Level         05           Course Title         Regression Analysis I           Credit value         3           Corre/Optional         Optional           Prerequisites         ADU3201(Pass/ Valid QCAM/ CR)         Practical hours         Independent Learning         Assessments           Hourly breakdown         ADU3201(Pass/ Valid QCAM/ CR)         Practical hours         Independent Learning         Assessments           Course Aim/s.         Sessions x2 = 25x2 50hrs         DS hrs=4x3 =12 hrs         •         •         Sessions x3=25x3 robins         •         Continuous Assessments (CA) -2hrs         1           Course Aim/s.         1.         The aim of this course is to introduce linear regression analysis with emphasis on when and how to fit regression models using the method of least squares         •         Now to assess the aptness of the model and make predictions.           PLOs addressed by course         PLO1: Knowledge: Explain the fundamental, principles and broader knowledge pertaining to the chosen scie disciplines offered for the degree.         PLO2: Practical Knowledge and Application. Demonstrate the competency to use the knowledge and prac skills appropriately.           PLO3: Communication: Demonstrate the competency in communicating efficiently and effectively to previ information, ideas and concepts to the scientific community as well as to the wider society.           PLO5: Information and Communication Technology Literate: Demonstrate the competency of using Informa and Co			
Credit value         3           Core/Optional         Optional           Prerequisites         ADU3201(Pass/ Valid OCAM/ CR)           Hourly         Theory         Practical         Independent Learning         Assessments           Hourly         Sessionsx2 = 25x2         50hrs         Sessions         x3=25x3         Continuous         1:           Sessionsx2 = 25x2         50hrs         =12 hrs         -         Sessions         x3=25x3         Continuous         1:           Course Aim/s.         1.         The aim of this course is to introduce linear regression analysis with emphasis on when and how to fit regression models using the method of least squares         2.         how to assess the apiness of the model and make predictions.           PLOs addressed by course         PLO1: Knowledge: Explain the fundamental, principles and broader knowledge pertaining to the chosen scie disciplines offered for the degree.           PLO2: Practical Knowledge and Application. Demonstrate the competency to use the knowledge and prac skills approprintely.         PLO3: Creativity and Problem Solving: Identify and analyze problems using quantitative and/or qualita approaches using scientific methodology to provide valid conclusions.           PLO3: Information and Communication Technology Iterate: Demonstrate the competency of using Informa and Communication Technology for numerical and statistical analysis, and in day to day applications.           PLO4: Locommunication of this course student will be able			
Core/Optional         Optional           Prerequisites         ADU3201(Pass/ Valid OCAM/ CR)         Independent Learning         Assessments           Hourly         Theory         Practical         Independent Learning         Assessments           Sessionsx2 = 25x2         DS hrs=4x3         • Sessions         X3=25x3         • Continuous Assessments (CA) -2hrs           Course Aim/s.         1.         The aim of this course is to introduce linear regression analysis with emphasis on when and how to fit regression models using the method of least squares         • Online / Audio-visua materials and other learning resources         • New to assess the aptness of the model and make predictions.           PLOs addressed by course         PLO1: Knowledge: Explain the fundamental, principles and broader knowledge pertaining to the chosen scie disciplines offered for the degree.         PLO2: Practical Knowledge and Application. Demonstrate the competency to use the knowledge and prac skills appropriately.           PLO3: Communication: Demonstrate the competency in communicating efficiently and effectively to presi information, ideas and concepts to the scientific community as well as to the wider society.           PLO5: Information and Communication Technology tor provide valid conclusions.         PLO5: Creativity and Problem Solving: Identify and analyze problems using quantitative and/or qualita approaches using scientific methodology to provide valid conclusions.           PLO5: Information and Communication Technology titrarter: Demonstrate the competency of using Informa and Communicatin Technology for numeric			
