Subject	Econmic Statistics(Special Lectures)	Subject	Econmic Statistics(Special Lectures)
Instructor	YASUMASA MATSUDA	Instructor	YASUMASA MATSUDA
Day・Period	Mon.2Period		
Eligible Participants	3･4		
Course Numbering	EAL-ECO392E		
Credit(s)	2Credits		
Course of Media Class			
Main Subjects			
Object and Summary of Class	Google classroom code: sdnqoju Please check the classroom for the latest information. Title: Introduction to mathematical foundations of data science Abstract: This class aims to provide mathematical foundations of statistics, not empirical applications of statistics to real dara. Law of Large Numbers (LLN) and Central Limit Theorem (CLT) are two fundamental theories in statistics. We will begin measure theory, concergences in probability and in distribution to prove LLN and CLT. Next, we learn Maximum Likelihood Estimation (MLE), the most basic estimation tool in statistics, and prove the asymptotic efficiency of MLE. Finally, introduction to Bayesian statsitics will be accounted.		
Goal of Study	MLE(muximul likelihood estimation) is the most important tool in data science. The goal is to learn: 1. definition of MLE 2. consistency (law of large numbers) 2. efficiency (central limit theorems) 3. applications to statistical inference		
Contents and Progress Schedule of the Class	1. Statistical decision theory 2. sufficient statistics 3. Maximum Likelihood Estimation (MLE) 3.1. Law of Large Numbers 3.2 . Consistency of MLE		

	3.3 . Central Limit Theorems 3.4. Asymptotic efficiency of MLE 4. Bayesian Estimation 4.1 prior and poterior distributions 4.2 choice of priors 4.3 Bayesian methods in statistical decision theory
Practical business	
Language Used in Course	English
Evaluation Method	The grades will be evaluated by scores of three homeworks assigned in the class.

Textbook and References

書名	著者名	出版社	出版年	ISBN/ISSN	資料種別
Theory of point estimation	Lehman, E. L.	Springer	2000	B000YHB89Q	
現代数理統計学	竹村　彰通	学術図書出版		4780608600	

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Preparation and Review	
Attached File	
In Addition	

Last Update	2023/02/27 21:45:53

One-credit courses require 45 hours of study. In lecture and exercise-based classes, one credit consists of 15-30 hours of class time and 30-15 hours of preparation and review outside of class. In laboratory, practical skill classes, one credit consists of 30-45 hours of class time and 15-0 hours of preparation and review outside of class.