CENTRAL UNIVERSITY OF TAMIL NADU, TIRUVARUR

DETAILED SYLLABI AND CURRICULUM OF

M.Sc. FINANCIAL ECONOMICS

Post Graduate Degree (a Two Year Full time) Programme to be offered at
MADRAS SCHOOL OF ECONOMICS

Eligibility for Admission

Any graduate of a recognized University with a minimum of 55% marks (50% for OBC-Non Creamy Layer; and 45% for SC/ST candidates) and Mathematics at plus two level. Admission will be based on common entrance test.

Other Regulations as per M.Sc. Regulations for Post-Graduate Programmes of Central University of Tamil Nadu
M.Sc. FINANCIAL ECONOMICS

M.Sc. Financial Economics is a two-year Post Graduate degree program in Financial Economics. Globally, the financial sectors have, in recent years, been expanding at phenomenal rates and witnessing dramatic changes in their range and sophistication of operations. Hence, there is increasing demand for financial practitioners who are not only equipped with a good foundation in economics, mathematics and statistics but who are also well trained in the emerging theoretical and empirical tools for a better understanding of the sector. The Financial Economics course is meant to basically cater to this demand.

The course is divided into four modules. Each module consists of four papers. In the first-year, there will be 8 core courses. In the second year, the first module comprises two core papers and two optional (elective) papers. The second module comprises of one core paper and three optional (elective) papers. It will be taught under the guidance of an Advisory Committee comprising eminent persons from both the analytics industry as well as academics.

The core courses lay the foundations for the basic theory and give students a feel for how it is being played out in real economies. The courses in Statistics, Mathematical Methods, Econometrics and Applied Econometrics equip them with a good range of skills and tools for quantitative analysis. In addition, a range of one-semester elective courses to choose from are offered in the following specialized subjects- Risk Management, Investment Banking, Financial Regulation and Banking Supervision, Games and Information, Stochastic Models, Economics of Insurance, Empirical Methods in Finance. All these courses are application oriented and very relevant for today's liberalized financial environment. There is also an emphasis on independent research. Students are required to do term papers in most of the courses and each student undertakes a significant research project during the second year. Interested students take up a summer internship programme at the end of the first year, which greatly helps them to get an orientation in applied work. With this view, Madras School of Economics jointly with Central University of Tamil Nadu aims to introduce a two-year post-graduate degree course in Financial Economics.
Draft Outline
M.Sc. (FINANCIAL ECONOMICS)

**SEMESTER 1**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>FE:01</td>
<td>Microeconomics I</td>
<td>4</td>
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<tr>
<td>FE:02</td>
<td>Macroeconomics</td>
<td>4</td>
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<tr>
<td>FE:03</td>
<td>Statistical Methods</td>
<td>4</td>
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<tr>
<td>FE:04</td>
<td>Mathematical Methods</td>
<td>4</td>
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**SEMESTER 2**

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>FE:05</td>
<td>Financial Mathematics</td>
<td>4</td>
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<tr>
<td>FE:06</td>
<td>Microeconomics II</td>
<td>4</td>
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<tr>
<td>FE:07</td>
<td>Econometric Methods</td>
<td>4</td>
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<tr>
<td>FE:08</td>
<td>Financial Economics I</td>
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## SEMESTER 3

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<tr>
<th>Course Code</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>FE:09</td>
<td>Applied Econometrics</td>
<td>4</td>
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<tr>
<td>FE:10</td>
<td>Financial Economics II</td>
<td>4</td>
</tr>
<tr>
<td>FE:11</td>
<td>Stochastic Models</td>
<td>4</td>
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<tr>
<td>FE:12</td>
<td>Fixed Income Securities</td>
<td>4</td>
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<tr>
<td>FE:13</td>
<td>Economics of Insurance</td>
<td>4</td>
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<tr>
<td>FE:14</td>
<td>Investment Banking</td>
<td>4</td>
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<tr>
<td>FE:15</td>
<td>Games and Information</td>
<td>4</td>
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<tr>
<td>FE:P1</td>
<td>Project Work (Phase-1)</td>
<td>2</td>
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Courses listed under FE11 to FE15 are optional courses. Students need to take any two out of the four offered courses.

