New in IBM SPSS Statistics v25
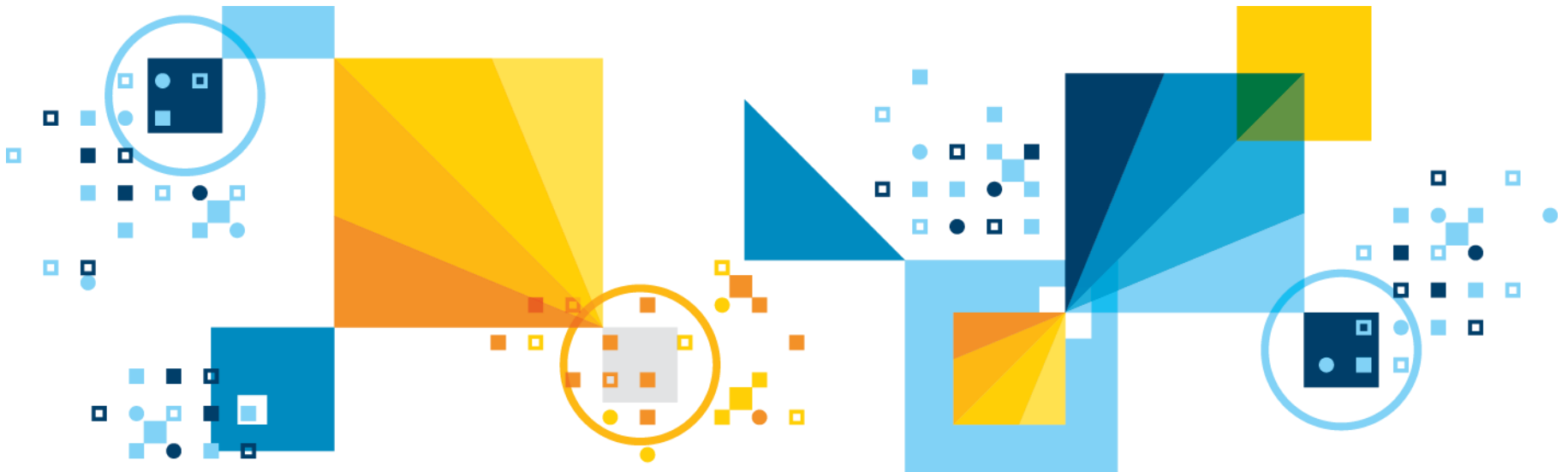
IBM Advanced Analytics Products

Personas

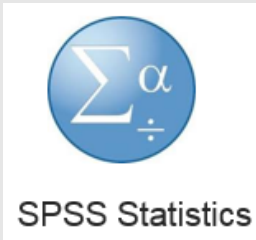| Statisticians/ Academics/ Analysts/Reporting | Data Scientist (GUI) | Data Scientist (coding) |

Tools

SPSS Statistics

SPSS Modeler

IBM Data Science Experience

SPSS Statistics 25 Summary

- **Chart Builder Enhancements**
  - Chartbuilder will by default build more attractive, modern looking charts.
  - Customize and change colors of charts faster without leaving the Chart builder interface.

- **Stronger Copy/Paste & Microsoft Office Integration**
  - Added ability paste charts as Microsoft graphics into Word, Excel, and Powerpoint using new "copy as" functionality
  - Added ability to copy data with variable names/labels

- **Advanced Statistics features**
  - GENLINMIXED & MIXED now provide:
    - Random effects solution results (EBLUPs).
    - Continuous time spatial covariance structures.
  - GLM/UNIANOVA now provides:
    - Profile Plots with error bars, bar/line charts, option to include grand mean, option to force chart to include 0 on Y axis.
    - New tests for for heteroskedasticity including White's test.
    - Robust standard errors.
    - Modified versions of Levene's test.

- **Bayesian Statistics**
  - One Sample and Pair Sample T-tests
  - Binomial Proportion tests
  - Poisson Distribution Analysis
  - Independent Samples T-tests
  - Pairwise Correlation
  - Simple and Multiple Linear Regression
  - ANOVA
  - Log linear models

- **Syntax Editor Enhancements for Power Users**
  - New shortcut keys to speed writing and editing syntax
  - Column mode editing
  - One click trim of leading, trailing, and empty spaces

- **Accessibility advancements for the visually impaired**

- **Upgrade Gemalto Licensing to version 9.1**

SPSS Statistics 25 "turned out to be a success in product stability, continuity, enhancements and the software was well grounded and performed, good job folks, keep it up, I use SPSS daily and am dependent upon its success"
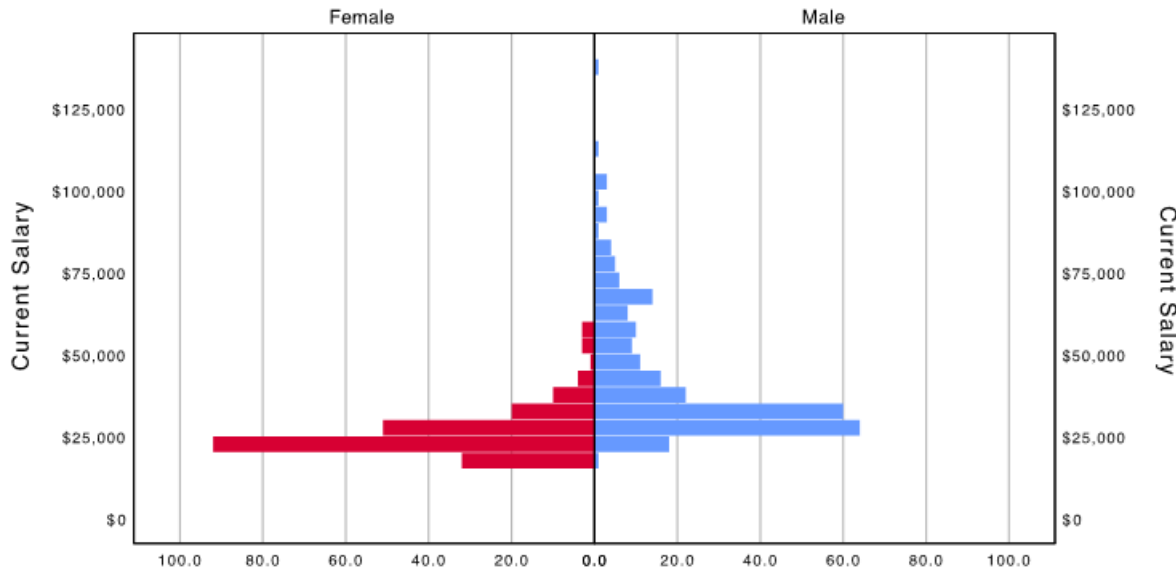
Beta User Feedback

New features will also apply to SPSS Statistics Subscription as a free update.

