BAGALKOT UNIVERSITY

Mudhol Road, Jamkhandi-587301 Dist: Bagalkot

PROGRAM /COURSE STRUCTURE AND SYLLABUS
FOR

STATISTICS

as per the Choice Based Credit System (CBCS) designed in accordance with Learning Outcomes-Based Curriculum Framework (LOCF)

For

Bachelor of Arts
(STATISTICS)

(General Degree)
I and II Semester

w.e.f.

Academic Year 2024-25

Preamble for UG Syllabus of Bagalkot University

Bagalkot University Jamkhandi has been established by the Government of Karnataka and has started functioning from the academic year 2023-24. All the degree colleges other than engineering and medical colleges in the district of Bagalkote, are affiliated to this university as per the Karnataka State Universities Act 2000, as modified by the 26th Act of 2022. The students taking admission to any of the colleges in the district of Bagalkote, from the academic year 2023-24 will be students of Bagalkot University. The Government of Karnataka has instructed all the Universities to revise the under graduate syllabus as per the Government order no. ED 166 UNE 2023 Bengaluru Dated 08-05- 2024 from the academic year 2024-25.

Hence the Bagalkot University has revised the syllabus as suggested by its Board of Studies and approved by Academic Council and Syndicate. The subject code format for all the subjects of the new syllabus is also revised.

The subject code format is described in the following.

Subject Code Format

1	2	3	4	5	6	7	8	9	10
VER	DEGREE	SEM	DISCIPLINE			SUB. TYPE	SL. NO. FOR SUB. TYPE		TH/LAB/F
2	A	1	C	H	E	M	0	1	T
2	B	1	P	O	L	M	0	1	T

[1] The Version information gives the version of the syllabus. It can take values 1,2..9,a,b,…

[2] The UG degree codes to be provided as / The code applicable to all degrees

Sl. No	Degree Code		Degree
1	B.Sc.	A	Bachelor of Science
2	B.A	B	Bachelor of Arts
3	B.Com.	C	Bachelor of Commerce
4	BBA	D	Bachelor of Business Administration
5	BCA	E	Bachelor of Computer Applications
6	BSW	F	Bachelor of Social Work
7.	----------	S	Applicable to all degrees

[3] The Semester Information is provided as

Sl. No	Semester
1	1
2	2
3	3
….	

[4-6]The Discipline Information to be provided as

Sl No	Degree	Discipline Code
1	B.Com.	XXX
2	BCA	XXX
3	BBA	XXX
4	BSW	XXX
5	B.A	‘HIS’, POL’,GEO’,’KAN’, ‘HIN’ etc. The detailed list is to be provided
6	B.Sc.	‘PHY’,’CHE’, ‘BOT’,’ELE’ etc. The detailed List is to be Provided

[7] The Subject Type to be provided as

Sl. No.	TYPE	Description
1	Major	M
2	Language	L
3	Constitutional Moral Values	C
4.	Elective	E
5.	Skill / Practical based learning	S
6.	Mini Project	P
7.	Internship	I
8.	Case study/ Survey using principles of Research methodology	R

[8-9] The Running Serial Number is to be provided for a particular Subject type 01 to 99

[10] This character specifies the category of the subject namely, T=Theory, L-Practical, P-Project Work, F-Field work, Viva-V, I-Internship, Dissertation-D

PROGRAM STRUCTURE

Syllabus and Credits Structure under Choice Based Credit System [CBCS] General Degree for the Three Years B.A. with Botany Undergraduate Programme with effect from 2024-25

