



# *The Hebrew University of Jerusalem*

## *Syllabus*

### *How (not) to lie with statistics - 52910*

*Last update 04-10-2019*

*HU Credits:* 2

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

*Responsible Department:* Statistics

*Academic year:* 2020

*Semester:* 2nd Semester

*Teaching Languages:* Hebrew

*Campus:* E. Safra

*Course/Module Coordinator:* Sarit Agami

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*Coordinator Office Hours:*

*Teaching Staff:*

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Dr. Sarit Agami

Course/Module description:

The course presents common mistakes in statistics that sometimes seem negligible but can lead to incorrect conclusions. The possible errors may begin with the data collection phase, and continue with the visual presentation of the data or the description of the data by means of measures, till the statistical inference from the sample to the population.

Course/Module aims:

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

To learn how to avoid the common mistakes in statistics over its three steps, that is, in sampling, description statistics and statistical inference.

Attendance requirements(%):

Teaching arrangement and method of instruction:

Course/Module Content:

- I. Sampling and the data collection
  - \* Representative sample
  - \* Sample size
  - \* Non-response in selected sample
  - \* Surveys and questionnaires
  - \* How data is collected
  - \* Validation and reliability of measurements
  - \* Measurement error
- II. Descriptive statistics
  - \* Calculation of average and percentages
  - \* Validation of measures
  - \* Natural variation
  - \* Regression to the mean
  - \* Reporting percentages based on incorrect conditional probability
  - \* Correct graphs
  - \* Correlation and causality
  - \* Outliers

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*III. Research design*

*\* Experimental research versus observational research*

*\* Random sampling and random allocation of units for treatment*

*Required Reading:*

*None*

*Additional Reading Material:*

*Course/Module evaluation:*

*End of year written/oral examination 0 %*

*Presentation 0 %*

*Participation in Tutorials 0 %*

*Project work 0 %*

*Assignments 0 %*

*Reports 0 %*

*Research project 0 %*

*Quizzes 0 %*

*Other 100 %*

*Home exam*

*Additional information:*