Prerequisites         ADU3201(Pass/ Valid OCAM/ CR)           Hourly breakdown         Theory         Practical hours         Independent Learning         Assessments         Theory           Sessionsx2 =25x2 50hrs         DS hrs=4x3 =12 hrs         -         -         Sessions         x3=25x2 Continuous materials         Continuous Assessments         -         Conti			
Hourly breakdown         Theory         Practical hours         Independent Learning         Assessments           Sessionsx2 = 25x2 50hrs         DS hrs=4x3 =12 hrs         •         •         Sessions         x3=25x3 75hrs         •         Continuous Assessments (CA) -2hrs         1           Course Aim/s.         1         The aim of this course is to introduce linear regression analysis with emphasis on when and how to fit regression models using the method of least squares         •         Now to assess the aptness of the model and make predictions.           PLOs addressed by course         PLO1: Knowledge: Explain the fundamental, principles and broader knowledge pertaining to the chosen scie disciplines offered for the degree.         PLO1: Knowledge and Application. Demonstrate the competency to use the knowledge and prace skills appropriately.           PLO3: Communication: Demonstrate the competency in communicating efficiently and effectively to pred information, ideas and concepts to the scientific community as well as to the wider society.         PLO3: Creativity and Problem Solving: Identify and analyze problems using quantitative and/or qualita approaches using scientific methodology to provide valid conclusions.           PLO7: Information and Communication Technology Uiterate: Demonstrate the competency of using Informa and Communication Technology for numerical and statistical analysis, and in day to day applications.           Clo2: Develop theoretical knowledge related to model fitting using the method of least squares (PLO1, PLO2) CLO3: Develop competence on identifying candidate regression models for further analysis, through examining of dat			
breakdown         hours         hours         hours         Continuous           Sessionsx2 = 25x2         DS hrs=4x3         -         •         •         Sessions x3=25x3         •         Continuous         Assessments         (CA) - 2hrs         11           Course Aim/s.         1.         The aim of this course is to introduce linear regression analysis with emphasis on when and how to fit regression models using the method of least squares         2.         how to assess the aptness of the model and make predictions.           PLOs addressed by course         PLO1: Knowledge: Explain the fundamental, principles and broader knowledge pertaining to the chosen scie disciplines offered for the degree.         PLO2: Practical Knowledge and Application. Demonstrate the competency to use the knowledge and practiskills appropriately.           PLO3: Communication: Demonstrate the competency in communicating efficiently and effectively to pretinformation, ideas and concepts to the scientific community as well as to the wider society.         PLO5: Creativity and Problem Solving: Identify and analyze problems using quantitative and/or qualita approaches using scientific methodology to provide valid consistors.           PLO7: Information and Communication Technology Literate: Demonstrate the competency of using Informa and Communication Technology Literate: Demonstrate the competency of using Informa and Communication Technology Literate: Demonstrate the competency of using Informa and Communication Technology Literate: Demonstrate the competency of using Informa and Communication and Communication and statistical analysis, and in day to day applications. <tr< th=""><th></th></tr<>			
