ECONOMICS DEPARTMENT

SYLLABUS
for
M. Sc. in Applied Economics

PG SYLLABUS

DEPARTMENT OF ECONOMICS
PRESIDENCY UNIVERSITY
M.Sc. in Applied Economics

Courses offered

SEVENTH SEMESTER	ECON 0701	Advanced Microeconomics I	50 marks Credit 4
	ECON 0702	Advanced Macroeconomics I	
	ECON 0703	Advanced Mathematical Economics	
	ECON 0704	Econometric Methods I	
	ECON 0791	Applied Econometrics I (Computer Application based Paper)	
EIGHTH SEMESTER	ECON 0801	Advanced Microeconomics II	50 marks Credit 4
	ECON 0802	Advanced Macroeconomics II	
	ECON 0803	Issues in Development Economics	
	ECON 0804	Econometric Methods II	
	ECON 0891	Applied Econometrics II (Computer Application based Paper)	
NINTH SEMESTER	ECON 0901	Special Paper I – paper 1	50 marks Credit 4
	ECON 0902	Special Paper I – paper 2	
	ECON 0903	Special Paper II – paper 1	
	ECON 0904	Special Paper II – paper 2	
	ECON 0991	Special Paper I (Computer Application based Paper)	
TENTH SEMESTER	ECON 1091	Special Paper II (Computer Application based Paper)	50 marks Credit 4
	ECON 1092	Project Paper	200 marks Credit 16

NOTE

In semester IX and X students are required to take two special/elective courses of 150 marks each.

The special/elective fields offered are:
1. Advanced Econometrics: Theory and Applications
2. Financial Economics
3. Advanced Optimization Techniques (subject to availability of the resource person)
4. Applied Health Economics (subject to availability of the resource person)
5. International Economics (subject to availability of the resource person)

DEPARTMENT OF ECONOMICS
PRESIDENCY UNIVERSITY
DETAILED SYLLABUS
M.Sc. in Applied Economics

[Figures in extreme right indicate the number of contact hours]

SEVENTH SEMESTER

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

Module 1	**Consumer choice**	**06**
Unit 1	Commodities	
Unit 2	Consumption set	
Unit 3	Competitive budgets	
Module 2	**Production**	**06**
Unit 1	Production sets	
Unit 2	Profit maximization	
Unit 3	Aggregation	
Unit 4	Efficiency	
Module 3	**General equilibrium analysis**	**20**
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 4	**Choice under Uncertainty**	**16**
Unit 1	Preferences over lotteries	
Unit 2	Representation functions	
Unit 3	Expected utility theorem	
Unit 4	Risk preference	
Unit 5	Measures of absolute and relative risk aversion	
Unit 6	Equivalence theorems	
Unit 7	Stochastic dominance	
Module 5	**General equilibrium under Uncertainty**	**16**
Unit 1	Market economy with contingent commodities	
Unit 2	Arrow-Debreu equilibrium	
Unit 3	Sequential trade	
Unit 4	Asset market	

Unit 5   Firm behavior under general equilibrium under uncertainty

References:
- Mas-Colell, A. , M. Whinston and J Green: Microeconomic Theory, Oxford University Press, 1995
- Cowell, F. : Microeconomics, Oxford University Press, 2006
- Dreze, J. H. (1972): Market Allocation under Uncertainty. European Economic Review, Vol. 2 (2), pp 133-165.
- Malinvaud, E. Lectures on Microeconomic Theory. Elsevier Science Publishers B. V., Revised Edition, 1985.
- Mukherji, A.: Walrasian and Non-Walrasian Equilibria: An Introduction to General Equilibrium Analysis, Claredon Press, Oxford, 1990
- Varian, H.: Microeconomic Analysis, W.W. Norton, 3rd Edition, 1992
- Gravelle, H and R. Rees: Microeconomics, Pearson Education, 3rd Edition, 2004
- Jehle, G. and J. Reny: Advanced Microeconomic Theory, Pearson Education, 2000
- Starr, R. M: General Equilibrium Theory: An Introduction, Cambridge University Press, 1997
- Jean-Jacques Laffont, John P. Bonin and Hélène Bonin The Economics of Uncertainty and Information

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

Module 1   Long-run Macroeconomics   52
Unit 1   The Solow Model as a bench mark

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   12
Real Business Cycles and New Keynesian Models lectures

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

ECON 0703: Advanced Mathematical Economics
[50 marks; Credit 4]

Module 1   Advanced Set Theory   24
Unit 1   Sets and Functions
Unit 2   Metric Spaces

