

A.V.C.College (Autonomous), Mayiladuthurai, Mannampandal-609305
I B.A ECONOMICS – I Semester – STATISTICS FOR ECONOMICS - I
SYLLABUS

For students to be admitted from 2018 onwards.

(As approved by the Board of studies in Mathematics held on 24th Feb 2018)

INSTRUCTIONAL HOURS: 6 CREDIT: 5 SUBJECT CODE: 18 AES 101

Unit-I: STATISTICAL DATA & SAMPLING

Primary and secondary data - collection, Classification and tabulation of data - Frequency distribution - Methods of sampling - Random sampling Methods: Simple or unrestricted random sampling - Restricted random sampling - Non-Random sampling Methods.

Unit II: DIAGRAMATIC REPRESENTATION OF STATISTICAL DATA

Uses and limitations - Bar diagrams - Pie diagrams - Rectangle Histograms - Frequency Polygon - Frequency curve.

Unit III MEASURES OF CENTRAL TENDENCY

Arithmetic Mean, Median, Mode, - Relative merits and Demerits of Mean, Median and Mode - Empirical formula relating the Mean, Median and Mode. **Simple Problems based on Direct Method only.**

Unit IV: MEASURES OF DISPERSION

Introduction - Range - Quartile Deviation - Mean Deviation - Standard Deviation and their uses **Simple Problems based on Direct Method only.**

UNIT V: MATRICES AND DETERMINANTS

Determinants and matrices – definitions – solutions of linear simultaneous equations in two, three variables by Cramer's rule and matrix inversion.

Text Books: "Business Mathematics and statistics" P.A.Navanitham. Jai Publishers, June 2007, Trichy – 620021.

Part – II Business Statistics.

Unit I : Page number 28 – 54, 60 – 91

Unit II : Page number 98 – 137.

Unit III : Page number: 159-163,166,167,171 – 175, 196-209, 211 – 226, 231 – 241,249,250.

Unit IV : Page number 301 – 338

PART –I Business Mathematics

Unit –V : Section 4-Page number 147-185.

Note: Questions must be taken from above mentioned Text Books only.

Reference Books:

1. Business Mathematics and Statistics, Dr.P.R.Vital, Margham publications, Chennai – 17.

2. Statistics, R.S.N.Pillai, Mrs. V.Bagavathy, S.Chand & company Ltd, New Delhi-55.

Verified by
P. Gayathri 24/12/18

A.V.C College (Autonomous), Mayiladuthurai, Mannampandal – 609 305
I.B.A ECONOMICS – II Semester – STATISTICS FOR ECONOMICS - II
Syllabus

For students to be admitted from 2018 onwards.

(As approved by the Board of studies in Mathematics held on 24th Feb 2018)

Instructional Hours: 6

Credits: 5

Subject Code:18 AES 202

Unit I : Correlation Analysis

Simple correlation – Pearson's coefficient of correlation – spearman's coefficient of rank correlation – Treatment of tied ranks.

Unit II : Regression Analysis

Regression lines – properties of regression coefficients – differences between correlation and regression.

Unit III : Index Numbers

Definition – uses – Stages in construction of index numbers – Unweighted index numbers by simple aggregate method – the method of price relatives – Weighted index numbers using Laspeyre, Paasche, Fisher, Kelly and Marshall Edge worth formula.

UNIT - IV: Index Numbers (Continued)

Tests of consistency - Unit Test, Time Reversal Test , Factor Reversal Test - Circular test - Fixed Base , Chain Base - Cost of Living – Aggregate Expenditure Method, Family Budget Method . **Simple Problems Only.**

Unit V: Time Series

Definition – uses- components – methods to estimate secular trend : Graphic Method – Method of semi – Averages – Method of Moving Averages – Method of Least Squares .

Text Book: "Business Mathematics and statistics" P.A. Navanitham. Jai Publishers, June 2007,Trichy – 620021.

Unit I	: Section 12- Page number 503-531.
Unit II	: Section 13- Page number 540-578
Unit III	: Section 10- Page number 444-456
Unit IV	: Section 10- Page number 457-471
Unit V	: Section 14- Page number 579-600

Note: Questions must be taken from above mentioned Text Books only.

Reference Books:

1. Business Mathematics and Statistics, Dr. P.R.Vittal, Margham publications, Chennai-17.
2. Statistics, P.S.N.Pillai, Mrs. V.Bagavathy, S.Chand & company Ltd, New Delhi 55.

Verified by
P. Gayathri 24/2/18

Syllabus

For students to be admitted from 2018 batch onwards.

(As approved by the Board of studies in Mathematics at the meeting held on 24th Feb 2018)

Instructional Hours: 5

Credit: 2

Subject Code: 18PEC104

UNIT-I: INTRODUCTION OF STATISTICS

Introduction - Origin and Growth of statistics - Function of statistics - Application of statistics - Limitation of statistics - Objectives of classification - Types of classification - Tabulation of data - Difference between classification and tabulation - Role of Tabulation - Parts of a table - General rules of Tabulation.

UNIT-II: DIAGRAMATIC AND GRAPHIC REPRESENTATIONS

Introduction - Significance of Diagrams and Graphs - Comparison of Tabular and Diagrammatic Presentation - Difference between Diagrams and Graphs - General Rules for Constructing Diagrams - Types of Diagrams-Graphs of Frequency Distributions - Histogram - Frequency polygon - Fequency Curve - Cumulative Frequency Curves or Ogives -Limitations. (Omitted pictograms and cartograms).

UNIT-III: MEASURES OF CENTRAL TENDENCY

Introduction - Averages - Types of Averages - Arithmetic Mean - Median - Mode - Individual observations, Discrete Series, Continuous Series- Merits and Demerits- Direct method only - Simple problems only.

UNIT-IV: MEASURES OF DISPERSION - I

Methods of studying variation - Range - Quartile deviation - Mean deviation - standard deviation- Individual observations, Discrete Series, Continuous Series- Merits and Demerits- Direct method only - Simple problems only.

UNIT-V: MEASURES OF DISPERSION - II

Co-efficient of variation- Skewness - Meaning and Definitions - Bowley's and Pearson's coefficient of Skewness- Individual observations, Discrete Series, Continuous Series- Merits and Demerits- Direct method only - Simple problems only.

Text Book:

Statistical Methods - S.P.Gupta - Sultan Chand And Sons, Educational Publishers, New Delhi.(2014).

UNIT - I	Chapter - 1	- Page No: 1 - 19
	Chapter - 5	- Page No: 91 - 96 and 109 - 113
UNIT - II	Chapter - 6	- Page No: 127 - 145 and 165 - 176
UNIT - III	Chapter -7	- Page No: 180- 205,212-218
UNIT - IV	Chapter -8	- Page No: 275 -293
UNIT - V	Chapter -8	- Page No: 298-301, 338 - 349

Note: Questions must be taken from above mentioned Text Books only.

Reference Books:

1. Statistics, R.S.N.Pillai and Bagavathi, S.Chand. 7th Edition. 2008.
2. Mathematical Statistics, P.R.Vittal, Margham Publications, 2012.

Verified by
P. Jayanthi
24/2/18

I.M.A ECONOMICS – I Semester – STATISTICAL METHODS-II

Syllabus

For students to be admitted from 2018 batch onwards.

(As approved by the Board of studies in Mathematics at the meeting held on 24th Feb 2018)

Instructional Hours: 5

Credit: 3

Subject Code: 18 PEC 105

UNIT - I: CORRELATION

Introduction-Significance of study of Correlation-Types of Correlation-Method of studying Correlation (Graphic Method and Concurrent deviation Method Omitted): Karl Pearson Coefficient of Correlation and Rank Correlation Coefficient.

UNIT - II: REGRESSION

Introduction-Uses of Regression Analysis, Difference Between Correlation and Regression Analysis, Regression Equations.

Unit III : INDEX NUMBERS

Definition – uses – Problems in the construction of index Numbers – Methods of Constructing Index Numbers - Unweighted index numbers by simple aggregate method – the method of price relatives – Weighted index numbers using Laspeyre, Paasche, Fisher, Kelly and Marshall Edge worth formula.

UNIT - IV: INDEX NUMBERS (Continued)

Tests of Adequacy of Index Number - Unit Test, Time Reversal Test , Factor Reversal Test - Circular test - The chain index numbers-The Fixed Base , Chain Base - Cost of Living index – Methods of constructing index-Aggregate Expenditure Method, Family Budget Method . **Simple Problems Only.**

Unit V: TIME SERIES

Definition – uses- components –Measurement of Trend : Graphic Method – Method of semi – Averages – Method of Moving Averages – Method of Least Squares – Merits and Demerits.

Text Book:

1. Statistical Methods – S.P.Gupta, Sultan chand & sons, New Delhi- 44th Edition(2014)

UNIT – I	- Chapter -10 , Page 390 – 406, 416 – 424.
UNIT – II	- Chapter -11 , Page 452 – 467.
UNIT – III	- Chapter -13 , Page No: 536 – 554.
UNIT – IV	- Chapter -13 , Page No: 559 – 568, 576 – 580.
UNIT – V	- Chapter -14 , Page No: 612 - 641.

Note: Questions must be taken from above mentioned Text Books only.

Reference Books:

1. Statistics, R.S.N.Pillai and Bagavathi, S.Chand, 7th Edition, 2008.
2. Mathematical Statistics, P.R.Vittal, Margham Publications, 2012.

Verified by
P. Gyath
24/2/18

I M.A ECONOMICS –II Semester – STATISTICAL METHODS-III

Syllabus

For students to be admitted from 2018 batch onwards.

(As approved by the Board of studies in Mathematics at the meeting held on 24th Feb 2018)

Instructional Hours:5

Credit:3

Subject Code:18PEL208

UNIT-I: MATRICES AND DETERMINANTS– I

Definition of a Matrix – Order of a matrix – Types of Matrices – Matrix operations- Determinants - Solving System of Linear Equations – Cramer’s rule-Minor and Cofactor.

UNIT-II: MATRICES AND DETERMINANTS – II

Inverse of a Matrix-Solving a system of Simultaneous linear equations by inverse method - Input –output Analysis.

UNIT-III: TESTS OF HYPOTHESIS- LARGE SAMPLES.

Tests of significance for attributes - Tests for number of successes, Tests for proportions of successes and Tests for Difference between proportions - Difference between the means of two samples- Difference between the means of two standard deviations.

UNIT-IV: TESTS OF HYPOTHESIS- SMALL SAMPLES.

Test of significance of mean of a random sample – Testing difference between means of two samples – Independent and dependant samples – Testing the significance of an observed correlation co-efficient.

UNIT-V: CHI –SQUARE TEST

Chi Square –Test - Chi Square definition –Degrees of freedom –Conditions for applying Chi-square test- Yates’s corrections – Uses of Chi Square Test-Additive property of Chi-Square test- Chi-Square test for specified value of population variance.

Text Book:

1. Business Mathematics and Statistics – PA.Navanithaam, Jai publishers –Trichy . 2007.(Unit – I &II)
2. Statistical Methods – S.P.Gupta, Sultan Chand & sons, New Delhi. 2014. (Unit – III,IV&V)

UNIT – I	- Chapter - 4 , Page No: 147– 180.	[Book 1]
UNIT – II	- Chapter - 4 , Page No: 180 – 186, 201-210.	[Book 1]
UNIT – III	- Chapter - 3 , Page No: 895 –910.	[Book 2]
UNIT – IV	- Chapter - 3 , Page No: 910– 929.	[Book 2]
UNIT – V	- Chapter - 5 , Page No: 954-972.	[Book 2]

Note: Questions must be taken from above mentioned Text Books only.

Reference Books:

1. Statistics,R.S.N.Pillai and Bagavathi,S.Chand.7th Edition.2008.
2. Mathematical Statistics, P.R.Vittal ,Margham Publications,2012.