## SEMESTER 4

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<tr>
<th>Course Code</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>FE:16</td>
<td>International Finance</td>
<td>4</td>
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<tr>
<td>FE:17</td>
<td>Risk Management-Theory and Practice</td>
<td>4</td>
</tr>
<tr>
<td>FE:18</td>
<td>Financial Regulation and Banking Supervision</td>
<td>4</td>
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<tr>
<td>FE:19</td>
<td>Empirical Methods in Finance</td>
<td>4</td>
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<tr>
<td>FE:20</td>
<td>Financial Market Microstructure</td>
<td>4</td>
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<tr>
<td>FE:P2</td>
<td>Project Work (Phase-2)</td>
<td>6</td>
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Courses listed under FE17 to FE20 are optional courses. Students need to take any two out of the four offered courses.

\[C = \text{Credit,} \quad \text{Total Credits: 68}\]
CURRICULUM 2010 FOR FULL-TIME MODE FOUR SEMESTERS
DETAILED SYLLABUS

SEMESTER 1

FE:01 MICROECONOMICS I

1. Consumer Behaviour and Demand

Consumer preferences, opportunity sets, optimum choices, indirect utility demand functions, income and substitution effects, Slutsky equation, normal versus inferior goods, types of demand functions, elasticity, welfare evaluation, consumer surplus, equivalent variation and compensating variation, revealed preference (weak and strong axioms)

2. Utility Functions and Expected Utility Theorem

Expected utility function, measures of risk aversion, state-preference approach, portfolio theory and pricing of risk, present discounted value approach to investment decisions, adjustments for risk

3. Production and Cost

Production functions, types of production functions (Cobb-Douglas, CES, etc.), marginal products, rate of technical substitution, technical progress, cost functions, average and marginal costs, short run versus long run costs, economies of scale and scope, profit maximization, cost minimization, derivation of input demand

4. Competitive Markets

Assumptions of perfect market, competitive markets – demand and supply, demand and supply curves of individual firms, short-run versus long-run, competitive market equilibrium, tax-incidence analysis, price-controls and shortages

5. Imperfect Competition

Market failure, imperfect markets – monopolistic competition and oligopoly, sources of monopoly power, monopoly market equilibrium, price discrimination – first, second and third degree, tax-incidence

Books

- Nicholson, W., Microeconomic Theory: Basic Principles and Extensions, eighth edition, South Western Thomson Learning, 2002
- Pindyck, R.S. and D.L. Rubinfeld, Microeconomics, fifth edition, Prentice Hall, 2004
1. **National Income Accounting**

Accounting structure, key concepts in accounting for both closed and open economies – gross national product, gross domestic product, net national product, national income, savings and investment, balance of payments, circular flow of income, computational problems – expenditure approach, income approach and value added approach for measurement, input-output tables

2. **Keynesian Models**

Simple Keynesian Model, assumptions, concepts of involuntary unemployment, liquidity preference, paradox of thrift, investment function, IS-LM model – two sector model, goods and money market equilibrium, multiplier, liquidity trap, complete Keynesian model – three sector model, role of government in terms of monetary and fiscal policy

3. **Keynesian Models versus Classical Models**

Say’s Law, quantity theory of money, price flexibility and full employment, Clower and Patinkin’s money demand functions, equilibrium concept in classical model, synthesis between classical models and Keynesian models, interpretation and policy analysis

4. **Expectations and Macroeconomic Adjustments**

Expectations formation – Adaptive and rational expectations hypothesis, partial adjustment model, Lucas critique, Phillips curve, rules versus discretion, time consistency, inflation targeting, interest rate rules, effects of spending and taxes in models with flexible and sticky prices, perverse effects of fiscal expansion

5. **Macroeconomics: Open Economy Aspects**

Market for foreign exchange, devaluation and depreciation, real and nominal exchange rate, factors affecting exchange rate, Mundell-Fleming model, fixed versus floating exchange rate, price adjustment, role of fiscal and monetary policies under alternative exchange rate regimes, purchasing power parity concept

**Books**

FE:03 STATISTICAL METHODS

1. Probability Theory

Concept of probability, conditional probability and Bayes’ theorem, random variables – discrete and continuous, density and distribution functions, joint, marginal and conditional distribution, moment generating function, law of large numbers and Central Limit theorem

2. Theory of Probability Distribution

Discrete versus continuous distribution, uniform, binomial, negative binomial, Poisson, geometric and hyper-geometric, normal, log-normal, exponential, gamma and beta distribution, characteristic function and moment generating function