Module 2   Point Set Topology   24
Unit 1   Examples of Topological Spaces
Unit 2   Continuity and Compactness
Unit 3   Application: Existence of equilibrium

Module 3   Introduction to Measure Theory   16
Unit 1   Lebesgue Measure
Unit 2   Lebesgue Integration
Unit 3   Probability Measure

References:

- Tom Apostol: Mathematical Analysis
- H. L. Royden: Real Analysis
- G. F. Simmons: Introduction to Topology and Modern Analysis
- Efe A. Ok: Real Analysis with Economic Applications

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

Module 1   Statistical Background   06
Reviewing the Fundamentals of Probability and Fundamentals of Mathematical Statistics

References:
- Miller, I. & Miller, M.: John E. Freund's Mathematical Statistics with Applications, Prentice Hall.
- Hoel, Port and Stone: Introduction to Probability Theory, Houghton Mifflin.

Module 2   Multiple Regression Analysis   20
Unit 1   Inference and Prediction
Unit 2   Qualitative Information- Binary (or Dummy) Variables

Module 3   Nonspherical Disturbances   16
Unit 1   Generalised Least Squares (GLS) methods of estimation.
Unit 2   Heteroscedasticity – detection and remedial methods; Autocorrelations - detection and remedial methods.

Module 4   Stochastic Regressors   06

Module 5   Multicollinearity   06

Module 6   Model Evaluation and Diagnostic Tests   10

References:
- Johnston, J. and J. Dinardo: Econometric Methods, McGraw Hill.
- Wooldridge, J. M.: Econometrics, CENGAGE Learning.
- Maddala, G.S.: Introduction to Econometrics, John Wiley & Sons Ltd.
- Greene, W.H.: Econometric Analysis, Prentice Hall.
- Davidson, J.: Econometric Theory, Blackwell Publishers
- Cameron A. Colin and Pravin K. Trivedi: Microeconometrics: Methods and Applications, Cambridge University Press

ECON 0791: Applied Econometrics I
(Computer Application Based)
[50 marks; Credit 4]

Module 1   Descriptive Statistics, Economic Statistics and Introductory Econometrics with MICROSOFT EXCEL   20

References:
- Whigham, D.: Managerial Economics Using Excel, Thomson Learning
- Barreto, H.: Intermediate Microeconomics with Microsoft Excel, Cambridge University Press

Module 2   Data Management and Introductory Econometrics with STATA / EVIEWS/ SPSS / R   44

Note: The time allocation is indicative; the references have to be supplemented as required

EIGHTH SEMESTER

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

Module 1	**Topics in Game Theory**	**32**
Unit 1	Introduction	
Unit 2	Dynamic games with complete information	
Unit 4	Static games with incomplete information	
Unit 5	Dynamic games with incomplete information	
Unit 6	Introduction to Cooperative Game Theory	

Module 2	**Topics in Economics of Asymmetric Information**	**32**
Unit 1	Principal-Agent Model, Moral Hazard Problem and Applications	
Unit 2	Adverse Selection Problem	
Unit 3	Signaling and Informed Principal Model	
Unit 4	Screening: Basic Models and Applications	
Unit 5	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
- 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.
- 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
- Osborne, Martin J.: An Introduction to Game Theory, OUP 2003
- Laffont, J.J. and D. Martimort: The Theory of Incentives, Princeton University Press, 2002

ECON 0802: Advanced Macroeconomics II
[50 marks; Credit 4]

Module 1	**World Bank- IMF model**	**5**
Module 2	**Kalecki framework and Structuralist Macroeconomics**	**14**
Module 3	**Structural Change and Unbalanced Growth**	**10**
Module 4	**Complete Markets. Incomplete Markets**	**10**
Module 5	**Financial Repression. Exchange Rate Dynamics. International Financial Markets and Financial Crises**	**10**
Module 6	**Monetary Dynamics. Money and Economic Growth**	**15**

References:
- A Bhaduri, Macroeconomics, Macmillan 1986; chs1-3
- M Kalecki, Essays on Developing Economies, Harvester Press, 1976

- P Patnaik (ed), Macroeconomics, OUP, 1995: essays by A K Bagchi and A K Dutt
- M K Rakshit (ed) Studies in the Macroeconomics of Developing Countries, OUP Delhi, 1989
- K Basu, Analytical Development Economics, OUP India, 1998
- Blanchard & S Fischer, Lectures on Macroeconomics, Prentice-Hall of India 1996
- Ljungqvist & Sargent, Recursive Macroeconomic Theory, 2nd ed, MIT Press, 2004
- D Acemoglu, Introduction to Modern Economic Growth, Princeton University Press, 2009

ECON 0803: Issues in Development Economics
[50 marks; Credit 4]

It is recommended that this course be based on class presentations made by students as much as possible. The final evaluation should have a 20 mark component on an essay written by the student on any contemporary issue of economic development. The topic for each student should be finalized in consultation with the instructor. The following is only a suggested structure for the course. The instructor should feel free to choose which aspects to relatively put more emphasize on, and feel free to add and subtract references.

