Department of Economics, Panjab University, Chandigarh

Outlines of Syllabi and Course Structure for various Courses in the Department of Economics 2018-19

Course Structure for B.A. (Hons.) Economics

Syllabi of B.A. (Hons.) Semester I (under CBCS)

ECO-C1: INTRODUCTORY MICROECONOMICS

Max. Marks: 80 **Time: 3 Hrs.**
Credits: 6

(5 Class Room Teaching + 1 Tutorial)

Course Description

This course is designed to expose the students to the basic principles of microeconomic theory. The emphasis will be on thinking like an economist and the course will illustrate how microeconomic concepts can be applied to analyze real-life situations.

Instructions for Paper-setter and candidates:

- The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.

- There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60)

UNIT- I

Exploring the subject matter of Economics. Why study economics? Scope and method of economics; the economic problem: scarcity and choice; the question of what to produce, how to produce and how to distribute output

Cardinal Utility Analysis .

Ordinal Utility Analysis: The consumption decision - budget constraint, consumption and income/price changes, demand for all other goods and price changes; description of preferences (representing preferences with indifference curves); properties of indifference curves; consumers optimum choice; income and substitution effects.

UNIT- II

Theory of production: laws governing short run and long run. Producers equilibrium and expansion path

Cost Theory: Short run and long run cost curves.

The Firm and Industry under Perfect Market Structure: Price and output determination ; short run and long run.

UNIT- III

Determinants of individual demand/supply; demand/supply schedule and demand/supply curve; market versus individual demand/supply; shifts in the demand/supply curve, demand and supply together; how prices allocate resources. The basic competitive model. Supply and Demand How Markets Work, Markets and Welfare Markets and competition

Elasticity of demand: its measurements, applications and determinants.

Consumer surplus; producer surplus and the efficiency of the markets.

Concept of dead weight loss ; Govt intervention in the form of Taxes and Subsidies.

UNIT- IV

Single seller monopoly: Price and output determination

Input Markets Labour and land markets - basic concepts (derived demand, productivity of an input, marginal productivity of labour, marginal revenue product); demand for labour; input demand curves; shifts in input demand curves; competitive labour markets and firms profit maximisation conditions in input market ; and labour markets and public policy. Derivation of labour supply and savings decision - choice between leisure and consumption.

Readings:

1. Karl, E. Case., and Ray C. Fair, (2007). *Principles of Economics (*8th ed.). Pearson Education Inc.
2. N. Gregory Mankiw. (2007) *Economics: Principles and Applications*. (4th ed.). India edition by South Western, a part of Cengage Learning, Cengage Learning India Private Limited.
3. Joseph E. Stiglitz, and Carl E. Walsh. (2007) . *Economics* (4th ed.). W.W. Norton & Company, Inc., New York, International Student Edition.
4. Salvotore. D (2006) *Theory and Problems of Microeconomic Theory* (Sachems series) (3rd ed.) Tata McGraw-Hill Publishing Company Ltd.
5. Salvotore.D. (2007). Micro economic theory and Applications(4th ed.) Oxford University Press.

ECO-C2: MATHEMATICAL METHODS FOR ECONOMICS–I

Max. Marks: 80 **Time: 3 Hrs.**

Credits: 6

(5 Class Room Teaching + 1 Tutorial)

Course Description

This is the first of a compulsory two-course sequence. The objective of this sequence is to transmit the body of basic mathematics that enables the study of economic theory at the undergraduate level, specifically the courses on microeconomic theory, macroeconomic theory, statistics and econometrics set out in this syllabus. In this course, particular economic models are not the ends, but the means for illustrating the method of applying mathematical techniques to economic theory in general. The level of sophistication at which the material is to be taught is indicated by the contents of the prescribed textbook.

Instructions for Paper-setter and candidates:

- The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.

- There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

UNIT- I

Preliminaries and Functions of one real variable: Logic and proof techniques; sets and set operations; relations; functions and their properties; number systems. Graphs; elementary types of functions: quadratic, polynomial, power, exponential, logarithmic; sequences and series: convergence, algebraic properties and applications; continuous functions: characterizations, properties with respect to various operations and applications;

UNIT- II

Differentiable Functions and Single-variable optimization: Differentiable functions: characterizations, properties with respect to various operations and applications; second and higher order derivatives: properties and applications. Geometric properties of functions: convex functions, their characterizations and applications; local and global optima: geometric characterizations, characterizations using calculus and applications.

UNIT- III

Integration of functions: Methods of Substitution and partial fractions and simple economic applications

UNIT- IV

Difference equations: Introduction, solution of difference equations upto 2nd order, simple economic applications.