Verified by
K-Ang 24/2/18

A.V.C College (Autonomous), Mayiladuthurai, Mannampandal – 609 305
I.M.A ECONOMICS – II Semester – QUANTITATIVE TECHNIQUES

Syllabus

For students to be admitted from 2018 batch onwards.

(As approved by the Board of studies in Mathematics at the meeting held on 24th February 2018)

Instructional Hours:5

Credit: 2

Subject Code: 18PEc209

UNIT-I: Introduction to Operations Research

Introduction-Role of operations research in Business and Management-Role of O.R in engineering - classification of models - Some characteristics of a good model - Principles of Modelling - General Methods for Solving O.R models-Main Phases of O.R-Limitation.

UNIT-II: Transportation Problem

Introduction-Mathematical Formulation of a Transportation problem - Method for finding initial basic feasible solution - North West Corner Rule- Least Cost method-Vogel's Approximation method - MODI Method(Loop problems-omitted).

UNIT-III: Assignment Problem

Introduction - Mathematical formulation of an assignment problem-comparison with transportation Model-Difference between the transportation problem and the assignment problem-Hungarian Assignment Algorithm - Unbalanced Assignment Models.

UNIT-IV: Game Theory

Introduction - Two person Zero sum Games-The Maxmin - Minimax Principle-Saddle point and value of the game - Games without Saddle points, Mixed Strategies.

UNIT-V: Game Theory (Continued)

Matrix Oddment method for $n \times n$ games - Dominance Property - Graphical Method for $2 \times n$ or $m \times 2$ games.

Text Book:

Resource Management Techniques, Prof. V.Sundaresan, K.S.Ganapathy
Subramanian, K.Ganesan, A.R. Publications, Sirkali.(2002)

UNIT - I - Chapter -1 (Section 1.1 to 1.9) Page No: 1.1 - 1.7.

UNIT - I - Chapter -7 (Section 7.1. to 7.2) Page No: 7.1 - 7.25.

UNIT - III - Chapter -8 (Section 8.1 to 8.6) Page No: 8.1 - 8.21.

UNIT - IV - Chapter -16 (Section 16.1 to 16.4) Page No: 16.1 - 16.13.

UNIT - V - Chapter -16 (Section 16.5 to 16.7) Page No: 16.14 - 16.35.

Note: Questions must be taken from above mentioned Text Book only.

Reference Books:

1. Problems in Operations Research, P.K.Gupta & D.S.Hira, S.Chand, 2010.
2. Operations Research, Kanti Swarup P.K.Gupta & Manmohan, S.Chand, 14th edition- 2008.

Verified by
K. Arp 24/12/18

A.V.C COLLEGE (Autonomous), MAYILADUTHURAI, MANNAMPANDAL, 609305.

III B.Sc. Mathematics - V Semester – CC V – MODERN ALGEBRA

SYLLABUS

For students to be admitted from 2015 onwards.

(As approved by the Board of studies in Mathematics held on 25 March 2017)

Instructional Hours: 6

Credit: 6

Subject Code: 15 MA 505

Unit I : GROUPS

Definition of group and subgroups – Cyclic groups – Order of an element – Cosets and Lagrange's theorem – Normal subgroups and quotient groups.

Unit II : RINGS (PART-I)

Definition – Properties – isomorphism – Types of rings – Sub rings and Ideals.

Unit III : RINGS (PART-II)

Quotient rings – Maximal and prime ideals – Homomorphism of rings – Field of quotients of an integral domain – Ordered integral domain - Unique factorization domain – Euclidean domain – Every P.I.D is a U.F.D.

Unit IV: VECTOR SPACES (PART – I)

Definition and examples – Sub spaces – Linear transformation – Span of a set – Linear Independent – Basis and dimension

Unit V : VECTOR SPACES (PART – II) & INNER PRODUCT SPACES

Vector Spaces: Rank and Nullity – Matrix of a Linear Transformation

Inner Product Spaces: Definition and examples – Orthogonality – Orthogonal Complement.

TEXT BOOK(S):

“MODERN ALGEBRA” by S.ARUMUGAM & A.THANGAPANDI ISAAC,
- Reprint June 2012. SCITECH Publications (India) Pvt Ltd, Chennai – 600 017.

UNIT – I - Chapter 3 (Sections: 3.1, 3.5, 3.6, 3.7, 3.8, and 3.9)

UNIT – II - Chapter 4 (Sections: 4.1 to 4.7)

UNIT – III - Chapter 4 (Sections: 4.8 to 4.15)

UNIT – IV - Chapter 5 (Sections: 5.1 to 5.6)

UNIT – V - Chapter 5 & 6 (Sections: 5.7 & 5.8, 6.1 to 6.3)

REFERENCE(S):

1. Modern Algebra (for B.Sc Mathematics Major) Reprint 2008 by – S.G. Venkatajalapathy Margam Publications Chennai -17.
2. Modern Algebra (for B.Sc Mathematics Major) - Reprint 2001 by M.L.Santiago. Tata McGraw – Hill Publications New Delhi.

Verified by
S. Arumugam
(S.D. N. Srinivasan)

A.V.C COLLEGE (Autonomous),MAYILADUTHURAI, MANNAMPANDAL,609305.
II PG- Third Semester – EDC-II - COMPUTATIONAL STATISTICS - II
SYLLABUS

For students to be admitted from 2014 onwards.

(As approved by the Board of studies in Mathematics held on 8th October 2014)

Instructional Hours: 4

Credit: 2

Sub. Code: 15EDMA 302

UNIT-I: THEORITICAL DISTRIBUTIONS

Theoretical Distribution – Binomial, Poisson and normal distributions.

UNIT - II: TESTS OF HYPOTHESIS-LARGE SAMPLES

Introduction - Testing of hypothesis based on Normal distribution concerning proportions, means, standard deviations and Correlation Coefficient from large samples.

UNIT - III: TESTS OF HYPOTHESIS-SMALL SAMPLES

Tests of hypothesis based on 't' distribution concerning means- the method of paired samples and Correlation Coefficient from small samples.

UNIT - IV: THE CHI-SQUARE TESTS

The Chi-Square tests for homogeneity of data- testing of independence of attributes in an $m \times n$ contingency table-simple problems only.

UNIT - V: F- TEST AND ANALYSIS OF VARIANCE

The F - test or variance ratio test- Analysis of variance -Techniques of analysis of variance-one way and two way classification.

TEXT BOOK: Statistical Methods- S.P.Gupta, Sultan Chand and sons publishers, New Delhi-2008.

UNIT - I : Volume -2, Chapter – 2, Page 809 – 813, 817 – 823, 826 – 834, 836 – 852.

UNIT - II: Volume -2, Chapter – 3, Page 882 – 891, 895 – 910.

UNIT - III: Volume -2, Chapter – 3, Page 910 – 929.

UNIT - IV: Volume -2, Chapter – 4, Page 954 – 971.

UNIT - V: Volume -2, Chapter – 5, Page 1006 – 1038.

References:

1. Mathematical Statistics J.N. Kapur & H.C.Saxena, S.Chand & Co., New Delhi.
2. Mathematical Statistics S.C. Gupta & V.K.Kapoor, S.Chand & Co., New Delhi

A.V.C College (Autonomous), Mayiladuthurai, Mannampandal – 609 305
I PG– Second Semester – EDC-I - COMPUTATIONAL STATISTICS - I

Syllabus

For students to be admitted from 2014 onwards.

(As approved by the Board of studies in Mathematics held on 8th October 2014)

Instructional Hours: 4

Credit: 2

Sub. Code: 15 EDMA 201.

UNIT – I: INTRODUCTION OF STATISTICS

Origin – Growth – Meaning – Definition – Functions of statistics – Applications of Statistics – Limitations of Statistics – Statistics and computers.