Module 1   Approaches to Development   24

There is a plurality of approaches and a wealth of literature. The purpose of this module would be to guide the student to some of the alternative approaches. It will be assumed that the students are conversant with basic micro and macro economic analysis, and have been exposed to some discussion on economic development in their undergraduate curriculum.

References:
- **T.N. Srinivasan and H. Chenery** (Edited) Handbook of Development Economics Volume 1, North Holland 1988 Chapters 1-5 (Chapters by Amartya Sen, W. Arthur Lewis, Pranab Bardhan, Gustav Ranis and Joseph Stiglitz)
  - Amartya Sen: The Concept of Development
  - W. Arthur Lewis: The Roots of Development Theory
  - Pranab Bardhan: Alternative Approaches to Development Economics
  - Gustav Ranis: Dualism
  - Joseph Stiglitz: Economic Organization, Information and Development
- **T. P. Schultz and J. Strauss** (Edited) Handbook of Economic Development Volume 5. North Holland 2009 Chapter 74 by Partha Dasgupta: The Place of Nature in Economic Development
- **Eric Sheppard, Philip W. Porter, David R. Faust and Richa Nagar**: A World of Difference: Encountering and Contesting Development *(Second Edition)* The Guilford Press London and New York, 2009. Chapters 1-5

Module 2   Economic Development: Measurement and Special Aspects   12

There are different ways of measuring economic development. A brief exposure to some of these measures and their significance is the purpose of this module. Some of the special aspects include measurement of poverty, inequality, human development, capabilities, and the gender gap

References:
- **S. Subramanian**: Measures of Inequality and Poverty, OUP
- **D. Ray**: Development Economics OUP. Chapters 6,7,8
- **Mahbub ul Haq**: Reflections on Human Development OUP

Module 3   Development Policy   12

This module is supposed to focus on selective aspects of development policy that span both micro and macro interventions in the economy.

References:
- Handbook of Development Economics, Volume 5 (Ed. **T.P. Schultz and J. Strauss**)
  - Introductory Article by Dani Rodrik and Mark R. Rosenzweig, Development Policy and Development Economics: An Introduction
    - Stability with Growth: Macroeconomics, Liberalization and Development by **J. Stiglitz, J. Ocampo, S. Spiegel, R. Ffrench-Davis and D. Nayyar**. OUP 2007, Chapters 3-9
    - Coordination Failures, Clusters and Microeconomic Interventions Working Paper #544 by **Andres Rodriguez-Clare** December 2005 Inter-American Development Bank.
- Economic Development as Self-Discovery by **R. Hausman and D. Rodrik** in Journal of Development Economics 2003 72(2)
- Understanding Economic Policy Reform by **D. Rodrik** in Journal of Economic Literature 34 (1996)
- Beyond Rosenstein-Rodan: The Modern Theory of Coordination Problems in Development by **K. Hoff** (2000) in Proceedings of the Annual World Bank Conference on Development Economics World bank Washington DC

Module 4   International trade and global economic changes   16

The purpose of this module is to focus on the role of international trade and capital flows in economic development, with some emphasis on current debates about globalization and its effects.

References:
- Handbook of Development Economics Volume 2 **(Srinivasan and Chenery Ed.)** Chapters 24 and 25
  - C. Bliss: Trade and Development: Theoretical Issues and Policy Implications
  - D. Evans: Alternative Perspectives on Trade and Development
- **J. Stiglitz:** Globalization and its Discontents (Penguin)
- **J. Bhagwati:** In Defence of Globalization (OUP)
- **D. Rodrik:** The Globalization Paradox (Norton)
- **K. Basu**: Globalization, Poverty and Inequality: What is the Relationship? What can be done? In World Development (2006)

ECON 0804: Econometric Methods II
[50 marks; Credit 4]

Module 1   Limited Dependent Variable Models   16
Binary Choice Models - Linear Probability Model, Probit and Logit Models Censored and Truncated Regression Models

References:
- Wooldridge, J. M.: Econometrics, CENGAGE Learning
- Cameron A. Colin and Pravin K. Trivedi: Microeconometrics: Methods and Applications, Cambridge University Press
- Greene, W.H.: Econometric Analysis, Prentice Hall.

Module 2   Stationary Time Series   34

Stochastic Time Series and Stationarity; Box-Jenkins Methodology of Stationary Time Series Analysis; Time Series with Trend - Deterministic and Stochastic Trend; Tests of Unit Root.

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

Module 3   Static Panel Data Models   14
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.

ECON 0891: Applied Econometrics II
(Computer Application Based)
[50 marks; Credit 4]

Module 1	Limited Dependent Variable Models	17
Module 2	Time Series Models	30
Module 3	Panel Data	17

Note: The time allocation is indicative; the references have to be supplemented as required

NINTH SEMESTER
ECON 0901: Advanced Econometrics I
[50 marks; Credit 4]

Module 1   **Advanced Discrete and Limited Dependent Variable Models**   **32**

Unit 1   Multinomial Response Models – Ordered and Sequential response Models
Unit 2   Grouped Data
Unit 3   Selection and Hurdle Models

Reference:
- J.M. Woolridge (2002) Econometric analysis of cross section and panel data, MIT Press, Cambridge, Mass.
- Maddala, G.S. Limited Dependent and Qualitative Variables in Econometrics, Cambridge University Press
- Greene, W.H. Econometric Analysis, Prentice Hall.
- Lancaster, T.: Econometrics of Transition Data.
- Cameron, C. and Trivedi: Regression Analysis of Count Data.

Module 2   **Introduction to Non-parametric and semi-parametric analysis**   **32**

Unit 1   Distribution free methods and Order Statistics: non-parametric inferences
Unit 2   Non-parametric density estimation and regression
Unit 3   Semi-parametric or Semi non-parametric estimation
Unit 4   Data envelopment analysis and analysis of Revealed Preference

Reference:
- Colin A. Cameron and Pravin K. Trivedi: Microeconometrics: Methods and Applications, Cambridge University Press
- Q. 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 0902: Advanced Econometrics II
[50 marks; Credit 4]

Module 1   Advanced Time Series Econometrics   32

Unit 1   Modeling Volatility – ARCH and GARCH Model 10
Unit 2   Introduction to VAR Analysis – Estimation and Identification - Granger
          Causality Cointegration and Error Correction Models

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

Module 2   Dynamic Panel Data Models   20

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

Module 3   Exploratory Data Analysis   12

Reference:
- Johnson, R. A, and Wichern, D. W.: Applied Multivariate Statistical Analysis
- Hair, Black, Babin, Anderson, Tatham: Multivariate Data Analysis, Pearson Education

<p align="center">**ECON 0903: Financial Economics I**</p>
<p align="center">**[50 marks; Credit 4]**</p>

Module 1   Introduction to Corporate Finance   1

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

Module 2   Financial Markets, characteristics and operations   20

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

Module 3   Corporate Financial Reporting   5

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 4   Value and capital Budgeting   10

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.
Unit 4   Pricing of derivatives – futures and options

Module 5   Risk and Capital Budgeting   10

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 6   Capital Structure and Pay-out policy   12
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 7   Sources of short-term and long-term Financing   3

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

Module 8   Special Topics   3

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 0904: Financial Economics II
[50 marks; Credit 4]

Module 1   The Balance of Payments and International Economic Linkages   5

Balance of payments categories, The international flow of goods, services and capital, Coping with
the current account deficit.

Module 2   Foreign Exchange and Derivative Markets   10
Unit 1   Organization of the foreign exchange market

Unit 2	The Spot market- organization of the interbank spot market, direct, indirect and cross rates, Bid-ask spread, triangular arbitrage
Unit 3	Forward market – premium and discount, forward rate and expected future spot rate, pay-off profile, outright forward exchange and swaps, forward quotation
Unit 4	Introduction to Currency futures and currency options.

| **Module 3** | **Parity Conditions in International Finance** | **12** |
| Unit 1 | The Law of one price- Purchasing Power Parity, The Fisher Effect, The International Fisher Effect, The Interest Rate Parity, The Unbiased Forward Rate Hypothesis |

Module 4	**Foreign Exchange Risk Management**	**22**
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 5	**Financing the Multinational Corporation**	**5**
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	The Euro markets: Eurocurrency markets, Eurobonds, Note issuance facilities, Euro notes, Euro commercial papers, Asia currency markets
Unit 3	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** | **5** |
| Unit 1 | International Portfolio Investment, Corporate strategy and FDI, Capital Budgeting for MNC |

| **Module 7** | **Multinational Working Capital Management** | **5** |
| Unit 1 | International Cash Management, Accounts Receivable Management, Inventory Management, Short-term Financing. |

Reference:

- 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

Module 1	Quantal and Limited Choice Models	18
Module 2	Dynamic Panel Data	8
Module 3	Time Series Analysis	18
Module 4	Exploratory data analysis	8
Module 5	Non-parametric and semi-parametric methods	10

Computational Tools: use of software like STATA, EVIEWS, TSP, GAUSS, MICROFIT, SPSS, SAS, R.

