

B.A ECONOMICS
I Semester
AC I - Statistics for Economics

Internal marks: 25
External marks: 75
Total marks: 100

Subject Code : UEA1
Exam hours : 3

Objective : To understand the basics of Statistics

Unit I: **15 hours**

Statistics- definition, scope , functions and limitations of statistics. Sources of data- Primary and secondary - Methods of collecting primary data. – secondary data-sources of collecting secondary data.

Unit II: **15 hours**

Classification of data: objectives , types of classification . Formation of frequency distribution (one way classification) - problems only. Tabulation– definition – parts of table – rules for tabulation –kinds of tables. (no problems).

Unit III: **15 hours**

Diagrams - advantages , general rules for constructing diagrams (one dimensional diagrams only). line diagram – simple bar diagram – subdivided bar - multiple bar diagram– pie diagram – Simple problems.

Unit IV: **10 hours**

Graphs – Histogram, frequency polygon, frequency curve and ogives. Difference between diagrams and graphs.

Unit V: **20 hours**

Measures of central tendency: arithmetic mean, median, mode, harmonic mean and geometric mean– Simple problems only.

BOOKS FOR STUDY:

R.S.N.Pillai & V.Bagavathi, Statistics -S.Chand & company LTD.

S.P.Gupta, Statistical methods- Sultan Chand and Sons

Pa.Navaneetham-Businesstools for decision making – Jai publishers ,Trichy.

I B.A ECONOMICS
II Semester
AC II - Statistical Methods

Internal marks: 25
External marks: 75
Total marks: 100

Subject Code : UEA2
Exam hours: 3

Objectives: To impart s the knowledge about Statistical methods

Unit I: 15 hours

Measures of dispersion - range, Q.D , M.D, S.D and their coefficients - Simple problems only. Skewness - types and Methods - Karl Pearson's and Bowley's coefficient of skewness. Kurtosis - definition - types.

Unit II : 15 hours

Simple correlation – definition – types of correlation – scatter diagram – measurement of correlation – Karl Pearson's coefficient of correlation – Spearman's rank correlation coefficient - Simple problems.

Unit III : 15 hours

Linear regression – regression lines – X on Y and Y on X -Simple problems. properties of regression coefficients (without proof) –Difference between correlation and regression.

Unit IV: 15 hours

Association of attributes (two attributes only) – positive and negative classes- ultimate class frequencies- contingency table- consistency of data-types of association – methods of determining association – comparison of observed and expected frequency method –Yule's coefficient of association method –Simple problems.

Unit V : 15 hours

Probability: random experiments, sample space, types of events – exhaustive events, equally likely events, mutually exclusive events, independent events – mathematical and statistical probability. Addition and multiplication theorems (two events only) – Simple problems.

[30% theory and70% problems]

BOOKS FOR STUDY :

R.S.N.Pillai & V.Bagavathi, Statistics -S.Chand & company LTD.

S.P.Gupta, Statistical methods- Sultan Chand and Sons

Pa.Navaneetham-Businesstools for decision making – Jai publishers ,Trichy.

II B.A ECONOMICS
III Semester
AC III - Applied Statistics

Internal marks: 25
External marks: 75
Total marks: 100

Subject Code : UEA3
Exam hours : 3

Objective : To impart the knowledge about the applications of Statistics

Unit I : **15 hours**

Bernoulli distribution, Binomial distribution , Poisson distribution – Simple problems. (no derivations and fitting of distributions) - normal distribution – definition – their properties

Unit II:1 **15 hours**

Index numbers – definition – uses – construction. Unweighted method – simple aggregative method and simple average of relatives method. Weighted method – Laspeyre’s, Paasche’s, Marshall Edge worth and Fisher’s index numbers. Time reversal and Factor reversal tests – Simple problems.

Unit III: **15 hours**

Analysis of time series – definition –uses –components of time series –secular trend – seasonal variations- cyclical variations –irregular variations – measurement of trend – method of moving averages – method of least squares (linear model only) – Simple problems.

Unit IV: **10 hours**

Sampling techniques – definition of Census and Sample methods. Random and non Random Sampling. - Probability Sampling - Simple Random Sampling , Stratified Random Sampling and Systematic Random Sampling,

Unit V: **20 hours**

Vital statistics – definition and uses – methods of obtaining Vital Statistics – Registration method, Census method, Analytical method. Fertility – definition - Crude birth rate. Specific fertility rate and Total fertility rate - Simple problems. Definition of Gross reproduction rate – Net reproduction rate . Measurement of mortality – Crude death rate, Specific death rate, Standardized death rate– Simple problems.

