AMBEDKAR COLLEGE OF ARTS & SCIENCE, WANDOOR
(Aided by Govt. of Kerala & Affiliated to University of Calicut)
Wandoor (PO), Pin 679328, Ph: 04931-249666
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COURSE PLAN

Course code and title	**DEC3 C11 - BASIC ECONOMETRICS**		
Class	MA DEVELOPMENT ECONOMICS	**Semester**	III/ODD
Regulation	R-2020	**Academic year**	2023-24
Course prerequisites	**QUANTITATIVE METHODS FOR ECONOMIC ANALYSIS I** **QUANTITATIVE METHODS FOR ECONOMIC ANALYSIS II**		
Course objectives	• To develop an understanding of the meaning, nature, scope and methodology of econometrics.		
	• To inculcate the knowledge of simple and multiple regression analysis, ordinary least square method, maximum likelihood method, Gauss-Markov theorem, coefficient of determination and hypotheses testing		
	• 3 To introduce students to the matrix approach to estimation and derivation of properties of OLS estimators		
	• To acquaint students with various econometric problems faced with when the assumptions of the classical model were relaxed.		
	• To enhance the understanding of different functional forms of regression models		

COURSE OUTCOMES

At the end of the course the student would be able to

CO1	Students would be able to define and describe the meaning, nature, scope and methodology of econometrics
CO2	Students would be able to define the least square residual and the least square fitted value of the dependent variable and show them on a graph
CO3	Students would be able to explain the theoretical decomposition of an observable variable into its systematic and random components
CO4	Students would be able to use the least square method, maximum likelihood method, dummy variable model and qualitative response model for practical purposes and interpret the results
CO5	Students would be able to appreciate the wide range of non-linear functions that can be estimated using a model

MAPPING OF PROGRAM OUTCOMES

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	✓		✓	✓				✓		

Development Economics and to relate the acquired cognitive base in the Development Issues of World Economy, Indian Economy and Kerala Economy.					
PEO2 To facilitate students to comprehend the development issues of the economy in general and different sections of the society in particular.	✓	✓	✓	✓	✓
PEO3 To develop the skills to enquire the real developement issues based on the major theoretical underpinnings	✓		✓	✓	✓

References

1. Damodar N Gujarati and Dawn C Porter (2009): Basic Econometrics, Fifth Edition, Mc Graw Hill International Edition
2. Damodar N Gujarati (2011): Econometrics by Example, First Edition, Palgrave, MacMillan.
3. James H Stock and Mark W Watson (2017): Introduction to Econometrics, Third Edition, Pearson, Addison Wesley.
4. Carter Hill, William Griffiths and Guay Lim (2011): Principles of Econometrics, 4th Edition, John Wiley & Sons.
5. Jeffrey M Wooldridge (2018): Introductory Econometrics: A Modern Approach, 7th Edition, Thomson South Western.
6. Robert S Pyndick and Daniel L Rubinfeld (1998): Econometric Models and Economic Forecasts, Fourth Edition, McGraw Hill International Edition.
7. Kerry Patterson (2000): An introduction to Applied Econometrics: A Time Series Approach, First Edition, Palgrave.

e-learning resources	https://egyankosh.ac.in/handle/123456789/78494 https://egyankosh.ac.in/handle/123456789/22589
Mode of Evaluation	Internal Examination (20%) End Semester Examination (80%)
Faculty	**Dr. Anish Mathew, Assistant professor/ Department of Economics**
e-mail id	areeckans@gmail.com

No of lecture hours	Planned Date	Topics to be covered		Reference/ Teaching aids and methods	Actual date	We ly ev

