



University of Science and Technology of Hanoi
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COURSE SYLLABUS

Subject: Probability

Academic field: Applied Mathematics

Lecturer: Dr. Nguyen Bich Van

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Academic year: 2021 - 2022

COURSE DESCRIPTION

Credit points	04	
Level	Undergraduate	
Teaching time Location	University of Science and Technology of Hanoi	
Time Commitment	Lecture	20 hrs
	Exercises	20 hrs
	Practices	0 hrs
	Total	40 hrs
Prerequisites	- Calculus I, Calculus II	
Recommended background knowledge	- Programming - Combinatorics	
Subject description:	The course provides a fundamental background on probability theory and its applications. In this course we also present simulation examples of various probability distributions.	
Objectives & Out-come	Objective: Probability, limit theory	
	Out-come: Basic knowledge on the probability theory and its applications, simulations of familiar probability distributions.	
Assessment/ Evaluation	Attendance/Attitude	10%
	Exercise(s)	10%
	Practicals	0%
	Mid-term test	20 %
	Final exam	60 %
Prescribed Textbook(s)	[1] C.M. Grinstead and J. Laurie Snell. Introduction to Probability. <i>American Mathematical Society</i> , 1997. [2] A. Vetier. Probability Theory with Simulations. ISBN : 978-963-279-448-8.	



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COURSE CONTENTS & SCHEDULE

Class	Contents	Hours			Ref./Resources	Assignment(s)
		Lect.	Exr.	Prc.		
1	Discrete probability distributions	02	02		[1, Chapter 1]	
2	Continuous probability densities	02	02		[1, Chapter 2]	
3	Conditional probability	02	02		[1, Chapter 4]	
4	Distribution and densities	02	02		[1, Chapter 5]	
5	Expected value and variance	03	03		[1, Chapter 6]	
6	Law of large numbers	02	02		[1, Chapter 8]	
7	Central limit theorem	02	02		[1, Chapter 9]	
8	Probability with simulation: random numbers & Discrete distribution	02	02		[2, Part II]	
9	Probability with simulation: Continuous distribution, Law and central limite theorem	03	03		[2, Part III]	

Reference Literature:

[1] C.M. Grinstead and J. Laurie Snell. Introduction to Probability. *American Mathematical Society*, 1997.

[2] A. Vetier. Probability Theory with Simulations. ISBN : 978-963-279-448-8.