Build more attractive, modern looking charts with the faster Chart Builder

Population Pyramid Frequency Current Salary by Gender

- **Quickly create modern styled charts**
- **Easily select colors and templates right from the builder**
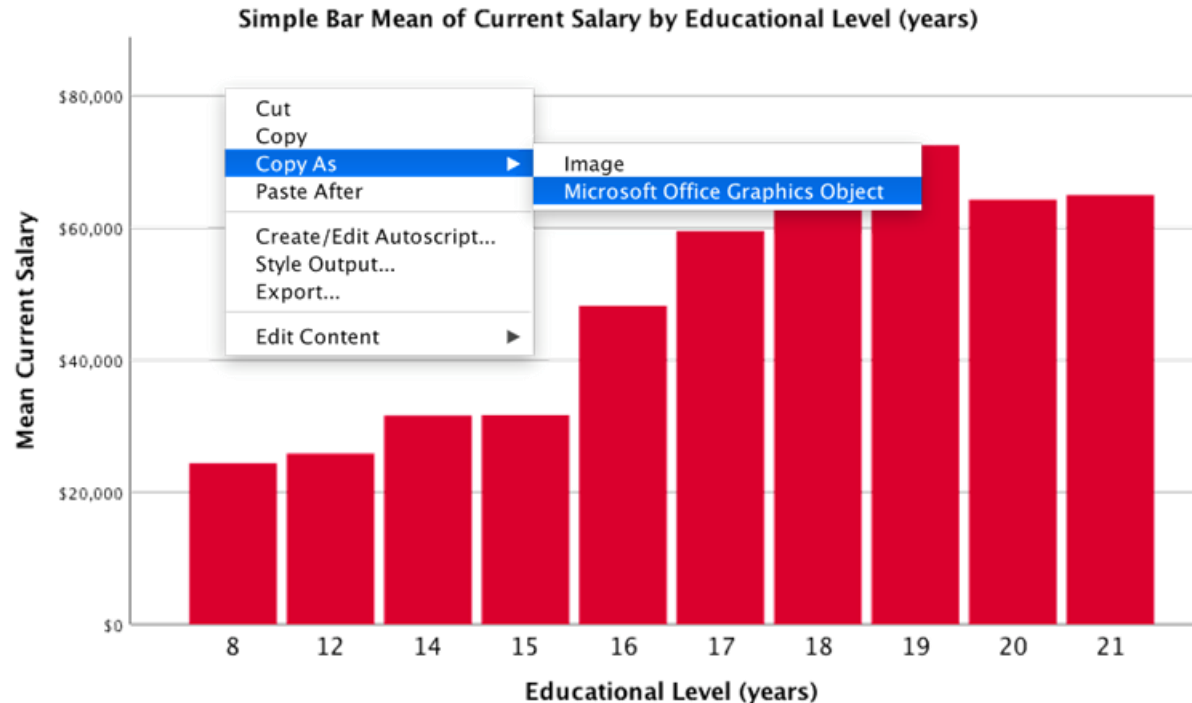- **More accurate chart builder preview**

"I'd have to say this is the first time I may actually use SPSS graphics over excel which is a time saver."

Edit Charts in Microsoft Office

■ Copy as Microsoft Graphic Object

– Ability to copy Chartbuilder output as Microsoft Graphic Objects

– Allows you to manipulate charts as if created in Microsoft Office including changing colors, text, and applying Microsoft Office chart templates.
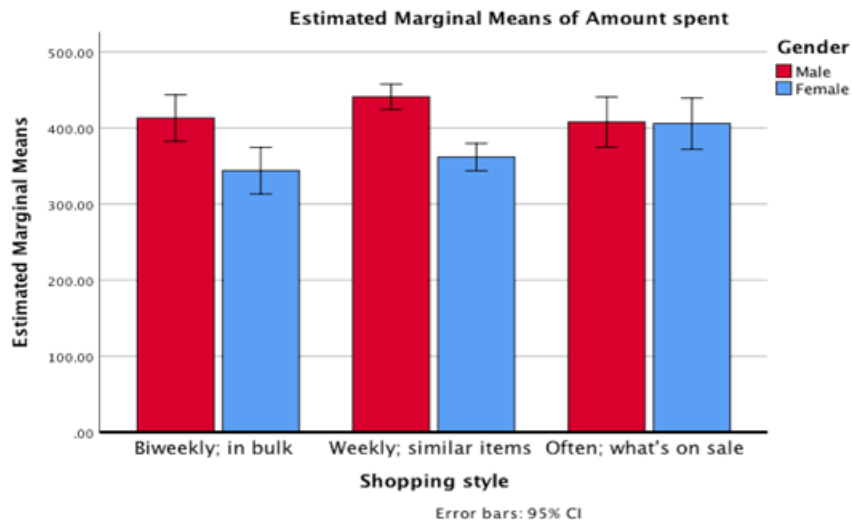
– Still includes ability to paste as pictures

"Producing output that is clear and visually engaging is critical. Both of these new features really enhance my ability to translate the story the data tell me into a report that communicates it clearly to the C-Suite folks."

Simple Bar Mean of Current Salary by Educational Level (years)

Cut
Copy
Copy As ► Image
Paste After **Microsoft Office Graphics Object**

Create/Edit Autoscript...
Style Output...
Export...

