



**Data Science:
Statistical programming with R (S24)
08-12 July 2024**

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Day	Time	Type	Description	Location
Monday	09:00 – 12:00	Lecture, computer lab, Plenary discussion	Welcome. Introduction tot the R environment (RStudio) and the online resources. Introduction to reproducible data analysis with R Markdown.	The entire course will take place in: Victor J. Koningsberger building , room Pangea
	12:00 - 13:00	Lunch Break	In Educatorium	
	13:15 - 16.30	Lecture, computer lab, Plenary discussion	R programming basics: objects and data types, data manipulation, model formula, basic data summary and visualisation.	
Tuesday	09:00 – 12:00	Lecture, computer lab, Plenary discussion	Data manipulation with tidyverse (cleaning, transformation, recoding). Simple statistical analyses, descriptive models. Summarize data in publication-ready tables.	
	12:00 - 13:00	Lunch Break	In Educatorium	
	13:15 - 16.30	Lecture, computer lab, Plenary discussion	Data wrangling workflow: data import, data cleaning / transformation, exploration, visualisation.	
Wednesday	09:00 – 12:00	Lecture, computer lab, Plenary discussion	More data wrangling. More R Markdown functionality. Advanced data visualisation.	
	12:00 - 13:00	Lunch Break	In Educatorium	
	13:15 - 16.30	Lecture, computer lab, Plenary discussion	Fitting and interpreting (generalized) linear models. Model diagnostics. Summarize model results in publication-ready tables.	



Thursday	09:00 – 12:00	Lecture, computer lab, Plenary discussion	More advanced statistical programming, write your own function, for loops, conditional statements.
	12:00 - 13:00	<i>Lunch Break</i>	In Educatorium
	13:15 - 16.30	Lecture, computer lab, Plenary discussion	Inferential models and predictive models. Bootstrap, cross-validation
Friday	09:00 – 12:00	Lecture, computer lab, Plenary discussion	Apply what you have learned in this course on a new data set: the entire data workflow (import, tidy, transform, visualise, model, display the results).
	12:00 - 13:00	<i>Lunch Break</i>	In Educatorium
	13:15 - 16.30	Lecture, computer lab, Plenary discussion	Introduction to Shiny apps.

In the morning, at around 10:00, there will be coffee and tea breaks. Additionally, in the afternoon around 15:30, breaks will include sodas and fruit.

For information about the Social Programme, please visit the [Utrecht Summer School website!](#)