[30% theory and 70% problems]

BOOKS FOR STUDY :

Pa.Navanitham, Business Statistics- Jai Publishers, Trichy
S.P.Gupta, Statistical methods- Sultan Chand and Sons
R.S.N.Pillai & V.Bagavathi, Statistics -S.Chand & company LTD.

I.B.COM
I Semester
Statistical Methods for Business (Core Course)

Internal marks: 25

External marks: 75

Total marks: 100

Subject Code : UCB

Exam hours : 3

Objective : To impart the basic concepts of Statistics

Unit I : **15 hours**

Statistics: Definition, scope , functions and limitations of statistics .
Primary and secondary data – definition. Methods of collecting primary data — sources of secondary data. Classification of data: objectives , types of classification and formation of frequency table (one variable only). Tabulation – definition – parts of table – rules for tabulation –kinds of tables.

Unit II : **20 hours**

Measures of central tendency- arithmetic mean, median, mode, geometric mean and harmonic mean– Simple problems.

Unit III : **20 hours**

Measures of dispersion - range, Q.D , M.D, S.D and their coefficients - Simple problems only. Skewness - types and Methods - Karl Pearson's and Bowley's coefficient of skewness. (Kurtosis - definition - types).

Unit IV : **20 hours**

Simple correlation: definition – types of correlation – methods of correlation: Scatter diagram– Karl Pearson's coefficient of correlation – Spearman's rank correlation coefficient (repeated and not repeated ranks) - Simple problems. Linear regression – regression lines – X on Y and Y on X – Simple problems.

Unit V: **15 hours**

Index numbers – definition – uses – construction. Unweighted index numbers – simple aggregative method and simple average of relatives method. Weighted method – Laspeyre's, Paasche's, Marshall Edge worth and Fisher's index numbers. Time reversal and Factor reversal tests – Simple problems.

[30% theory and 70% problems]

BOOKS FOR STUDY :

R.S.N.Pillai & V.Bagavathi, Statistics -S.Chand & company LTD.

S.P.Gupta, Statistical methods- Sultan Chand and Sons

Pa.Navaneetham-Businesstools for decision making – Jai publishers ,Trichy.

I M.COM
II SEMESTER
Business Statistics

Internal marks: 25
External marks: 75
Total marks: 100

Subject Code : PCG
Exam hours: 3

Objective : To understand the process of data collection, analysis and testing of hypothesis

UNIT I: 15 hours

Statistical survey – planning the survey – executing the survey. Methods of sampling – probability sampling – simple random sampling, stratified sampling, systematic sampling, cluster sampling. Non- probability sampling – judgement sampling, Quota sampling, convenience sampling. Sampling and non sampling errors.

UNIT II: 20 hours

Simple correlation: definition – types of correlation – methods of correlation: Karl Pearson's coefficient of correlation – properties of correlation coefficient (no proof) – Spearman's rank correlation coefficient (repeated and not repeated ranks) - Simple problems. Linear regression – regression lines – X on Y and Y on X – properties of regression coefficients (without proof) – Simple problems.

UNIT III: 15 hours

Time series – definition – uses – components – measurement of trend – moving average method – Least square method (linear model only) – Measurement of seasonal variation – simple average method -Simple problems.

UNIT IV: 20 hours

Probability:- mathematical and statistical probability –types of events - addition and multiplication theorems – Simple problems. Random variable – definition of discrete and continuous random variable. Binomial, Poisson and Normal distributions – definition – properties (without proof) - Simple Problems. (no derivations and fitting of distributions)

UNIT V: 20 hours

Concept of sampling distribution and standard error- uses of standard error .Test of hypothesis – null and alternative hypothesis – type I and type II errors – one tailed and two tailed tests – level of significance – procedure of hypothesis testing -- tests of significance – large sample test: test for single proportion, difference of proportions, single mean, difference of means – Simple problems.

Small sample tests -- student's t – applications of t – t-test for single mean, difference of means –paired t test. F-test for equality of variances – chi square test of goodness of fit and chi square test for independence of attributes – Simple problems.

