Course Name	Certificate Course in Statistical Analysis in Research using
	SPSS
Department	Commerce Aided
Course Coordinator	Dr Josheena Jose
Eligibility	Graduation
Total Hours	30 hrs

Certificate Course in Statistical Analysis using SPSS

SPSS is an important tool for any statistical analysis. SPSS stands for Statistical Package for the Social Sciences. SPSS software was designed to perform statistical analysis on quantitative data. In plain English, SPSS software is used for complex calculations to analyze numerical data. SPSS software is used in nonprofit agencies, educational institutions and even in business to analyze numerical data. It performs several statistical and econometric analyses. It has wide applications in the field of Social Sciences, Life Sciences, finance, Marketing, Education and other fields where statistical analysis is required. The use of SPSS is very much essential for research work. Academic institutions, Research Institutes, NGO and other such organization are also required to make use of this statistical package.

The Post Graduate Department of Commerce started a Certificate Course in SPSS for first semester M.com students.

Course Objective

The focus of current training program will be to help participants learn statistical skills through exploring SPSS and its different options. The focus will be to develop practical skills of analyzing data, developing an independent capacity to accurately decide what statistical tests will be appropriate with a particular kind of research objective. The major basic concepts and theoretical assumptions underlying each test will be discussed so that those who even have no background in research and statistics can master it. The program will also cover how to write the obtained output from SPSS in APA format.

A love for data analysis and statistics, research aptitude and motivation to do good research work.

Lesson Outcomes

On completion of this course the participants will develop an ability to independently analyze and treat data, plan and carry out new research work based on their research interest. The course encompasses most of the major type of research techniques employed in academic and professional research which can be seen in syllabus.

Evaluation

Participants will be assessed on practical assignments and tests after the completion of training program. There will be both lab work and two personal assignments. One personal assignment will be a sort of research project that students have to pursue in such a way that after completion of program it's suitable

for publication in a good journal. Students are most welcome to bring their own data and problems for discussion in class.

Target Audience:

Graduate, masters and doctoral level students, academic scholars and teachers,

market researchers, independent researchers who want to master the skills of data

analysis

Number of seats: 20

Course duration: 2 months

Time: Saturdays

Course Co ordinator: Dr Josheena Jose

Syllabus

Duration: 30 Hours

Unit 1: Developing the familiarity with SPSS Processer

Entering data in SPSS editor. Solving the compatibility issues with different

types of file. Inserting and defining variables and cases. Managing fonts and labels.

Data screening and cleaning. Missing Value Analysis. Sorting, Transposing,

Restructuring, Splitting, and Merging. Compute & Recode functions. Visual

Binning & Optimal Binning. Research with SPSS (random number generation).

3Hrs

Unit 2: Working with descriptive statistics

Frequency tables, Using frequency tables for analyzing qualitative data,

Explore, Graphical representation of statistical data: histogram (simple vs.

clustered), boxplot, line charts, scattorplot (simple, grouped, matrix, drop-line), P-

P plots, Q-Q plots, Addressing conditionalities and errors, computing standard

scores using SPSS, reporting the descriptive output in APA format. 3Hrs

Unit 3: Hypothesis Testing

Sample & Population, concept of confidence interval, Testing normality assumption in SPSS, Testing for Skewness and Kurtosis, Kolmogorov–Smirnov test, Test for outliers: Mahalanobis Test, Dealing with the non-normal data, testing for homoscedasticity (Levene's test) and multicollinearity.

2Hrs

Unit 4: Testing the differences between group means

t – test (one sample, independent- sample, paired sample), ANOVA-GLM 1
(one way), Post-hoc analysis, Reporting the output in APA format.
2 Hrs

Unit 5: Correlational Analysis

Data entry for correlational analysis, Choice of a suitable correlational coefficient: non-parametric correlation (Kendall's tau), Parametric correlation (Pearson's, Spearman's), Partial and Distance Correlation.

