

Department: Mathematics and Computer Sciences

Division: Statistics

Level and Major: Graduate

Course Title: Theory of Probability and Measure 2

Number of Credits: 4

Prerequisite: Theory of Probability and Measure 1

Lecturer:

Course Description:

The Course aims to: Basic knowledge in Probability Theory and related definitions and properties

Course Goals and Objectives:

Course Topics:

- 1- Lebesgue integral and its properties. Limiting definitions in Probability as Convergence in Probability, almost sure Convergence for sequence of random variables
- 2- Change of Variable, independence of random variables, density function and absolute continuity.
- 3- Mathematical expectations, Borel-Cantelli Lemmas, Fatou's Lemma, Monotone, Bounded and Dominated Convergence theorems.
- 4- Convergence in distributions, Characteristic function and Inversion formula
- 5- Lyapunov and Lindeberg's Conditions, Central Limit Theorem

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Reading Resources:

- 1- Probability and Measure, Third edition: By Patrick Billingsley
- 2- Probability and Examples: by Richard Durrett

Evaluation: