Structure and Detailed Syllabus
of the Postgraduate Course (M.Sc.) in Applied Economics
Department of Economics
Presidency University

Department of Economics
(Faculty of Natural and Mathematical Sciences)
Presidency University
Hindoo College (1817-1855), Presidency College (1855-2010)
86/1, College Street, Kolkata - 700 073
West Bengal, India

DEPARTMENT OF ECONOMICS
PRESIDENCY UNIVERSITY

Semester-wise Modules of the Postgraduate Course in Applied Economics

SEVENTH SEMESTER	EIGHTH SEMESTER
ECON0701: Advanced Microeconomics I [T: Credit 4; Marks 50] **ECON0702: Advanced Macroeconomics I** [T: Credit 4; Marks 50] **ECON0703: Issues in Development Economics I** [T: Credit 4; Marks 50] **ECON0704: Econometric Methods** [T: Credit 4; Marks 50] **ECON0791: Data Management and Analysis** [Practical (S): Credit 4; Marks 50]	**ECON0801: Advanced Microeconomics II** [T: Credit 4; Marks 50] **ECON0802: Money, Financial Market and Institutions** [T: Credit 4; Marks 50] **ECON0803: Advanced Econometrics I** [T: Credit 4; Marks 50] **ECON0804: Advanced Econometrics II** [T: Credit 4; Marks 50] **ECON0891: Applied Econometrics I** [Practical (S): Credit 4; Marks 50]
NINTH SEMESTER	**TENTH SEMESTER**
ECON0901: Advanced Econometrics III [T: Credit 4; Marks 50] **ECON0902: Advanced Financial Economics I** [T: Credit 4; Marks 50] **ECON0903: Advanced Financial Economics II** [T: Credit 4; Marks 50] **ECON0991: Applied Econometrics II** [Practical (S): Credit 4; Marks 50] **ECON0992: Project Part I** [S: Credit 4; Marks 50]	**ECON1001: Issues in Development Economics II** [T: Credit 4; Marks 50] **ECON1091: Quantitative Finance** [Practical (S): Credit 4; Marks 50] **ECON1092: Project Part II** [S: Credit 12; Marks 150]

NOTE

1. ECON0992 and ECON1092 will comprise of a project of 16 credits (200 marks). In Semester Nine, students will be assessed, based on progress, on 4 credits (50 marks). In Semester Ten, students will be assessed on 12 credits (150 marks).
2. T $\Rightarrow$ Theory Paper; S $\Rightarrow$ Sessional Paper.

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Credit Allocation and Marks Distribution for the Postgraduate Course in Applied Economics

Sem	Course Type	Paper Code	Course Name	Credits	Marks		
					Mid Sem/ Continuous Evaluation	End Sem	Total
Seventh	Theory (T)	ECON 0701	Advanced Microeconomics I	4	15	35	50
Seventh	Theory (T)	ECON 0702	Advanced Macroeconomics	4	15	35	50
Seventh	Theory (T)	ECON 0703	Issues in Development Economics I	4	15	35	50
Seventh	Theory (T)	ECON 0704	Econometric Methods	4	15	35	50
Seventh	Practical (S)	ECON 0791	Data Management and Analysis	4	50	-	50
Eighth	Theory (T)	ECON 0801	Advanced Microeconomics II	4	15	35	50
Eighth	Theory (T)	ECON 0802	Money, Financial Market and Institutions	4	15	35	50
Eighth	Theory (T)	ECON 0803	Advanced Econometrics I	4	15	35	50
Eighth	Theory (T)	ECON 0804	Advanced Econometrics II	4	15	35	50
Eighth	Practical (S)	ECON 0891	Applied Econometrics I	4	50	-	50
Ninth	Theory (T)	ECON 0901	Advanced Econometrics III	4	15	35	50
Ninth	Theory (T)	ECON 0902	Advanced Financial Economics I	4	15	35	50
Ninth	Theory (T)	ECON 0903	Advanced Financial Economics II	4	15	35	50
Ninth	Practical (S)	ECON 0991	Applied Econometrics II	4	50	-	50
Tenth	Sessional (S)	ECON 0992	Project Part I	4	-	50	50
Tenth	Theory (T)	ECON 1001	Issues in Development Economics II	4	15	35	50
Tenth	Practical (S)	ECON 1091	Quantitative Finance	4	50	-	50
Tenth	Sessional (S)	ECON 1092	Project Part II	12	-	150	150

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DETAILED SYLLABUS
M.Sc. in Applied Economics

SEVENTH SEMESTER

ECON 0701: Advanced Microeconomics I
[50 marks; Credit 4]

Module 1 General equilibrium analysis

Unit 1 Pure exchange economy
Unit 2 Model with production: one consumer, one producer
Unit 3 General versus partial equilibrium
Unit 4 Walrasian and Edgeworthian foundations of perfect competition
Unit 5 Existence, uniqueness and stability of the equilibrium
Unit 6 Concepts of core and equilibria
Unit 7 Welfare theorems
Unit 8 Externalities and Market Failure

Module 2 Game Theory

Unit 1 Introduction
Unit 2 Dynamic games with complete information
Unit 3 Static games with incomplete information
Unit 4 Dynamic games with incomplete information
Unit 5 Introduction to Cooperative Game Theory

References:

- Mas-Colell, A., M. Whinston and J Green: Microeconomic Theory, Oxford University Press, 1995
- Jehle, G. and J. Reny: Advanced Microeconomic Theory, Pearson Education, 2000
- Varian, H.: Microeconomic Analysis, W.W. Norton, 3rd Edition, 1992
- Gravelle, H and R. Rees: Microeconomics, Pearson Education, 3rd Edition, 2004
- Gibbons, R.: Game Theory for Applied Economists, Princeton University Press
- Osborne, M.J. and A. Rubinstein: A Course in Game Theory, The MIT Press, 1994.
- Osborne, Martin J.: An Introduction to Game Theory, OUP 2003
- Tadelis, Steven: Game Theory - An Introduction, Princeton University Press, 2013.
- Dutta, P.K: Strategies and Games: Theory and Practice, The MIT Press, 1999.

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ECON 0702: Advanced Macroeconomics
[50 marks; Credit 4]

Module 1 Long-run Macroeconomics

Unit 1 The Solow Model as a benchmark

Reference:

- D. Romer, Advanced Macroeconomics (3rd ed), McGraw-Hill, 2006. Ch 1

Unit 2 The Representative Agent Neoclassical Macro Model or the Ramsey-Cass-Koopmans (RA model)

References:

- D. Romer, Advanced Macroeconomics (3rd ed), McGraw-Hill, 2006. Ch 2
- D. Dasgupta, Modern Growth Theory, 2nd Edition.

Unit 3 The Overlapping Generations Model (OLG model) or the Diamond model

References:

- D. Romer, Advanced Macroeconomics (3rd ed), McGraw-Hill, 2006. Ch2
- Costas Azariadis, Intertemporal Macroeconomics, Blackwell, 1993

Unit 4 The Market Clearing Model or the New Classical Model

Reference:

- Robert Barro, Macroeconomics, MIT Press, 1997

Unit 5 New Growth Theory

References:

- Charles I Jones, Introduction to Economic Growth (2nd edition), W. W. Norton & Co. (Indian edition: Viva Books Private Ltd., 2006)
- D. Romer, Advanced Macroeconomics (3rd ed), McGraw-Hill, 2006. Ch 3
- R J Barrow and Xavier, Sala-i-Martin, Economic Growth, McGraw-Hill, 1995.

Module 2 Fluctuations and Short-run problems

Real Business Cycles and New Keynesian Models lectures

Reference:

- D. Romer, Advanced Macroeconomics (3rd ed), McGraw-Hill, 2006. Chs 4-6

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ECON 0703: Development Economics I
[50 marks; Credit 4]

Module 1 Approaches to Economic Development
Unit 1 Meaning and Measures of Development
Unit 2 Historical Perspectives
Unit 3 Institutions and Governance

Module 2 Growth and Development
Unit 1 Long-run Approaches to Growth and Development
Unit 2 New Growth Theories: Overview
Unit 3 Factor Markets: Labour, Education, Credit

Module 3 Development and Distribution
Unit 1 Economics of Deprivation: Introduction
Unit 2 Distribution: Concepts and Measurements
Unit 3 Poverty: Concepts, Measures and Policies
Unit 4 Inclusive Growth: Theory and Evidence
Unit 5 Political Economy and Public Policy

References:

- Debraj Ray, Development Economics, Oxford University Press, 2009.
- Kaushik Basu, Analytical Development Economics, Oxford University Press, 1998
- Abhijit Banerjee, Roland Benabou and Dilip Mookerjee, Understanding Poverty, Oxford University Press, 2006.
- Amartya Sen, Development as Freedom, OUP, 2000.
- Daron Acemoglu and James Robinson, Economic Origins of Dictatorship and Democracy, Cambridge University Press, 2006.
- Martin Ravallion, The Economics of Poverty: History, Measurement & Policy, OUP, 2016
- Branko Milanovich, Global Inequality: A New Approach for the Age of Globalization, Belknap Press, 2016.
- Jonathan Haughton & Shahidur Khandker, The Handbook on Poverty & Inequality, The World Bank, 2009.
- Joel Mokyr, A Culture of Growth: The Origins of the Modern Economy, Princeton University Press, 2017.
- Oded Galor, Unified Growth Theory, Princeton University Press, 2011.
- Ethan Bueno de Mesquita, Political Economy for Public Policy, Princeton University Press, 2016.
- Abhijit V. Banerjee & Esther Duflo, Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty, Public Affairs, NY, 2011
- Dani Rodrik, The Globalization Paradox: Why Global Markets, States and Democracy Can't Coexist, Oxford University Press, 2011.

ECON 0704: Econometric Methods
[50 marks; Credit 4]

Module 1 **Multiple Linear Regression Model**

Unit 1 The Least Squares Assumptions – Estimation – Finite-sample properties of OLS estimator - Large Sample Properties of OLS estimator
Unit 2 Hypothesis testing and interval estimation – Prediction.
Unit 3 Dummy variable analysis
Unit 4 Maximum Likelihood estimation - Large sample tests
Unit 5 Nonspherical disturbances - Heteroscedasticity-Autocorrelation - GLS estimation - Heteroskedasticity - Autocorrelation-Consistent Standard Errors

Module 2 **Regression Diagnostics**

Unit 1 Multicollinearity - detection and remedial measures.
Unit 2 Omitted variable bias and functional form misspecification - Regression Specification Error test (RESET)
Unit 3 Measurement error - Endogeneity - Instrumental Variable (IV) estimators

References:

- Johnston, J. and J. Dinardo: Econometric Methods, McGraw Hill.
- Wooldridge, J. M.: Econometrics, CENGAGE Learning.
- Stock and Watson, Introduction to Econometrics, Pearson.

ECON 0791: Data Management and Analysis
[50 marks; Credit 4]

Module 1 **Data management**

Unit 1 Introduction to R and RStudio, Base R and Tidyverse (dplyr, ggplot2, tidyr)
Unit 2 Preparing for Multivariate analysis: Missing data, Variable generation and Recoding, Exploratory data analysis, Cleaning and merging data.

Module 2 **Data analysis**

Unit 1 Multiple Regression Analysis
Unit 2 Regression Diagnostics

References:

- Wickham, H, and Grolemund, G: R for Data Science. https://r4ds.had.co.nz/index.html
- Grolemund, G : Hands on Programing with R https://rstudio-education.github.io/hopr/
- Colonescu, C. Principles of Econometrics with R https://bookdown.org/ccolonescu/RPoE4/
- Kleiber, C and Zeileis, A.(2008) Applied Econometrics with R, Springer. Online Link: https://www.hds.utc.fr/~tdenoeux/dokuwiki/_media/en/kleibzeil_-_aer.pdf
- Hanck, C, Arnold, M, Gerber, A and Schmelzer, M. Introduction to Econometrics with R https://www.econometrics-with-r.org/index.html

EIGHTH SEMESTER

ECON 0801: Advanced Microeconomics II
[50 marks; Credit 4]

Module 1 **Topics in Industrial Organisation**

Unit 1 Introduction
Unit 2 Static Imperfect Competition
Unit 3 Dynamic Aspects of Imperfect Competition
Unit 4 Product Differentiation
Unit 5 Advertising & Related Market Strategies
Unit 6 R&D and Intellectual Property
Unit 7 Network Goods

Module 2 **Topics in Economics of Asymmetric Information**

Unit 1 Choice under uncertainty
Unit 2 Principal-Agent Model, Moral Hazard Problem and Applications
Unit 3 Adverse Selection Problem
Unit 4 Signalling and Informed Principal Model
Unit 5 Screening: Basic Models and Applications
Unit 6 Introduction to Auction Theory

References:

- Mas-Colell, A., M. Whinston and J. Green: Microeconomic Theory, Oxford University Press, 1995
- Jehle, G. and J. Reny: Advanced Microeconomic Theory, Pearson Education, 2000
- *G*ravelle, H. and R. Rees: Microeconomics, Pearson Education, 3rd Edition, 2004
- Tirole, J.: The Theory of Industrial Organization, The MIT Press, 1988
- Shy, O.: Industrial Organization, The MIT Press
- Salanie, Bernard R.: The Economics of Contracts: A Primer, The MIT Press, 2005
- Laffont, J.J. and D. Martimort: The Theory of Incentives, Princeton University Press, 2002
- Belleflamme, Paul and Martin Peitz: Industrial Organization – Markets and Strategies, Cambridge University Press, 2010.
- Cabral, Luis: Introduction to Industrial Organization, MIT Press, 2002.

ECON 0802: Money, Financial Market and Institutions
[50 marks; Credit 4]

Module 1: **Monetary Theory and Monetary Policy**

Unit 1**:** Money in the economy (Empirical evidences on money, price, and output, money and other goods in the economy, stylized facts of a monetary economy)
Unit 2: Micro foundations for money demand (Cash In Advance (CIA); Money in Utility and Overlapping Generation Models).
Unit 3: Classical, Keynesian and New Classical Paradigm

Unit 4: Monetary Growth Theory: Commodity money, real balances, and growth theory – Fiat Balances in disposable income and Growth

Unit 5**:** Optimal Monetary policy

Module 2 Financial Markets, characteristics and operations

Unit 1 *Stock market* – types of shares, primary and secondary market; Market indexes, GDR and ADR, Stock Market and Macroeconomic Variables, Stock Market and issues of Foreign Capital Inflows.

Unit 2 *Bond Market* - Present Value, Price and Yield, Yield-To-Maturity, Yield-To-Call, Current Yield, Holding Period Return; Risks in Bonds, G-secs Market and Corporate Bond Market in India

Unit 3 *Money market* - Call Money Market, Treasury Bill Market, Commercial Bill Market, Certificate of Deposit, Commercial Paper, Money Market Mutual Fund(MMMF), Repo and Reverse Repo

Unit 4 The Euro markets: Eurocurrency markets, Eurobonds, Note issuance facilities, Euro notes, Euro commercial papers, Asia currency markets

Unit 5 The Balance of Payments and International Economic Linkages, Foreign Exchange and Derivative Markets - Organization of the market; Spot market, Forward market, Currency futures and currency options; Exchange rate determination - Parity conditions - The Law of one price- Purchasing Power Parity, The Fisher Effect, The International Fisher Effect, The Interest Rate Parity, The Unbiased Forward Rate Hypothesis

Unit 6 Financial Crises

References:

- Doepke, M., Lehnert, A., Sellgren, A., & Barro, R. J. (1999) Macroeconomics (e-book) Chicago.
- Lewis M and Mizen. P. (2000) Monetary Economics, Oxford University Press.
- Walsh. C. (2010) Monetary Theory and Policy, MIT Press, 2nd Edition.
- Handa J. (2009) Monetary Economics, Routledge, 2nd Edition.
- Ben S. Bernanke and Frederic S. Mishkin (1997) Inflation targeting: a new framework for monetary policy? Journal of Economic perspectives, 11(2):97–116.
- Shapiro, A.C. (2003) Multinational Financial Management, John Wiley and Sons, Inc. 7th Edition.
- Levi, M.D. (2005) International Finance, Routledge, 2005
- Hull, J.C. Options, Futures and other derivatives, Prentice Hall, 13th Edition

ECON 0803: Advanced Econometrics I
[50 marks; Credit 4]

Module 1 Limited Dependent Variable Models

Unit 1 Binary Choice Models - Linear Probability Model, Probit and Logit Models

Unit 2 Multinomial Response Models, Ordered Model and Sequential Choice Model*

Unit 3 Selection model - Hurdle Model*

Unit 4 Censored and Truncated Regression Models

Module 2 Quantile Regression Models

Module 3 Introduction to Machine Learning

Unit 1 Supervised and unsupervised learning

Unit 2 Clustering, Dimensionality reduction and Decision trees

References:

- J.M. Woolridge (2002) Econometric analysis of cross section and panel data, MIT Press, Cambridge, Mass.
- Greene, W.H. Econometric Analysis, Prentice Hall.
- Cameron A. Colin and Pravin K. Trivedi: Microeconometrics: Methods and Applications, Cambridge University Press
- Roger Koenker (2006) Quantile regression in R: A vignette.
- Roger Koenker and Kevin Hollock (2001) Quantile regression, *Journal of Economic Perspectives*. 15(4): 143-156.
- Roger Koenker (2005) Quantile regression, in Fienberg and Kaden (ed) International Encyclopaedia of Social Sciences.
- Ethem Alpaydin (2020) Introduction to machine learning, 4/e. MIT Press.
- Steven Knox (2018) Machine learning: A concise introduction. Wiley.
- Johnson, R. A, and Wichern, D. W.: Applied Multivariate Statistical Analysis.
- Hair, Black, Babin, Anderson, Tatham: Multivariate Data Analysis, Pearson Education

