Syllabus

TOPICS IN PROBABILITY THEORY - 80588

 Last update 07-03-2016

<u>*HU Credits:*</u> *2*

<u>*Responsible Department:*</u> *Mathematics*

<u>*Academic year:*</u> *0*

<u>*Semester:*</u> *1st Semester*

<u>*Teaching Languages:*</u> *Hebrew*

<u>*Campus:*</u> *E. Safra*

<u>*Course/Module Coordinator:*</u> *Dr. Ori Gurel-Gurevich*

 <u>*Coordinator Email:*</u> [*Ori.Gurel-Gurevich@mail.huji.ac.il*](mailto:Ori.Gurel-Gurevich@mail.huji.ac.il)

<u>*Coordinator Office Hours:*</u> *by appointment*

<u>*Teaching Staff:*</u>
  Prof Ori Gurel-Gurevich

<u>*Course/Module description:*</u>
  A uniform spanning tree (UST) is a random spanning tree, chosen uniformly at

random from all spanning trees of a given finite graph. We will see how to simulate such a tree, what are its properties and how to generalize this notion to infinite graphs.

Course/Module aims:

Learning outcomes - On successful completion of this module, students should be able to:
  understand what are uniform spanning trees and forests.
know when a simple random walk on a graph is recurrent or transient.
understand open problems in this topic.

Attendance requirements(%):
  0

Teaching arrangement and method of instruction: lecture

Course/Module Content:
  Random walks and electric networks.
Uniform spanning tree of a finite graph.
Wilson's algorithm.
Infinite electrical networks.
Uniform spanning forests of an infinite graph.

Required Reading:
 Probability on Trees and Networks by Lyons and Peres, chapters 2,3,4,9,10

Additional Reading Material:

  Course/Module evaluation:
  End of year written/oral examination 0 %
  Presentation 0 %
  Participation in Tutorials 0 %
  Project work 100 %
  Assignments 0 %

Reports 0 %
Research project 0 %
Quizzes 0 %
Other 0 %

Additional information: