01.07.2019

Bar-Ilan University

Stochastic Processes in Physics

86-853-01

Lecturer: Prof. Eli Barkai

Course type: Lecture

Date: 2019-2020 **semester:** A **weekly hours:** 3

Aim of course:

The course designed to study the random processes in physics, which is very important subject for most of the studies carried out in the department.

Details of subjects to be covered:

Central limit theorems (Gauss and Levy).

Introduction to random walks and continuous time random walks.

Introduction to fractional calculus.

Fokker-Planck equation and the fractional Fokker-Planck equation.

Normal and fractional Langevin equations.

Weak ergodicity breaking.

Random walks in random environments.

Applications.

Prerequisites:

Required courses of first year.

Course mandatories:

Homework.

Grading:

Project 100%

Bibliography:

Stochastic Process in Physics and Chemistry, van Kampen
Foker Planck equation, Risken
Aspects of Random walks and its Application , George Weiss