immediately check for the alternate class site notice which will be posted on/near the main doors of the building. If the bomb threat is received while class is in session, your instructor will ask you to leave the building and reconvene at another location. (D) Students who provide information leading to the successful prosecution of anyone making a bomb threat will receive one semester’s free parking in the Maverick Garage across from the Business Building. UTA’s Crimestoppers will provide a reward to anyone providing information leading to an arrest. To make an anonymous report, call 817-272-5245.
Week 1 (Jan 14- Jan 16): Elements of forecasting: The decision environment and loss function. The forecast object, forecast statement, forecast horizon, the information set, and methodology (chapter 1 and 4).

Week 2 (Jan 21- Jan 23): Reviewing the linear regression model (chapter 2).

Week 3 (Jan 28 - Jan 30): Linear regression model continued. Concept of stationarity introduced (chapter 2-3). Problem set #1 administered.

Week 4 (February 4 - 6): Statistical characteristics of data we wish to observe: Mean of the data, covariance of the data, indirect correlation of the data, and direct correlation of the data. Introduction to the Box-Jenkins methodology (chapter 3). Problem set #1 due.

Week 5 (February 11-13): The building block of all forecasting models: the white noise process. How do we know if a model actually exists, which can be applied to our data? The Wold decomposition theory. Introduction to ARMA models (chapter 6). Problem set #2 administered.

Week 6 (February 18-20): Properties of ARMA models. Introduction to forecasting with ARMA models (chapter 6,7,8). Problem set #2 due.

Week 7 (February 25 - 27): Forecasting with ARMA models (chapter 7,8).

Week 8 (March 4 - 6): Exam #1. Return exam #1.

Week 9 (March 18 - 20): Dealing with seasonality. Deterministic seasonality. Introduction to stochastic seasonality and SARIMA models (chapter 7,8).


Week 12 (April 8-10): Deterministic trends continued. Introduction to stochastic trends. (chapter 10).


Week 15 (April 29 - May 1): Vector autoregressions (VAR) continued. Forecasting with VAR models (chapter 11).

MAY 8, FINAL EXAM.