Edit Content ►

5

IBM.

Advanced Statistics Features

"I am especially looking forward to this release of SPSS. I am very glad to see the new statistical features, most especially the robust standard errors"

Profile Plots

GLM/Unianova New Profile Plots

- **The Mixed Linear Models (MIXED) & Generalized Linear Mixed Models (GENLINMIXED) procedures now provide:**
  - Random effects solution results (EBLUPs).
  - Continuous time spatial covariance structures.

- **The General Linear Model (GLM) and UNIANOVA procedures have been enhanced with new features including:**
  - Profile Plots with error bars, bar/line charts, an option to include grand mean, and an option to force the chart to include 0 on Y axis.
  - Added new tests for heteroskedasticity and model specification.
  - Robust standard errors.
  - Modified versions of Levene's test.

Bayesian Statistics Features

Bayesian Statistics	▶	One Sample Normal
Tables	▶	One Sample Binomial
~~Compare Means~~		One Sample Poisson
~~General Linear Model~~	▶	Related Samples Normal
~~Generalized Linear Models~~	▶	Independent Samples Normal
~~Mixed Models~~	▶	Pearson Correlation
~~Correlate~~	▶	Linear Regression
~~Regression~~	▶	One-way ANOVA
~~Loglinear~~	▶	Log-Linear Models

- **Includes new statistics purposely built for SPSS Statistics Users**

- **Includes both new Syntax and GUI elements that are as easy to run as traditional p-value statistics**

- **Great for use in Academia to teach Bayesian concepts & practitioners**

"Provides additional set of means differences methods that in some cases (e.g., publications) were required or expected that previously I would have to use alternative software for."

Reasons for prevalence of frequentist statistics

1. Applied statistics courses have mostly **not spent much time on Bayesian approaches**.
2. Bayesian methods **require a prior distribution** to be specified for the parameters to be estimated. While these methods work very well when there is prior information, often in applied work there is little such information available.
3. There has been a **dearth of efficient**, easy to use, mainstream statistical **software for Bayesian analysis**.

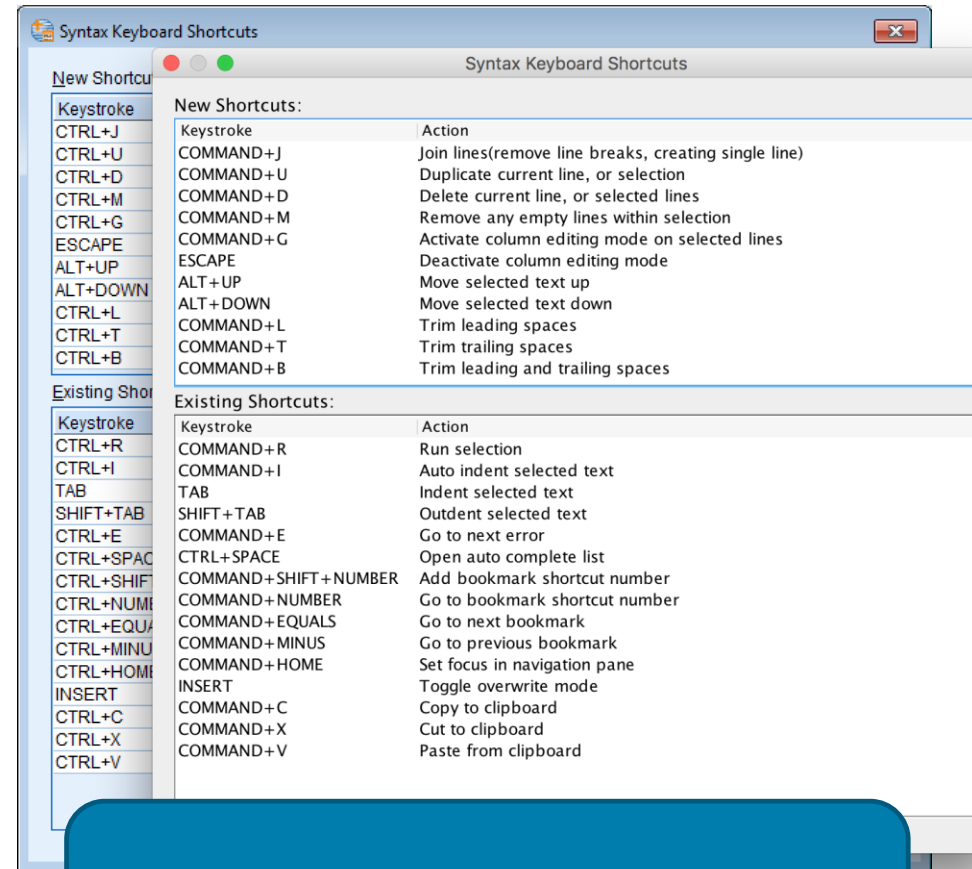# Why should you be interested in Bayesian methods?