5Hrs

Unit 6: Regression (Linear & Multiple)

The method of Least Squares, Linear modeling, assessing the goodness of fit, simple regression, Multiple regression (sum of squares, R and R2, hierarchical, step-wise), Choosing a method based on your research objectives, checking the accuracy of regression model.

5Hrs

Unit 7: Non-parametric tests

When to use, Assumptions, Comparing two independent conditions (Wilcoxon rank-sum test, Mann-Whitney test), Several independent groups (Kruskal- Wallis test), Comparing two related conditions (Wilcoxon signed-rank test), Several related groups (Friedman's anova), Post-hoc analysis in non-

parametric analysis. Categorical testing: Pearson's Chi-square test, Fisher's exact test, Likelihood ratio, Yates' correction, Loglinear Analysis. Reporting the output in APA format.

5 Hrs

Unit 8: Factor Analysis

Theoretical foundations of factor analysis, Exploratory and Confirmatory factor analysis, testing data sufficiency for EFA & CFA, Principal component Analysis, Factor rotation, factor extraction, using factor analysis for test construction, Interpreting the SPSS output: KMO & Bartlett's test, initial solutions, correlation matrix, anti-image, explaining the total variance, communalities, eigenvalues, scree plot, rotated component matrix, component transformation matrix, factor naming.

5 Hrs

Lab Work & Project:

All the units will include discussion on theoretical concepts followed by practical SPSS demonstration on real/simulated data. Learners are welcome to bring and discuss their actual problems related to quantitative analysis. Our every learner receives personal attentions and we endeavour to equip every learner to develop a sense of professional competency in quantitative data analysis using SPSS.

&&&&&&&&&&&&&





DEPARTMENT OF COMMERCE (Aided) CERTIFICATE COURSE DETAILS

NAME OF THE COURSE

Certificate course on Data Analysis using SPSS

COURSE CODE

MCMC01

COURSE DETAILS

Eligibility: Plus Two. Course Duration: Three Months

Total Hours: 30 Hours Course Fee: 1500

COURSE COORDINATOR

Dr JOSHEENA JOSE

OFFERED BY

PG Department of Commerce Christ College (Autonomous) Irinjalakuda

ABOUT COLLEGE

Chirst College (Autonomous), Irinjalakuda established in the year 1956 by CMI fathers has always been aplace where young generations are moulded towards a bright future. College has excellent infrastructure, with state of the art laboratories, seminar rooms and lecture halls. The campus is Wi-Fi enabled. Presently Collge is house for 4500+ students, 200 teaching staff and 45 supporting staff. The strength of the College lies in its hardworking and tech savvy teachers who are eager to involve in all matters of students. The lush green campus with gardens and open gym is moving towards the next phase on education both offline and online.

WHAT IS THE COURSE?

This course describes the data; graphical and numerical description of the data and extensive usage of the SPSS to analyze the data. The focus of SPSS training program will be to help participants learn statistical skills through exploring SPSS and its different options. The focus will be to develop practical skills of analyzing data, developing an independent capacity to accurately decide what statistical tests will be appropriate with a particular kind of research objective.



SCOPE OF THE COURSE

On completion of this course the participants will develop an ability to independently analyze and treat data, plan and carry out new research work based on their research interest.

Participants will be assessed on practical assignments and tests after the completion of training program. There will be both lab work and two personal assignments. One personal assignment will be a sort of research project that students have to pursue in such a way that after completion of program it's suitable for publication in a good journal.

LEARNING OUTCOMES

- The students will be enabled to undertake data analysis tasks required in preparing project reports and dissertations using statistical techniques.
- The students can undertake research projects, field surveys, data compilation, graphical displays etc.
- The participants are tailored with demands for data analysts in the global analytics market.