3. Sampling Methods and Sampling distributions

Simple random sampling: with and without replacement, stratified random sampling, probability and non-probability sampling, statistic and sample moments, sampling distributions: Student’s-t, Chi-square and F-distribution, determinants of sample size

4. Theory of Estimation

Point and interval estimation, properties of good estimators: unbiasedness, consistency, efficiency, different methods of estimation, maximum likelihood and method of moment estimation, properties of maximum likelihood and method of moment estimators, confidence interval for unknown parameters

5. Hypothesis Testing

Statistical hypothesis, simple versus composite hypothesis, critical region, types and size of error – type-I and type-II error, power of a test, Neyman-Pearson lemma, trinity of classical tests (Wald test, Lagrange multiplier, likelihood ratio), application of hypothesis testing with known and unknown variances, Chi-square test for testing independence of two-classification criteria, test for correlation

Books

FE:04 MATHEMATICAL METHODS

1. Linear Algebra

Vectors, matrices, inverse, simultaneous linear equations, Cramer’s rule for solving system of linear equations, input-output model, Hawkin - Simon condition, open and closed models quadratic equation, characteristic (eigen) roots and vectors

2. Differential Calculus

Derivatives – partial and total, economic applications, marginal and elasticity concepts, functions of several variables, implicit function theorem, higher order derivatives and Young’s theorem, Taylor’s approximation, convex sets, convex and concave functions, properties of linear homogenous functions, Euler's theorem

3. Classical Optimization and Applications

Introduction to quadratic forms, unconstrained optimization, constrained optimization with equality constraints, Lagrangian method, Hessian and Jacobian matrices, applications – utility maximization, cost minimization, profit – output maximization

4. Linear and Non-linear Optimization

Duality theory, constrained optimization with inequality and non-negativity constraints, Kuhn-Tucker formulation, linear programming – formulation, primal and dual, solutions using graphical and Simplex methods, applications from economics and finance

5. Dynamic Models

Definite and indefinite integrals, applications – measuring consumer and producer surplus, continuous interest – discount calculations, difference and differential equations, phase diagrams, Cobweb model, multiplier accelerator, Harrod-Domar and Solow model, optimal control theory and Hamiltonians; present and current value Hamiltonians, applications from economics and finance

Books:

Second Semester

FE:05 FINANCIAL MATHEMATICS

1. Basic Financial Calculations

Introduction: financial securities- zero coupon bond, fixed interest, index linked securities etc.; the time value of money; nominal Vs. real interest, deflationary conditions; accumulating factors, force of interest, compound interest functions.

2. Annuities and Equation of Value

Discounting and Accumulation: discrete and continuous cash flows; level annuities, deferred and increasing/decreasing annuities, equation of value and yield on transaction, probability of cash flows, higher discount, loan schedules; consumer credit: flat rate and APRs.

3. Capital Budgeting Techniques and Compound Interest Problems

Introduction to financial statement, assessing financial performance, net present value, internal rate of return, payback period; projects with different lives; money and time weighed rate of return; fixed interest securities, uncertain income securities, equities, valuing a loan with allowance for capital gains and indexation.

4. Arbitrage, Forward Contracts, and Term Structure of Interest

Rationale for no arbitrage assumption; forward contracts, calculating the forward price for a security with known dividend yield; hedging, fixed cash income; Discrete time and continuous time rates; continuous time spot rates and forward rates; instantaneous forward rates; theories of time; term structure of interest rates; yield curve; yields to maturity; convexity and immunization; interest rate risk.

5. Stochastic Interest Models and Investments

Simple stochastic interest rate models, fixed and varying interest model, log normal distribution; fixed interest government borrowings, government bonds, tax, security, marketability and return; government bills: corporate debt, debentures, unsecured loan stocks, eurobonds, certificates of deposit, convertibles, property, derivatives, future, range of futures, clearing house, margin, bond futures, short interest futures, stock index futures etc.

Books:

FE:06 MICROECONOMICS II

1. General Equilibrium

Absolute versus relative prices, perfectly competitive price and general equilibrium models – with and without production, uniqueness and determinacy, Edgeworth box, Pareto improvement and efficiency, Walrasian equilibrium, money in general equilibrium

2. Welfare Economics

Arrow-Debreu economy, welfare theorems, existence of Walrasian equilibrium, fixed-point theorem, core and core convergence, general equilibrium with time and uncertainty, Jensen’s Inequality, social welfare function, transfer efficiency; Kaldor-Hicks-Samuelson criterion, Rawl’s theory of social justice

3. Market Failure and Public Goods

Reasons for market failure – market imperfections, public goods, asymmetric information, externality, macro-economic factors; types of public goods, theory of public goods – provision and pricing, government intervention, second-best solution, free riding, rent seeking and regulation, types of externalities – production and consumption externalities, Pigovian and Coasian solutions

4. Asymmetric Information

Moral hazard problem, adverse selection, principal agent problem, theory of lemon, credit market, implications of asymmetric information, market signaling, hidden information modeling, efficiency wage model, information and insurance

5. Game Theory

Extensive forms and normal forms, dominant strategies and elimination of dominant strategies, Nash equilibrium, cooperative and non-cooperative games, sequential and simultaneous games, Shapely value, backward induction, sub-game perfect equilibrium, applications with oligopoly markets - Cournot, Bertrand and Stackleberg, product differentiation, cartel

Books

- Nicholson, W., Microeconomic Theory: Basic Principles and Extensions, eighth edition, South Western Thomson Learning, 2002
- Mas-Colell, A., M.D. Whinston, and J. Green, Microeconomic Theory, Oxford University Press, 1995
1. Regression Analysis

Linear regression model, two variables and multi variables, BLUE property, general and confidence approach to hypothesis testing, partial effects and elasticity, goodness of fit, model evaluation, matrix approach to linear regression models

2. Extension of Linear Regression Models

Consequences and detection of multicollinearity, heteroskedasticity, and autocorrelation; and remedial measures

3. Dummy Variables

Regression on qualitative and quantitative variables, dummy variable trap, structural stability of regression models, Chow test, piecewise linear regression model

4. Simultaneous Equation Models

Simultaneity bias, structural versus reduced form, identification: rank versus order condition, exact and over identifications, triangular model, methods of estimation including indirect least squares, two-stage least squares and three-stage least squares, LIML and FIML

5. Distributed Lag Models

Formation of expectations, naïve expectation versus adaptive expectations models, partial adjustment models, distributed lag models; Koyck’s model, Almon lag, polynomial distributed lag models, end point restriction, rational expectations models

Books

- Wooldridge, J., Introductory Econometrics: A Modern Approach, South-Western
1. Introduction to Financial Markets
Capital markets, consumption and investments with and without capital markets, market places and transaction costs and the breakdown of separation; Fisher separation theorem; the agency problem; maximization of shareholder’s wealth

2. Theory of Uncertainty
Axioms of choice under uncertainty; utility functions; expected utility theorem; certainty equivalence, measures of risk-absolute and relative risk aversions; stochastic dominance-first order, second order and third order; measures of investment risk-variance of return, semi-variance of return, shortfall probabilities,

3. Mean-Variance Portfolio Theory
Measuring portfolio return and risks, effect of diversification, minimum variance portfolio, perfectly correlated assets, minimum variance opportunity set, optimal portfolio choice; mean-variance frontier of risky and risk-free asset, portfolio weights

4. Index Models, CAPM & APT
Models of asset returns, multi index models, single index model, systematic and specific risk, equilibrium models-capital asset pricing model, capital market line, security market line, estimation of beta,; arbitrage pricing theory

5. Fixed Income Securities
Bond prices, spot prices, discount factors, and arbitrage, forward rates and yield-to-maturity, Price sensitivity, Hedging

Books

Third Semester

FE:09 APPLIED ECONOMETRICS

1. Stationary Time Series

Autocorrelation and partial autocorrelation, auto regressive and moving average models, conditions for stationary and invertible process, Box-Jenkins approach, forecasting, permanent versus temporary abruption, simple exponential smoothing and choice of parameter, seasonal models with trend, seasonal decomposition

2. Nonstationary Time Series and Volatility

Integrated process and random walk, unit root, testing for unit root, introduction to cointegration, Engle Granger method and Johansen test, error correction model, vector auto regressive model, impulse response function, variance decomposition, forecasting; volatility clustering, leverage effect, ARCH model, GARCH model and its various extension, multivariate GARCH modelling, forecasting

3. Limited Dependent Variable Models

Introduction to binary variables, limitation of LPM, logistic curve, Probit and Logit models, predicted probabilities, censored versus truncation, TOBIT model, ordinal models, multinomial models, and nested models