ECON 0804: Advanced Econometrics II
[50 marks; Credit 4]

Module 1 Univariate Time Series Modelling

Unit 1 Stochastic Time Series -ARMA models- Stationarity and Invertibility

Unit 2 Box-Jenkins model selection-identification estimation - diagnostic testing - forecasting

Unit 3 Time Series with Trend - Deterministic and Stochastic Trend - Random Walk Model

Unit 4 Tests of Unit Root.

References:

- Chatfield, C.: The Analysis of Time Series: An Introduction
- Enders, W.: Applied Econometric Time Series, John Wiley and Sons
- Granger, C.W.G. and Newbold, P.: Forecasting Economic Time Series

Module 2 Static Panel Data Models

Pooled *vs*. Panel Data; Fixed Effect *vs*. Random Effect Models.

References:

- Cameron A. Colin and Pravin K. Trivedi: Microeconometrics: Methods and Applications, Cambridge University Press
- Greene, W.H. Econometric Analysis, Prentice Hall.
- Hsiao, C. Analysis of Panel Data, Cambridge University Press.

Module 3 **Introduction to Nonparametric and Semiparametric Econometrics**

Unit 1 Distribution free methods and Order Statistics: non-parametric inferences
Unit 2 Non-parametric density estimation and regression
Unit 3 Semi-parametric or non-parametric estimation

References:

- Li and J. S. Rasine: Nonparametric Econometrics, Princeton University Press
- A.R.T. Pagan and Amanullah: Nonparametric econometrics, Cambridge University Press.
- Fox, J.: Non parametric simple regression: Smoothing scatter plots, Sage.
- D. Ruppert, M.P. Wand and R.J. Carroll: Semiparametric Regression, Cambridge University Press.
- Yatchew, A: Semi-parametric regression for applied econometrician, Cambridge University Press.
- WA Barnett, J Powell, GE Tauchen: Nonparametric and semi parametric methods in econometrics and statistics -proceedings of the Fifth International Symposium in Economic Theory and Econometrics, Cambridge University Press.
- JD Gibbons, S Chakraborti: Nonparametric statistical inference, Marcell Dekker Inc., New York
- P Sprent, NC Smeeton: Applied nonparametric statistical methods, Chapman and Hall
- J DiNardo, JL Tobias: 'Nonparametric density and regression estimation', The Journal of Economic Perspectives, Vol 15 (4), Fall 2001, P. 11-28
- A Yatchew: 'Nonparametric regression techniques in economics', Journal of Economic Literature, Vol 36, 1998, P. 669-721

ECON 0891: Applied Econometrics I
[50 marks; Credit 4]

Module 1 **Limited Dependent Variable Models**

Module 2 **Quantile Regression Models**

Module 3 **Basics of Machine Learning**

Module 4 **Univariate Time Series Modelling**

Module 5 **Panel Data Models**

Module 6 **Non-parametric models**

Reference:

- Colonescu, C. Principles of Econometrics with R https://bookdown.org/ccolonescu/RPoE4/
- Kleiber, C and Zeileis, A.(2008) Applied Econometrics with R, Springer. Online Link: https://www.hds.utc.fr/~tdenoeux/dokuwiki/_media/en/kleibzeil_-_aer.pdf

- Hanck, C, Arnold, M, Gerber, A and Schmelzer, M. Introduction to Econometrics with R https://www.econometrics-with-r.org/index.html
- Roger Koenker (2006) Quantile regression in R: A vignette.
- Boehmke, B and Greenwell, B. Hands on Machine Learning with R https://bradleyboehmke.github.io/HOML/

NINTH SEMESTER

ECON 0901: Advanced Econometrics III
[50 marks; Credit 4]

Module 1 **Impact Evaluation**

Unit 1 Basic concepts
Unit 2 Interrupted Time Series model
Unit 3 Missing counterfactual and self-selection - Instrumental Variable method – Regression discontinuity method - Difference in Difference – Randomization - Propensity score matching
Unit 4 Interval estimates*

References:

- Gertler, Paul (2016) *Impact evaluation in practice*, second edition. The World Bank: Washington DC. Available from https://tinyurl.com/ypnmsw86.
- Khandker, S. R., Koolwal, G. B. and Samad, H. A. (2010) *Handbook on Impact Evaluation: Quantitative Methods and Practices*. The World Bank: Washington DC. Available from https://tinyurl.com/2f73kcfs.
- Ravallion, M. (2009) "Should the Randomistas Rule?", *The Economists Voice*, 6(2): 6-6.
- Ravallion, M. (2018) "Should the Randomistas (Continue to) Rule?." CGD Working Paper 492. Washington, DC: Center for Global Development. Available from https://tinyurl.com/yckjkecc.