COURSE OUTLINE

- Data Management in SPSS
- Data Management through Transformation
- Parametric test
- Non Parametric test



COURSE MODULES

Module 1

Data Analysis using SPSS: Data Management in SPSS, Adding Variables in SPSS Data Loading in SPSS through Questionnaire. (5 Hrs)

Module 2

Data Management through Transformation, Normality tests, Kolmogorov Smirnov tests, Reliability analysis, Factor Analysis (5Hrs)

Module 3

Parametric test: One Sample z and t test for mean, critical value method, p-value method, Confidence Interval method, Independent Sample t-test and Paired Sample t test, Correlation, Simple Linear Regression, R Square, Adjusted R Square, ANOVA, multiple comparisons (10 Hrs)

Module 4

Non Parametric test: Chi-square test for testing the association between attributes Mann Whitney U test, Signed Rank test, Kurskal Wallis H Test (10Hrs)

Contact: josheenaj@christcollegeijk.edu.in

SPSS Training

(Value Added Certificate Course)

Summary Report 2022-23

The course started on June 2022. There were 20 students enrolled and completed the course. The course was of 30 hrs duration. Students enjoyed the group dynamics and, in their feedback, requested for more such sessions in the future.

Course Outcome:

On completion of this course the participants will develop an ability to independently analyze and treat data, plan and carry out new research work based on their research interest. The course encompasses most of the major type of research techniques employed in academic and professional research which can be seen in syllabus.

Evaluation

Participants will be assessed on practical assignments and tests after the completion of training program. There will be both lab work and two personal assignments. One personal assignment will be a sort of research project that students have to pursue in such a way that after completion of program it's suitable for publication in a good journal. Students are most welcome to bring their own data and problems for discussion in class.

Target Audience:

Graduate, masters and doctoral level students, academic scholars and teachers, market researchers, independent researchers who want to master the skills of data analysis

Course Coordinator: Dr Josheena Jose

SPSS Training

Value Added Certificate Course

Teacher Coordinator Report 2022-23

Number of students	20
Date of examination	8-6-2022
Total students who passed exam	20
Total course duration	30 hrs

Feedback analysis:

- Students appreciated the training
- The students use this knowledge for data analysis.
- 100% students enjoyed the classes and practice sessions.

Course Coordinator: Dr JOSHEENA JOSE





This is to certify that CCAVMCMOOL Adhila P.A. M. com

has fullfilled all requirements of the value added certificate course in **Data Analysis using**SPSS, Batch 2022 conducted by Department of Commerce.

He / She secured A.+.... Grade.









This is to certify that CCAVMCMOO2. A JITH JOHN of M. COM.

has fullfilled all requirements of the value added certificate course in Data Analysis using

SPSS, Batch 2022 conducted by Department of Commerce.

He / She secured A+ Grade.









This is to certify that CCAVMCMOO3 AMRITHA M. of M. COM

has fullfilled all requirements of the value added certificate course in **Data Analysis using**

SPSS, Batch 2022 conducted by Department of Commerce.

He / She secured A+..... Grade.









This is to certify that CCAVMCMOO5. ARYA ASHOK of M.COM. has fullfilled all requirements of the value added certificate course in **Data Analysis using**SPSS, Batch 2022 conducted by Department of Commerce.

He / She secured B....... Grade.









He / She secured A + Grade.









has fullfilled all requirements of the value added certificate course in **Data Analysis using**SPSS, Batch 2022 conducted by Department of Commerce.

He / She secured A+..... Grade.









He / She secured A.+.... Grade.

Dr. JOSHEENA JOSE HoD & Co-ordinator









This is to certify that CCAVMCMON ELIZABETH DAVID M.COM.

has fullfilled all requirements of the value added certificate course in Data Analysis using

SPSS, Batch 2022 conducted by Department of Commerce.

He / She secured A+ Grade.

Dr. JOSHEENA JOSE HoD & Co-ordinator







He / She secured A.+..... Grade.









This is to certify that CCAVMCMOI3. JESMINE JOYF M.COM

has fullfilled all requirements of the value added certificate course in **Data Analysis using**SPSS, Batch 2022 conducted by Department of Commerce.

He / She secured A+ Grade.

Dr. JOSHENA JOSE HoD & Co-ordinator







He / She secured A.+ Grade.









He / She secured A+ Grade.











This is to certify that CCAV MCMOIL LITTLE FLOWER P. M. COM.

has fullfilled all requirements of the value added certificate course in **Data Analysis using**SPSS, Batch 2022 conducted by Department of Commerce.