4. Panel data Models

Introduction to panel data, pooled model, within and between estimators, fixed effects, random effects, Hausman test, one way and two way model, random coefficients, dynamic panel data models, difference in difference methodology and dynamic panel data, generalised method of moments estimator

5. Production Function and Demand Estimation

Relationship among production, cost and profit functions, specification, estimation and applications; frontier production functions: DEA and SFA, measurement of multifactor productivity, Engel curves, complete demand models; general and particular restrictions on demand functions, estimation and applications of complete demand systems

Books

1. Future Contracts and Markets: Option Pricing Models
Forward and future contracts and markets; European and American options; pricing futures, wasp and synthetic futures; bounds for option prices, put-call parity; derivation of option pricing formula-Binomial approach; Black-Scholes option pricing models, option to expand, valuation of a real option

2. Capital Structure Choice
The value of firm with tax, Modigliani-Miller irrelevance hypothesis, choices in financing-debt and equity, the financing mix: trade-offs and theory; signalling hypothesis; effect of agency cost on capital structure, cost of capital, empirical determinants of capital structure choice

3. Dividend Policy
Irrelevance of dividend policy without tax; valuation, growth and dividend policy, dividend policy with taxes; theory of optimal dividend policy; other issues-stock dividends and share repurchase, empirical determinants of optimal dividend policy

4. Market Microstructure
Defining capital market efficiency, relationship between the value of information and efficient capital markets, rational expectations and market efficiency, market efficiency with costly information, efficient capital market theory and empirical models

5. Special Topics
a. Value at risk – Theory of VaR and estimation techniques
b. Acquisitions and takeovers – mergers activities as growth strategies, theories of mergers, implications and empirical evidence
c. Indian capital market and financial sector reforms

Books

FE:11 STOCHASTIC MODELS

1. Stochastic Process and Simple Markov Processes

Principles of actuarial modeling, stochastic vs. deterministic models; short run and long-run properties; stochastic process and counting process; analyzing the output of a model; sensitivity testing; types of stochastic processes: discrete state spaces with discrete and continuous time changes, continuous state space, sample paths, stationary, increments, Markov property, filtrations, white noise, general random walk, Poisson process and compound Poisson process

2. Markov Chains

Chapman-Kolmogorov equations; time homogeneous Markov chains, time-inhomogeneous Markov chains; Models- no claims discount policy model, NCD model, simple random walk on \( Z=\{-\ldots,-2,-1,0,1,2,\ldots\} \) and on \( \{0,1,2,\ldots,b\} \); accident proneness model; long-term distribution and behaviours of a Markov chain, stationary probability distribution, modelling using Markov chains; estimating transition probabilities, assessing the fit and simulation

3. Two-State Markov Model

Assumptions, probabilities, joint density function, ML estimator; alternative approach, applications, two state model of a single decrement and comparison with those of a random lifetime model

4. General Properties of Markov Process

Poisson processes, deriving and solving the Kolmogorov equations for Markov process-time and age dependent and time independent transition intensities; birth and death problems; simple survival models, sickness and marriage models in terms of Markov process and duration dependent Markov process; Kolmogorov’s backward differential equations, Markov jump process, the jump chain, simple two decrement model, calculation of total waiting time

5. Time-inhomogeneous Markov Jump Process

Chapman-Kolmogorov equations, transition rates, time inhomogeneous HSD model, Kolmogorov’s backward and forward differential equations; a two state survival model; integrated form of Kolmogorov equations, applications-marriage, sickness and death; time homogeneous Poisson process models, time homogeneous and inhomogeneous Markov models

Books

FE:12 FIXED INCOME SECURITIES

1. Introduction to Fixed Income Securities

Time value of money, discount factors, the law of one price, arbitrage, bond prices, spot prices, STRIPS, coupon bonds, definition and interpretation of yield-to-maturity, coupon effect, yield-to-maturity and spot rates and forward rates

2. Measure of Price Sensitivity and Hedging

One-factor measure of price sensitivity, modified and Macaulay duration and convexity, par bonds and perpetuities, measure of price sensitivity based on parallel yield shift, bond immunization, hedging strategies, volatility weighted hedging and regression based hedging

