



## *The Hebrew University of Jerusalem*

### *Syllabus*

## *Data Analysis with R - 52414*

*Last update 27-03-2020*

*HU Credits: 2*

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

*Responsible Department: Statistics*

*Academic year: 0*

*Semester: 2nd Semester*

*Teaching Languages: Hebrew*

*Campus: Mt. Scopus*

*Course/Module Coordinator: Or Zuk*

*Coordinator Email: [or.zuk@mail.huji.ac.il](mailto:or.zuk@mail.huji.ac.il)*

*Coordinator Office Hours: Wednesday 16-17*

*Teaching Staff:*

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Dr. Or Zuk  
Mr.

Course/Module description:

*The course teaches principles of data analysis and computation-based statistical inference, with a secondary goal of teaching the R statistical computing language.*

*Students will learn visualization, data wrangling, sampling / simulation of probability models, and computer-based inference.*

Course/Module aims:

*The goals of the course:*

- 1. Introduce and practice principles of data-analysis and statistical computing.*
- 2. Develop independence of the students as data analysts and R users.*

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

- Prepare, summarize and present data files in the R environment to answer research questions*
- Study probabilistic models using simulations in R*
- Use computer experiments to evaluate statistical methods.*

Attendance requirements(%):

0

*Teaching arrangement and method of instruction: The course comprises of lectures, individual exercises, Labs, and a final project.*

Course/Module Content:

- 1. Introduction to interactive and reproducible research with R-markdown and github*
- 2. Data manipulation*
- 3. Table manipulation*
- 4. Summaries and visuals for a single file*
- 5. GGplot environment and Data-viz principles*
- 6. The regression line and transformations*
- 7. Files and strings*
- 8. Sampling in R*
- 9. Monte carlo (complex probability models)*
- 10. Computer-assisted Inference*

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Required Reading:

None

Additional Reading Material:

Can be used as reference:

<http://www.john-ros.com/Rcourse/>

Course/Module evaluation:

End of year written/oral examination 0 %

Presentation 0 %

Participation in Tutorials 0 %

Project work 35 %

Assignments 50 %

Reports 0 %

Research project 0 %

Quizzes 0 %

Other 15 %

weekly exercises (magen)

Additional information:

The final project will be given in the two weeks period between 25.6 to 9.7. Please make sure to keep free dates during this period.