Advanced References:

- Barrett, C. B. and Carter, M. R. (2010) "The Power and Pitfalls of Experiments in Development Economics: Some Non-random Reflections", *Applied Economic Perspectives and Policy*, 32(4): 515–548.
- Bernal, J. L., Cummins, S. and Gasparrini, A. (2017) "Interrupted time series regression for the evaluation of public health interventions: a tutorial", *International Journal of Epidemiology*, 348-355.
- Kreider, B. and Pepper, J. V. (2007) "Disability and Employment", *Journal of the American Statistical Association*, 102(478), 432-441.
- Kreider , B., Pepper, J.V., Gundersen, C and Jolliffe, D. (2012) "Identifying the effects of SNAP (Food Stamps) on child health outcomes when participation is endogenous and misreported", *Journal of the American Statistical Association*, 107(499): 958-975.
- Manski, C. (2013) *Public policy in an uncertain world: analysis and decisions*. Harvard University Press: Cambridge MA.
- Morgan, S.L. and Winship, C. (2010) *Counterfactuals and Causal Inference Methods and Principles for Social Research*. Cambridge University Press: New York. (Chapters 1, 2, 6 and 7).

- Rodrik**,** Dani (2008) "The New Development Economics: We Shall Experiment, But How Shall we Learn?" Brookings Global Economy and Development Conference. May.

Module 2 **Advanced Time Series Econometrics**

Unit 1 Modelling Volatility – ARCH and GARCH Models

Unit 2 ARDL model- VAR Analysis – Estimation, Forecasting and Identification - Innovation Accounting - Granger Causality

Unit-3 Cointegration and Error Correction Models

References:

- Maddala & Kim : Unit Roots, Cointegration, and Structural Change, Cambridge University Press
- Enders, W.: Applied Econometric Time Series, John Wiley and Sons
- Hamilton, J.: Time series analysis, Princeton Univ. Press
- Hendry, D.: Dynamic econometrics, OUP

Module 3 Dynamic Panel Data Models

Reference:

- J.M. Woolridge (2002) Econometric analysis of cross section and panel data, MIT Press, Cambridge, Mass.
- Arrelano, M.: Panel Data Econometrics, OUP
- Maddala, G. S. & Kim, In-Moo: Unit Roots, Cointegration, and Structural Change, Cambridge University Press
- Hsiao, C.: Analysis of Panel Data, Cambridge University Press

ECON 0902: Advanced Financial Economics I
[50 marks; Credit 4]

Module 1 Introduction to Corporate Finance

Corporate Finance, Corporate Firm and the Goals of the Corporate Firm: Basic concepts and ideas

Module 2 Corporate Financial Reporting

Unit 1 Overview of financial statement analysis

Unit 2 Structure of Financial Statements: Balance Sheet, Income Statement, Statement of Cash Flow

Unit 3 Financial Ratios and Financial Statement Analysis, Financial Cash flow analysis

Module 3 Value and capital Budgeting

Unit 1 Valuation of financial assets using Net Present Value

Unit 2 NPV versus some alternative investment rules: Pay Back Period, Discounted Pay Back period, Average Accounting Return, Profitability Index and Internal Rate of Return

Unit 3 Strategy and Analysis using Net Present Value: Decision tree, Sensitivity Analysis, Scenario Analysis and Break Even Analysis.

Module 4 Risk and Capital Budgeting

Unit 1 Introduction to risk, return and opportunity cost of capital: measuring portfolio risk, diversification and its limits

Unit 2 Return and risk: Capital Asset Pricing Model, validity and role of Capital Asset Pricing Model, Some alternative view of risk and return: Consumption betas, the Arbitrage Pricing Theory, Three-Factor model

Unit 3 Risk, return and capital budgeting: Cost of equity capital, estimation of beta, determinants of beta, cost of capital with debt.