3. Term Structure Models

The science of term structure models, normally distributed rates and zero drift models, time dependent drift - Ho-Lee model, the mean reversion model: Vasicek model, the volatility models: the Cox-Ingersoll-Ross model

4. Multi-Factor Term Structure Models

Motivation for principal component models, the two factor models, properties of the two factor models, multi-factor models, trading with term structure models and case studies, hedging to the model versus hedging to the market

5. Fixed Income Market in India

An introduction to the Indian debt market, the government securities market, bond, T-bills, the corporate bonds, commercial papers, repos, the trading mechanism in the NSE-WDM, regulations in the bond market

Books

- Tuckman, B. Fixed Income Securities, Willey Finance, 2002
FE:13 ECONOMICS OF INSURANCE

1. Principles of General Insurance

Nature of general insurance-classification-effects of different marketing strategies; effects of regulatory and fiscal regimes; the adjustment coefficient-Lindberg’s inequality; areas of risk and uncertainty in general insurance business (solvency)

2. Basic Methodology Used in Insurance Business

Basic methodologies applied to practical problems relating to: rating, reserving, reinsurance programme performance, financial planning, monitoring the asset / liability position. Future life time random variable, its distribution function and density function, concept of force of mortality, curtate future life time random variable its probability mass function, deferred probabilities, all these functions in terms of international actuarial notation, analytical laws of mortality such as Gompertz and Makeham, single decrement life table, select and ultimate life table.


Empirical Bayes approach to credibility theory, credibility premium formulae and standard elementary models, credibility premiums, the aggregate claim distribution for short term insurance contracts, aggregate claim distribution and application of binomial, Poisson, negative binomial distribution and normal distribution

4. Reserving Bases for General Insurance Business

Different reasons for calculating reserves, assumptions, timing of the run-off of reserves, allowance for future inflation, discount for investment income and likely sources of uncertainty, developing appropriate reinsurance programme structures for a general insurer, appropriate models for the purpose of financial planning to enable general insurer to develop and monitor its strategic objectives at either the corporate or product level

5. Insurance Pricing

Insurance cost and fair premium, basic definition rate making, rate making in property and liability insurance, investment income and the timing of claim payment; assurance and annuity contracts with level and varying benefits, Net premiums for insurance products and annuity schemes; automobile insurance, homeowners insurance, life insurance and annuities, employee benefits and group medical coverage, retirement plans.

Books

1. Introduction: Overview of Investment Banking

Corporate debt and underwriting procedures securitization and asset backed debt securities, high yield debt investment bankers as traders and market-makers, private placements

2. Innovation and New Products in Fixed Income Instruments

equity issues; valuing an initial public offering, international equity issues, GDR, ADR, convertible securities, innovation and new equity securities, derivative securities

3. Mergers & Acquisitions

Introduction to valuation of companies; the law of mergers & acquisitions, markets for takeover stocks and risk arbitrageurs restructuring: theory of adding value, LBOS, practice of adding value

4. How Investment Bankers Compete

Developing new business, international business, professional standards and management

5. Structure of the Investment Banking

Structure of banking industry, major developments in India, and in international capital markets 1975-1997: legal basis of corporate finance and investment banking

Books

- Subramanyam, P. Investment Banking, TATA McGraw-Hill, 2005
1. Games of Complete Information

Backward induction, sub game perfection; repeated games; applications

2. Games of Incomplete Information

Bayesian equilibrium; equilibrium refinements: perfect Bayesian equilibrium, sequential equilibrium and trembling hand perfect equilibrium: applications

3. Bargaining

Bargaining with Complete and Incomplete Information, applications

4. Uncertainty

Global Games and Equilibrium Selection, Rationalization and Incomplete Information, Applications with special reference to Financial Crisis

5. Cooperative Games

Elements of Cooperative Games, Core, Shapley-Value, Applications

Books

1. The Balance of Payments Accounts

The principles of balance of payments, implications of the bop accounting identity balance of payments theory: different approaches and synthesis, imports, exports and deriving currency supply and demand curve

2. Modern Theories Foreign Exchange Rates

Stock vs flow theories, the monetary theory of exchange rates, asset approach to exchange rate portfolio-balance approach to exchanges rates, sticky price theory, theories of overshooting

3. Alternative Systems of Exchange Rates

Classical gold-standard system, Bretton woods, European money market, hybrid system of exchange rates, purchasing power parity principle, interest parity combination of PPP and covered interest parity

