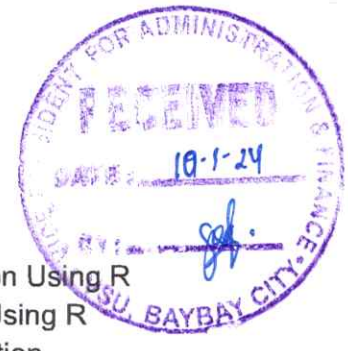
Travel
#223903

VISAYAS STATE UNIVERSITY | DEPARTMENT OF STATISTICS



ACTIVITY DESIGN

Title : **DStat Lecture Series:**
1. Power Analysis: Sample Size Determination Using R
2. Bootstrapping Methods with Applications Using R
3. Exploring the World of GIS: Data Visualization
4. Business Data Visualization Using R Shiny
5. Structural Equation Modeling (SEM) Using R
6. Ensemble Learning for Predictive Analytics Using R

Participants : **Faculty, researchers, and graduate students from different departments in the Visayas State University - Main Campus**

Date : **October - November 2024**

Venue : **DStat Training Room**

Rationale : In celebration of National Statistics Month, the Department of Statistics is organizing a series of lectures in statistics. The topics will include:

a. Power Analysis: Sample Size Determination Using R

In this training, we will discuss the critical role of power analysis in research design, focusing on how to determine sample sizes effectively using the statistical programming language R. We will cover the fundamental concepts of power analysis, including the relationship between effect size, sample size, and statistical power. Through practical examples and hands-on demonstrations, participants will learn how to use R's powerful packages and functions to perform power analyses for various types of statistical tests. This is very useful especially in designing an experiment and you want to know the most appropriate and practical sample size; hence, this training will equip you with the knowledge and skills to make informed decisions about sample size to ensure reliable research outcomes.

b. Bootstrapping Methods with Applications Using R

This lecture offers a practical introduction to bootstrapping, a powerful statistical resampling method. Participants will learn the fundamental principles of bootstrapping, including its application for estimating bias, variance, and constructing confidence intervals. We will also explore

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bootstrapping in the context of regression models and work through a real-world case study, demonstrating how bootstrapping can be used to enhance estimation techniques. Throughout the session, examples and exercises will be implemented using R, providing hands-on experience with this versatile approach.

c. Exploring the World of GIS: Data Visualization

The lecture deals on the introduction of GIS and familiarizing the interface of GIS to produce data visualization through maps. The lecture generally talks about how we add, manipulate, and classify GIS data and input coordinates and explore the layout view and create simple maps.

d. Business Data Visualization Using R Shiny

This short course will cover how to use R Shiny as a free and open source R package to efficiently visualize data which results in sound decision-making especially in business. In the workshop, participants will learn how to navigate R shiny and to create an interactive data presentation.

The target participants of this course are junior or senior students of Visayas State University who have the interest to work in business. This will provide them a skill necessary in Industry jobs.

e. Structural Equation Modeling (SEM) Using R

Structural Equation Modeling (SEM) is a statistical method that allows researchers to explore and analyze the relationships between observed variables and underlying (unobserved) latent constructs. It combines the principles of factor analysis, which identifies underlying factors from observed variables, and multiple regression analysis, which assesses how one set of independent variables predicts the dependent variable. There are various applications of SEM ranging from social science, economics and business, among others.

This workshop is a very brief introduction to the principles of SEM. At the same time, we will learn in this workshop an application of SEM using the SEMinR package.

f. Ensemble Learning for Predictive Analytics Using R

Ensemble learning refers to a machine learning approach where several models are trained to address a common problem, and their predictions are combined to enhance the overall performance. The idea behind ensemble learning is that by combining multiple models, each with its strengths and weaknesses, the ensemble can achieve

better results than any single model alone. Ensemble learning can be applied to various machine learning tasks, including classification, regression, and clustering. Some common ensemble learning methods include bagging, boosting, and stacking.

Objectives : At the end of this activity, participants will be able to:

1. To understand fundamental concepts in statistics among faculty, researchers, and graduate students in the university;
2. To provide assistance in the usage of advanced statistical methodologies to analyze data; and
3. To conduct practical sessions in implementing the statistical methodologies using R, a free statistical software.

Methodologies/Strategies :

The DStat Lecture Series is a face-to-face lecture series. The resource speakers will be doing the workshop using R/RStudio software and QGIS; while presentations (using MS PowerPoint) will be used during discussions.

Resources Needed

A. Manpower Requirements

Overall Supervision	Ms. Sweet Charish G. Godinez Chairman, DStat REIL Committee
Activity Coordinators	Mr. Paulo G. Batidor Head, DStat and Member, DStat REIL Committee
	Dr. Norberto E. Milla, Jr. Member, DStat REIL Committee
	Ms. May Ann E. Palen Member, DStat REIL Committee
Technical Staff	Ms. Monna E. Bengalan Staff, DStat
	Ms. Molley Venice Nuñez Staff, DStat

B. Supplies and Materials

General Description	Unit	Qty./Size
Bondpaper, A4 Size	Ream	2
Vellum Paper, A4 Size	Packs	10
Backdrop and Tarpaulins	ft	20

C. Facilities and Equipment

- Strong internet connection
- Projector and white screen
- White board and markers

Expected Outcome

Participants will be able to understand the fundamental concepts in statistics particularly in the usage of advanced statistical methodologies to analyze data from their studies as well as the implementation of these statistical methodologies using R, a free statistical software.