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	Module I: Simple Linear Regression Model						
1	01-08-24	Nature and scope of Econometrics-Economic theory and mathematical economics			ICT/Books	01.08-24	
2	02-08-24	Methodology of econometrics-Uses of econometrics-The concept of PRF			ICT/Books	02.8.24	
3	05.08.24	Significance of stochastic error term-The SRF-Problem of estimation			ICT/Books	05-8-24	
4	07-08-24	Method of ordinary least squares-Assumptions underlying the method of least squares			ICT/Books	07-08-24	
5	09.08.24	Properties of estimators- Gauss Markov theorem			ICT/Books	09.08.24	
6	10.08.24	Coefficient of determination, r2			ICT/Books	10.08.24	
7	13-08-24	Normality assumption-Hypothesis testing			ICT/Books	13.08.24	
8	21-08-24	t and F tests-P value- Practical versus statistical significance			ICT/Books	21.08.24	
9	30-08-24	Prediction-Method of maximum likelihood Maximum likelihood estimation of two variables model			ICT/Books	30.08.24	
Planned hours	**Actual hours**	**Date**	**Sign of Faculty**	**Review by HoD**		**Review by Principal**	
	Module II: Multiple Regression Analysis						
10	02.09.24	The three-variable model			ICT/Books	02.09.24	
11	04.09.24	OLS estimation of partial regression coefficients			ICT/Books	04.09.24	
12	06.09.24	Multiple Coefficient of determination R2			ICT/Books	06.09.24	
13	09.09.24	Adjusted R2-Hypothesis testing			ICT/Books	09.09.24	
14	18.09.24	Testing the overall Significance of the regression model			ICT/Books	18.09.24	
15	19.09.24	F test-Testing the equality of two regression Coefficients			ICT/Books	19.09.24	
16	20.09.24	Restricted least squares-Chow test			ICT/Books	20.09.24	
17	26.09.24	General k variable regression model			ICT/Books	26.09.24	
18	30.09.24	Matrix approach to estimation and derivation of the properties of OLS estimators			ICT/Books	30.09.24	
Planned hours	**Actual hours**	**Date**	**Sign of Faculty**	**Review by HoD**		**Review by Principal**	

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Module III: Econometric Problems							
19	01.10.24	Multicollinearity				ICT/Books	1.10.24
20	03.10.24	Nature, consequences				ICT/Books	03.10.24
21	04.10.24	Detection and remedial measures				ICT/Books	04.10.24
22	07.10.24	Autocorrelation				ICT/Books	07.10.24
23	10.10.24	Nature, detection				ICT/Books	10.10.24
24	14.10.24	Remedial Nature, consequences				ICT/Books	14.10.24
24	15.10.24	Detection and remedial measures				ICT/Books	15.10.24
Planned hours	**Actual hours**	**Date**	**Sign of Faculty**	**Review by HoD**		**Review by Principal**	
Module IV: Extensions of Two Variables and Dummy Variable Regression Model							
26	21.10.24	Regression through the origin-Functional forms of regression models				ICT/Books	21.10.24
27	23.10.24	Log-log, log-lin, lin-log and reciprocal models				ICT/Books	25.10.24
28	25.10.24	Dummy variable-ANOVA models				ICT/Books	29.10.24
29	29.10.24	ANCOVA models				ICT/Books	30.10.24
30	30.10.24	Dummy variable trap				ICT/Books	1.11.24
31	01.11.24	Dummy variables and seasonal analysis				ICT/Books	04.11.24
32	04.11.24	Structural analysis-Piecewise linear regression				ICT/Books	
Planned hours	**Actual hours**	**Date**	**Sign of Faculty**	**Review by HoD**		**Review by Principal**	
Module V: Model Specification and Diagnostic Testing							
33	18.11.24	Types of specification errors				ICT/Books	18.11.24
34	19.11.24	Detection and consequences				ICT/Books	19.11.24
35	20.11.24	RESET-Errors of measurement				ICT/Books	20.11.24
36	22.11.24	Consequences, remedies				ICT/Books	22.11.24
37	28.11.24	Qualitative response regression models. Linear probability model, Logit and Probit				ICT/Books	28.11.24

