

Econometric Modelling - Video 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	Learning Units	Hours Per Topic	Total Hours
1. Introduction	1. Historical perspective of Econometrics.	1	3
	2. What is Econometrics.		
	3. How is it different to Mathematics and Statistics.	1	
	4. Importance of Econometrics.	1	
	5. Linkage with Business Forecasting.		
2. Basic Statistical Concept	6. Univariate Statistics.	1	4



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Management

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%20c%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

Coordinators:

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	7. Bivariate Statistics.	1	
	8. Probability.	1	
	9. Hypothesis Testing	1	
3. Foundation of Econometric Modelling	10. Basics of Econometric Modelling.	1	7
	11. Bivariate Econometric Modelling.	2	
	12. Trivariate Econometric Modelling.	2	
	13. Multivariate Econometric Modelling.	2	
4. Assessing the Assumptions of Econometric Modelling	14. Multicollinearity.	2	7
	15. Serial Correlation.	2	
	16. Heteroskedasticity.	2	
	17. DG Test.	1	
5. Extension of Econometric Modelling	18. Dummy Variable Econometric Modelling.	2	9
	19. Panel Data Modelling.	2	
	20. Lag Modelling.	2	
	21. Identification Problem.	1	
	22. Structural Equation Modelling.	2	
6. Time Series Econometric Modelling	23. Basics of Time Series.	1	8
	24. Box - Jenkins Methods.		
	25. Error Measurements.	1	
	26. Univariate		



	Time Series Modelling.		
	27. Unit Root Test.	2	
	28. Cointegration Test.	2	
	29. Causality Test.	2	
	30. VECM.		
7. Volatility Modelling	31. ARM and MAM.	1	3
	32. ARIMA.		
	33. ARCH/ GARCH.	1	
	34. EGARCH/ TGARCH.	1	
8. Conclusion	To be Announced	1	1
	Total		42

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.