First Semester B.A. Sociology Scheme

SEMESTER-I											
Category	**Course code**	**Title of the Paper**	**Marks**			**Teaching hours/ week**			**Credits**	**Duration of Exam** (Hrs)	**Teaching Department**
			IA	**SEE**	**Total**	**L**	**T**	**P**			
L1	------	Language 1	20	80	100	3	-	-	3	3	--------
L2	-------	Language 2	20	80	100	3	-	-	3	3	----------
Major	2B1STAM01T	BASIC STATISTICS	20	80	100	5	-	-	5	3	SOCIOLOGY
Major	------	Major Subject 2	20	80	100	5	-	-	5	3	---
Major	----------	Major Subject 3	20	80	100	5	-	-	5	3	---
	2S1XXXC01T	Constitutional Values/	10	40	50	3	-	-	2	2	Constitutional Values: Political Science
	2S1XXXC02T	Environment studies									Environmental Studies: Chemistry/ /Geography/ Botany
Total Marks					**550**	**Semester Credits**			**23**		

Second Semester B.A. STATISTICS Scheme

	SEMESTER-II										
Category	**Course code**	**Title of the Paper**	**Marks**			**Teaching hours/ week**			**Credits**	**Duration of exams (Hrs)**	**Teaching Department**
			IA	**SEE**	**Total**	**L**	**T**	**P**			
L3	----------	Language 3	20	80	100	3	-	-	3	3	---------
L4	----------	Language 4	20	80	100	3	-	-	3	3	----------
Major	2B1STAM02T	**BIVARIATE ANALYSIS AND ECONOMIC STATISTICS**	20	80	100	5	-	-	5	3	SOCIOLGY
Major	-----	Major Subject 2	20	80	100	5	-	-	5	3	--------
Major	--------	Major Subject 3	20	80	100	5	-	-	5	3	--------
	2S1XXXC01T	Constitutional Values	10	40	50	2	-	-	2	2	Constitutional Values: Political Science
	2S1XXXC02T	Environment Studies									Environmental Studies: Chemistry/Geography / Botany
Total Marks					**550**	**Semester Credits**			**23**		

Regulation and Scheme of Instructions:

Regulations for governing three years semesterized Bachelor degree Programme of Bagalkot University,Jamkhandi in Applied Statistics optional subject with effect from academic year 2024-2025.

I. GoalsandObjectives:

The following aims have been kept in view while designing the syllabus of Bachelor'sprogramme(BA)inAppliedstatisticsasoneoftheoptionalstatistics.

1. Tocreateanaptitudeandbringstatisticalawarenessamongthestudents.

2. To train promising learners to teach Applied Statistics effectively at various level in the educational institutions.
3. ToprovideadequateStatisticalknowledgeandskillsasrequiredforthe competitive examination.
4. Toenrichandenhanceanalyticalskillthrough Statisticaltechniques.

5. Tomakethesubjectstudentfriendly,sociallyrelevantandtocultivate research culture among the students.

II. Admissioncriteria:

Any candidate who have passed PUC/10+2 with any subjectsareeligibletochooseAppliedStatisticsas one of theoptionalsubjects at the under graduate course. The other rules for admission are as per the university and government notifications from time to time.

III. MediumofInstruction:

ThemediumofinstructionwillbeinEnglish,however,thestudents are allowed to opt Kannada medium also.

IV. Attendance:

A minimum of 75% of attendance in each semester is compulsory.

V. SchemeofInstruction:

1. The M.A/M.Sc./M. Stat. Master degree holders in Statistics can only teach Applied Statistics optional subject at UG level.
2. AppliedStatisticsisanoptionalsubjectatUGlevelwhich consists of six semesters. There will be one theory paper in I andIIsemesterof100marks. The duration of teaching hours will be 5 hours per week in each paper.

COURSE: (BA-ISemester) 2B1STAM01T

BASIC STATISTICS

Course Outcomes (COs)

At the end of the course the student should be able to:

1. Get the knowledge of Statistics and its applications in various fields.
2. To present the numerical data through diagrams and graphs.
3. Get knowledge of various types of data, their organization and evaluation of summary measures such as measures of central tendency and dispersion.
4. To understand skewness and kurtosis.

