האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

The Hebrew University of Jerusalem

Syllabus

Probability for Statistics students - 52324

Last update 09-03-2021

HU Credits: *4*

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

Responsible Department: *Statistics*

Academic year: *0*

Semester: *2nd Semester*

Teaching Languages: *Hebrew*

Campus: *Mt. Scopus*

Course/Module Coordinator: *Benjamin Yakir*

Coordinator Email: *benjamin.yakir@mail.huji.ac.il*

Coordinator Office Hours: *By appointment*

Teaching Staff:

Mr. Nadav Har-tuv,
Prof Benjamin Yakir

Course/Module description:

The course enhances the basic knowledge that is acquired in the course "Basic Probability" (52220). The topics that were presented in the basic course will be developed and generalized. New topics will be introduced and models that form the basic toolbox of the statistician will be described.

Course/Module aims:

The main aim of this course is to solidify the knowledge in probability theory that is required of students of statistics for their subsequent studies in statistics, operational research, and applied probability. Another goal is to enhance the students' computational skills.

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

1. Quote and apply the definitions that were presented in the course.
2. Solve simple probabilistic problems and carryout theoretical probabilistic computations.
3. Quote the probabilistic theorems that were described at class and produce at least one example in the context of each theorem.
4. Prove simple corollaries using the theorems.

Attendance requirements(%):

No attendance requirement

Teaching arrangement and method of instruction: Lecture and exercise.

Course/Module Content:

1. Probability and the distribution of a single random variable
2. The joint distribution of several random variables
3. Multinormal distribution
4. An introduction to limit theorems and to stochastic processes

Required Reading:

Class notes.

Additional Reading Material:

1. A first course in statistics, 8th edition, by Sheldon Ross.

2. Introduction to Probability, second edition, by Bertsekas and Tsitsiklis

Course/Module evaluation:

End of year written/oral examination 50 %
Presentation 0 %
Participation in Tutorials 0 %
Project work 0 %
Assignments 10 %
Reports 0 %
Research project 0 %
Quizzes 40 %
Other 0 %

Additional information:

Each part of the course will include a computeriized quiz. Each quiz will determine 2.5% of the final score as MAGEN.

At the end of each part we will have an exam. Each exam will include questions in the spirit of the questions that will be discussed in the exercise. The score of each exam will determine 10% of the final score as MAGEN. The exams will in the last hour of the class. according to the list that is given in the teaching plan in Moodle.

The format of the final examination will be similar to the format of the interim exams and will combine the material required in them all. The final examination will determine 50% of the final score.

At the end of each part we will include a chapter that deals with computerized simulations. Each of these chapters will involve a programming project in R. The intention is that these projects will be evaluated automatically. The completion of all 4 project will give a bonus of 5 points to be added to the final score. The material on simulation will not be included in the intyerim exams nor in the final examination.