4. International Investment and Financing

Investment and borrowing with transaction costs, international dimension of cash management, portfolio investment international capital asset pricing, capital budgeting for foreign direct investment

5. Institutional Structure of International Finance

The eurodollar, euro currency markets, multinational banking, international trader with letters of credit, financing international trade, institutions regulating international trade GATT, WTO, free – trade areas, customs union, NAFTA, ASEAN

Books

1. Introduction to Risk Management

Sources of risk, currency risk, fixed income risk, equity risk, commodity risk, market risk measurement, VaR as downside risk, definition, parameter, elements of VaR system, stress testing

2. VaR Methods

An overview of VaR methods, VaR local and full valuation, delta normal methods, historical simulation, Monte Carlo simulation, examples of VaR applications.

3. Hedging

Hedging liner risk, optimal hedging, hedge ratio as regression coefficient, duration hedging, beta hedging, non-linear risk hedging, delta and dynamic hedging

4. Credit Risk Management

Settlement risk, introduction to credit risk, measuring credit risk, credit exposure, types of credit derivatives, credit default swap, pricing and hedging credit derivatives, measuring credit VaR, credit risk models, Basel accord, the Basel market risk charges

5. Operation & Integrated Risk Management

Introduction to operational risk, identifying operational risk, managing operational risk, risk capital, RAROC, risk capital, RAROC methodology, legal accounting, tax risk management

Books

1. Financial Regulation

Asymmetric information and the rationale for regulation of securities market, financial market fragility, review of regulatory policies in US, UK, Japan and Asian emerging markets.

2. Indian Capital Markets

Structure of primary and secondary markets, dematerialization, depositories, credit rating of financial instruments, financial institutions: development financial institutions, non-banking financial intermediaries, LIC of India and UTI, mutual funds, venture capital, bank-assurance

3. Financial Sector Reforms

Indian capital market integration, foreign institutional investors, impact of exchange rate variability in a liberalized regime, Issues of GDRs, ADRs

4. Banking Regulation

Banking regulation act 1949, financial stability, basics of public debt management issue of government securities conduct of monetary policy- role of gilt market

5. Bank of International Settlement

Capital adequacy regulations Basel accord I & II. accounting standard, disclosure and relationship banking mark-to-market accounting, liquidity risk and contagion market discipline: issues and evidence market discipline in emerging economies: beyond bank fundamentals

Books

FE:19 EMPIRICAL METHODS IN FINANCE

1. The Random Character of Stock Market Prices

Unconditional distributions, conditional distributions, conditional means - mean reversion, conditional means - instrumental variable, conditional variances, relationship between means and variances, stock prices and volume

2. Efficient Markets Hypothesis

Various approaches to efficient market hypothesis, variance bounds tests, anomalies, cross-asset relationships, over-reaction hypothesis

3. Event Study Methodology

Various approaches to event study methodologies, measurement abnormal returns and test statistics

4. Pricing Options, Futures and Other Derivative Assets

Option pricing models, Black and Scholes model, real option pricing, futures and forward prices, pricing of other derivatives, numerical solution for derivative pricing.

5. Fixed Income Securities

Portfolio performance evaluation, term structure of interest rates, pricing debt with default risk, immunization strategies.

Books

1. Institutions and Market Structure

The nature of markets, prices and markets, the investigation of the economic forces affecting trades, quotes and prices, trading mechanisms, order data, quote data

2. Inventory Models

Sources for Short-run Price Deviation from Fundamentals, transaction costs, order handling costs, Roll’s model, inventory models, the dealers problem, prices and inventories in competitive markets, market maker behaviour

3. Information Based Models

Informed traders and uninformed traders, the information content, the Glosten-Milgrom model, trade quantities and price behaviour, sequential trade models and price behaviour, long-lived information

4. Strategic Trader Models

Strategic behaviour of informed and uninformed traders, price behaviour and multiple informed traders, trading mechanism and strategic trading, strategic behaviour and security returns, the robustness of strategic models

5. Price Discovery and Market Stability

Information and sequence of prices, the volume critique, the role of time in price adjustment, information and market viability, order form and price behaviour, market transparency, trader anonymity, market design, market structure policies

Books

GEP Project Work (2+6= 8 Credits)

Students need a project work in the third semester (2 credits) and in the fourth semester (6 credits).

Courses will be further developed or modified under the guidance of an Advisory Committee.