BOOKS FOR STUDY:

S.P.Gupta, Statistical methods- Sultan Chand and Sons
S.C.Gupta., Fundamentals of Statistics - Sultan Chand & Sons
R.S.N.Pillai & V.Bagavathi, Statistics -S.Chand & company LTD.

II B.A HISTORY
IV Semester
AC IV - Quantitative methods

Internal marks: 25
External marks: 75
Total marks: 100

Subject Code : UHA4
Exam hours: 3

Objective : To impart the basics of Statistics

Unit I: 10 hours

Statistics- definition, scope , functions and limitations of statistics. Sources of data-Primary and secondary - Methods of collecting primary data, characteristics of questionnaire – secondary data.

Unit II: 10 hours

Classification of data: objectives – types of classification . Formation of frequency distribution (one way classification) problems only. Tabulation – definition – parts of table – rules for tabulation . Difference between Classification and tabulation.

Unit III: 15 hours

Diagrams : advantages – general rules for constructing diagrams – (one dimensional diagrams only) line diagram – simple bar diagram – subdivided bar diagram- multiple bar diagram– pie diagram – Simple problems. Graphs – Histogram, frequency polygon, frequency curve and ogives. Difference between diagrams and graphs.

Unit IV: 10 hours

Census – Sampling – definition – Random and non random - Simple Random Sampling , Stratified Random Sampling, Systematic Random Sampling.

Unit V: 15 hours

Measures of central tendency: arithmetic mean ,median, mode (problems only) . Vital statistics – definition and uses – methods of obtaining Vital Statistics – Registration method, Census method, Analytical method. Fertility rate - Crude birth rate and Specific fertility. Mortality rate - Crude death rate . (theory only)

BOOKS FOR STUDY:

R.S.N.Pillai & V.Bagavathi, Statistics -S.Chand & company LTD.

S.P.Gupta, Statistical methods- Sultan Chand and Sons

Pa.Navaneetham-Businesstools for decision making – Jai publishers ,Trichy.

II B.Sc Mathematics
III Semester
AC I – Mathematical Statistics

Internal marks: 25
External marks: 75
Total marks: 100

Subject Code : USA1
Exam hours : 3

Objective : To impart the concept of Mathematical Statistics

UNIT I: 10 hours

Probability – Mathematical and Statistical Probability, Axiomatic approach to Probability - Addition and multiplication theorem(two events only) - Boole's inequality – Simple problems.

UNIT II: 15 hours

Random variables – concepts – one dimensional random variable – discrete and continuous r.v – probability mass function – probability density function – distribution function – Simple problems. Two dimensional random variables – discrete – continuous random variables – marginal, conditional probability functions – Simple problems.

UNIT III: 15 hours

Mathematical expectation – definition – properties of expectation (with proof). Moments – raw moments and central moments – their relations. Variance – properties of variance, covariance (concept only) – Simple problems – conditional expectations and conditional variance (concept only) – Simple problems.

UNIT IV: 10 hours

Moment generating function (m.g.f) – definition – properties of m.g.f – Cumulant generating function properties of Cumulants - characteristic function- definition – properties of characteristic function . Uniqueness theorem of m.g.f (statement only). (No problems theory only).

UNIT V : 10 hours

Bernoulli distribution, Binomial and Poisson distribution – definition – m.g.f – properties - recurrence relation for the moments – Characteristic function - Simple problems only.

BOOKS FOR STUDY:

S.C. Gupta & V.K.Kapoor., Fundamentals of mathematical statistics
- Sultan Chand and Sons (Eleventh Edition)

