

Economic and Business Forecasting, Econ 4160/6161 – Fall, 2016
MWF – 11:05-11:55, IC 215

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Office Hours: After class, usually, or by appointment

Prerequisite: *An introductory course in probability and statistics is essential, plus a basic course in econometrics.*

This course introduces undergraduates to the basic statistical tools required to develop time series and structural econometric models used in economic and demand forecasting by a wide range of industrial and commercial business firms. The emphasis in the course will be on forecasting industry-level activity. Analysts are frequently called on to provide short and medium term company sales forecasts for use in annual budgeting. Demand forecasts at the industry level are very common as well. And, at a higher monthly frequency, short term production forecasts are required for estimating plant loadings.

This course focuses more on the development and use of both single-equation econometric models in addition to standard time series modeling techniques. Most commercial forecasting models are, in fact, a blend of both approaches. In a wide range of business applications specific model drivers can be identified, allowing the analyst to specify and estimate a structural econometric forecasting model. We will use a special data set of historical and forecast economic and industry level variables provided by IHS Global Insight and Siemens Industry, Inc. The dataset will be accessed through the EViews software, which we will also use to develop and test all models. In addition to supporting the data requirements of this course, Siemens will also present several examples of the development and use of forecasting models in their own business planning. This will give students exposure to all the practical problems of data assembly, model construction, and forecast development and presentation they will likely experience in industry.

The texts for this course will be:

Introductory Econometrics: A Practical Approach

Jeffrey Wooldridge
Cengage, 6th edition, 2016

Practical Business Forecasting

Michael K. Evans
Wiley, 2009 Update

For additional reference I recommend these books:

Analysis of Economic Data

Gary Koop
Wiley, 4th edition, 2013

Using Econometrics, A.H. Studenmund, 2011 ed., Addison-Wesley

Topics to be covered include:

- *Introduction to forecasting*
- *Macroeconomic vs. industry forecasting*
- *Short review of statistics and basic regression*
- *Discussion of key econometric concepts*
- *Working with time series data*
- *Introduction to the EViews statistical software*
- *Modeling and forecasting seasonality*
- *Modeling and forecasting cycles --- ARMA models*
- *Forecasting with structural econometric models*
- *Forecasting with combined econometric/ARMA models*
- *Practical issues in developing industry/firm level models*
- *The development and use of forecasting models at Siemens.*
- *Interfacing with commercial economic forecasting services*

Homework will be assigned at the end of most topic segments, based primarily on questions at the end of relevant textbook chapters. We will also

have two exams, plus both individual and group forecasting projects. I will give you details on the handling of homework and the nature of your forecasting projects at the beginning of the semester. Your grade will be calculated as follows:

Homework	5%
Exam I	20%
Exam II	25%
Individual Forecasting Project	20%
Group Forecasting Project	25%
Class Participation	5%

There will be no makeup exams for any reason. (Let me know beforehand if GT requires you to be away from the campus on an exam day. Similarly, email me immediately if you have a documented personal or family emergency).

The range required for a given grade is 90 and up for an A, 80-89 for a B, 70-79 for a C, and 60-69 for a D. You are responsible for everything I say in class, including any changes to this syllabus, so be sure you know someone in class to call if you miss a lecture.

I will post all relevant lecture notes on T-Square, plus any references to outside readings. As an added resource, you should use the textbook website to access a variety of data sets and study aids.

Outcomes:

At the conclusion of this course students should be able to

- ✓ Characterize and work with time series data
- ✓ Develop structural econometric and ARIMA models that can be used to forecast firm sales, industry demand, and aggregate macroeconomic variables
- ✓ Collect, collate, and refine all the data required to estimate model parameters

- ✓ Distinguish between variables according to their usefulness in model formulation and estimation
- ✓ Develop model forecasts and appropriate confidence intervals
- ✓ Use statistical/econometric software on the level of EViews to develop econometric forecasting models
- ✓ Prepare a proper management presentation

Accommodations through ADAPTS

Georgia Tech offers accommodations to students with disabilities. Please contact the APAPTS office if you require such accommodation. If you already have a letter from the APAPTS office approving specific accommodations, please be sure to give me a copy of that letter.