MAX.MARKS:100(SEC-80+ IA– 20) **Credits:5**

TeachingHours: 60 Hours **Workload:05Hrs/ Week**

Unit-I.IntroductiontoStatisticsandBasicConcepts:

Meaning, origin, definition, functions and limitations of Statistics, applications in other subjects. Primary and secondary data. Methods of collection of primary data withmerits and demerits. Meaning of questionnaire and schedule. Sources of secondary data. Classification meaning and objectives of classifications. Types of classifications-Chronological, Geographical, Qualitative and Quantitative classifications. Explanation with examples, Explanation of range, class, class limits, class intervals, width of class interval, open-end classes, inclusive and exclusive classes. Formation of discrete and continuous frequency distributions.

Tabulation: Meaning and objectives and rules of tabulation, format of a statistical table and brief explanation of parts of table. Types of table, preparation of tables of blank table and tables with numerical information. **12 Hours**

Unit-II.DiagrammaticandGraphicalRepresentationof Data:

Diagrams : Meaning, importance of diagrams and general rules of construction of diagrams. TypesofDiagrams –simple,multiple, component,percentagebardiagramsandpiediagram. Problemsontheconstructionofdiagrams.

Graphs:TypesofGraphs–explanationof construction of histogramandexamplesonobtainingmodefromhistogram.Methodof construction of frequency Polygon and frequency curve. Ogives - method of construction of Ogivesandproblemson obtainingthevalueofmedianandquartilesfromlessthanOgive. Difference between diagrams and graphs.

12 Hours

Unit-III. Measures of Central Tendency:

Meaning of central tendency and essentials of a good measure of central

tendency. Types of measures of central tendency: Arithmetic mean, Mode, Median, Geometric mean and Harmonic mean- definition, merits and demerits. Properties of arithmetic mean. Problems on both grouped and ungrouped data on all the measures. Empiricalrelation between mean, median and mode.

Partitionvalues-definitionand typesofpartitionvalues,meaningofquartiles,decilesandpercentiles.ProblemsonQuartiles for grouped and ungrouped data only.

12 Hours

Unit-IV.MeasuresofDispersion:

Meaning and objectives of measures of dispersion. Essentials of a good measure of dispersion, absolute and relative measures of dispersion. Range –definition, absolute and relative measures formulae. Examples on ungrouped data, Merits and demerits. Quartile Deviation definition, absolute and relative measures formulae. Merits and demerits Problems on grouped and ungrouped data. Mean Deviation definition, absolute and relative formulae, merits & demerits, simple problems on grouped and ungrouped data, Standard Deviation-definitionandmeritsanddemerits,CoefficientofVariation,Simpleproblemsongroupedand ungrouped data on standard deviation and coefficient of variation. **12 Hours**

Unit-V.Skewnessand Kurtosis:

Skewness- Definition, objectives and types of skewness, explanation of positive skewnessand negative skewness with diagrams. Measures of skewness- Karl Pearson's coefficient of skewness and Bowley's coefficient of skewness. Simple problems.
Kurtosis-Definition and types of kurtosis. Explanation of types of kurtosis with neat diagrams. Measure of skewness based on moments. Difference between skewness and kurtosis.**12 Hours**

Books for Reference:

1. Gani,S.G(2003): SankhyshastraandGanakayantra,Udaya Ravi Publications, Bijapur.
2. Gupta,S.C(2018): Fundamentals of Statistics, Himalaya Publishing House, Bombay.
3. Gupta, S.C., and V.K.Kapoor (2007): Fundamentals of Applied Statistics: Sultan Chand & Sons.
4. Gupta, S.C., and V.K.Kapoor (2001): Fundamentals of Mathematical Statistics: Sultan Chand & Sons.
5. Mukhopadhyay, P(2022): Applied Statistics, New Central Book Agency (P) Ltd., Calcutta
6. Rajmohan: A Textbook of Statistics,Vol -1, Benaka Books