TENTH SEMESTER

ECON 1091: Quantitative Finance
(Laboratory Based)
[50 marks; Credit 4]

Module 1	**Financial Statement Analysis**	**8**
Unit 1	Assessing company health using corporate data-base	

Module 2	**Valuation of Financial Asset**	**15**
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**	**9**
Unit 1	Portfolio construction, evaluation and revision	

Module 4	**Econometrics for finance**	**20**
Unit 1	Univariate financial time series: linear and non-linear stochastic models and forecasting	
Unit 2	Modeling financial returns distribution	
Unit 3	Multivariate financial time series	
Unit 4	Modeling long-run relationships in finance	
Unit 5	Modeling volatility and correlation	
Unit 6	Logit, Probit and Panel data applications	
Unit 7	Application of Survival Analysis	

Module 5	**Applications in International Finance**	**7**
Unit 1	Testing Parity conditions in international finance, Derivative pricing	

Module 6   Special topics   5
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 Softwares to be used: E-Views, LIMDEP, Microfit, SPSS

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.

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ECON 1092: Project
[200 marks; Credit 16]

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Students need to complete a project under the guidance of Internal &/or External Supervisor.

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ALTERNATIVE COMBINATIONS
Health Economics
(As an alternative to Advanced Econometrics)

ECON 0901: Health Economics I
[50 marks; Credit 4]

</div>

Module 1   Introduction to Health Economics   08

Uniqueness of health as a commodity – Market failures – Characteristics of health market – Evolution of health economics as a separate discipline.

References:
- Arrow K (1963). Uncertainty and the welfare economics of medical care. A*merican Economic Review*, 53(5):941-973.
- Hammer PJ, Haas-Wilson D, Sage WM (2001). Kenneth Arrow and the changing economics of health care: "Why Arrow? Why now?" *Journal of Health Politics, Policy and Law*, 26(5):835-849.
- Glied, S. and Smith P. C. Edtd. (2011) The Oxford Handbook of Health Economics, Oxford

Module 2   Individuals as Producers of their Health   10

Health as a part of human capital – Grossman model - Production of health as modification of a stochastic process

References:
- Grossman, M. (2000) "The Human Capital Model" in Culyer, A. J. And Newhouse, J. P. (edtd.) Handbook of Health Economics, Vol. IA, Chap. 7, North Holland
- Grossman, M. (1972) "On the Concept of Health Capital and the Demand for Health," *Journal of Political Economy*, 80(2): 223-255.
- Glied, S. and Smith P. C. Edtd. (2011) The Oxford Handbook of Health Economics, Oxford
- Zweifel, P. (1997) *Health economics*, Springer.
- Morris, *Economic Analysis of Health care,* John Wiley.
- Folland et al., *Economics of Health and Health Care*, 5th Edition, Pearson.

Module 3   Demand for Health Capital   22

Demand for health care as an investment – Marginal Efficiency of Investment (MEI) and rate of return Changes in equilibrium – Age, Wage, Education and Uncertainty Is medical care a public health issue? When is medical care a public health responsibility? Hospitals and long-term care

References:
- Morris, *Economic Analysis of Health care,* John Wiley.
- Folland et al., *Economics of Health and Health Care*, 5th Edition, Pearson.
- Henderson, Health Economics and policy, South-western Press.
- Dranove, D. and Satterthwaite, M. A.(2000) "The Industrial
- Halfon, Larson & Russ (2010) Why Social determinants? *Healthcare Quarterly*, October.
- Helen Keleher & B. Murphy (2004) *Understanding Health – A determinants approach*, Oxford.
- Glied, S. and Smith P. C. Edtd. (2011) The Oxford Handbook of Health Economics, Oxford
- Mary Jone Schneider, *Introduction to Public Health*, Jones & Bartlett.

