이화여자대학교
EWHA WOMANS UNIVERSITY

Syllabus (2021-Spring)

Course Title	Mathematical Statistics I	Course No.	30217
Department/ Major	Statistics	Credit/Hours	3
Class Time/ Classroom	Tuesday 11:00~12:15, Thursday 09:30~10:45 / online class		
Instructor	Name: Kim, Mijeong	Department: Statistics	
	E-mail: m.kim@ewha.ac.kr	Phone: (02)3277-2619	
Office Hours/ Office Location	by appointment/Science Building B516		

I. Course Overview

1. Course Description

This course will provide mathematical theories for Statistics. In this course, students will learn the basic concepts of probability, axiomatic theory of probability, concept of random variables, probability distributions, moments of probability distributions, convergence and asymptotic theorems.

(증원은 3월 2일 화요일에 할 예정이므로, 수강신청이 안 되는 경우에는 3월 2일 이후에 이메일 보내세요. 사이버캠퍼스에 zoom 주소와 비밀번호를 올려놓겠습니다. 첫날 3월 2일 화요일 11시에는 실시간으로 수업에 관한 설명을 할 예정이고, 그 후로는 미리 녹화한 비디오를 업로드하겠습니다. 업로드된 비디오를 시청하면 출석이 반영되도록 하겠습니다.)

2. Prerequisites

Calculus, Matrix algebra (or Linear algebra), Basic probability theory

3. Course Format

Lecture	Discussion/Presentation	Experiment/Practicum	Field Study	Other
90%	10%	%		%

(Instructor can change to match the actual format of the class.)

Explanation of course format:

4. Course Objectives

Students should

(1) have theoretical foundation in mathematical statistics.

(2) possess a deeper knowledge in probability theory.

(3) be familiar with central limit theorems and asymptotics.

5. Evaluation System

☐ Relative evaluation ☑ Absolute evaluation ☐ Others :

- Explanation of evaluation system:

1. **Assignments:** Students can discuss homework, but please do not simply copy others. All assignments must be original work. Students should submit assignments **only through Cybercampus.**

2. **Attendance:** The attendance will be checked when a student watch a video completely on Cybercampus.

3. Exams: If someone is late in the exam without permission, then the student will not be given any additional time.

- Midterm exam (04/27 Tue 11:00am-12:15pm): short answer questions.
- Final exam (06/15 Tue 11:00am-12:15pm): Mixed type of questions including proof.

4. **Grades:** Absolute evaluation

5. **Attitude:** Cheating or academic dishonesty in any form will not be tolerated and will result in swift punitive action. This includes but is not restricted to copying information from other students' exams, communicating with other students during exams, failing to follow the rules of the exams regarding notes, calculators, etc., altering an exam for the purpose of a regrade, and producing fraudulent written excuses. **Any incidents of cheating will result in an automatic zero in the case of assignments and an F for the course in the case of exams.**

Midterm Exam	Final Exam	Quizzes	Presentation	Projects	Assignments	Participation	Other
25%	45%	%	%	%	25%	5%	%

* Evaluation of group projects may include peer evaluations.

이화여자대학교
EWHA WOMANS UNIVERSITY

II. Course Materials and Additional Readings

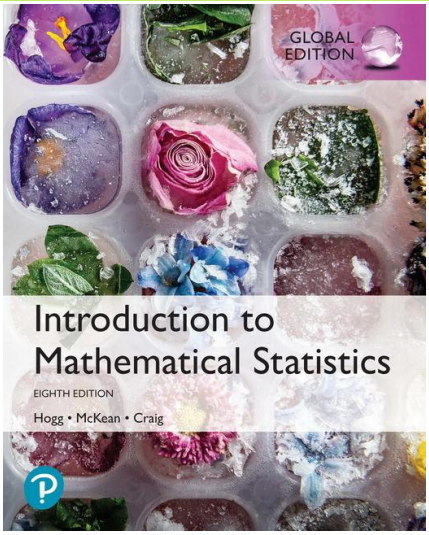
1. Required Materials

Introduction to Mathematical Statistics 8/E (Global edition)

Robert V. Hogg , Joeseph McKean/ Allen T. Craig 지음 | Pearson Education (수입: 경문사, 가격: 53,000원)

(The 7th edition will no longer be used as a textbook, so please prepare the 8th edition.)

- 경문사 웹사이트



2. Supplementary Materials

None.

3. Optional Additional Readings

None.

III. Course Policies

* For laboratory courses, all students are required to complete lab safety training.

IV. Course Schedule (15 credit hours must be completed.)

Week	Date	Topics & Class Materials, Assignments
Week 1	(03/02)	Introduction
	(03/04)	Conditional Probability and Independence
Week 2	(03/09)	Random variables
	(03/11)	Random variables
Week 3	(03/16)	Expectation of random variables
	(03/18)	Distributions of Two Random Variables

이화여자대학교
EWHA WOMANS UNIVERSITY

Week	Date	Topics & Class Materials, Assignments
Week 4	(03/23)	Distributions of Two Random Variables
	(03/25)	Transformations: Bivariate Random Variables
Week 5	(03/30)	Transformations: Bivariate Random Variables
	(04/01)	Conditional Distributions and Expectations
Week 6	(04/06)	Conditional Distributions and Expectations
	(04/08)	Extension to Several Random Variables
Week 7	(04/13)	Extension to Several Random Variables
	(04/15)	The Binomial and Related Distributions
Week 8	(04/20)	The Binomial and Related Distributions
	(04/22)	Midterm Examinations for Liberal Art Courses
Week 9	(04/27)	Midterm exam
	(04/29)	The Poisson Distribution
Week 10	(05/04)	Gamma, Chi-square beta distributions
	(05/06)	Gamma, Chi-square beta distributions
Week 11	(05/11)	The Normal Distribution
	(05/13)	t and F-distribution
Week 12	(05/18)	t and F-distribution
	(05/20)	Mixture Distributions
Week 13	(05/25)	Order Statistics
	(05/27)	The Method of Monte Carlo
Week 14	(06/01)	Convergences in Probability
	(06/03)	Convergences in Distribution
Week 15	(06/08)	Central limit theorem
	(06/10)	Extensions to Multivariate Distributions
Makeup Class	(06/15)	Final exam

이화여자대학교
EWHA WOMANS UNIVERSITY

V. Special Accommodations

* According to the University regulation section #57-3, students with disabilities can request for special accommodations related to attendance, lectures, assignments, or tests by contacting the course professor at the beginning of semester. Based on the nature of the students' request, students can receive support for such accommodations from the course professor or from the Support Center for Students with Disabilities (SCSD). Please refer to the below examples of the types of support available in the lectures, assignments, and evaluations.

Lecture	Assignments	Evaluation
. Visual impairment : braille, enlarged reading materials . Hearing impairment : note-taking assistant . Physical impairment : access to classroom, note-taking assistant	Extra days for submission, alternative assignments	. Visual impairment : braille examination paper, examination with voice support, longer examination hours, note-taking assistant . Hearing impairment : written examination instead of oral . Physical impairment : longer examination hours, note-taking assistant

- Actual support may vary depending on the course.

* The contents of this syllabus are not final—they may be updated.