



The Graduate Center of CUNY Ph.D.
Program in Mathematics Course Syllabus
-Fall 2020

Course Title: Intro to Ergodic Theory

Course : 83100

Time and Location: W, 11:15AM – 1:15PM

Instructor Name: Enrique Pujals

Contact Information:
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Pre-Requisites: _____

Office Hours: BY Appointment

Description:

The course will be a graduate level introduction to Ergodic Theory. The aim is to gain a qualitative understanding of the statistical properties of some fairly elementary, usually discrete time, chaotic dynamical systems. We will try to bring in some motivation from physics as well as some tools, and a general perspective, taken from probability/measure theory. I plan to cover: A very brief history of ergodic theory; Ergodicity, the Ergodic Theorem, (measure theoretic) mixing; Unique Ergodicity, examples and Furstenberg (counter)example. Metric entropy and information. Markov chains Depending on time and interest we may cover some of the following topics: Decay of correlations and the Central Limit Theorem; Thermodynamic formalism; Links with number theory; Basic infinite ergodic theory.

