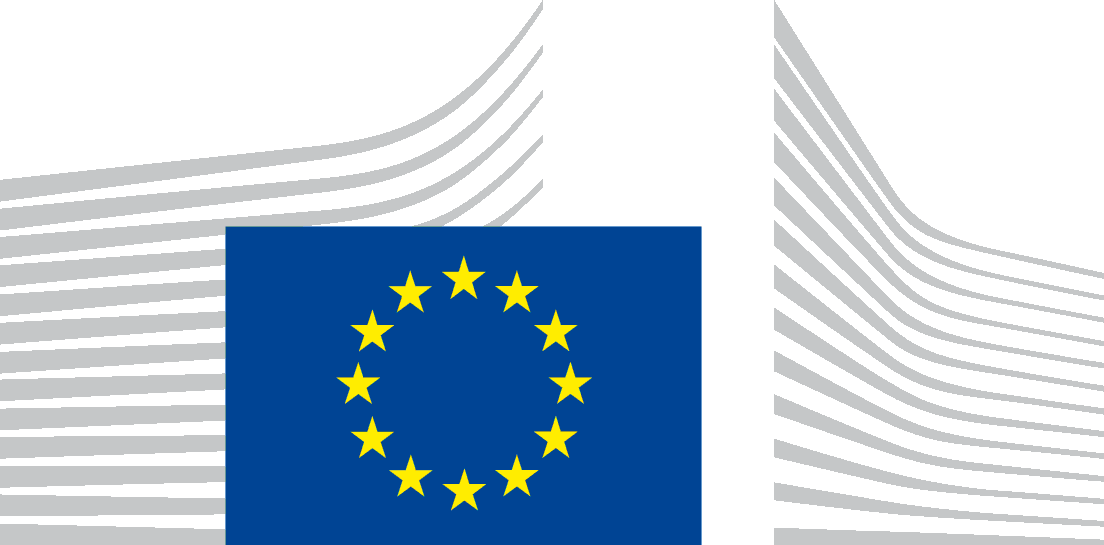
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**The Use of R in Official Statistics:   
model based estimates**

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| **Draft course programme** | |
| **Trainer** | Martijn Tennekes, Naomi Schalken, Harm Jan Boonstra |
| **Description** | The goal of this activity is to provide participants with basic knowledge about the syntax and basis of the R programming language and to provide an overview of the main packages which are important for the statistical production process. |
| **Tool for practical session** | Laptop |
| 1st day |  |
| 9.00 – 10.00 | Introduction and installation |
| 10.00 – 10.30 | Questions and coffee break |
| 10.30 – 11.30 | Basic introduction to programming in R |
| 11:30 – 12:30 | Exercises |
| 12.30 – 13.30 | Lunch break |
| 13.30 – 14.30 | Data.frames, descriptive statistics, and basic plotting |
| 14.30 – 14.45 | Questions and coffee break |
| 14.45 – 15.45 | Reading and writing data with R (including JSON, XML and SDMX format) |
| 15:45 – 17:00 | Exercises |
| 2nd day |  |
| 9.00 – 10.00 | R packages in official statistics |
| 10.00 – 10.30 | Questions and coffee break |
| 10.30 – 11.30 | R packages: the tidyverse |
| 11.30 – 12.30 | Exercises |
| 12.30 – 13.30 | Lunch break |
| 13.30 – 14.30 | Data visualization with R |
| 14.30 – 14.45 | Questions and coffee break |
| 14.45 – 15.45 | Exercises |
| 15.45 – 17.00 | Analyse and visualise your own data with R (part 1) |
| 3rd day |  |
| 9.00 – 10.00 | Spatial data in R |
| 10.00 – 10.30 | Questions and coffee break |
| 10.30 – 11.30 | Visualisation of spatial data |
| 11.30 – 12.30 | Exercises |
| 12.30 – 13.30 | Lunch break |
| 13.30 – 16.30 | Analyse and visualise your own data with R (part 2) |
| 16:30 – 17.00 | Analyse and visualise your own data with R: feedback session |
| 4th day |  |
| 9.00 – 10.00 | Project management and version control with git |
| 10.00 – 10.30 | Questions and coffee break |
| 10.30 – 11.30 | Data reporting with R - tables, markdown, LaTeX |
| 11.30 – 12.30 | Exercises |
| 12.30 – 13.30 | Lunch break |
| 13.30 – 14.30 | Graphical User Interfaces with shiny |
| 14.30 – 14.45 | Questions and coffee break |
| 14.45 – 15:30 | Exercises |
| 15:30 – 16:30 | Analyse and visualise your own data with R (part 3) |
| 16:30 – 17.00 | Analyse and visualise your own data with R: feedback session |
| 5th day |  |
| 9.00 – 10.00 | Statistical modeling |
| 10.00 – 10.30 | Questions and coffee break |
| 10.30 – 11.30 | Data imputation and synthetic populations |
| 11.30 – 12.30 | Exercises |
| 12.30 – 13.30 | Lunch break |
| 13.30 – 14.30 | Survey statistics (survey package) |
| 14.30 – 15.00 | Questions and coffee break |
| 15.00 – 16.00 | Small area estimation (hbsae and mcmcsae packages) |
| 16.00 – 17.00 | Capstone session: recap and suggestions |