

## F.Y.B.Com 114A Business Mathematics and Statistics

Unit No.	Unit Title	Contents
1	Interest and Annuity	<p><b>Interest:</b> Concept of Present value and Future value, Simple interest, Compound interest, Nominal and Effective rate of interest, Examples and Problems</p> <p><b>Annuity:</b> Ordinary Annuity, Sinking Fund, Annuity due, Present Value and Future Value of Annuity, Equated Monthly Instalments (EMI) by Interest of Reducing Balance and Flat Interest methods, Examples and Problems.</p>
2	Shares and Mutual Funds	<p><b>Shares:</b> Concept of share, face value, market value, dividend, brokerage, equity shares, preferential shares, bonus shares. Examples and Problems</p> <p><b>Mutual Funds:</b> Concept of Mutual Funds, Problems on calculation of Net Income after considering entry load, Dividend, Change in Net Asset Value (NAV) and exit load. Averaging of price under the Systematic Investment Plan (S.I.P.). Examples and Problems</p>
3	Population and Sample	Definition of Statistics, Scope of Statistics in Economics, Management Science and Industry. Concept of population and sample, methods of data collection: Census and sampling with illustration. Methods of random sampling – SRSWR, SRSWOR, Stratified, Systematic (Description of sampling procedures only).
4	Measures of Central Tendency and Measures of Dispersion	<p>Frequency distribution: Raw data, attributes and variables, Classification of data, frequency distribution, cumulative frequency distribution, Histogram and ogive curves.</p> <p>Requisites of ideal measures of central tendency, Arithmetic Mean, Median and Mode for ungrouped and grouped data. Combined mean, Merits and demerits of measures of central tendency, Geometric mean: definition, merits and demerits, Harmonic mean: definition, merits and demerits, Choice of A.M., G.M. and H.M.</p> <p>Concept of dispersion, Measures of dispersion: Range, Variance, Standard deviation (SD) for grouped and ungrouped data, combined SD, Measures of relative dispersion: Coefficient of range, coefficient of variation. Examples and problems.</p>

5	Matrices and Determinants (up to order 3 only)	Definition of a Matrix, Types of Matrices, Algebra of Matrices, Determinants, Adjoint of a Matrix, Inverse of a Matrix via Adjoint Matrix, Homogeneous System of Linear equations, Condition for Consistency of homogeneous system, Solution of Non-homogeneous System of Linear equations (not more than three variables), Applications in Business and Economics, Examples and Problems.
6	Linear Programming Problems (LPP) (for two variables only)	Definition and terms in a LPP, formulation of LPP, Solution by Graphical method, Examples and Problems
7	Correlation and Regression	<p>Concept and types of correlation, Scatter diagram, Interpretation with respect to magnitude and direction of relationship.</p> <p>Karl Pearson's coefficient of correlation for ungrouped data.</p> <p>Spearman's rank correlation coefficient. (with tie and without tie)</p> <p>Concept of regression, Lines of regression for ungrouped data, predictions using lines of regression. Regression coefficients and their properties (without proof). Examples and problems.</p>
8	Index numbers	<p>Concept of index number, price index number, price relatives. Problems in construction of index number.</p> <p>Construction of price index number: Weighted index Number, Laspeyre's, Paasche's and Fisher's method. Cost of living / Consumer price index number: Definition, problems in construction of index number. Methods of construction: Family budget and aggregate expenditure. Inflation, Uses of index numbers, commonly used index numbers. Examples and problems.</p>

**Reference Books:**

<b>Sr. No.</b>	<b>Title of the Book</b>	<b>Author/s</b>	<b>Publication</b>	<b>Place</b>
1	Practical Business Mathematics	S. A. Bari	New Literature Publishing Company	New Delhi
2	Mathematics for Commerce	K. Selvakumar	Notion Press	Chennai
3	Business Mathematics with Applications	Dinesh Khattar & S. R. Arora	S. Chand Publishing	New Delhi
4	Business Mathematics and Statistics	N.G. Das & Dr. J.K. Das	McFraw Hill	New Delhi
5	Fundamentals of Business Mathematics	M. K. Bhowal	Asian Books Pvt. Ltd	New Delhi
6	Operations Research	P. K. Gupta & D. S. Hira	S. Chand Publishing	New Delhi
7	Mathematics for Economics and Finance: Methods and Modelling	Martin Anthony and Norman Biggs	Cambridge University Press	Cambridge
8	Financial Mathematics and Its Applications	Ahmad Nazri Wahidudin	Ventus Publishing ApS	Denmark
9	Fundamentals of Mathematical Statistics	Gupta S. C. and Kapoor V. K.;	Sultan Chand and Sons	23, Daryaganj, New Delhi 110002
10	Statistical Methods	Gupta S. P.:	Sultan Chand and Sons	23, Daryaganj, New Delhi 110002
11	Applied Statistics	Mukhopadhyaya Parimal	New Central Book Agency Pvt. Ltd.	Calcutta.
12	Fundamentals of Statistics	Goon A. M., Gupta, M. K. and Dasgupta, B.	World Press	Calcutta.
13	Fundamentals of Applied Statistics	Gupta S. C. and Kapoor V. K.;	Sultan Chand and Sons	23, Daryaganj, New Delhi 110002

## Suggested Web References

1. [www.freestatistics.tk](http://www.freestatistics.tk)(National Statistical Agencies)
2. [www.psychstat.smsu.edu/sbk00.htm](http://www.psychstat.smsu.edu/sbk00.htm)(Onlinebook)
3. [www.bmj.bmjournals.com/collections/statsbk/index.shtml](http://www.bmj.bmjournals.com/collections/statsbk/index.shtml)
4. [www.statweb.calpoly.edu/bchance/stat-stuff.html](http://www.statweb.calpoly.edu/bchance/stat-stuff.html)
5. [www.amstat.org/publications/jse/jse-data-archive.html](http://www.amstat.org/publications/jse/jse-data-archive.html)(International journal on teaching and learning of statistics)
6. [www.amstat.org/publications/chance](http://www.amstat.org/publications/chance)(Chancemagazine)
7. [www.statsci.org/datasets.html](http://www.statsci.org/datasets.html)(Datasets)
8. [www.math.uah.edu/stat](http://www.math.uah.edu/stat)(Virtual laboratories in Statistics)
9. [www.amstat.org/publications/stats](http://www.amstat.org/publications/stats)(STATS : the magazine for students of Statistics)
10. [www.stat.ucla.edu/cases](http://www.stat.ucla.edu/cases)(Case studies in Statistics).
11. [www.statsoft.com](http://www.statsoft.com)
12. [www.statistics.com](http://www.statistics.com)
13. [www.indiastat.com](http://www.indiastat.com)
14. [www.unstat.un.org](http://www.unstat.un.org)
15. [www.stat.stanford.edu](http://www.stat.stanford.edu)
16. [www.statpages.net](http://www.statpages.net)
17. [www.wto.org](http://www.wto.org)
18. [www.censusindia.gov.in](http://www.censusindia.gov.in)
19. [www.mospi.nic.in](http://www.mospi.nic.in)
20. [www.statisticsofindia.in](http://www.statisticsofindia.in)