MAHATMA GANDHI UNIVERSITY, KERALA

Abstract

Bachelor of Science (Honours) Statistics - 4th Semester - Modifications to the Course Outcomes and Course Content of various courses - Recommendations of the Expert Committee on Statistics - Academic Council Resolution - Orders issued.

ACA 16

No. 7386/ACA 16/2025/MGU Priyadarsini Hills,Dated: 07.08.2025

Read:-1. U.O. No. 5797/AC A16/2024/MGU, dated. 27.06.2024

2. Item No: 40/27828/ACA 16 -2/2025, of the minutes of the meeting of the Academic Council held on 04.07.2025.

ORDER

The syllabi of various Under Graduate Programmes coming under the MGU-UGP (Honours) Regulations, 2024, have been approved vide paper read as (1) above and published on the website of the University.

The Expert Committee on Statistics (UG), at its meeting, discussed the need to modify the Course Outcomes and the Course Content of the courses, MG4DSCSTA200: Basics of Multivariate Distributions, MG4DSCSTA201: Statistical Inference, MG4DSESTA200: Data Analysis Using JAMOVI, MG4DSESTA201: Statistical Quality Control, MG4DSESTA202: Biostatistics, MG4DSESTA203: Econometrics, MG4DSCSTA202: Statistical Inference Using R/Python, MG4DSCSTA203: Statistical Research Methods using Softwares, MG4SECSTA200: Introduction to Spreadsheets and Latex Typing, in the Fourth semester syllabus of the Bachelor of Science (Honours) Statistics programme and has submitted recommendations for the same. (Recommendations are attached as Annexure.)

The said recommendations were placed before the Academic Council for consideration as per the orders of the Vice Chancellor on 25.03.2025.

The Academic Council meeting, vide paper read as (2) above, has resolved to approve the recommendations of the Expert Committee on Statistics (UG).

Hence, the Course Outcomes and the Course Content of various courses in the Fourth Semester syllabus of Bachelor of Science (Honours) Statistics programme stands modified to this extent.

Orders are issued accordingly.

SUDHA MENON J

ASSISTANT REGISTRAR III
(ACADEMIC)
For REGISTRAR

Copy To

1. PS TO VC
2. PA to Registrar/CE
3. JR 2 (ADMIN)/DR 2, AR 3 (ACADEMIC)
4. JR/DR/AR (Exam)
5. Convenor, Expert Committee, Statistics (UG)
6. Tabulation, Academic Sections Concerned
7. AC C1/ AC C2 Sections
8. IT Cell 3/OQPM1 Sections
9. PRO/IQAC/Records Sections
10. ACTION TAKEN REPORT
11. Stock File/ File Copy

File No: 27828/AC A16-2/2025/ACA 16.

Forwarded / By Order

Section Officer

Annexure

Semester 4

Course Name : Basics of Multivariate Distributions

Course Code : MG4DSCSTA200

COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome (Modified)	Learning Domains (Modified)	PO No. (Modified)	Page Number
1	Analyze correlation and regression	An	No Change	96
2	Interpret bivariate distributions and its properties	E	1	
3	Evaluate multivariate normal distribution and multinomial distribution	E	No Change	
4	Analyze quadratic forms and their distributions	An	2	97
5	Removed			
6				
7				
8				

COURSE CONTENT

Content for Classroom Transaction (Units)

Module	Course Description	Hours	CO No. (modified)	Page Number
1.1	No Change	No Change	1	97
1.2			1	
1.3			1	
2.1			2	
2.2			2	
2.3			3	

2.4	No Change	No Change	2	98
2.5			3	
2.6			3	
3.1			4	
3.2			4	
4.1			1,2,3,4	

Course Name : Statistical Inference

Course Code : MG4DSCSTA201

COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome (Modified)	Learning Domains (Modified)	PO No. (Modified)	Page Number
1	Apply law of large numbers to a sequence of random variables	A	No Change	101
2	Design statistical estimation of parameters	E		
3	Explain Neyman-Pearson test procedure	E	1	
4	Explain various parametric test procedures and perform various parametric tests.	An	1	
5	Evaluate various non – parametric tests.	E	No Change	
6	Removed			102
7				
8				