1. Bayesian methods provide **a rigorous way to include prior** information when available compared to hunches or suspicions that cannot be systematically included in classical methods.
2. Bayesian methods provide **exact inferences** without resorting to asymptotic approximations.
3. Bayesian results are **easier to interpret** than p values and confidence intervals. They allow us to talk about results in intuitive ways that are not strictly correct with classical methods. I will show an example below.
4. Bayesian results **show the whole distribution of the parameters** rather than just point estimates.

Bayes Factor Interpretation

BAYES FACTOR	LABEL
> 100	Extreme evidence for H1
30 – 100	Very strong evidence for H1
10 – 30	Strong evidence for H1
3 – 10	Moderate evidence for H1
1 – 3	Anecdotal evidence for H1
1	No evidence
1/3 – 1	Anecdotal evidence for H0
1/3 – 1/10	Moderate evidence for H0
1/10 – 1/30	Strong evidence for H0
1/30 – 1/100	Very strong evidence for H0
< 1/100	Extreme evidence for H0

Syntax Editor Improvements

- **Syntax Editor Enhancements for Power Users**

- **Meant to make writing syntax faster with greater flexibility for editing, cleaning, and formatting syntax files**

  – New shortcut keys to speed writing and editing syntax

  – Column mode editing

  – One click trim of leading, trailing, and empty spaces

Syntax Keyboard Shortcuts

New Shortcuts:

Keystroke	Action
COMMAND+J	Join lines(remove line breaks, creating single line)
COMMAND+U	Duplicate current line, or selection
COMMAND+D	Delete current line, or selected lines
COMMAND+M	Remove any empty lines within selection
COMMAND+G	Activate column editing mode on selected lines
ESCAPE	Deactivate column editing mode
ALT+UP	Move selected text up
ALT+DOWN	Move selected text down
COMMAND+L	Trim leading spaces
COMMAND+T	Trim trailing spaces
COMMAND+B	Trim leading and trailing spaces

Existing Shortcuts:

Keystroke	Action
COMMAND+R	Run selection
COMMAND+I	Auto indent selected text
TAB	Indent selected text
SHIFT+TAB	Outdent selected text
COMMAND+E	Go to next error
CTRL+SPACE	Open auto complete list
COMMAND+SHIFT+NUMBER	Add bookmark shortcut number
COMMAND+NUMBER	Go to bookmark shortcut number
COMMAND+EQUALS	Go to next bookmark
COMMAND+MINUS	Go to previous bookmark
COMMAND+HOME	Set focus in navigation pane
INSERT	Toggle overwrite mode
COMMAND+C	Copy to clipboard
COMMAND+X	Cut to clipboard
COMMAND+V	Paste from clipboard

"I think that [the syntax editor enhancements] will be a great time saver"

Other Features for Stats 25

- **Updated Merge UI**
  - New simplified Add Variables dialog

- **Simplified Toolbars**
  - Removed toolbar buttons by default that were infrequently used
  - Added buttons to go to active syntax window, go to active output viewer window.
  - Added toolbar button to customize the toolbar.