Unit 4 Practical problems in capital budgeting

Module 5 Capital Structure and Pay-out policy

Unit 1 Corporate Financing and Efficient Market Hypothesis: Anomalies and lessons of Market Efficiency

Unit 2 The capital structure and the pie theory, Maximizing firm value versus maximizing stockholders' interest, Financial Leverage and Firm Value – Modigliani and Miller Propositions, Implications of Corporate Taxes, Personal taxes and costs of financial distress; Financial leverage and growth.

Unit 3 Valuation and capital budgeting for levered firm – APV, Flow-to-Equity and WACC approach

Unit 4 Pay-out policy: different types of dividends, standard method of cash dividend payment, The Pay-out Controversy - Irrelevance of dividend policy, Taxes, issuance costs and dividends, Dividend payments and stock repurchase, Dividend and taxes.

Module 6 Sources of short-term and long-term Financing

Cash and Credit Management; Issuing equity securities to public, Long-term Debt, Options, Warrants, Convertibles, Leasing (concepts only)

Module 7 Special Topics

Mergers and Acquisitions

References:

- Ross, S.A., Westerfield, R.W. and J. Jaffe (1999), Corporate Finance, McGraw Hill International Edition, Finance Series, 5th Edition
- Brealey, R.A., Myers, S.C., Allen, F. and P. Mohanty. (2007), Principles of Corporate Finance, Tata McGraw-Hill Publishing Company Limited, New Delhi, 8th Edition
- Sharpe, W.F., Alexander, G.J., and J.V. Bailey (2000), Investments, Prentice Hall of India, 5th Edition
- Wild, J.J., Subramanyam, K.R. and R.F.Halsey (2007), Financial Statement Analysis, Tata McGraw-Hill Publishing Company Limited, New Delhi, 9th Edition
- Copeland, T. E., Weston, J.F., and Shastri, K. (2005), Financial Theory and Corporate Policy, Pearson Higher Education, International Edition, 4th edition

ECON 0903: Advanced Financial Economics II
[50 marks; Credit 4]

Module 1 **Foreign Exchange Risk Management**

Unit 1 Foreign Exchange Exposure and Risk Management, alternative measures of foreign exchange exposure, concept of hedging, cost and benefit of standard hedging technique

Unit 2 Measuring and managing Economic Exposure

Unit 3 Measuring Translation Exposure: Alternative currency translation methods – Current/Non-current method, Monetary/Non-monetary method, Temporal method and Current method, Managing Translation Exposure

Unit 4 Measuring and managing Transaction Exposure: forward market hedge, money market hedge, risk shifting, exposure netting, currency risk sharing, currency collars and cross hedging

Unit 5 Hedging through Derivatives: Foreign currency futures and options; Swaps and interest rate derivatives

Module 2 Modelling behaviour of asset prices: Markov property, continuous time stochastic process, Ito's lemma, log normal properties, Martingales and measures; Pricing of derivatives - Risk neutral valuation, Binomial method, Black and Scholes, Greek letters, volatility smiles, Trading strategies with options, Exotic options

Module 3 Credit risk and credit derivatives, Value-at-risk

Module 4 **Financing the Multinational Corporation**

Unit 1 International Financing and national capital markets: Corporate sources and use of fund, National Capital Markets as International Financial Centers, Development Banks, Project Finance

Unit 2 Cost of capital for foreign investment: cost of equity, cost of debt, WACC for foreign projects, discount rates for foreign investment,

Module 6 **Foreign Investment Analysis**

International Portfolio Investment, Corporate strategy and FDI, Capital Budgeting for MNC

Module 7 **Multinational Working Capital Management**

International Cash Management, Accounts Receivable Management, Inventory Management, Short-term Financing.

References:

- Shapiro, A.C. (2003), Multinational Financial Management, John Wiley and Sons, Inc. 7th Edition.
- Levi, M.D. (2005), International Finance, Routledge.
- Hull, J.C. (2008), Options, Futures and other derivatives, Prentice Hall, 7th Edition

ECON 0991: Applied Econometrics II
[50 marks; Credit 4]

Module 1 Impact Evaluation

Module 2 Advanced Time Series Econometrics

Module 3 Dynamic Panel Data Models

References:

- https://github.com/johnwoodill/Rcode-handbook-on-impact-eval-world-bank
- https://lfbeisermcgrath.github.io/rimpactevaluation/
- Colonescu, C. Principles of Econometrics with R https://bookdown.org/ccolonescu/RPoE4/
- Kleiber, C and Zeileis, A.(2008) Applied Econometrics with R, Springer. Online Link: https://www.hds.utc.fr/~tdenoeux/dokuwiki/_media/en/kleibzeil_-_aer.pdf
- Hanck, C, Arnold, M, Gerber, A and Schmelzer, M. Introduction to Econometrics with R https://www.econometrics-with-r.org/index.html

ECON 0992: Project Part-I
[50 marks; Credit 4]

Students will initiate a project under the guidance of an Internal Supervisor, which will be continued in Semester 10 as part of ECON1092.