COURSE:BA–IISemester 2B1STAM02T

BIVARIATE ANALYSIS AND ECONOMIC STATISTICS

MAX.MARKS:100(SEC-80+ IA– 20) **Credits:5**

TeachingHours: 60 Hours **Workload:05Hrs/ Week**

Unit-I.Correlation:

Definition, meaning of types of correlation-positive, negative, perfect and no correlation with examples. Utility of study of correlation analysis. Methods of studying correlation. Scatter diagram-definition and explanation with charts. Merits and demerits, problems regarding construction ofscatter diagram. Karl Person's coefficient of correlation-definition, formulae, and properties of coefficient of correlation. Problems based on ungrouped data. Spearman's Rank coefficient of correlation-definition and explanation of method with merits and demerits. Problems with ties and without ties.

Unit-II.Regression: 12hrs

Definition of regression, regression equation of X on Y and Y on X, Properties of regression co-efficient and regression lines. Problems based on ungrouped data. Comparison between correlation and regression.

Unit-III.Association of Attributes: 12hrs

Meaning of association of attributes, definition of class of the first order and second order. Methods of studying association. Yule's coefficient of association and its interpretation. Determination of Yule's coefficient of association in case of two attributes.

Unit-IV. Index Numbers: 12hrs

Definition, uses and limitations of index numbers. Brief description of the steps in the construction of index numbers, Classification of index numbers. Construction of Laspeyre's, Paasche's, Fishers, and Marshall – Edgeworth's priceandquantityindex numbers. Tests of a index number-Unit test, time reversal test, factor reversal test and circular test. Verification of index numbers satisfying the time reversal and factor reversal tests. Problems on index numbers. Cost of living index numbers- meaning, uses and brief description of the steps involved in the construction of a cost of living index number. Methods of construction of cost of living index numbers-Aggregate expenditure method and Family budget method. Problems on cost of living index number.

Unit-V.Time Series: 12Hrs

Definition, uses, components of time series, brief explanation of the components of

time series. Measurement of trend by graphical, semi average, moving averages method and problems on them. Method of least squares- Fitting of straight line trend–method, normal equations, obtaining trend values, estimating future trend and plotting the original and trend values on the graph. Fitting of second degree trend–Normal equations and obtaining trend line and making future estimates.

ReferenceBooks:

1. Goon A.M., Gupta M.K.and Das Gupta B. (2005): Fundamentals of Statistics, Vol. I, World Press, Calcutta.
2. Mukhopadhyay.P,(2005):Applied Statistics,New CentralBookagency,Calcutta.
3. Gupta,S.P(2021):Statistical Methods-SultanChand&SonsPublications Delhi.
4. Gani,S.G (2003): Sankhyshastra and Ganakayantra,Udaya Ravi Publications, Bijapur.
5. Gupta,S.C (2018): Fundamentals of Statistics, Himalaya Publishing House, Bombay.

Rajmohan: A Textbook of Statistics,Vol -II Benak

QUESTION PAPER PATTERN

STATISTICS

Title of the Paper

Time: 03.00 Hours Max. Marks: 80

Instruction: 1) Answer all the sections

Part-A

Answer any four of the following: 5x4=20

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Part-B

Answer any three of the following 10×3=30

7. _____
8. _____
9. _____
10. _____
11. _____

Part-C

Answer any two of the following: 15×2=30

12. _____
13. _____
14. _____
15. _____

ASSESSMENT METHODS

Formative Assessment for Theory

Evaluation Scheme for Internal Assessment: Continuous Internal Assessment (CIA)

Assessment Criteria for 20 marks		
1st Internal Assessment Test for 20 marks of 1 hour duration after 8 weeks and later marks should be reduced to 5	CIA : C1	5 Marks
2nd Internal Assessment Test for 40 marks 2 hours duration after 15 weeks and marks should be reduced to 10	CIA : C2	10 Marks
Assignment/ Activity	CIA : C3	05 Marks
Total		20 Marks

Summative Assessment for Theory:

SEMESTER END EXAM : SEE	C4	80 Marks