<table>
<tr><td>Course Code</td><td colspan="6">ADU5301</td></tr>
<tr><td>Level</td><td colspan="6">05</td></tr>
<tr><td>Course Title</td><td colspan="6">Regression Analysis I</td></tr>
<tr><td>Credit value</td><td colspan="6">3</td></tr>
<tr><td>Core/Optional</td><td colspan="6">Optional</td></tr>
<tr><td>Prerequisites</td><td colspan="6">ADU3201(Pass/ Valid OCAM/ CR)</td></tr>
<tr><td rowspan="2">Hourly breakdown</td><td colspan="2">Theory</td><td>Practical hours</td><td>Independent Learning</td><td>Assessments</td><td>Total hrs</td></tr>
<tr><td>Sessionsx2 =25x2 50hrs</td><td>DS hrs=4x3 =12 hrs</td><td>-</td><td>▪ Sessions x3=25x3 75hrs
▪ Online /Audio-visual materials and other learning resources 11 hrs</td><td>▪ Continuous Assessments (CA) -2hrs</td><td>150hrs</td></tr>
<tr><td>Course Aim/s.</td><td colspan="6">1. The aim of this course is to introduce linear regression analysis with emphasis on when and how to fit linear regression models using the method of least squares
2. how to assess the aptness of the model and make predictions.</td></tr>
<tr><td>PLOs addressed by course</td><td colspan="6">PLO1: Knowledge: Explain the fundamental, principles and broader knowledge pertaining to the chosen science disciplines offered for the degree.
PLO2: Practical Knowledge and Application. Demonstrate the competency to use the knowledge and practical skills appropriately.
PLO3: Communication: Demonstrate the competency in communicating efficiently and effectively to present 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 qualitative approaches using scientific methodology to provide valid conclusions.
PLO7: Information and Communication Technology Literate: Demonstrate the competency of using Information and Communication Technology for numerical and statistical analysis, and in day to day applications.</td></tr>
<tr><td>Course Learning Outcomes (CLO)</td><td colspan="6">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 explanatory 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 plots of data (PLO1,PLO2, PLO3)
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)
CLO5 : Ability to carry out diagnostic checks and identify possible violations of the model assumptions, if any (PLO1, PLO2, PLO3,PLO6)
CLO6: Suggest possible remedies if any of the model assumptions are violated(PLO1,PLO2,PLO3,PLO6)
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, PLO6)</td></tr>
<tr><td>Content (Main topics, sub topics)</td><td colspan="6">Introduction to Regression Models, Measuring the Strength of Linear Association, Simple Linear Regression Model, Estimation of Parameters in Simple Linear Regression Models, Fitted Values and Residuals, 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, Analysis of Variance Approach for Fitting Regression Models, Multiple Linear Regression Model</td></tr>
<tr><td>Teaching Learning methods (TL)</td><td colspan="6">Self-Learning/Independent learning of Self-study
▪ Instructional Material (IL)
▪ Online Activities (OL)
▪ Reference Work (RF)

Compulsory contact sessions
▪ Assessments (AS) and Feedback – MCQs (MCQ);Structured Essay (SEQ); Essay Questions (ES);
N
on-compulsory contact sessions
▪ Day Schools (DS)</td></tr>
<tr><td>Assessment</td><td colspan="3">Overall Continuous Assessment Mark (OCAM): 40%</td><td colspan="3">Final Assessment (FA): 60%</td></tr>
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strategy	Details: Continuous Assessment1 (CAT1): -1hr Continuous Assessment2 (CAT2): -1hr OCAM=60%Maximum(CAT1, CAT2) + 40%Minimum(CAT1, CAT2)	Final Evaluation -Theory: 100%-2hrs
Recommended Readings:	• Draper, N.R, Smith, H. *Applied regression analysis.* • Montgomery, Douglas, C, Peck, Elizabeth, A, Vining, Geoffrey, G. *Introduction to linear regression analysis.* • Seber, G.A.F. *Linear regression analysis*.	