Readings:

K. Sydsaeter and P. Hammond, (2002).*Mathematics for Economic Analysis*, Pearson Educational Asia: Delhi.

Generic Elective for Economics Honours Students only

GENERAL ELECTIVE (GE) COURSE-I & II

SOC-GE02: FUNDAMENTALS OF SOCIOLOGY

Max. Marks: 80 **Time: 3 Hrs.**

Credits: 6

(5 Class Room Teaching + 1 Tutorial)

Course Description

The systematic study of human behaviour and human society is a relatively recent development. The central emphasis of the paper would be to develop a conceptual clarity regarding the basic sociological terms and themes, thus leading to a development of a sociological terms and themes, thus leading to a development of a sociological outwork. The course would also discuss the works of founding father which led to the development to sociological thinking.

Instructions for Paper-setter and candidates:

1. The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.

2. There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60).

UNIT – I

Developing Sociological Outlook*:* Definition and Scope; Significance and Uses of Sociology; Relationship of Sociology with other Social Sciences – Anthropology, Economics, Political Science, Psychology, Philosophy and History.

UNIT – II

Basic Concepts: **Society** – Meaning and Characteristics, Theories of Origin, Individual and Society. Community, Association and Institution – Meaning, Characteristics and Differences. Groups – Definition, Characteristics and Classification.

UNIT – III

Culture and Socialization: Culture-Definition, Cultural Lag, Acculturation, Assimilation, Pluralism. Culture and Personality.

Civilization: Definition, Traditional and Modern. Socialization – Meaning, Stages, Agencies.

UNIT – IV

Development of Sociological Thinking. Comte: Law of Three Stages. Marx: Materialistic Conception of History. Max Weber: Social Action and Rationality. Emile Durkheim: Social Facts and Social Solidarity.

Essential Readings:

1. Giddens, Anthony .*Sociology, Cambridge (*4th ed.). Polity Press.
2. Haralambos, Michael.(2015). *Sociology: Themes and Perspectives*. Oxford.
3. Davis, Kingley.(2002). *Human Society.* Surjeet Publications, Delhi.
4. Maclver, R S & Page Charles. *Society: An Introductory Analysis* (Latest ed.). Macmillan India Ltd.
5. Johnson, Harry (2003). *Sociology: A Systematic Introduction*. Allied Publishers, New Delhi.
6. Inkeles Alex. (2004).*What is Sociology? An Introduction to the Discipline and Profession*. Prentice-Hall, India.
7. Bradshaw, York W, et.al. (2001). *Sociology for a New Century*, Piner Forge Press, California.

Further Readings:

1. Johnson, Doley Paul.(1986).*Sociological Theory* (Or later ed.). New York, McMillan.
2. Ritzer, George. (2011).*Sociological Theory* .London (Or latest ed.). McGraw-Hill.
3. Coser Lewis. (2004). *Masters of Sociological Thought*, Rawat Publications, New Delhi.
4. Rao Shankar C.N. (2012).*Sociology*: *principles with an Introduction to Social Thought*.S.Chand and Company Pvt. Ltd.

STAT-GE-1: STATISTICAL METHODS

Max. Marks: 80 **Time: 3 Hrs.**
Credits: 6

(5 Class Room Teaching + 1 Tutorial)

Course Description

This is a course on statistical methods for economics. It begins with some basic concepts and terminology that are fundamental to statistical analysis and inference. It then develops the notion of probability, followed by probability distributions of discrete and continuous random variables and of joint distributions. This is followed by a discussion on sampling techniques used to collect survey data. The course introduces the notion of sampling distributions that act as a bridge between probability theory and statistical inference. The semester concludes with some topics in statistical inference that include point and interval estimation.

Instructions for Paper-setter and candidates:

- The maximum marks for the paper will be 100. The question paper will be of 80 marks and continuous evaluation 20 marks. Time allowed will be 3 hours.

The paper-setter must put a note in the question paper in this regard.

- There shall be **9** questions in all.

The first question **compulsory** comprising 15 short answer type questions spread over the whole syllabus. The candidates are required to attempt 10 questions. Each question shall be of **two** marks (10 x 2= 20).

Rest of the paper shall contain four units. Two questions shall be asked from each unit and the candidates shall be given internal choice. The candidates shall attempt one question from each unit. Each question will carry 15 marks (15x4=60)

UNIT- I

Introduction: Definition and scope of Statistics, concepts of statistical population and sample. Scales of measurement - nominal, ordinal, interval and ratio.Variables and attributes, Diagrammatical Representation of Data, Summarization of Data: Frequency Distribution and Graphical Presentation.

UNIT- II

Measures of Central Tendency: mathematical and positional. Measures of Dispersion: range, quartile deviation, mean deviation, standard deviation, coefficient of variation, moments,measures of skewness and kurtosis

UNIT- III

Bivariate data: Definition, scatter diagram, simple correlation ,rank correlation.
Trivariate Data: Partial and Multiple Correlation Coefficients
Fitting of Simple linear and quadratic regression lines using principle of least squares

UNIT- IV

Theory of attributes and consistency of data, independence and association of attributes, measures of association and contingency for 2 x 2 and r x s contingency tables.

