

Econometric Modelling - Web course

COURSE OUTLINE

The objective of this course is to present a comprehensive tools and techniques for managerial decision making including problem of cost estimation, market size determination, sales projection, stock price prediction, etc.

It has two parts. First part deals with regression-based modeling, which captures the behavior of variable through a structural model based on theory.

The second part deals with time series modeling, which concentrates on the dynamic characteristics of economic and financial data. The tentative subject outline is described below.

Contents

What is Econometrics? Difference between Econometrics, Mathematics and Statistics, Basics of Model Building, Basics of Business Forecasting, Univariate Statistics, Bivariate Statistics, Probability and Hypothesis Testing.

Bivariate Econometric Modelling, Trivariate Econometric Modelling, Multivariate Econometric Modelling, Multicollinearity, Serial Correlation, Heteroskedasticity, DG Test, Dummy Variable Econometric Modelling.

Panel Data Modelling, Lag Modelling, Identification Problem, Structural Equation Modelling, Basics of Time Series, Box- Jenkins Methods, Error Measurements, Univariate Time Series Modelling.

Unit Root Test, Cointegration Test, Causality Test, VECM, ARM, MAM, ARIMA, ARCH, GARCH, EGARCH, TGARCH.

COURSE DETAIL

Module	Lecture	Learning Topic	Total Hours
Module 1	1	INTRODUCTION TO ECONOMETRIC MODELLING	1
Module 2	2	STRUCTURE OF ECONOMETRIC MODELLING	1
Module 3	3	UNIVARIATE ECONOMETRIC MODELLING	1
Module 4	4	PROBABILTY THEORY	1
Module 5	5	HYPOTHESIS TESTING	1
Module 6	6	INTRODUCTION TO BVARIATE ECONOMETRIC MODELLING	1



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Pre-requisites:

Stat and Math courses in undergraduate (B Tech) program.

Preferred Background.

1. Engineering graduate.
2. Some probability and statistics.
3. 2 years Work experience is recommended.

Additional Reading:

DMADV

- http://books.google.co.in/books?id=qfRsZA1CQeQC&dq=econometri%20c+modelling&printsec=frontcove&source=bl&ots=PbRKKakDrA&s%20ig=jgUJVkoKTIRPIHSrHVqnOB7ovGk&hl=en&ei=Mp5uSp6RCda%20XkQXyoNi5BQ&sa=X&oi=book_result&ct=result&resnum=4#v=onepage&q=econometri%20%20modelling&f=false
- http://books.google.co.in/books?id=4URTD4C4rsgC&dq=econometri%20c+modelling&printsec=frontcover&source=bl&ots=wt6YxyQ8ad&sig%20=UZiSMcrqNbsMcpqcmITuDHQkkcM&hl=en&ei=Mp5uSp6RCdaX%20kQXyoNi5BQ&sa=X&oi=book_result&ct=result&resnum=8#v=onepage&q=econometri%20c%20modelling&f=false

Hyperlinks:

1. en.wikipedia.org/wiki/Econometric_model
2. en.wikipedia.org/wiki/Econometrics

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Module 7	7	RELIABILITY OF BVARIATE ECONOMETRIC MODELLING	1
Module 8	8	INTRODUCTION TO TRIVARIATE ECONOMETRIC MODELLING	1
Module 9	9	INTRODUCTION TO MULTIVARIATE ECONOMETRIC MODELLING	1
Module 10	10	MATRIX APPROACH TO ECONOMETRIC MODELLING	1
Module 11	11	CONSTRAINTS OF OLS ESTIMATIONS	1
Module 12	12,13	MULTICOLLINEARITY PROBLEM	2
Module 13	14,15	AUTOCORRELATION PROBLEM	2
Module 14	16,17	HETEROSCEDASTICITY PROBLEM	2
Module 15	18,19	DUMMY REGRESSION MODELLING	2
Module 16	20,21	QUALITATIVE RESPONSE REGRESSION MODELLING	2
Module 17	22,23	PANEL DATA MODELING	2
Module 18	24,25	SIMULTANEOUS EQUATION MODELING	2
Module 19	26,27,28	STRUCTURAL EQUATION MODELING	3
Module 20	29,30	BASICS OF TIME SERIES MODELING	2
Module 21	31,32	UNIT ROOTS TEST	2
Module 22	33,34	COINTEGRATION TEST	2
Module 23	35,36	GRANGER CAUSALITY TEST	2
Module 24	37,38	VOLATILITY TIMESERIES MODELS	2
Module	39,40	VECTOR	2

25		AUTOREGRESSIVE MODEL	
	Total Lec-40		Total hours - 40

References:

1. Pindyck, R. S. and Daniel, L. R., "Econometric Models and Business Forecasts", McGraw Hill, New York.
2. Brooks, C., "Introductory Econometrics for Finance", Addison Wesley Longman, New York.
3. Campbell, J. Y., Andrew, W. L. and Mackinley, A. L., "The Econometrics of Financial Markets", Princeton University Press, Princeton.
4. Granger, C. W., "Forecasting in Economics and Business", Academic Press, New York.
5. Gujarati, D. N., "Basic Econometrics", McGraw Hill, New York.
6. Douglas, C. Montgomery, Elizabeth A. Peck and G. Geoffrey Vining, "Introduction to Linear Regression Analysis", Wiley Publications, New York.
7. Norman R. Draper and Harry Smith, "Applied Regression Analysis", Wiley Publications, New York.