

## *The Hebrew University of Jerusalem*

### *Syllabus*

## *R Programming - Preparatory course - 51003*

*Last update 22-01-2024*

*HU Credits:* 0

*Degree/Cycle:* 1st degree (Bachelor)

*Responsible Department:* Psychology

*Academic year:* 0

*Semester:* 2nd Semester

*Teaching Languages:* Hebrew

*Campus:* Mt. Scopus

*Course/Module Coordinator:* Dr. Valentin Vancak

*Coordinator Email:* [valentin.vancak@mail.huji.ac.il](mailto:valentin.vancak@mail.huji.ac.il)

*Coordinator Office Hours:* Sunday, 14:30

*Teaching Staff:*

---

Dr. Valentin Vancak

Course/Module description:

*The course provides fundamental knowledge in R programming language.*

Course/Module aims:

*Learning the fundamentals of R programming.*

Learning outcomes - On successful completion of this module, students should be able to:

*On successful completion of this module, students should be able to: Read and write programs in R language, that include data processing, analysis, and basic graphics.*

Attendance requirements(%):

*None*

*Teaching arrangement and method of instruction: Online course. Lectures will be recorded*

Course/Module Content:

- 1. Fundamentals of R language; IDE (R studio), syntax, scripts, object types and modes (numeric, integer, character, data frames), built-in functions, arithmetic, variables.*
- 2. Data management: data structures (data frames, vectors, factors), vectorization, importing and exporting (csv), logical operators, subsetting (columns and rows), basic data manipulations (naming, cut, levels), sorting, merging.*
- 3. Basic graphics (data visualization): scatter plots & bar plots (aesthetics, titles, legend, multiple figure objects).*
- 4. Boolean logic: and, or, not, De Morgan's laws, if-else, and application to subsetting.*
- 5. Functions: structure, parameters, arguments, input & output.*
- 6. Basic loops: for loops (indices), print, cat.*

Required Reading:

*None*

---

Additional Reading Material:

Horton, N. J., & Kleinman, K. (2010). *Using R for data management, statistical analysis, and graphics*. CRC Press.

Wickham, H. (2019). *Advanced r*. CRC press.

Grading Scheme:

Written / Oral / Practical Exam 80 %

Submission assignments during the semester: Exercises / Essays / Audits / Reports / Forum / Simulation / others 20 %

Additional information:

This course starts on 23.05.2024 and lasts until the end of the spring semester. Thursdays and Sundays.