



College of Business Administration
Department of Economics
Business Cycles and Forecasting
Lecturer: O. Mikhail
ECO 6433-A001
Summer 2005

Course Outline

Time	:	T, Th 6:00 p.m. – 9:50 p.m.
Location	:	BA I – 115.
Office	:	BA II – 302.
Office Hours	:	M, T, W, Th 1:00 p.m. – 2:00 p.m. and After the class.
Wed Page	:	http://www.bus.ucf.edu/omikhail
Class Web Page:	:	http://www.bus.ucf.edu/omikhail/Eco6433/2005/Eco-6433-s2005.htm
E-Mail	:	omikhail@hotmail.com omikhail@bus.ucf.edu
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This is an MBA class in applied Time Series Analysis and Forecasting. The class is open for registration to all Master Degree students at the College of Business Administration (Accounting, Economics, Finance, Management, Marketing, and MIS).

Class Objectives

The study of business cycles and forecasting originated in macroeconomics at the turn of the last century with the groundbreaking works of Mitchell (1913, 1927). Nowadays, times series analysis and forecasting grew and found its way in most business-administration fields. Is this change temporary? Will it revert back to its path? How long will it last? Regardless of the series of interest (Gross Domestic Product, Stock Prices, Stock Options, Sales, Profits, Revenues, etc...), the tools that were developed in time series are readily available to provide answers. The main aim of time series analysis is to understand past behavior and consequently, to forecast future behavior. Forecasts guide decision in numerous fields: operation planning and control, marketing, economics, financial speculation, financial risk management, capacity planning, business and government budgeting, demography and crisis management.

In business activities, “Time is Money” and forecasting is important. Many business and economics decisions depend on forecasts. Explaining why the series (e.g., profits) decreased is a tedious and straightforward exercise – in most cases. Predicting when it

will increase or when it will decrease again requires one to master few technical tools. Generally, few analysts recognize the existence of regular cycles and longer term secular movements in business and economic activity. Rather than cycles, analysts tended to think in terms of ‘crises’, a term used to refer to financial panics and/or periods of slow business and economic activities.

There are different approaches to forecasting. This class is intended to help students, managers and administrators to do statistical forecasting, and therefore to learn how to manage uncertainty by using effective forecasting and other predictive techniques. Think of this class as a detailed study of the available tools in an analyst/forecaster toolbox. Regardless of your field of study, these tools will be useful to your studies – hopefully. By the end of the class, students should be able to master a set of statistical techniques to forecast a variable of interest.

Basic knowledge of calculus, matrix algebra and elementary statistics are required. Students are responsible for *all* materials covered in class that is presented in the textbook, in the readings on the class web page and in the lecture notes.

Attendance at lectures is not mandatory but is recommended. **If you are experiencing any difficulty in this class (or any other), please arrange a meeting with me to discuss it.**

In your future, if you plan on working with time series, I highly recommend the following book. Walter Enders (2003) [Applied Econometric Time Series, 2nd Edition](#) Wiley. This is one of the best books that exist for an accessible, comprehensive and up to date time series treatment and analysis. We will keep referring to parts of the Enders book throughout the class. If you plan on pursuing graduate studies with a field in time series analysis, then buying the following book is one of the best investments that you can make. James Douglas Hamilton (1994) [Time Series Analysis](#), Princeton University Press.

Book(s)

- **(FD)** Francis X. Diebold (2004) [Elements of Forecasting](#), Third Edition, Thomson South-Western.
- **(PHF)** Philip Hans Franses (2004) [Time Series Models for Business and Economic Forecasting](#), Cambridge University Press.
- **(BD)** Peter J. Brockwell and Richard A. Davis (2003) [Introduction to Time Series and Forecasting](#), Second Edition, Springer.
- **(TM99)** Terence C. Mills (1999) [Econometric Modelling of Financial Time Series](#) Cambridge University Press.
- **(TM91)** Terence C. Mills (1991) [Time Series Techniques for Economists](#) Cambridge University Press.