COURSE CONTENT

Content for Classroom Transaction (Units)

Module	Course Description	Hours	CO No. (modified)	Page Number
1.3	No Change	No Change	2	102
2.1			2	

2.2	No Change	No Change	2	102
2.3			2	
3.1			3	
3.3			5	103
4.1			1,2,3,4,5	

Course Name : Data Analysis Using JAMOVI (Data Analytics Specialization)

Course Code : MG4DSESTA200

COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome (Modified)	Learning Domains (Modified)	PO No. (Modified)	Page Number
2	Apply Regression modelling techniques in JAMOVI	S	No Change	105
3	Perform Factor analysis for identification of latent variables in JAMOVI	S	2	
4	Test statistical hypothesis in JAMOVI	S	No Change	
5	Design PCA for dimension reduction in JAMOVI	S		
6	Removed			106

COURSE CONTENT

Content for Classroom Transaction (Units)

Module	Course Description	Hours	CO No. (modified)	Page Number
1.1	No Change	No Change	1	106
1.2			1	
2.1			1	
2.2			2	
3.1			4	
4.1			5	107

Course Name : Statistical Quality Control

Course Code : MG4DSESTA201

COURSE OUTCOMES (CO)

<table>
<tr><th>CO No.</th><th>Expected Course Outcome (Modified)</th><th>Learning Domains (Modified)</th><th>PO No.</th><th>Page Number</th></tr>
<tr><td>1</td><td>Evaluate Control charts for variables and attributes</td><td>E</td><td rowspan="4">No Change</td><td rowspan="4">109</td></tr>
<tr><td>2</td><td>Design process capability analysis and process capability indices</td><td>An</td></tr>
<tr><td>3</td><td>Analyze the concept of Acceptance sampling plans</td><td>An</td></tr>
<tr><td>4</td><td>Use R built in fuctions to solve numerical problems associated with topics covered various modules</td><td>S</td></tr>
<tr><td>5</td><td colspan="3" rowspan="4">Removed</td><td rowspan="4">110</td></tr>
<tr><td>6</td></tr>
<tr><td>7</td></tr>
<tr><td>8</td></tr>
</table>

COURSE CONTENT

Content for Classroom Transaction (Units)

<table>
<tr><th>Module</th><th>Course Description</th><th>Hours</th><th>CO No. (modified)</th><th>Page Number</th></tr>
<tr><td>1.2</td><td rowspan="6">No Change</td><td rowspan="6">No Change</td><td>1</td><td rowspan="6">110</td></tr>
<tr><td>1.3</td><td>1</td></tr>
<tr><td>1.4</td><td>1</td></tr>
<tr><td>1.5</td><td>1</td></tr>
<tr><td>1.6</td><td>1</td></tr>
<tr><td>2.1</td><td>2</td></tr>
</table>

2.2	No Change	No Change	2	
3.1			3	111
3.2			3	
3.3			3	
4.1			4	
4.2			1,2,3,4	

Course Name : Biostatistics

Course Code : MG4DSESTA202

COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome (Modified)	Learning Domains (Modified)	PO No.	Page Number
1	Analyze problems in Biomedical Research	An	No Change	113
2	Evaluate mean survival time	E	No Change	
3	Explain categorical data analysis	No change	No Change	
4	Planning and design of clinical trials			
5	Removed			114
6				
7				
8				

COURSE CONTENT

Content for Classroom Transaction (Units)

Module	Course Description	Hours	CO No. (modified)	Page Number
1.2	No Change	No Change	1	114
1.3			1	
2.1			2	
2.2			2	
2.3			2	
3.1			3	
3.2			3	115
3.3			3	
4.1			4	
4.2			4	
4.3			4	

