

BA (HONS) ECONOMICS
5th SEMESTER
DISCIPLINE SPECIFIC ELECTIVE COURSE-I (DSE-1)

ECH520D1A: PUBLIC ECONOMICS

CREDITS: THEORY: 4, TUTORIAL: 2
MAX. MARKS: THEORY: 60, TUTORIAL: 30

THEORY (4 CREDITS; 60 HOURS)

***Course Description:** This is a DSE of 06 credits (04 units of 01 credit each and tutorials of 2 credits).*

***Course Objectives:** The objective of the course is for students to develop an understanding of public sector, financial resources, Role and functions of the Government in an economy, issues pertaining to public goods, different aspects of revenue and taxation, distribution of income, etc. Further, the existence of externalities, concern for adjustment in the distribution of income and wealth, etc. require political processes for their solution in a manner which combines individual freedom and justice. The course aims to facilitate an understanding of these issues.*

***Course Outcomes:** At the end of the course, a student should be able to understand the conceptual and theoretical framework of public economics and comprehend the basic and advanced framework of public policies.*

Unit I: Fundamentals of Public Economics (15 Hours)

Public Economics: conceptual framework; scope and schools of thought; Tools of Budget Analysis; Role of government– allocation, distribution and stabilization; Externality theory; Internalising an externality; Coase theorem.

Unit II: Public Goods (15 Hours)

Optimal provision of Private and Public goods; Free Riders Problem; Cost Benefit analysis; Problems of allocating resources-preference revelation and aggregation; Political Economy- Lindahl Pricing; Mechanisms for aggregating Individual preferences: Arrow’s Impossibility Theorem; Politico-eco-bureaucracy; Optimal Fiscal federalism and Tibe-out model.

Unit III: Taxation (15 Hours)

Structure of Public Budget; Classification of taxes; Allocation of tax burden-Benefit and ability to pay theories; Direct and Indirect Taxes; measuring fairness of tax systems; Incidence and shifting of tax burden, Taxation and economic efficiency; dead weight loss and distortion; theory of optimal taxation.

Unit IV: Public Expenditure (15 Hours)

Public Expenditure: Meaning and Importance, Wagner’s Hypothesis, Peacock - Wiseman Hypothesis, Pure theory of Public Expenditure; Classification of Public expenditure, Reasons for the growth of Public Expenditure; Reforms in Public expenditure: programme budgeting and zero base budgeting.

Tutorials (2 credits)

- Pigouvian taxes
- Rent seeking
- Preparing and understanding budgets
- Fiscal federalism in India

Basic Readings

1. J. Gruber, (2016), Public Finance and Public Policy, MIT.
2. H. Rosen (2013), Public Finance. MIT Press.
3. J. E. Stiglitz (2015), Economics of Public Sector, Norton, New York.
4. Hindriks, J., & Myles, G. D. (2013). Intermediate public economics. MIT press.
5. Jha, R. (1998), Modern Public Economics, Routledge London.
6. Musgrave and Musgrave (2005), Public Finance in Theory and Practice, Tata McGraw Hill, New Delhi.
7. A. B. Atkinson and J. E. Stiglitz, (1980); Lectures on Public Economics. Tata McGraw Hill, New York.

**Additional Readings are available with the concerned teacher.*

BA (HONS) ECONOMICS
5th SEMESTER
DISCIPLINE SPECIFIC ELECTIVE COURSE-II (DSE-2)

ECH520D1B: STATISTICAL FOUNDATIONS FOR ECONOMETRICS

CREDITS: THEORY: 4, TUTORIAL: 2
MAX. MARKS: THEORY: 60, TUTORIAL: 30

THEORY (4 CREDITS; 60 HOURS)

Course Description: This is a DSE of 06 credits (04 units of 01 credit each and tutorials of 2 credits).

Course Objectives: This course introduces students to the basic statistical tools that are largely used to understand the econometric methods used to conduct empirical analysis in Economics. The course is designed to provide the students with the basic quantitative techniques needed to undertake applied research projects.

Course Outcomes: Students will learn the basic fundamentals of statistics that are needed to estimate linear models using ordinary least squares and make inferences about population parameters.

Unit I: Elementary Probability theory (15 Hours)

Probability: Introduction, random experiments, sample space, events and algebra of events. Definitions of Probability – classical, statistical, and axiomatic. Conditional Probability, laws of addition and multiplication, independent events, theorem of total probability, Bayes' theorem and its applications.

Unit II: Random variables: (15 Hours)

Random variables: Discrete and Continuous random variables, p.m.f., p.d.f. and c.d.f; Mathematical Expectation and Generating Functions: Expectation of single random variables and its properties. Moments and Cumulants, moment generating function, cumulant generating function; Conditional expectations.

Unit III: Probability Distributions: (15 Hours)

Binomial, Poisson, geometric, normal and standard normal, χ^2 , t and F-Distributions along with their properties and Limiting/approximation cases.

Unit IV: Statistical Inference and Hypothesis Testing: (15 Hours)

Statistical Inference and Hypothesis testing- Defining Statistical Hypotheses; Null & Alternate Hypothesis; Confidence Interval Approach; Test of Significance Approach; Testing Individual Significance; Overall Significance & Equality of Coefficients; Choosing the Level of Significance; Type I and Type II errors; Power and Size of a test.

Tutorials (2 Credits)

- Working Problems on Probability
- Moment Generating functions
- Understanding Statistical Distributions
- Constructing Confidence Intervals

Basic Readings

1. Hogg, R.V., Tanis, E.A. and Rao J.M. (2009): Probability and Statistical Inference, Seventh Ed, Pearson Education, New Delhi.
2. Jay L. Devore, *Probability and Statistics for Engineers*, Cengage Learning, 2010.
3. John E. Freund, *Mathematical Statistics*, Prentice Hall, 1992.
4. Larsen, R., Marx, M. (2011). *An introduction to mathematical statistics and its applications*. Prentice Hall.
5. Miller, I., Miller, M. (2017). *J. Freund's mathematical statistics with applications, 8th ed.* Pearson.
6. Richard J. Larsen and Morris L. Marx, *An Introduction to Mathematical Statistics and its Applications*, Prentice Hall, 2011.

**Additional Readings are available with the concerned teacher.*