האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

# *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*

*Coordinator Office Hours:* *Wednesday 16-17*

*Teaching Staff:*

*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*

*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.*