TENTH SEMESTER

ECON 1001: Issues in Development Economics II
[50 marks; Credit 4]

Module 1 Environmental and Resource Economics

Unit 1 Non-market Valuation
Unit 2 Climate Change: Economics and Policy
Unit 3 Economics of Biodiversity

References:

- Patricia A. Champ, Kevin J. Boyle, Thomas C. Brown. (2018) A Primer on Nonmarket Valuation, Springer Science+Business Media New York
- L. Perman, R., Y. Ma, J. McGilvray and M. Common, Natural Resource and Environmental Economics, Pearson Addison Wesley, Fourth Edition (2011), and Third Edition (2003)
- Dasgupta, P. (2021), The Economics of Biodiversity: The Dasgupta Review. (London: HM Treasury)
- Anthony D. Owen and Nick Hanley (2004) The Economics of Climate Change
- Stern, N. (2007). The Economics of Climate Change: the Stern Review. Cambridge: Cambridge University Press.
- Intergovernmental Panel on Climate Change (IPCC) Reports
- Hideo Aizaki, Tomoaki Nakatani, Kazuo Sato (2015) Stated Preference Methods Using R

Module 2 Social Network Analysis

Unit 1 Introduction: (Empirical Background)
Overview: Why model Social and Economic Networks?
Unit 2 Some Basic Definitions, Measures, and Properties: Graphs, architecture of a network, walks, paths, homophily, clustering, centrality measures
Unit 3 Network Formation: Random Networks; Strategic Network Formation
Unit 4 Behaviour and Networks:
*Diffusion, Infection, contagion
*Games played on Networks
*Networks and Labour Markets

References:

- Jackson Matthew. Social and Economic Networks. Princeton University Press, 2008
- Granovetter, Mark."The Impact of Social Structure on Economic Outcomes."The Journal of Economic Perspectives 19, no. 1 (2005): 33-50
- Rauch, James E."Does Network Theory Connect to the Rest of Us? A Review of Matthew O. Jackson's Social and Economic Networks." Journal of Economic Literature (2010): 980- 986.
- Goyal Sanjeev. Connections: An Introduction to the Economics of Networks. Princeton University Press, 2007
- Granovetter, Mark S. "The Strength of Weak Ties."American Journal of Sociology (1973): 1360-1380.
- Montgomery, James D. "Social Networks and Labor-market Outcome Toward an Economic Analysis." The American Economic Review 81, no. 5 (1991): 1408- 1418.

ECON 1091: Quantitative Finance
[50 marks; Credit 4]

Module 1 **Financial Statement Analysis**
Assessing company health using corporate data-base

Module 2 **Valuation of Financial Asset**
Unit 1 Pricing of stocks, Fundamental and technical analysis, Real-sector financial sector interdependence, Testing and denial of Efficient Market Hypothesis
Unit 2 Applications related to money market

Module 3 **Portfolio Selection problem**
Portfolio construction, evaluation and revision

Module 4 **Econometrics for finance**
Unit 1 Univariate financial time series: linear and non-linear stochastic models and forecasting
Unit 2 Modelling financial returns distribution
Unit 3 Multivariate financial time series
Unit 4 Modelling long-run relationships in finance
Unit 5 Modelling volatility and correlation
Unit 6 Logit, Probit and Panel data applications
Unit 7 Application of Survival Analysis

Module 5 **Applications in International Finance**
Unit 1 Testing Parity conditions in international finance, Derivative pricing

Module 6 **Special topics**
Unit 1 Stochastic processes, non-linearity and chaos in financial time-series data, other contemporary issues

Data base: RBI website, Economic Survey, International Financial Statistics, PROWESS

Econometric software to be used: EViews, R

References:

- Brooks, C. (2008), Introductory Econometrics for Finance, Cambridge University Press, 2nd edition.
- Mills, T.C. (2005), The Econometric Modelling of Financial Time Series, Cambridge University Press, 2nd Edition.

ECON 1092: Project Part II
[150 marks; Credit 12]

Students need to complete a project under the guidance of an Internal Supervisor.