

## COURSE DETAIL

### MATHEMATICAL STATISTICS II

**Country**

Korea, South

**Host Institution**

Yonsei University

**Program(s)**

Yonsei University

**UCEAP Course Level**

Upper Division

**UCEAP Subject Area(s)**

Statistics

**UCEAP Course Number**

111

**UCEAP Course Suffix****UCEAP Official Title**

MATHEMATICAL STATISTICS II

**UCEAP Transcript Title**

MATHEMATICAL STAT 2

**UCEAP Quarter Units**

4.50

**UCEAP Semester Units**

3.00

## Course Description

This course covers the properties and applications of maximum likelihood estimation (MLE), including its consistency, asymptotic normality, and efficiency, and applies these concepts to real-world statistical problems. Students analyze hypothesis testing frameworks, covering the Neyman-Pearson lemma, likelihood ratio tests, and their implementation for single-parameter and multi-parameter models and study the principles of sufficiency and completeness in statistical inference and use the factorization theorem to identify sufficient statistics for various distributions. Students also explore confidence interval construction methods, focusing on pivotal quantities, and evaluate their properties such as coverage probability and efficiency and we apply advanced inferential techniques to solve problems involving exponential families, sequential analysis, and decision-theoretic approaches, linking theory to practice.

Prerequisites: Mathematical Statistics I, Linear Algebra, Calculus

## Language(s) of Instruction

English

## Host Institution Course Number

STA3109

## Host Institution Course Title

MATHEMATICAL STATISTICS II

## Host Institution Course Details

## Host Institution Campus

## Host Institution Faculty

## Host Institution Degree

## Host Institution Department

## Course Last Reviewed

2025-2026

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