

MASTER Economics Software for economists III

Description

Part of course.

Code: PA-ME5BEC-BECBV6A

Domain: Law, Economics, Management

Information

<http://formations.univ-amu.fr>

Department: Faculty of Economics and Management

Last modification: 04/09/2018

CONTENT

This teaching unit aims at providing the fundamental basis of the use of R software (or the RStudio IDE) and R programming. The courses will be illustrated with exercises using the statistical environment R (<http://www.r-project.org/>) which is free, open-source free and multiplatform, or via the RStudio IDE. The organization of the course will make progressive the acquisition of the knowledge and the mastery of the R statistical tool. It aims to make the student more autonomous when faced to classical problem of statistical modelling or data analysis, which can be found in the fields of economics.

Course outline :

- Introduction (history).
- Basic handling (data management in R).
- Creating R functions.
- Loops, tests, vectorization.
- R Graphics.
- Application to modelling (regression/classification).

PROFESSIONAL SKILLS

- Learning the basics of R software and R programming.
- Learning how to handle, analyse data in R, create functions and draw graphics.
- Discovering new notions in data analysis and/or machine learning.
- Becoming autonomous in learning and using R when faced to data science applications.

BIBLIOGRAPHY

References :

- Paradis, E. (2002). R pour les débutants.
- Goulet, V. (2014). Introduction à la programmation en R.
- Kopp, M. (2013). Introduction à R.
- Lafaye de Micheaux, P., Drouilhet, R., & Liquet, B. (2011). Le logiciel R : Maîtriser le langage - effectuer des analyses statistiques. Springer.
- Charpentier, A. (2014). Computational actuarial science with R. Chapman and Hall.

- James, G., Witten, D., Hastie, T., Tibshirani, R. (2013). An introduction to statistical learning with applications in R. Springer Texts in Statistics.
- Wickham, H. (2009). ggplot2 : Elegant graphics for data analysis. Springer.
- Chang, W. (2013). R graphics cookbook. O'Reilly Media, Incorporated.

Websites :

www.edx.org Formation Data Science : R Basics.

www.kaggle.com Section « Learn » : Formations R orientées sciences des données.

www.datacamp.com R for Data Science.

ORGANISATION

18 HTD in flipped classroom. The sessions will be an opportunity to propose exercises to the students. The flipped classroom will allow the students to share ideas and ask questions to the teacher, to show their progress in solving the exercises and to improve their knowledge acquired by self-learning. Students will be strongly encouraged to train themselves online using dedicated platforms (edX, Kaggle, DataCamp...).

FUNDAMENTAL PREREQUISITES

Knowing how to learn autonomously and regularly.

RECOMMENDED PREREQUISITES

Knowing the RStudio IDE and its features (RMarkdown, Shiny for example...).

Course of Data Science : R Basics from Harvard University (available free online).

R courses available in www.kaggle.com.

VOLUME OF TEACHINGS

- Tutorials: 18 hours

TRAININGS

Master's degree: Economics

- Empirical and theoretical economics
- Economic policy analysis
- Econometrics, big data, statistics
- Quantitative finance and insurance