50hrs       =12 hrs       • Online /Audio-visual materials and other learning resources 11 hrs       Assessments (CA) -2hrs         Course Aim/s.       1. The aim of this course is to introduce linear regression analysis with emphasis on when and how to fit regression models using the method of least squares       2.       how to assess the aptness of the model and make predictions.         PLOs addressed by course       PLO1: Knowledge: Explain the fundamental, principles and broader knowledge pertaining to the chosen scie disciplines offered for the degree.       PLO2: Practical Knowledge and Application. Demonstrate the competency to use the knowledge and pract skills appropriately.         PLO3: Communication: Demonstrate the competency in communicating efficiently and effectively to predination, ideas and concepts to the scientific community as well as to the wider society.         PLO5: Creativity and Problem Solving: Identify and analyze problems using quantitative and/or qualita approaches using scientific methodology to provide valid conclusions.         PLO5: Information, ideas and concepts to the scientific community as well as to the wider society.         PLO5: Creativity and Problem Solving: Identify and analyze problems using quantitative and/or qualita approaches using scientific methodology to provide valid conclusions.         PLO5: Information and Communication Technology for numerical and statistical analysis, and in day to day applications.         PLO2: Develop theoretical knowledge related to model fitting using the method of least squares (PLO1, PLO2)         CLO2: Develop theoretical knowledge related to model fitting using the method of least squares (PLO	Total hrs		
regression models using the method of least squares         2. how to assess the aptness of the model and make predictions.         PLOs addressed by course       PLO1: Knowledge: Explain the fundamental, principles and broader knowledge pertaining to the chosen scientistic constraints of the degree.         PLO2: Practical Knowledge and Application. Demonstrate the competency to use the knowledge and pract skills appropriately.         PLO3: Communication: Demonstrate the competency in communicating efficiently and effectively to presinformation, ideas and concepts to the scientific community as well as to the wider society.         PLO5: Creativity and Problem Solving: Identify and analyze problems using quantitative and/or qualita approaches using scientific methodology to provide valid conclusions.         PLO7: Information and Communication Technology Literate: Demonstrate the competency of using Informa and Communication Technology for numerical and statistical analysis, and in day to day applications.         Course Learning Outcomes (CLO)       At the completion of this course student will be able to         CLO1: Ability to identify situations in which regression analysis is applicable and select response and explain variables for model fitting (PLO1, PLO2)         CLO2: Develop theoretical knowledge related to model fitting using the method of least squares (PLO1, PLO2, PLO3)         CLO4: Ability to fit linear regression models using the method of least squares manually as well as using stat software (PLO1, PLO2, PLO3, PLO4, PLO6)         CLO5: Ability to carry out diagnostic checks and identify possible violations of the model assumptions, if any (PLO2, PLO3, PLO6)	150hrs		
PLOs addressed by course       PLO1: Knowledge: Explain the fundamental, principles and broader knowledge pertaining to the chosen scient disciplines offered for the degree.         PLO2: Practical Knowledge and Application. Demonstrate the competency to use the knowledge and pract skills appropriately.         PLO3: Communication: Demonstrate the competency in communicating efficiently and effectively to presinformation, ideas and concepts to the scientific community as well as to the wider society.         PLO5: Creativity and Problem Solving: Identify and analyze problems using quantitative and/or qualita approaches using scientific methodology to provide valid conclusions.         PLO7: Information and Communication Technology Literate: Demonstrate the competency of using Informa and Communication Technology for numerical and statistical analysis, and in day to day applications.         Course Learning Outcomes (CLO)       At the completion of this course student will be able to         CLO1 : Ability to identify situations in which regression analysis is applicable and select response and explain variables for model fitting (PLO1, PLO2)         CLO2: Develop theoretical knowledge related to model fitting using the method of least squares (PLO1, PLO2, CLO3: Develop competence on identifying candidate regression models for further analysis, through examining of data (PLO1, PLO2, PLO3)         CLO4 : Ability to fit linear regression models using the method of least squares manually as well as using sta software (PLO1, PLO2, PLO3, PLO6)         CLO5 : Ability to carry out diagnostic checks and identify possible violations of the model assumptions, if any (PLO2, PLO3,PLO6)         CLO6: Suggest possible reme	t linear		