E-mail Policy and Class Web Page

During weekdays, I should be able to answer your e-mail within 24 hours. Visit the class web page regularly for announcements. Class announcements and class readings – posted at the class web page – are part of your curriculum. Also, the class web page includes the conversion table for the grades. I will adopt the plus/minus letter grades as outlined on the class web page.

Office Hours

If my office hours (stated above) conflict with your schedule and you need to meet with me, please let me know so I can arrange a mutually acceptable time to meet.

Class Structure

The class will be held in an active-discussion framework. Due to the class size and the limited class time, I suggest that students form study groups outside of class to work through the class material.

Lab Sessions

Lab sessions will be held regularly to learn Eviews and Interactive Time Series Modeling (ITSM 2000).

Evaluation

Quizzes	30%
Assignments	20%
Term Paper	40%
Class Presentation of your Term Paper	10%

I expect you to uphold the guidelines of the Golden Rules, <http://www.ucf.edu/goldenrule>

No early or make-up quizzes will be given. Class Presentations will be scheduled during the last week of classes.

Reading List

- Week 1 TM91: Introduction, The graphical display of time series, Summarizing time series, Transforming and smoothing time series.
 Chapters 1, 2, 3 and 4.
 FD: Introduction to Forecasting: Applications, Methods, Books, Journals, and Software. Appendix: The Linear Regression Model
 Six Considerations Basic to Successful Forecasting
 Statistical Graphics for Forecasting
 Chapters 1, 2 and 3.
 PHF: Introduction and Overview: Trends, Seasonality, Abberant Observations, Conditional Heteroskedasticity. Chapters 1 and 2.
- Week 2 FD: Modeling and Forecasting Trend
 Modeling and Forecasting Seasonality
 Chapters 4 and 5.
 BD: Introduction, Stationary Processes and Autocorrelation function
 Chapters 1 and 2.
- Week 3 **Monday, May 30, 2005 Memorial Day**
- Week 3 FD: Characterizing Cycles
 Modeling Cycles: MA, AR, and ARMA Models
 Forecasting Cycles
 Chapters 6, 7, 8 and 9.
 BD: ARMA Models
 Chapter 3.
 PHF: ARMA, Autocorrelation and identification, Model selection and Forecasting.
 Chapter 3.
- Week 4 FD: Distributed lags, Polynomials and Vector Autoregression VAR
 Evaluating Forecasts
 Chapters 10 and 11.
- Week 5 FD: Unit Roots, Stochastic trends, ARIMA Forecasting and Smoothing
 Chapter 12.
 TM99: Persistence, trend reversion, fractional integration and long memory processes
 Chapter 3.
- Week 6 FD: Volatility Measurements, Modeling and Forecasting
 Chapter 13.
 TM99: Univariate non-linear stochastic models
 Chapter 4.
 Class Presentations

Academic Dates – Summer 2005

Academic Dates and Deadlines	
Classes Begin	May 16
Late Registration and Add/Drop	May 16 – May 20
Withdrawal Deadline	June 3
Graduate Thesis/Dissertation Defense Deadline	July 11
Graduate Thesis/Dissertation Submission Deadline	July 29
Classes End; Last Day to Remove Incomplete	June 24
Final Examination Period	June 24
Grades Available on MyUCF (begins at 9 a.m.)	June 30
Commencement	August 6

THE UCF CREED

Integrity, scholarship, community, creativity, and excellence are the core values that guide our conduct, performance, and decisions.

Integrity

I will practice and defend academic and personal honesty.

Scholarship

I will cherish and honor learning as a fundamental purpose of my membership in the UCF community.

Community

I will promote an open and supportive campus environment by respecting the rights and contributions of every individual.

Creativity

I will use my talents to enrich the human experience.

Excellence

I will strive toward the highest standards of performance in any endeavor I undertake.

<http://pegasus.cc.ucf.edu/~admissio/creed.htm>