He / She secured A.+.... Grade.

Dr. JOSHEENA JOSE HoD & Co-ordinator







He / She secured Grade.

Dr. JOSHENA JOSE HoD & Co-ordinator









SPSS, Batch 2022 conducted by Department of Commerce.

He / She secured B...... Grade.

Dr. JOSHEENA JOSE HoD & Co-ordinator









He / She secured A+ Grade.









He / She secured A+.... Grade.

Dr. JOSHENA JOSE HOD & Co-ordinator



affgory







This is to certify that CCAVMCM.O.21. ROSME. JOBY Nof. M. COM.

has fullfilled all requirements of the value added certificate course in Data Analysis using

SPSS, Batch 2022 conducted by Department of Commerce.

He / She secured A+ Grade.











This is to certify that CCAVMCM.022. SEETHU. JOY. Rof. M. COM.

has fullfilled all requirements of the value added certificate course in **Data Analysis using**SPSS, Batch 2022 conducted by Department of Commerce.

He / She secured A+ Grade.









He / She secured A...... Grade.





CHRIST COLLEGE (AUTONOMOUS) IRINJALAKUDA PG DEPARTMENT OF COMMERCE

Value Added Certificate Course Examination 2022-23 SPSS Training

Examination mode: Theory and Practical

Date: 25-Aug-2022

Sample questions: Max Mark: 50

01. You need to produce a variety of data files that will be viewed in external applications outside of IBM SPSS Modeler Professional, such as IBM SPSS Statistics or Microsoft Excel.

Which palette tab would be used in this scenario?

- a) Output
- **b)** Export
- c) Source
- d) Modeling
- 02. What is a unique capability of scripting in IBM SPSS Modeler Professional?
- a) SuperNode creation
- **b)** Process automation
- c) Model customization
- d) Output formatting
- 03. Which two functions are used in the Select and Filler nodes to identify missing values?

(Choose two.)

- a) @BLANK
- b) @PREDICTED
- c) @NULL
- d) @INDEX
- 04. You want to obtain a subset of data from a larger data set, with equally represented subgroups within the subset.

Which node would you use to accomplish this task?

- a) Analysis node
- **b)** Partition node
- c) Ensemble node
- d) Sample node
- 05. What is a type of SuperNode within IBM SPSS Modeler Professional?
- a) Terminal

- **b)** Output
- c) Import
- d) Classification
- 06. Your data contains a large number of fields which have very long names. You want to rename these fields without having to manually edit them.

Which option from the Filter option menu, within the Filter node, allows you to accomplish this task?

- a) Truncate Field Names...
- b) Rename for IBM SPSS Statistics...
- c) Use Input Field Names...
- d) Rename Duplicate...
- 07. You have two data sets whose data is related but does not contain any candidate key. When these data sets were created, their entries were recorded as events occurred, always one entry in each data set per event.

Which merge method should be used to perform this merge?

- a) anti-join
- b) order
- c) keys
- d) inner join

08. Which statement is correct about the nodes in the Field Ops tab?

- a) The Filler node can be used to derive a new nominal field.
- **b)** The Derive node must be used to replace all the null values in a data set by zero, without creating a new field.
- c) A Derive node can only generate one new derived field at a time.
- **d)** The SetToFlag node can be used to create indicator variables based on the categorical values defined for one or more nominal fields.
- 09. A manufacturer has a business goal of reducing product returns due to poor product quality which is known to occur as a result of random mechanical malfunctioning.

Which data mining goal is consistent with the business goal?

- a) Classify customers into segments for a target marketing campaign.
- **b)** Use predictive maintenance to schedule machine repairs prior to failure.
- c) Identify which customers are likely to default on their accounts.
- d) Conduct market basket analysis to determine which products to promote.
- 10. You are working on a project where the business objective is to increase sales revenue. You are about to start the Deployment stage of the CRISP-DM process model.

Which task must be completed before the Deployment stage?

