



## *The Hebrew University of Jerusalem*

### *Syllabus*

## **REGRESSION AND STATISTICAL MODELS - 52571**

*Last update 19-03-2020*

*HU Credits:* 6

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

*Responsible Department:* Statistics

*Academic year:* 0

*Semester:* 2nd Semester

*Teaching Languages:* Hebrew

*Campus:* Mt. Scopus

*Course/Module Coordinator:* Prof. David Zucker

*Coordinator Email:* [david.zucker@mail.huji.ac.il](mailto:david.zucker@mail.huji.ac.il)

*Coordinator Office Hours:* Tuesdays 17:00-18:00

*Teaching Staff:*

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Prof David Zucker  
Ms. yulia slavutsky  
Mr.

Course/Module description:

1. Simple and multiple linear regression
2. Analysis of variance
3. Logistic regression
4. Poisson regression
5. Analysis of categorical data

Course/Module aims:

To provide an in-depth understanding of some key statistical models used in applied statistical work

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

1. Understand the theory behind the methods studied
2. Apply the methods studied in the lectures
3. Understand analyses that use the methods studied in the lectures

Attendance requirements(%):

None

*Teaching arrangement and method of instruction: The instructor will lecture and write on the board. There will be many examples of computer output (data sets, results of statistical analyses, etc.) which will be both put on the course's website and projected during the lectures.*

Course/Module Content:

1. Simple and multiple linear regression: model formulation, estimation, inference for a single coefficient, inference for a linear combination of coefficients, F-test for testing general linear hypotheses, multicollinearity, influence diagnostics, model checking, model building

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2. Analysis of variance
  3. Logistic regression
  4. Poisson regression
  5. Analysis of categorical data

Required Reading:

Required reading material will be posted on the course website over the course of the semester

Additional Reading Material:

Additional recommended reading material will be posted on the course website over the course of the semester

Course/Module evaluation:

End of year written/oral examination 65 %  
Presentation 0 %  
Participation in Tutorials 0 %  
Project work 0 %  
Assignments 15 %  
Reports 0 %  
Research project 0 %  
Quizzes 20 %  
Other 0 %

Additional information:

Course Requirements

1. Final exam (in standard format). In the event that remote teaching continues through the end of the semester, a home exam will be given instead of an in-class exam.
2. Exercises: An exercise set will be given every week. The exercises must be handed in. It is permitted (and even recommended) to turn in the exercises in pairs. The exercises will be marked as acceptable or not acceptable without a numerical grade. An acceptable exercise is an exercise that is turned in on time, written in a neat and organized fashion, and reflects a serious effort to answer the questions. The TA will also carry out a more intensive examination of the exercises on an occasional

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*basis. Solutions to the exercises will be posted on the course website. Selected exercise questions will be discussed in the tirkul session. I emphasize that the exercises are an integral part of the course, and investing effort on them is essential to proper learning of the material. It is possible that some of the exercise questions will appear on the final exam (with some changes). Your grade for exercises will be equal to the percentage of acceptable exercises that you turned in, out of the total number of exercises that were handed out during the course of the semester.*

*3. Quizzes: During the course of the semester there will be 2 take-home mid-term quizzes, in a similar format to the exercises. The quizzes will be checked in depth and assigned a numerical grade. Here also it is permitted (and even recommended) to turn in the quizzes in pairs. Each quiz will count 10% toward the final course grade.*

*To pass the course, a passing grade in the final exam is required.*

#### *Remark*

*During the course we will be using the statistical package R. The package can be downloaded free from the following site:  
<http://cloud.r-project.org/>*