Estimated Budget

Particulars	Cost in peso (Php)
PM Snacks (40 pax @ ₱80.00/pax for 6 series)	19,200.00
Bondpaper, A4 Size	540.00
Vellum Paper, A4 Size	600.00
Backdrop and Tarpaulins	500.00
TOTAL	20,840.00

Prepared by:

SWEET CHARISH G. GODINEZ
Training Coordinator

Noted by:

PAULO G. BATIDOR
Head, DStat

Availability of funds:

LOUELLA C. AMPAC
Budget Officer

changed to OSF

Recommending Approval:

ELWIN JAY V. YU
Vice President, OVPAF

Approved:

PROSE IVY G. YEPES
President

PROGRAM OF ACTIVITIES

October 9, 2024

DAY/TIME	ACTIVITY	RESPONSIBLE PERSON
1:00-1:15 PM	Registration	Training Assistant
1:15-1:25 PM	Invocation	AVP
1:25-1:30 PM	Welcome Message	Dr. Norberto E. Milla, Jr.
1:25-3:00 PM	Lecture 1: Power Analysis: Sample Size Determination Using R	Mr. Paulo G. Batidor
3:00-3:15 PM	Snacks/Break	
3:15-4:45 PM	Lecture 1 Continues or Workshop	Mr. Paulo G. Batidor
4:45-4:55 PM	Awarding of Certificates	
4:55-5:00 PM	Closing Remarks	Ms. Sweet Charish G. Godinez

Emcee: Monna E. Bengalan

October 16, 2024

DAY/TIME	ACTIVITY	RESPONSIBLE PERSON
1:00-1:15 PM	Registration	Training Assistant
1:15-1:25 PM	Invocation	AVP
1:25-1:30 PM	Welcome Message	Mr. Paulo G. Batidor
1:25-3:00 PM	Lecture 2: Bootstrapping Methods with Applications Using R	Ms. May Ann E. Palen
3:00-3:15 PM	Snacks/Break	
3:15-4:45 PM	Lecture 2 Continues or Workshop	Ms. May Ann E. Palen
4:45-4:55 PM	Awarding of Certificates	
4:55-5:00 PM	Closing Remarks	Dr. Norberto E. Milla, Jr.

Emcee: Monna E. Bengalan

October 23, 2024

DAY/TIME	ACTIVITY	RESPONSIBLE PERSON
1:00-1:15 PM	Registration	Training Assistant
1:15-1:25 PM	Invocation	AVP
1:25-1:30 PM	Welcome Message	Dr. Norberto E. Milla, Jr.
1:25-3:00 PM	Lecture 3: Exploring the World of GIS: Data Visualization	Ms. Sweet Charish G. Godinez
3:00-3:15 PM	Snacks/Break	
3:15-4:45 PM	Lecture 3 Continues or Workshop	Ms. Sweet Charish G. Godinez
4:45-4:55 PM	Awarding of Certificates	
4:55-5:00 PM	Closing Remarks	Ms. May Ann E. Palen

Emcee: Monna E. Bengalan

October 30, 2024

DAY/TIME	ACTIVITY	RESPONSIBLE PERSON
1:00-1:15 PM	Registration	Training Assistant
1:15-1:25 PM	Invocation	AVP
1:25-1:30 PM	Welcome Message	Ms. May Ann E. Palen
1:25-3:00 PM	Lecture 4: Business Data Visualization Using R Shiny	Ms. Donna C. Cuyno
3:00-3:15 PM	Snacks/Break	
3:15-4:45 PM	Lecture 4 Continues or Workshop	Ms. Donna C. Cuyno
4:45-4:55 PM	Awarding of Certificates	
4:55-5:00 PM	Closing Remarks	Mr. Paulo G. Batidor

Emcee: Molley Venice Nuñez

November 6, 2024

DAY/TIME	ACTIVITY	RESPONSIBLE PERSON
1:00-1:15 PM	Registration	Training Assistant
1:15-1:25 PM	Invocation	AVP
1:25-1:30 PM	Welcome Message	Mr. Paulo G. Batidor
1:25-3:00 PM	Lecture 5: Structural Equation Modelling (SEM) Using R	Dr. Norberto E. Milla, Jr.
3:00-3:15 PM	Snacks/Break	
3:15-4:45 PM	Lecture 5 Continues or Workshop	Dr. Norberto E. Milla, Jr.
4:45-4:55 PM	Awarding of Certificates	
4:55-5:00 PM	Closing Remarks	Ms. May Ann E. Palen

Emcee: Monna E. Bengalan

November 13, 2024

DAY/TIME	ACTIVITY	RESPONSIBLE PERSON
1:00-1:15 PM	Registration	Training Assistant
1:15-1:25 PM	Invocation	AVP
1:25-1:30 PM	Welcome Message	Ms. May Ann E. Palen
1:25-3:00 PM	Lecture 6: Ensemble Learning for Predictive Analytics Using R	Dr. Norberto E. Milla, Jr.
3:00-3:15 PM	Snacks/Break	
3:15-4:45 PM	Lecture 6 Continues or Workshop	Dr. Norberto E. Milla, Jr.
4:45-4:55 PM	Awarding of Certificates	
4:55-5:00 PM	Closing Remarks	Mr. Paulo G. Batidor

Emcee: Molley Venice Nuñez