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FACULTY

HOD

Dr. PRAMOD. K.M.
Asst. Professor & Head
Dept. of Economics
Ambedkar College of Arts & Science
Wandoor

Date

PRINCIPAL

Dr. Pramod. K.M
Asst. Professor
In Charge of Principal
Ambedkar College of Arts & Science
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Course outcome –Program outcome Mapping Table

ECO4 B05 QUANTITATIVE METHODS FOR ECONOMIC ANALYSIS II		Cognitive level	Program outcomes 1- Moderate Correlation 2- High correlation											
			PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
DIRECT METHOD														
CO1	Students would be able to define and describe different types of functions, matrices, derivatives, and different rates related to finance	Remember	2	2	2	1	1	1	2	2	2	1		
CO2	Students would be able to interpret the results obtained by using quantitative tools like matrices and derivatives	Apply	2	1	1	2	2	1	1	2	2	1		
CO3	Students would be able to apply functions, matrices, and derivatives for solving real world problems related to economics	Apply & Analyze	2	1	1	2	1	2	1	2	1	1		
CO4	Students would be able to analyse the economic relationships using functions, matrices, and derivatives	Create	2	2	2	1	1	1	2	2	1	1		
CO5	Students would be able to critically evaluate use of mathematical concrete tools like functions, matrices and derivates in abstract science like economics	Innovate	2	1	1	1	1	2	2	2	1	1		
INDIRECT METHOD														
Class Room contents		Analyze	1					1	2					2

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		& Create									

Course Faculty | QAC Member | HOD

Dr. FRANCO. K.M
Asst. Professor & Head
Dept. of Commerce
Ambedkar College of Arts & Science
Wandoor

COURSE PRE-ANALYSIS

Dear Students,

Welcome back to class. I would like to thank all of you for sparing your time in filling up this Course Pre-Analysis survey for the effective conduct of Computer Aided Design and Manufacturing Course. As you know that this survey is meant for knowing the knowledge level of the students with respect to this course, please fill it very carefully. At this juncture, I am glad to welcome the suggestions from you all (if any)

Rate your prior knowledge about the topics mentioned below

Course Outcomes	Description	Rate your prior knowledge about the topics			
		Excellent (4)	Good (3)	Moderate (2)	Fair (1)
CO1	Students would be able to define and describe the meaning, nature, scope and methodology of econometrics	✓			
CO2	Students would be able to define the least square residual and the least square fitted value of the dependent variable and show them on a graph		✓		
CO3	Students would be able to explain the theoretical decomposition of an observable variable into its systematic and random components		✓		
CO4	Students would be able to use the least square method, maximum likelihood method, dummy variable model and qualitative response model for practical purposes and interpret the results		✓		
CO5	Students would be able to appreciate the wide range of non-linear functions that can be estimated using a model		✓	✓	

Name of the student

Signature of the student

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Syllabus

DEC3 C11 - BASIC ECONOMETRICS

Module I: Simple Linear Regression Model Nature and scope of Econometrics-Economic theory and mathematical economics-Methodology of econometrics-Uses of econometrics-The concept of PRF - Significance of stochastic error term-The SRF-Problem of estimation- Method of ordinary least squares-Assumptions underlying the method of least squares-Properties of estimators- Gauss Markov theorem Coefficient of determination, r2 -Normality assumption-Hypothesis testing- t and F tests-P value-Practical versus statistical significance-Prediction-Method of maximum likelihood Maximum likelihood estimation of two variables model

Module II: Multiple Regression Analysis The three variable model-OLS estimation of partial regression coefficients-Multiple Coefficient of determination R2 and adjusted R2-Hypothesis testing-Testing the overall Significance of the regression model-F test-Testing the equality of two regression Coefficients-Restricted least squares-Chow test-General k variable regression model- Matrix approach to estimation and derivation of the properties of OLS estimators

Module III: Econometric Problems consequences, Multicollinearity-Nature, consequences, detection and remedial measures-Autocorrelation Nature, detection, and remedial Nature,consequences, detection and remedial measures. measures- Heteroskedasticity Module IV Extensions of Two Variables and Dummy Variable Regression Model Regression through the origin-Functional forms of regression models, log-log, log-lin, lin-log and reciprocal models- Dummy variable-ANOVA models-ANCOVA models-Dummy variable trap-Dummy variables and seasonal analysis-Structural analysis-Piecewise linear regression Module V Model Specification and Diagnostic Testing Types of specification errors-Detection and consequences-RESET-Errors of measurement Consequences, remedies-Qualitative response regression models-Linear probability model, Logit and Probit

REFERENCES

1. Damodar N Gujarati and Dawn C Porter (2009): Basic Econometrics, Fifth Edition, Mc Graw Hill International Edition

2. Damodar N Gujarati (2011): Econometrics by Example, First Edition, Palgrave, MacMillan

3. James H Stock and Mark W Watson (2017): Introduction to Econometrics, Third Edition, Pearson, Addison Wesley

4. Carter Hill, William Griffiths and Guay Lim (2011): Principles of Econometrics, 4th Edition, John Wiley & Sons

5. Jeffrey M Wooldridge (2018): Introductory Econometrics: A Modern Approach, 7th Edition, Thomson South Western

6. Robert S Pyndick and Daniel L Rubenfeld (1998): Econometric Models and Economic Forecasts, Fourth Edition, McGraw Hill International Edition

7. Kerry Patterson (2000): An introduction to Applied Econometrics: A Time Series Approach, First Edition, Palgrave

8. Walter Enders (2010): Applied Econometric Time Series, Third Edition, Wiley India Edition

9. Richard Harris and Robert Sollis (2006): Applied Time Series Modeling and Forecasting, First Edition, Wiley Student Edition.

10. Dimitrios Asteriou and Robert Hall (2015): Applied Econometrics, 3rd Edition, Oxford University Press.

11. Jack Johnston and John Dinardo (1998): Econometrics Methods, Fourth Edition, The McGraw Hill Companies.

HOD

PRINCIPAL

Course outcome –Program Specific outcome Mapping Table

Course outcomes	Program Specific outcomes		
	PSO1	PSO2	PSO3
CO1	2	2	1
CO2	2	2	2
CO3	2	1	2
CO4	1	2	1
CO5	1	1	2

Course Faculty

QAC Member

HoD

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DIRECT ASSESSMENT OF COURSE OUTCOMES

INTERNAL ASSESSMENT TEST 50 MARKS				
Objective	To Identify What Students Have Learned and also to identify students strength and weakness			
To file	Answer scripts	**Frequency**	2 times in a semester on dates specified by University	
Format	Part –A 5 x 1 =5 marks, Part –B x 13 = 26 marks. Part –C 1 x 14 = 14 marks. Total marks = 50, Converted into 150 marks with 1hour and 30 minutes duration of testing, with an improvement test on the following week with different question paper and the students are allowed to improve further by submission of assignments out of questions from QP 1 & 2 for 10 marks			
Evaluation	Based on answer given in the scripts			
ASSIGNMENT				
Objective	To enhance students understanding of a complex structural problems			
Product	Hand written assignment sheets			
Frequency	Monthly or after completing improvement test			
Format	Questions from both question papers			
Evaluation	Based on rubrics			
Criteria	No of assignments 3 to 5, Submit on or before the date of submission			
END SEMESTER EXAMINATION (150 MARKS (Including internal and external)				
Objective	To assess the each student's knowledge of the course			
Product	Result analysis			
Frequency	Semester			
Format	Part A: (15x1/5 = 3 weightage), Part B: (5x1 = 5 weightage), Part C: (7x2 = 14 weightage) Part D: (2x4 = 8 weightage)			
Evaluation	Based on answer given in the scripts			
Marks out of 150	60-80	81-100	101-150	0-60
Levels of attainment	1	2	3	Counseling / Coaching classes