- **Incremental Safenet Licensing improvements**

- **Ability to Open Stata 14 files**
- **Accessibility advancements for the visually impaired**
- **Data Editor Copy/Paste Enhancements**
  - Added ability to copy data with variable names or labels
  - Added ability to paste data with variable labels

- **Supports OpenSSL and GSKit**

"SPSS is the single most important tool we use everyday whether that be for data management, reporting, modeling, analysis or decision making, keep up the good work, many of us our very dependent upon it. "

Where are the features found?

SPSS Statistics 25 Base Edition
SPSS Statistics 25 Advanced Statistics Module
SPSS Statistics Subscription Base Edition
SPSS Statistics Sub Custom Tables & Advanced
Statistics Add-on

- **Chart Builder Enhancements**
    - Chartbuilder will by default build more attractive, modern looking charts.
    - Customize and change colors of charts faster without leaving the Chart builder interface.
- **Stronger Copy/Paste & Microsoft Office Integration**
    - Added ability paste charts as Microsoft graphics into Word, Excel, and Powerpoint using new "copy as" functionality
    - Added ability to copy data with variable names/labels
- **Advanced Statistics features**
    - GENLINMIXED & MIXED now provide:
        - Random effects solution results (EBLUPs).
        - Continuous time spatial covariance structures.
    - GLM and UNIANOVA now provide:
        - Profile Plots with error bars, bar/line charts, option to include grand mean, option to force chart to include 0 on Y axis.
        - New tests for for heteroskedasticity including White's test.
        - Robust standard errors.
        - Modified versions of Levene's test.

- **Bayesian Statistics**
    - One Sample and Pair Sample T-tests
    - Binomial Proportion tests
    - Poisson Distribution Analysis
    - Independent Samples T-tests
    - Pairwise Correlation
    - Simple and Multiple Linear Regression
    - ANOVA
    - Log linear models
- **Syntax Editor Enhancements for Power Users**
    - New shortcut keys to speed writing and editing syntax
    - Column mode editing
    - One click trim of leading, trailing, and empty spaces
- **Accessibility advancements for the visually impaired**
- **Upgrade Gemalto Licensing to version 9.1**