Module 4   The Medical Care Market   10

The Industrial Organization of Health Care Markets – Agency and demand for health care
A Special Note on Pharmaceutical Industry

References:
- Organization of Health Care Markets" in Culyer, A. J. and Newhouse, J. P. (edtd.) Handbook of Health Economics, Vol. IB, Chap. 20, North-Holland
- Glied, S. (2000) "Managed Care" in Culyer, A. J. and Newhouse, J. P. (edtd.) Handbook of Health Economics, Vol. IA, Chap. 13, North-Holland
- Scherer, F. M. (2000) "The Pharmaceutical Industry"in Culyer, A. J. And Newhouse, J. P. (edtd.) Handbook of Health Economics, Vol. IA, Chap. 25, North-Holland

Module 5   Market Failure and Some Possible Response   14
Health Goods and Market Failure
Asymmetric Information – Moral Hazard - Health Insurance - Market failure in Health
Insurance Market
Development and Growth of Managed Care

References:
- Morris, *Economic Analysis of Health care*, John Wiley.
- Folland et al., *Economics of Health and Health Care*, 5th Edition, Pearson.
- Culter, D. M. and Zeckhauser, R. J. (2000) "The Anatomy of Health Insurance" in Culyer, A. J. and Newhouse, J. P. (edtd.) Handbook of Health Economics, Vol. IA, Chap. 11, North-Holland
- Glied, S. and Smith P. C. Edtd. (2011) The Oxford Handbook of Health Economics, Oxford

ECON 0902: Health Economics II
[50 marks; Credit 4]

Module 1   Health Issues in Developing Countries   16

Investing in health in developing countries – Linkage between health, growth, inequality and poverty – Burden of disease – Concepts of QALY, HYE and DALY – Empirical evidence on disease burden in developing countries.

References:
- World Bank, *World Development Report, 1993: Investing in Health*, World Bank.
- Alleyne & Cohen (2002) *Health, Economic Growth and Poverty Reduction: Report of the Working group on Macroeconomics of Health*, WHO, Geneva.
- Duraiswamy and Mahal (2005) *Health, poverty and economic growth in India*, Background papers to National Commission on Macroeconomics of Health, MoHFW.
- Wagstaff A. (2001) *Poverty and health*. Commission on Macroeconomics and Health Working Paper Series WGI: 5, Geneva: WHO.

Module 2   Maternal and Child Health   16

Importance of Maternal and Child Health
Infant, Child and Maternal Mortality
Nutritional Issues in Child and Women Health
Reproductive health
Policy measures in India

References:
- Mary Jone Schneider, *Introduction to Public Health*, Jones & Bartlett.
- Sen & Ostlin, "Gender as a social determinant of health: Evidence, policies and innovations", in Sen & Ostlin (ed) (2010) *Gender equity in Health*, Routledge.
- Rajiv Dasgupta (2010) Child health inequity in India. In S. Bhattacharya, S. Messenger & C. Overy (ed) *Social determinants of health*, Orient Blackswan

Module 3   Equity, Needs and Ethics in Healthcare   16

Healthcare consequences of socio-economic change
Understanding reasons for health inequality: Conceptual issues
Measuring health inequality
* Social exclusion and care of elderly

* Epidemiology and Economics - evidence for policy and intervention
* Ethical issues in medical care & medical resource allocation
* Physician's Practice: Conflict between public health and medical profession, Licensing and Regulation
* Concept of Community Financing

[Topics marked * may be covered at discretion of faculty]

References:
- Leon & Walt (ed) (2001) *Poverty, Inequality and Health: An International Perspective*, Oxford.
- Hurley, J. (2000) "An Overview of the Normative Economics of Health Sector" in Culyer, A. J. and Newhouse, J. P. (edtd.) Handbook of Health Economics, Vol. IA, Chap. 2, North-Holland

Module 4   Environmental Health   16
Importance of Environmental Health
Role of Government
Identification of Hazard
Setting of standard
Occupational Health

Reference:
- Mary Jone Schneider, *Introduction to Public Health*, Jones & Bertlett.

ECON 0905: Biostatistics & Health Econometrics
[50 marks; Credit 4]

Module 1   Analyzing Categorical Data   8
Goodness of fit test - 2 X 2 Contingency Table: Odds Ratio, Fisher's Exact Test, Matched Pair studies - r X c Contingency Tables: Testing absence of association, testing absence of trend - Multiple 2 X 2 Contingency Tables: Analyzing Tables separately, Cochran-Mantzel-Haenszel test, Mantzel-Haenszel Common Odd ratio.