Unit I: Chapter 3 - 3.1,3.3,3.4,3.5,3.9,3.9.1,3.9.3,3.11,3.12,3.13

Unit IV: Chapter 7 - 7.1,7.1.2,7.1.3,7.2,7.2.1,7.3,7.3.1

Unit V: Chapter - 8 -

8.4,8.4.1,8.4.2,8.4.6,8.4.6,8.4.8,8.4.9,8.4.10,8.5,8.5.2,8.5.4,8.5.6,8.5.7,8.5.8

II B.Sc MATHEMATICS
IV SEMESTER
AC II - Mathematical Statistics

Internal marks: 25
External marks: 75
Total marks: 100

Subject Code : USA3
Exam hours: 3

Objective : To impart the concept of Mathematical Statistics

- Unit I :** **10 hours**
Correlation (two variables only) – Karl Pearson’s coefficient of correlation and its properties. Spearman’s rank correlation coefficient (repeated and non-repeated). Lines of regression – definition – properties of regression coefficients – Simple problems.
- UNIT II:** **10 hours**
Normal distribution – definition– properties of normal distribution with proof, m.g.f, c.g.f, linear combination - simple problems.
- UNIT III:** **10 hours**
Sampling distribution – Chi square distribution– definition, derivation of the distribution and its mean and variance only. Student’s t distribution – definition, derivation of the distribution and its mean and variance only, F- distribution – definition - derivation of the distribution and its mean and variance only. Relationship among t, F, chi square distribution (theory only).
- UNIT IV:** **10 hours**
Test of hypothesis – null and alternative, type I and type II errors, one tailed and two tailed tests, level of significance, Procedure for testing hypothesis. Test of significance – large sample tests; test of significance for single proportion, difference of proportions, single mean, difference of means –Simple problems.
- UNIT V:** **5 hours**
Small sample tests – t-test for single mean, difference of means and paired t-test. F-test for equality of variances - simple problems.

BOOKS FOR STUDY:

S.C.Gupta & V.K. Kapoor. Fundamentals of Mathematical statistics
- Sultan Chand & Sons

UNIT : chapter 9 - 9.2,9.2.1,9.2.2,9.2.3,9.2.4,9.2.5,9.2.6,9.2.7,9.2.8

UNIT III: Chapter 16-16.1,16.2,16.2.1,16.2.4,16.5,16.5.1,16.5.2,16.7,16.8
Chapter 15-15.1,15.2,15.3,15.3.1

II B.Sc. MATHEMATICS
IV SEMESTER
Statistics Practical (Allied course)

Internal marks: 40
External marks: 60
Total marks: 100

Subject Code : USA2Y
Exam hours: 3

Objective : To develop the practical skill

UNIT I:

Calculation of mean, median, mode, G.M and H.M, Q.D, M.D,S.D and their coefficients . Skewness – Karl Pearson’s and Bowley’s coefficient of skewness.

UNIT II:

Calculation of mean and S.D for discrete probability distributions. Marginal and Conditional probabilities, expectations, variances, conditional expectations, conditional variance, covariance and correlation for bivariate discrete probability distributions.

UNIT III:

Fitting of binomial, Poisson and normal distribution (area method only).

UNIT IV:

Calculation of Karl Pearson’s coefficient of correlation, Spearman’s rank correlation coefficient (repeated and not-repeated ranks). Regression lines X on Y and Y on X.

UNIT V:

Tests of significance: Large sample tests for single proportion, difference of proportions, single mean ,difference of means and difference of standard deviations. Small sample tests: t-test for single mean, difference of means and paired t-test. F – test for equality of variances. Chi square test for goodness of fit and independence of attributes.

(Five questions have to be answered out of six questions. At least one question should be taken from each unit. Each question carries ten marks)

[Practical – 50 marks and Record– 10 marks]

I.B.B.A
II Semester
Business Statistics for Managers (Allied course)

Internal marks: 25

External marks: 75

Total marks: 100

Subject Code : UAA2

Exam hours : 3

Objective : To impart the basic concepts of Statistics

Unit I : 10 hours

Definition of statistics- characteristics – uses of statistics in commerce and business. Primary and secondary data – definition. Methods of collecting primary data – characteristics of questionnaire – sources of secondary data. Classification of data: objectives – types of classification – formation of frequency distribution (one way classification) problems only.

Unit II : 15 hours

Measures of central tendency – characteristics of a good average – arithmetic mean, median, mode, geometric mean, harmonic mean– Simple problems.

Unit III : 15 hours

Measures of dispersion - range, Q.D , M.D, S.D and their coefficients - Simple problems only. Skewness - types and Methods - Karl Pearson's and Bowley's coefficient of skewness. Kurtosis - definition - types.

Unit IV : 10 hours

Simple correlation – definition – types of correlation – methods of correlation : Scatter diagram, Karl Pearson's coefficient of correlation and Spearman's rank correlation coefficient (repeated and not repeated ranks) – properties of correlation coefficient(no proof) - Simple problems.

Unit V : 10 hours

Linear regression –definition - regression lines X on Y and Y on X – properties of regression coefficients (without proof) – Simple problems.

[30% theory and 70% problems]

BOOKS FOR STUDY :

R.S.N.Pillai & V.Bagavathi, Statistics -S.Chand & company LTD.

S.P.Gupta, Statistical methods- Sultan Chand and Sons