Course Name : Econometrics

Course Code : MG4DSESTA203

COURSE CONTENT

Content for Classroom Transaction (Units)

Module	Course Description	Hours	CO No. (modified)	Page Number
2.4	No Change	No Change	2	118

Course Name : Statistical Inference Using R/Python

Course Code : MG4DSCSTA202

COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome (Modified)	Learning Domains (Modified)	PO No.	Page Number
1	Understanding bivariate probability distribution	No Change	No Change	121
2	Interpret Central Limit Theorem and sampling distributions	No Change		
3	Apply estimation of parameters	A		
4	Design testing of statistical hypothesis	E		
5	Apply data analysis using R / Python.	A		

COURSE CONTENT

Content for Classroom Transaction (Units)

Module	Course Description (modified)	Hours (modified)	CO No. (modified)	Page Number
1	Bivariate Probability Theory	10		122
1.1	Describe bivariate random variable, demonstrate joint probability mass function, its	5	No Change	

	properties and simple problems. Joint probability density function (concept only)			
1.2	Demonstrate marginal and conditional distributions (bivariate case), demonstrate independence of random variables (bivariate case) – problems in discrete case only	5	No Change	
1.3	Removed			
1.4				
1.5				
1.6				
1.7				
2	Sampling distributions	No Change		
2.1	Central Limit Theorem (statement and its importance only)	No Change	No Change	
2.2	Statistic, parameter. Distribution of sample mean and variance (without proof)	3	No Change	
2.3	Normal distribution, Student's t-distribution, Chi square distribution, F distribution, inter relationship between them.	10	No Change	
2.4	Removed			
2.5				

122

3	Statistical inference	20		122
3.1	Estimation, point estimation and interval estimation	3	No Change	
3.2	Desirable properties of a good point estimator	2	No Change	
3.3	Methods of estimation – MLE, Method of moments	No Change	No Change	
3.4	Testing of hypothesis: Statistical test, null and alternative hypothesis, types of errors, significance level, power, critical region, p value.	2	4	
3.5	Testing of population mean (One sample and two sample) (z test, t-test), testing of population proportion (One sample and two sample), paired t test. ANOVA(one way only). Goodness of fit, Chi-Square test(independence of attributes)	10	4	

Course Name : Statistical Research Methods using Softwares

Course Code : MG4DSCSTA203

COURSE OUTCOMES (CO)

CO No.		Expected Course Outcome (Modified)	Learning Domains	PO No.	Page Number
3		Illustrate the statistical tests	No Change	No Change	125
4		Removed			
Existing	Modified	Conduct data analysis using R/Python/Spreadsheet.	No Change	No Change	
5	4				

COURSE CONTENT

Content for Classroom Transaction (Units)

Module		Course Description (modified)	Hours (modified)	CO No. (modified)	Page Number
1.4		No Change	No Change	1	126
3.1		No Change	No Change	3	
3.4		No Change	No Change	3	
3.5		No Change	No Change	3	
3.6		No Change	No Change	3	
4.1		Removed			
Existing	Modified	Statistical analysis using Spreadsheet/ Python/ R programming	30	4	
4.2	4.1				

Course Name : Introduction to Spreadsheets and LaTex typing

Course Code : MG4SECSTA200

COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome (Modified)	Learning Domains (Modified)	PO No. (Modified)	Page Number
1	Analyze the data using spreadsheets	An	No Change	133
2	Build documents using LaTeX	U	1	
3	Explain how to create documents and PowerPoints	C	1	
4	Appraise the need for presenting data and documents suitable for different situations	E	No Change	
5	Removed			134
6				
7				
8				

COURSE CONTENT

Content for Classroom Transaction (Units)

Module	Course Description	Hours	CO No. (modified)	Page Number
1.2	No Change	No Change	1	134
1.3			1	
1.4			1	
2.1			2	

2.2	No Change	No Change	2	
2.3			2	
2.4			2	
2.5			2	
3			1,2,3,4	135