References:
- R. N. Forthofer, E. S. Lee and M. Hernandez (2007) *Biostatistics: A guide to design,analysis and discovery*, 2/e, Elsevier Academic Press, Amsterdam.
- Jones, A. M. 'Health Econometrics' in Culyer, A. J. and Newhouse, J. P. (edtd.) Hand Book of Health Economics, Vol. 1A, Chapter 6, North-Holland.

Module 2   Survival and Duration Data   16

References:
- Jones, A. M. 'Health Econometrics' in Culyer, A. J. and Newhouse, J. P. (edtd.) Hand Book of Health Economics, Vol. 1A, Chapter 6, North-Holland.
- R. N. Forthofer, E. S. Lee and M. Hernandez (2007) *Biostatistics: A guide to design, analysis and discovery*, 2/e, Elsevier Academic Press, Amsterdam.

Module 3   Advanced Discrete and Limited Dependent Variable Models   30

Multinomial Response Models
Selection and Hurdle Models

References:
- J.M. Woolridge (2002) Econometric analysis of cross section and panel data, MIT Press, Cambridge, Mass.
- Maddala, G.S. Limited Dependent and Qualitative Variables in Econometrics, Cambridge University Press
- Greene, W.H. Econometric Analysis, Prentice Hall.

Module 4   Exploratory Data Analysis   14

Reference:
- Johnson, R. A, and Wichern, D. W.: Applied Multivariate Statistical Analysis
- Hair, Black, Babin, Anderson, Tatham: Multivariate Data Analysis, Pearson Education

Advanced Optimization Techniques
(As an alternative to Financial Economics)

ECON 0903: Nonlinear Programming and Dynamic Optimization in Continuous Time
[50 marks; Credit 4]

Module 1   Nonlinear Programming   32

Unit 1	The Nonlinear Programming Problem
Unit 2	Linear Inequalities and Theorems of the Alternative
Unit 3	Convex Sets in R^n
Unit 4	Convex and Concave Functions
Unit 5	Differentiable Convex and Concave Functions
Unit 6	Optimality Criteria in Nonlinear Programming with Differentiability
Unit 7	Duality in Nonlinear Programming

References:
- Olvi Mangasarian: Nonlinear Programming
- Willard Zangwill: Nonlinear Programming

Module 2   Dynamic Optimization in Continuous Time   32

Unit 1	Examples of Economic Problems involving Dynamic Optimization in Continuous Time
Unit 2	Optimal Control Theory

Unit 3   Fixed Endpoint Problems
Unit 4   Various Endpoint Problems
Unit 5   Discounting Current Values and, Comparative Dynamics
Unit 6   Infinite Horizon Problems
Unit 7   The Pontriyagin Maximal Principle
Unit 8   The Transversality Condition in infinite horizon problems
Unit 9   Comparisons with the Overtaking Principle

References:
- Morton Kamien and Nancy Schwartz: Dynamic Optimization
- Koopmans: The Vatican Volume Essay

More References would be provided in due course, especially for the infinite horizon problem.

The students will need some familiarity with the Theory of Differential Equations.

ECON 0904: Dynamic Optimization in Discrete Time
[50 marks; Credit 4]

Module1   **Examples of dynamic problems in discrete time**
Module 2   **Reduced Form Statement of the Dynamic Optimization Problem**
Module 3   **Dynamic Programming and the Value Function**
Module 4   **The Policy Function**
Module 5   **Duality Theory**
Module 6   **Continuity of the Policy Function**
Module 7   **Existence of a Stationary Optimal Stock and the Golden Rule**
Module 8   **Differentiability of the Value Function**
Module 9   **Uniqueness of the Stationary Optimal Stock**
Module 10   **Stability of the Stationary Stock**
Module 11   **Problems with Turnpike Properties**

Reference:
- Tapan Mitra: Introduction to Dynamic Optimazation Theory, in Majumdar, Mitra and Nishimura (ed) Optimization and Chaos

ECON 1001: Stochastic Dynamic Programming
[50 marks; Credit 4]

Module1   **Examples of Stochastic Dynamic Problems from Theory of Finance , Theory of Economic Growth etc.**
Module 2   **Measure and Integration**
Module 3   **Markov Processes**
Module 4   **Stochastic Dynamic Programming and the Principle of Optimality**
Module 5   **Applications of Stochastic Dynamic Programming**

References:

- Nancy Stokey, Robert Lucas and Edward Prescott: Recursive Methods in Economic Dynamics, Chapters 7, 8, 9 and 10.

