Business Forecasting: Techniques, Applications and Best Practices

This comprehensive three-day course covers all aspects of business forecasting. Numerous real-world examples drawn from a wide range of industries are used throughout to illustrate key concepts. The seminar includes computer workshops, allowing you to immediately apply what you’ve learned to your own data.

By the end of the seminar you will not only have gained considerable insight into business forecasting, but will also have had the opportunity to solve your own forecasting problems with state-of-the-art software and expert instructors.

“The seminar exposed me to various forecasting models, enabling me to determine what best fits our business.”

Val Pulgar
Forecast Analyst, OPI Products, Inc.

Agenda

✓ Introduction: Properties of Data ★ Overview of Methods ★ Resources for Forecasters
✓ Components of Data: Trends ★ Seasonality ★ Business Cycles ★ Trading-Day Variation ★ Interventions ★ Noise
✓ Exponential Smoothing Models: Holt-Winters Family of Models ★ Damped Trend Models ★ Croston’s Intermittent Demand Model ★ Event-Index Models
✓ Forecast Accuracy and Evaluation: Within-Sample vs. Out-of-Sample Errors ★ Error Measurement Statistics ★ Simulations vs. Real-Time Tracking
✓ Box-Jenkins Models: Advantages and Disadvantages ★ Automatic Identification Procedure ★ Differencing ★ Diagnostics
✓ Forecasting a Product Hierarchy: Data Characteristics ★ A-B-C Classifications ★ Constructing the Hierarchy ★ Top Down vs. Bottom Up ★ Proportional Allocation
✓ Dynamic Regression: When to Use ★ Standard OLS ★ Lagged Variables ★ Cochrane-Orcutt Models ★ Hypothesis Tests
✓ Computer Workshops: Structured Forecasting Exercises ★ Analysis of Attendee’s Data

Who should attend

Product managers, marketing managers, business managers, corporate planners, market researchers, utility forecasters, production planners, supply chain analysts or those who prepare or analyze forecasts as part of their job responsibilities. Some prior knowledge of statistics is helpful but not essential.

www.forecastpro.com
Business Forecasting: *Techniques, Applications and Best Practices*  

**Seminar Agenda**

The three-day seminar *Business Forecasting: Techniques, Applications and Best Practices* is designed to provide insight into all aspects of business forecasting. Day One and Day Two of the seminar run from 9 AM to 5 PM while the seminar adjourns at 3:30 PM on Day Three. Lunch is provided daily at no extra expense and attendees receive a comprehensive booklet containing copies of all the slides presented during the course.

The course topics are presented using a combination of lectures, real-world examples drawn from a wide array of industries and hands-on sessions. While the seminar covers some of the underlying theory behind the forecasting models, it is by no means the main emphasis of the course. The following agenda provides a general overview of the seminar’s content. The actual schedule varies from seminar to seminar based on the dynamics of the specific group. Thus all times and topics are approximate and subject to change.

**Agenda - Day One (9:00 AM - 5:00 PM)**

**Introduction to Forecasting**
A broad overview of business forecasting and its various uses within the organization. Topics include approaches to forecasting, features of data, the role of judgment, selection of appropriate forecasting methods for varied data sets and resources for forecasters.

*Morning Break*

**Components of Data**
An in-depth look at the different components found in time series data including trends, seasonal patterns, business cycles, trading-day variation, interventions (events) and noise. Discussion addresses the forms the components can take, spotting local vs. global components, interpretation of business cycle indicators and the use of decomposition routines.

*Lunch*

**Exponential Smoothing**
A survey of exponential smoothing techniques with particular emphasis on the Holt-Winters family of models and Croston's intermittent demand model. Topics include the pros and cons of using these models, when they are best used, how they work, identifying model components, parameter optimization and model diagnosis.

**Forecasting Accuracy and Evaluation**
A detailed look at evaluating the accuracy of forecasting methods. Topics include the distinction between within-sample and out-of-sample errors, a survey of error measurement statistics, a summary of findings from forecasting competitions and an explanation of how to use both real-time tracking reports and simulations as predictors of model performance.

*Afternoon Break*

**PC Workshop**
This first hands-on session will familiarize attendees with the use of the Forecast Pro software package and reinforce the first day’s topics. Students will be guided through sample exercises applying the ideas discussed during the lectures.
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Agenda - Day Two (9:00 AM - 5:00 PM)

Box-Jenkins (ARIMA) Models
An exploration into the use of ARIMA models for business forecasting. Topics include advantages/disadvantages of using these models, how and when they should be applied, automatic identification procedures, differencing and model diagnostics.

Morning Break

Event-Index Models
Event-index models extend the functionality of exponential smoothing models by providing adjustments for promotions, strikes and other non-calendar based events. This unit addresses how these models work, how and when they should be used, and how to customize their design to best suit your needs.

Lunch

Batch Forecasting
A discussion of the issues pertaining to forecasting large volumes of data. Topics include evaluating and forecasting SKU data, ABC (pareto) classification of data, measuring accuracy across multiple time series and the role of forecasting in Demand/Supply Chain Management solutions.

Afternoon Break

Multiple-Level Forecasting
This section explores hierarchical forecasting techniques, an extension of batch forecasting. Topics include discussion of the need for forecasting at various levels, product vs. geographical hierarchies, reconciliation strategies, top-down vs. bottom-up approaches, the use of proportional allocation and adjustment for seasonality.

PC Workshop
In this session, attendees will be guided through forecasting exercises which reinforce the day’s topics. In addition to working on structured exercises, students will have time to work with their own data with the help of the course instructors.

Agenda - Day Three (9:00 AM - 3:30 PM)

Dynamic Regression
A detailed look into the ins and outs of regression forecasting. Topics include when regression models are best applied, how to build the model, Ordinary Least Squares, leading indicators, lagged variables, Cochrane-Orcutt models, hypothesis testing and the use of “dummy” variables.

Morning Break

Dynamic Regression (continued)

Lunch

PC Workshop
This final session consists of a regression example after which attendees will have time to work with their own data. This hands-on session is generally longer than those on the prior two days and is an ideal time to begin applying some of what you have learned to your own data.