Outcomes (CLO)       At the completion of this course student will be able to         CLO1 : Ability to identify situations in which regression analysis is applicable and select response and explain variables for model fitting (PLO1, PLO2)         CLO2: Develop theoretical knowledge related to model fitting using the method of least squares (PLO1, PLO2)         CLO3: Develop competence on identifying candidate regression models for further analysis, through examining of data (PLO1,PLO2, PLO3)         CLO4 : Ability to fit linear regression models using the method of least squares manually as well as using star software (PLO1,PLO2, PLO3, PLO4, PLO6)         CLO5 : Ability to carry out diagnostic checks and identify possible violations of the model assumptions, if any (PLO2, PLO3,PLO6)         CLO6: Suggest possible remedies if any of the model assumptions are violated(PLO1,PLO2,PLO3,PLO6)	ctical esent tative		
<ul> <li>CLO2: Develop theoretical knowledge related to model fitting using the method of least squares (PLO1, PLO2)</li> <li>CLO3: Develop competence on identifying candidate regression models for further analysis, through examining of data (PLO1,PLO2, PLO3)</li> <li>CLO4 : Ability to fit linear regression models using the method of least squares manually as well as using star software (PLO1,PLO2, PLO3, PLO4, PLO6)</li> <li>CLO5 : Ability to carry out diagnostic checks and identify possible violations of the model assumptions, if any (PLO2, PLO3, PLO6)</li> <li>CLO6: Suggest possible remedies if any of the model assumptions are violated(PLO1,PLO2,PLO3,PLO6)</li> </ul>	anatory		
of data (PLO1,PLO2, PLO3) CLO4 : Ability to fit linear regression models using the method of least squares manually as well as using star software (PLO1,PLO2, PLO3, PLO4, PLO6) CLO5 : Ability to carry out diagnostic checks and identify possible violations of the model assumptions, if any (I PLO2, PLO3,PLO6) CLO6: Suggest possible remedies if any of the model assumptions are violated(PLO1,PLO2,PLO3,PLO6)	!)		
software (PLO1,PLO2, PLO3, PLO4, PLO6) CLO5 : Ability to carry out diagnostic checks and identify possible violations of the model assumptions, if any (I PLO2, PLO3,PLO6) CLO6: Suggest possible remedies if any of the model assumptions are violated(PLO1,PLO2,PLO3,PLO6)	CLO3: Develop competence on identifying candidate regression models for further analysis, through examining plots of data (PLO1,PLO2, PLO3)		
PLO2, PLO3, PLO6) CLO6: Suggest possible remedies if any of the model assumptions are violated(PLO1,PLO2,PLO3,PLO6)	CLO4 : Ability to fit linear regression models using the method of least squares manually as well as using statistical software (PLO1,PLO2, PLO3, PLO4, PLO6)		
	(PLO1,		
CLO7 : Use the fitted models for predictions (PLO1,PLO2, PLO3,PLO6)			
CLO8: Interpret the output from statistical software and write concise reports (PLO1, PLO2, PLO3, PLO4, PLO5, I			
Content Introduction to Regression Models, Measuring the Strength of Linear Association, Simple Linear Regre	,		
(Main topics, sub topics)       Model, Estimation of Parameters in Simple Linear Regression Models, Fitted Values and Residuation Estimation of Standard Errors of the Fitted Parameters, Properties of Least Squares Estimators Inference on Regression Parameters, Diagnostic Checks for the Simple Linear Regression Model, Analy Variance Approach for Fitting Regression Models, Multiple Linear Regression Model         Teaching       Self-Learning/Independent learning of Self-study	iduals,		
Learning methods (TL)     Instructional Material (IL)       • Online Activities (OL)       • Reference Work (RE)			
Compulsory contact sessions Assessments (AS) and Feedback – MCQs (MCQ);Structured Essay (SEQ); Essay Questions N on-compulsory contact sessions Day Schools (DS)	; (ES);		
Assessment Overall Continuous Assessment Mark (OCAM): 40% Final Assessment (FA): 60%			

strategy	Details: Continuous Assessment1 (CAT1): -1hr Continuous Assessment2 (CAT2): -1hr OCAM=60%Maximum(CAT1, CAT2) + 40%Minimum(CAT1, CAT2)
Recommended Readings:	Draper, N.R, Smith, H. <u>Applied</u> regression_analysis.
	• Montgomery, Douglas, C, Peck, Elizabeth, A, Vining, Geoffrey, G. Introduction to linear regression analysis.
	Seber, G.A.F. <u>Linear</u> regression_analysis.