- a) plan deployment
- b) review project
- c) review process
- **d)** produce final report

Practical

Q1

Suppose that, over the years, forecasters have determined the temperatures for each of the 28 days of the month are as follows. Use this data for questions date high temp.

high temp.

date	1	2	3	4	5	6	7	8	9	10
high	29	27	36	32	35	36	28	42	25	20
temp										
date	11	12	13	14	15	16	17	18	19	20
high	28	26	25	32	30	32	27	39	20	24
temp										

- 1. What type of t-test compares the mean of this data to the mean of, representing the mean over time?
- 2. Input data into SPSS and perform the appropriate t-test. What is the value of t?
- 3. What is the value of p?
- 4. Write a short summary of the results based upon α =.05, making reference to p.

CHRIST COLLEGE (AUTONOMOUS) IRINJALAKUDA PG DEPARTMENT OF COMMERCE

Value Added Certificate Course Examination May 2020 SPSS Training

Examination mode: Theory and Practical

Date:5-5-2020 Max Mark: 50

Sample questions:

01. When you read data stored in an Excel file via File ... Open ... Data, you may need to specify which options?

(Choose three.)

- a) Read variable names from the first row of data
- b) Read a Range of cells
- **c)** Specify the Worksheet to read/import
- **d)** Number of Worksheets to read/import

02. The IBM SPSS Statistics Select Cases provides various ways to select cases included in further analysis.

If you needed to conduct analysis on those respondents whose age is more than 30 years, earning in excess of \$40000, which option in this dialog would you choose to specify these criteria?

- a) Random sample of cases
- **b)** Based on time or case range
- c) Use filter variable
- **d)** If condition is satisfied

03. IBM SPSS Statistics system variables can be:

- a) Used in data transformations.
- **b)** Specified in analysis procedures.
- c) Modified using Compute Variable.
- **d)** Viewed in the Data Editor.

04. In order to access the New Custom Attribute feature in the Data Editor, the Data Editor must be viewed from the:

- a) Value Labels button.
- **b)** Dialog Recall button.
- c) Data View tab.
- d) Variable View tab.

05. Which statement is true about IOR (inter quartile range)?

(Choose two.)

- **a)** It is used to measure the spread of the data.
- **b)** It is equal to the mode.
- c) It is the range between the values at the 25111 and 75111 percentile.
- **d)** It indicates whether the variable is normally distributed or not.

06. What type of graph would you use to see the distribution of a scale variable?

- a) Bar chart
- **b)** Pie chart
- c) Histogram
- d) Scatter plot

07. If you request an aggregated dataset or data file in the Aggregate procedure, the number of cases in the new aggregated file is equal to what?

- a) Number of cases in the original data file
- **b)** Number of aggregated summary variables
- c) Number of categories of the variables specified in the Break Variables list
- d) Number of cases that you specified in the Aggregate Data dialog box

08. Which feature would you use to create a new variable whose values represent the number of times that each respondent answered Strongly Agree to a series of satisfaction questions?

- a) Compute Variable
- b) Visual Binning
- c) Count Values within Cases
- d) Rank Cases

09. A paired samples t-test is different from an independent t-test because it:

- a) Assesses each person twice.
- **b)** Compares groups on correlations.
- c) Compares groups on means.
- **d)** Compares groups on variances.

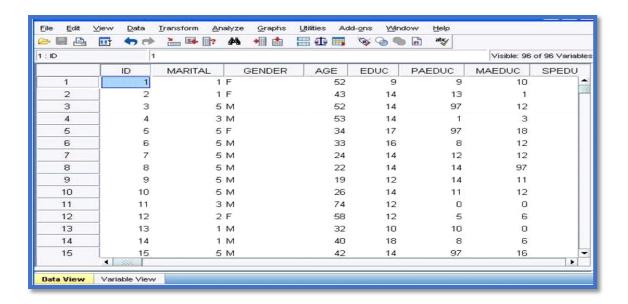
10. The Merge Files facility is located under which menu?

- a) View
- **b)** Transform
- c) Analyze
- d) Data

Practical

01.

