**Agenda of an R language course for statistical computing**

Proposed by**: Juluis Foyet**

For**: Absolute beginners and intermediate R users**

# **Prerequisites:**

* The learner should have a well-functioning 64 bits (preferably) laptop;
* Knowledge of basic statistics would be an advantage.

# **Syllabus (5 Modules, 40 hours)**

| **Time (Duration)** | **Titles** | **Day** |
| --- | --- | --- |
| **Module I: Overview (4h)** | |  |
| (1h) | **M1L01** – Presentation of R, The working directory, and the script | **dd/mm/yyyy** |
| (1h) | **M1L02** – Operators and basic operations in R language |  |
| (30 mins) | **M1L03** – Project management RStudio |  |
| (45 mins) | **M1L04** – Data types and structure |  |
| (45 mins) | **M1L05** – Packages |  |
| **Module II: Data entering, importation, and exploration (5h)** | |  |
| (2h) | **M2L01** – Data entering |  |
| (2h) | **M2L02** – Data importation |  |
| (1h30) | **M2L03** – Exploratory data analysis I (Numerical approach) |  |
| (1h30) | **M2L04** **–** Exploratory data analysis II (Graphical approach) |  |
| **Module III: Data manipulation, descriptive data analysis, and results reporting (12h)** | |  |
| (2h) | **M3L01** **–** Data cleaning |  |
| (2h) | **M3L02 –** Data sub-setting |  |
| (2h) | **M3L03 –** Creation of new variables |  |
| (2h) | **M3L04 –** Descriptive data analysis I **(**Numerical approach**)** |  |
| (2h) | **M3L05 –** Descriptive data analysis II **(**Graphical approach**)** |  |
| (2h) | **M3L06 –** Introduction to RMarkdown |  |
| **Module IV: Common statistical tests (9h)** | |  |
| (2h) | **M4L01** **–** Analysis of contingency tables: Pearson Chi2 test, Fisher exact test and correspondence analysis |  |
| (2h) | **M4L02** **–** Two groups comparison: Student t-test, Mann-Whitney Wilcox test, paired and unpaired |  |
| (2h) | **M4L03** **–** Three+ groups comparison I: ANOVA and posthoc (Tukey Honest Significant Difference) |  |
| (2h) | **M4L04** – Three+ groups comparison II: Kruskal-Wallis test and posthoc (Pairwise Wilcoxon test and Dunn test) |  |
| (1h) | **M4L05** **–** Correlation analyses: Pearson, and Spearman correlations |  |
| **Module V: Data visualisation and advanced tools (10h)** | |  |
| (3h) | **M5L01** **–** Qualitative data visualisation |  |
| (2h) | **M5L02** **–** Qualitative/Quantitative data visualisation |  |
| (2h) | **M5L03** **–** Quantitative data visualisation |  |
| (3h) | **M5L04** **–** Introduction to regression analyses |  |