SYLLABUS

Classification	Graduate School	Course No.	EC5203-01	Hrs:E:Credits	3/0/3	Instructor	Lee, Heung-No	Lecture Language	English
Course Title	Korean	정보이론							
	English	Information Theory							
Course Outline	Introduction to information theory; topics covered include entropy, mutual information, asymptotic equipartition theory, entropy rate, data compression, capacity of noisy channels, channel coding theorem. Application of the fundamental information theoretic ideas to blockchains, machine learning and classification, channel codes and cryptography.								
Prerequisite									
Textbook & References	"Elements of Information Theory, by Cover and Thomas, Wiley, New York, 2006. "								
Lecture method	- 강의방식: - 강의형태:								
Grading	출석 20%, 중간 30%, 기말 30%, 과제 20%.								
Etcetera									

Weekly Course Schedule

Week	Description	Remarks	*On-line/Off-line
1st	Introduction to Information Theory, Entropy		
2nd	Entropy, Relative Entropy and Mutual Information		
3rd	Entropy, Relative Entropy and Mutual Information		
4th	Asymptotic Equipartition Property		
5th	Asymptotic Equipartition Property/Entropy Rates of a Stochastic Process		
6th	Entropy rates of Markove Chain	Midterm 1	
7th	Data compression		
8th	Data compression		
9th	Channel capacity theorems/forward		
10th	Channel capacity theorems/reverse		
11th	Differential entropy		
12th	Gaussian channel capacity	Midterm 2	
13th	Gaussian channel capacity		
14th	Blockchain, Hash Puzzles		
15th	Cryptography		
16th	Summary		

*If there will be experiments, mark it in the "Remarks" section.

Instructor   (seal)

Lecture Language