SUGGESTED READINGS:

1. Goon A.M., Gupta M.K. and Dasgupta B. (2002): Fundamentals of Statistics, Vol.I & II, 8th Edn. The World Press, Kolkata.
2. Miller, Irwin and Miller, Marylees (2006): John E. Freund's Mathematical Statistics with Applications, (7th Edn.), Pearson Education, Asia.
3. Mood, A.M. Graybill, F.A. and Boes, D.C. (2007): Introduction to the Theory of Statistics, 3rd Edn., (Reprint), Tata McGraw-Hill Pub. Co. Ltd.

MAT-C2: ALGEBRA

Max. Marks: 80 **Time: 3 Hrs.**
Credits: 6

(5 Class Room Teaching + 1 Tutorial)

Note **:**

1. **The question paper will have nine questions. Question No.1 spread over the whole syllabus will be compulsory. Candidates will attempt five questions.**
2. **There will be two questions from each unit and the students will be required to answer one question from each unit.**
3. **All questions carry equal marks.**

Objective: The concepts and techniques from linear algebra are of fundamental importance in many scientific disciplines The main objective is to introduce basic notions in linear algebra that are often used in mathematics and other sciences. The emphasis will be to combine the abstract concepts with examples in order to intensify the understanding of the subject.

UNIT- I

Polar representation of complex numbers, n^{th} roots of unity, De Moivre's theorem for rational indices and its applications. Equivalence relations, Functions, Composition of functions, Invertible functions, One to one correspondence and cardinality of a set, Well-ordering property of positive integers.

UNIT- II

General properties of polynomials, Descarte's rule of signs, positive and negative rule, Relation between the roots and the coefficients of equations, Algebraic solutions of the cubic and biquadratic, Division algorithm, Divisibility and Euclidean algorithm, Congruence relation between integers, Principles of Mathematical Induction, statement of Fundamental Theorem of Arithmetic.

UNIT- III

Systems of linear equations, matrices, rank, Gaussian elimination, Determinants and their properties, Cramer's Rule, Vector spaces , subspaces, bases and dimension, the null space and the column space of a matrix and their dimension.

UNIT- IV

Linear transformations, representation of linear transformations by matrices, change of basis, rank-nullity theorem, Applications to difference equations and Markov chains, Eigenvalues and eigenvectors, characteristic polynomials, minimal polynomials, Cayley-Hamilton Theorem, triangulation

References:

1. Titu Andreescu and Dorin Andrica, *Complex Numbers from A to Z*, Birkhauser, 2006.
2. Edgar G. Goodaire and Michael M. Parmenter, *Discrete Mathematics with Graph Theory,* 3rd Ed., Pearson Education (Singapore) P. Ltd. Indian reprint, 2005.

3. David C. Lay, *Linear Algebra and its Applications,* 3rd Ed., Pearson Education Asia, Indian reprint, 2007.
4. S.H. Friedberg, A.J. Insel and L.E. Spence: Linear Algebra, Prentice Hall, 2003.
5. K. Hoffman and R. Kunze: Linear Algebra, 2nd Edition, Prentice-Hall of India, 1989.
6. S. Lang: Linear Algebra, Undergraduate Texts in Mathematics, Springer-Verlag, New York, 1989.
7. P. Lax, Linear Algebra, John Wiley & Sons, New York. Indian Ed. 1997

GENERIC ELECTIVE FOR NON-ECONOMICS HONOURS STUDENTS

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Ordinal Utility Analysis : The consumption decision - budget constraint, consumption and income/price changes, demand for all other goods and price changes; description of preferences (representing preferences with indifference curves); properties of indifference curves; consumers optimum choice; income and substitution effects .

UNIT- II

Theory of production: laws governing short run and long run . Producers equilibrium and expansion path

Cost Theory: Short run and long run cost curves.

The Firm and Industry under Perfect Market Structure: Price and output determination ; short run and long run.

UNIT- III

Determinants of individual demand/supply; demand/supply schedule and demand/supply curve; market versus individual demand/supply; shifts in the demand/supply curve, demand and supply together; how prices allocate resources. The basic competitive model. Supply and Demand How Markets Work, Markets and Welfare Markets and competition.

Elasticity of demand : its measurements ,applications and determinants.

Consumer surplus; producer surplus and the efficiency of the markets.

Concept of dead weight loss; Govt intervention in the form of Taxes and Subsidies.

UNIT- IV

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Input Markets Labour and land markets - basic concepts (derived demand, productivity of an input, marginal productivity of labour, marginal revenue product); demand for labour; input demand curves; shifts in input demand curves; competitive labour markets and firms profit maximisation conditions in input market ; and labour markets and public policy. Derivation of labour supply and savings decision - choice between leisure and consumption.

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2. Mankiw.N.Gregory. (2007). *Economics: Principles and Applications* (4th ed.) India edition by South Western, a part of Cengage Learning, Cengage Learning India Private Limited.
3. Joseph E. Stiglitz and Carl E. Walsh. (2007). *Economics* (4th ed.) International Student Edition, W.W. Norton & Company, Inc., New York.