Parkland College
Arba Minch
Short Term Trainings Programs

Statistics with SAS

About the Course

This introductory course is for SAS software users who perform statistical analyses using SAS/STAT software. Thus, the course is designed to upgrade the skills of participants in the most appropriate methods of computation, analysis and presentation of statistical data to ensure most effective and efficient utilization of the data and information generated from them using SAS.

The focus is on t tests, ANOVA, and linear regression, and includes a brief introduction to logistic regression.

Target Participants

Anyone who wants to improve their skills on Statistical data analysis using SAS and understand the workflow in SAS. Thus, this SAS training is designed for participants who intend to learn the use of SAS for data management and data analysis. Those working in the corporate world, public sector, research institution and NGOs are welcomed.

Course Duration

- 7 Days at 8 hours a day

Course Objectives

The course objective is to equip the participants with exceptional ability to manage qualitative and quantitative data, perform basic and advanced statistical techniques and interpret the output results in acceptable forms.

Course Outline

There are 8 modules in this course

1. **Module 1: Course Overview and Data Setup**
   - In this module you learn about the course and the data you analyze in this course.
   - Then you set up the data you need to do the practices in the course.

2. **Module 2: Introduction and Review of Concepts**
   - In this module you learn about the models required to analyze different types of data and the difference between explanatory vs predictive modeling.

- Then you review fundamental statistical concepts, such as the sampling distribution of a mean, hypothesis testing, p-values, and confidence intervals.
- After reviewing these concepts, you apply one-sample and two-sample t tests to data to confirm or reject preconceived hypotheses.

3. **Module 3: ANOVA and Regression**
   - In this module you learn to use graphical tools that can help determine which predictors are likely or unlikely to be useful.
   - Then you learn to augment these graphical explorations with correlation analyses that describe linear relationships between potential predictors and our response variable.
   - After you determine potential predictors, tools like ANOVA and regression help you assess the quality of the relationship between the response and predictors.

4. **Module 4: More Complex Linear Models**
   - In this module you expand the one-way ANOVA model to a two-factor analysis of variance and then extend simple linear regression to multiple regression with two predictors.
   - After you understand the concepts of two-way ANOVA and multiple linear regression with two predictors, you'll have the skills to fit and interpret models with many variables.

5. **Module 5: Model Building and Effect Selection**
   - In this module you explore several tools for model selection.
   - These tools help limit the number of candidate models so that you can choose an appropriate model that's based on your expertise and research priorities.

6. **Module 6: Model Post-Fitting for Inference**
   - In this module you learn to verify the assumptions of the model and diagnose problems that you encounter in linear regression.
   - You learn to examine residuals, identify outliers that are numerically distant from the bulk of the data, and identify influential observations that unduly affect the regression model.
   - Finally, you learn to diagnose collinearity to avoid inflated standard errors and parameter instability in the model.

7. **Module 7: Model Building for Scoring and Prediction**
   - In this module you learn how to transition from inferential statistics to predictive modeling.
   - Instead of using p-values, you learn about assessing models using honest assessment.
   - After you choose the best performing model, you learn about ways to deploy the model to predict new data.

8. **Module 8: Categorical Data Analysis**

- In this module you look for associations between predictors and a binary response using hypothesis tests.
- Then you build a logistic regression model and learn about how to characterize the relationship between the response and predictors.
- Finally, you learn how to use logistic regression to build a model, or classifier, to predict unknown cases.

Prerequisites

Basic statistical knowledge and prior working knowledge of SAS software are required for this course.

Training Approach

This Statistics with SAS course is delivered by our seasoned trainers who have vast experience as expert professionals in data analysis with Stata. The course features plenty of practice materials, quizzes, and a final assessment to cement your newly acquired SAS skills.
Training manuals and additional reference materials are provided to the participants.

Certification

Upon successful completion of this course, participants will be issued with a certificate.

Tailor-Made Course

We can also do this as a tailor-made course to meet organization-wide needs. A training needs assessment will be done on the training participants to collect data on the existing skills, knowledge gaps, training expectations, and tailor-made needs.