IBM SPSS Statistics Subscription

- **Easy to Buy**
  - Public trial available on IBM.com – easy convert to purchased version for just $99/month.
- **Easy to Manage**
  - Subscribers of IBM SPSS Statistics will have the ability to download, manage users, and upgrade all on IBM.com.
- **Easy to License**
  - Subscribers of IBM SPSS Statistics will be able to license their software via IBM ID without relying on license keys.
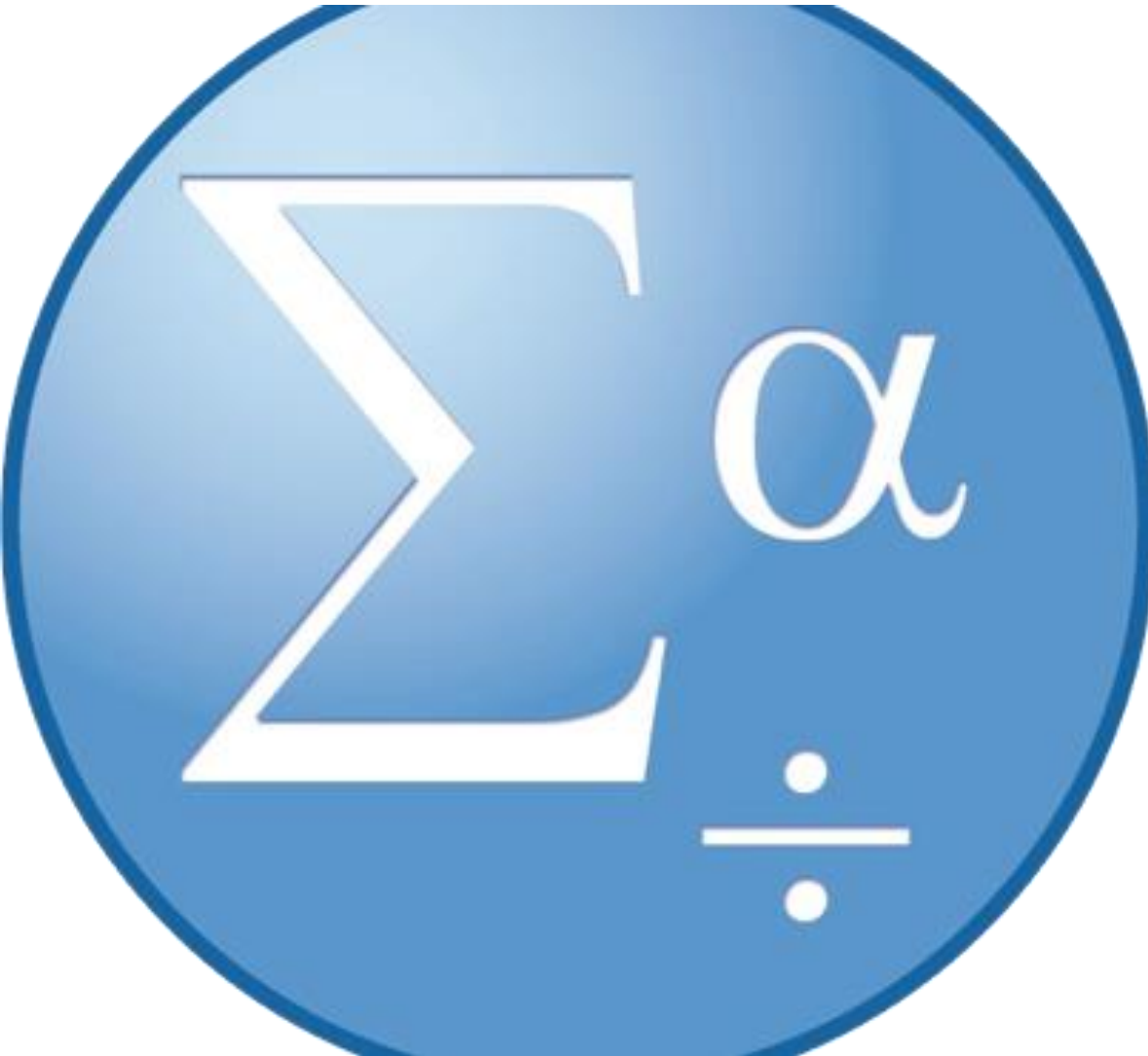- **No more worrying about versions**
  - Subscribers of IBM SPSS Statistics will have access to exclusive subscription features over time because the software is always up to date.

SPSS Statistics Download and Go offering

Base	The following add-ons are available for your base product subscription		
£77.62* per user per month	Custom Tables & Advanced Statistics Users	Complex Sampling & Testing Users	Forecasting & Decision Trees Users
Buy Now	ADD-ON (included in trial)	ADD-ON (included in trial)	ADD-ON (included in trial)
Desktop edition available on Windows and Mac. A variety of statistical procedures such as factor analysis, clustering and linear regression. Advanced data preparation and bootstrapping capabilities. A wide range of reporting and export options including Microsoft/PDF Syntax and open source programming	+ £61.94* per user per month	+ £61.94* per user per month	+ £61.94* per user per month
	Custom Tables and Advanced Statistics Add-on provides easy to use drag and drop interactive tables exportable to Microsoft/PDF. You can access a variety of additional techniques such as; Non-linear, logistic, 2-stage least squares regression, Generalized linear modeling and survival analysis. Additionally, Bayesian Statistics now available.	Complex Sampling and Testing Add-on provides functionality for small sample sizes, missing data , and complex sampling. You can access regression with optimal scaling including lasso and elastic net. Additional features include; categorical principal components analysis, multidimensional scaling and unfolding, and multiple correspondence analysis.	Forecasting and Decision Trees Add-on provides ARIMA and exponential smoothing forecasting capabilities. Classification and decision trees based on four established tree-growing algorithms are also available. You can also create neural network predictive models as well as RFM analysis to test marketing campaigns.

https://www.ibm.com/uk-en/marketplace/spss-statistics/purchase#product-header-top

Thank You