UNIT - II : MEASURES OF CENTRAL TENDENCY

The arithmetic mean, median, mode, geometric mean and harmonic mean-weighted arithmetic mean (**Direct Methods Only**)

UNIT – III: MEASURES OF DISPERSION

Positional measures: Range – Quartiles Absolute and relative measures: Quartile deviation - Mean deviation – Standard Deviation – Co-efficient of variation. (**Direct Methods Only**)

UNIT - IV: CORRELATION

Introduction-Significance of study of Correlation-Types of Correlation-Method of studying Correlation: Karl Pearson Coefficient of Correlation and Rank Correlation Coefficient.

UNIT – V: REGRESSION

Introduction-Uses of Regression Analysis, Regression Equations

TEXT BOOK: Statistical Methods- S.P.Gupta, Sultan Chand and sons publishers, New Delhi-2008.

UNIT - I : Volume -1, Chapter - 1

UNIT - II : Volume -1, Chapter – 7, Page 180 – 187, 191 – 204, 212 – 226, 231 – 236.

UNIT - III : Volume -1, Chapter – 8, Page 271 – 288, 293 – 297.

UNIT - IV : Volume -1, Chapter – 10, Page 378 – 394, 404 – 412.

UNIT - V : Volume -1, Chapter – 11, Page 436 – 438, 441 – 451.

References:

1. Mathematical Statistics J.N. Kapur & H.C.Saxena, S.Chand & Co., New Delhi.
2. Mathematical Statistics S.C. Gupta & V.K.Kapoor, S.Chand & Co., New Delhi

A.V.C COLLEGE (Autonomous),MAYILADUTHURAI, MANNAMPANDAL,609305.

II B.Sc. Mathematics-IV Semester- SYLLABUS

CC VI: LAPLACE TRANSFORM AND FOURIER TRANSFORM

For students to be admitted from 2018 onwards.

(As approved by the Board of studies in Mathematics held on 4th April 2019)

Instructional Hours:5

Credit:4

Sub. Code:18 MA 496

UNIT I

Laplace Transforms

Laplace transforms –Definition- standard formulae- periodic functions -Basic theorem and simple applications.

UNIT II

Inverse Laplace transforms

Definition –Results- standard inverse Laplace transforms- Method of partial fraction using inverse Laplace transforms- Related problems

UNIT III

Applications of Laplace Transforms

Solutions of ODE upto the second order with constant coefficients using LTS - System of simultaneous equations - Solutions of differential equations with variable coefficients using LTS.

UNIT IV

Infinite Fourier Transforms

Infinite Fourier sine Transforms of $F(X)$ - Infinite Fourier cosine Transforms of $F(X)$ - Infinite Fourier Transforms of $F(X)$ – Related problems.(Theorems are Omitted)

UNIT V

Finite Fourier Transforms

Finite Fourier sine Transforms of $F(X)$ - Finite Fourier cosine Transforms of $F(X)$ – Related Theorems and problems.

Text book

1. CALCULUS,VOLUME III (Laplace Transforms: Unit I,II,& III)
S.Narayanan, T.K.Manicavachagom pillay, S.Visvanathan Publisher pvt Ltd-2008
2. FOURIER SERIES & FOURIER TRANSFORM AND THEIR APPLICATIONS.
(Fourier Transform: Unit IV,V) Goyal Gupta, Pragratiprakashan publisher,Meerut

UNITI: Chapter-5:Section-1,1.1,1.2,2,3,4,5

UNITII: Chapter-5:Section-6,7

UNITIII: Chapter-5:Section-8,9,10

UNITIV: Chapter-3:Section-3.0-3.2(Page no.122-126,133-151)

UNITV: Chapter-3:Section-3.0-3.1

Reference book

- 1.DIFFERENTIAL CALCULUS -M.L.Kanna ,jaiprakash and co.,Meerut-2004.
- 2.DIFFERENTIAL EQUATIONS AND INTEGRAL TRANSFORMS-S.Sudha, Emerald publisher-2003.

Note : Questions should be asked from the prescribed text Book only.