International Economics
(As an alternative to Financial Economics)

ECON 0903: International Economics I
[50 marks; Credit 4]

Module 1   Generalization of the traditional theory   06
Unit 1   Extensions of the Ricardian model: multi-country case, multi-commodity case, World PPF
Unit 2   Extensions of the Heckscher-Ohlin Model
Unit 3   Merger of Ricardian and Heckscher-Ohlin model

Module 2   Specific Factor Model   04
Specific Factor Model: Factor Allocation, Rybsczynski effect and Stolper-Samuelson effect

Module 3   Refinements of the traditional theory   25
Unit 1   Transportation costs and international trade
Unit 2   International Trade and Intermediate goods- pure intermediate inputs, final goods as inputs
Unit 3   International Trade and Non-traded goods
Unit 4   Natural Resources, Dutch Disease, deindustrialization
Unit 5   International Trade and International factor mobility

Module 4   New Theories of International Trade   25
Unit 1   Increasing Returns, Monopolistic Competition and International Trade
Unit 2   Scale Economies, Product Differentiation and International Trade
Unit 3   Intra-industry Specialization and Gains from Trade
Unit 4   Reciprocal dumping model of international trade
Unit 5   Technology Gap model of international trade
Unit 6   Endogenous innovation, Trade and Growth

Module 5   Neo Ricardian Theories of International Trade   04
Unit 1   Intermediate and capital goods in the Ricardian Theory
Unit 2   The debate between orthodox and neo-Ricardian theory

References:
- Jones, R. International Trade: Essays in theory, North Holland, 1979
- Bhagwati, et al. Lectures on international trade, MIT press, 1998
- Krugman, P.R., Rethinking International Trade, MIT Press, 1994

ECON 0904: International Economics II
[50 marks; Credit 4]

Module 1   Tariff, Protection and Economic Integration   24

Unit 1   Partial and General Equilibrium Effects of tariff, Tariff as a device for raising revenue, Tariff and the distribution of income, Tariff and alternative policy measures for special objectives
Unit 2   Intermediate goods - Effective rate of protection and content protection scheme
Unit 3   Quotas and other non-tariff barriers
Unit 4   Free trade versus protection: Domestic Distortion and policy intervention
Unit 5   Non-economic motives for protection, Theory of second best

Module 2   Market Power and Protection   16

Unit 1   Domestic Market Power and Protection: Case of an import competing monopolist, Protection in an oligopolistic domestic market
Unit 2   Foreign Market Power and Protection: Trade Policies against foreign monopolist, Trade taxes and quotas, Trade Policies against foreign oligopolist: Kinked Demand model, Cournot model, Bertrand model

Module 3   Strategic Trade Policy   16

Unit 1   Strategic Export Policy: Competitive Foreign Conduct, Profit shifting, Price competition, Entry with increasing return, Resource constraints, Consumption effects
Unit 2   Strategic Import Policy: Tariff in the Cournot case, Tariff in the Bertrand case, Import quotas

Module 4   Multilateral Trade Policy, Trading Bloc and Economic Integration   08
References:
* Helpman and Krugman, Trade Policy and Market Structure, MIT Press, 1989.
* Corden,M. Theory of Protection

ECON 1091: International Economics III
(Laboratory Based)
[50 marks; Credit 4]

Module 1   Using Empirical Methods in International Economics: Time Series Models Estimation of the ARMA models of time series, Box-Jenkins methodology, Extensions of the ARMA model.
Module 2   Modeling exchange rate volatility, Use of GARCH family models, introduction to non-linearity-BDS test.
Module 3   Use of forecasting methods in International Economics, Basic principles of forecasting, types of forecasting, Testing accuracy of forecasts.
Module 4   Testing International Parity Conditions

Module 5 Testing the Balassa-Samuelson effect.Definition, assumptions, consequences and empirical evidence.

Module 6 Empirical assessment of comparative advantage gains, approaches to test the HOV model

Module 7 Testing the Gravity Equation, Concept, types of gravity equation, empirical applications and approaches to testing gravity equation.

References:

- Enders, W. (2004). Applied Econometric Time Series, 2nd ed., John Wiley & Sons, Inc.
- Feenstra, R. (2004). Advanced International Trade: Theory and Evidence. Princeton University Press.
- Hamilton, J. (1994). Time Series Analysis, Princeton University Press.
- Kocenda, E., Cerny, A. (2007). Elements of Time Series Econometrics: An Applied Approach, Karolinum Press.
- Ramanathan, R. (1998). Introductory Econometrics with Applications, 4th ed., Harcourt Brace College Publishers.
- Wang, P. (2005). The Economics of Foreign Exchange and Global Finance. Springer.
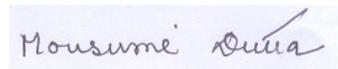
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