Consider the variable AGE in the data file below. You have been asked to use this in a cross-tabulation with GENDER. How would you proceed? (Choose two.)



Course Code: MCA02 Certificate Course on Statistical Package for Social Science Batch 2022-23											
SI.NO	Course Name	University Reg. No	User Name	Class	Department	Commencement Date	Duration	Certificate	Year	Date of Exam	Grade
1	SPSS	CCAVMCM001	ADHILA PONAKUZHI ABDUL AZEEZ	Mcom	Commerce	08-06-2022	30 Hrs	YES	2022- 23	25-08-2022	В
2	SPSS	CCAVMCM002	AJITH JOHN	Mcom	Commerce	08-06-2022	30 Hrs	YES	2022- 23	25-08-2022	A+
3	SPSS	CCAVMCM003	AMRITHA M	Mcom	Commerce	08-06-2022	30 Hrs	YES	2022- 23	25-08-2022	A
4	SPSS	CCAVMCM004	ANJALY P D	Mcom	Commerce	08-06-2022	30 Hrs	YES	2022- 23	25-08-2022	A
5	SPSS	CCAVMCM005	ARYA ASHOK	Mcom	Commerce	08-06-2022	30 Hrs	YES	2022- 23	25-08-2022	A+
6	SPSS	CCAVMCM008	AYANA P J	Mcom	Commerce	08-06-2022	30 Hrs	YES	2022- 23	25-08-2022	A
7	SPSS	CCAVMCM009	DEEPTHI P P	Mcom	Commerce	08-06-2022	30 Hrs	YES	2022- 23	25-08-2022	A+
8	SPSS	CCAVMCM010	DELISHA BABU	Mcom	Commerce	08-06-2022	30 Hrs	YES	2022- 23	25-08-2022	A+
9	SPSS	CCAVMCM011	ELIZABETH DAVID	Mcom	Commerce	08-06-2022	30 Hrs	YES	2022- 23	25-08-2022	A
10	SPSS	CCAVMCM012	GOPIKA G	Mcom	Commerce	08-06-2022	30 Hrs	YES	2022- 23	25-08-2022	В
11	SPSS	CCAVMCM013	JESMIN JOY	Mcom	Commerce	08-06-2022	30 Hrs	YES	2022- 23	25-08-2022	В
12	SPSS	CCAVMCM014	JISMA RAPHY	Mcom	Commerce	08-06-2022	30 Hrs	YES	2022- 23	25-08-2022	A+
13	SPSS	CCAVMCM015	JOSEPH WILSON K	Mcom	Commerce	08-06-2022	30 Hrs	YES	2022- 23	25-08-2022	A+
14	SPSS	CCAVMCM016	LITTLEFLOWER P.J	Mcom	Commerce	08-06-2022	30 Hrs	YES	2022- 23	25-08-2022	A+
15	SPSS	CCAVMCM017	M SACHIN PILLAI	Mcom	Commerce	08-06-2022	30 Hrs	YES	2022-	25-08-2022	A+

									23		
16	SPSS	CCAVMCM018	MALAVIKA L	Mcom	Commerce	08-06-2022	30 Hrs	YES	2022- 23	25-08-2022	В
17	SPSS	CCAVMCM019	NIMITHA K C	Mcom	Commerce	08-06-2022	30 Hrs	YES	2022- 23	25-08-2022	A
18	SPSS	CCAVMCM020	RANI ROY M	Mcom	Commerce	08-06-2022	30 Hrs	YES	2022- 23	25-08-2022	С
19	SPSS	CCAVMCM021	ROSME JOBY N	Mcom	Commerce	08-06-2022	30 Hrs	YES	2022- 23	25-08-2022	A+
20	SPSS	CCAVMCM022	SEETHU JOY.K	Mcom	Commerce	08-06-2022	30 Hrs	YES	2022- 23	25-08-2022	A+
21	SPSS	CCAVMCM023	VARSHA SUNNY	Mcom	Commerce	08-06-2022	30 Hrs	YES	2022- 23	25-08-2022	A+