Mahidol University International College

ICMA151 Statistics for Science I
Trimester Summer, Academic Year 2019 - 2020

Instructor: Asst. Prof. Dr. Chatchawan Panraksa
E-mail: chatchawan.pan@mahidol.edu
Lecture : Monday, 8:00 - 11:50 AM
Friday, 8:00 - 11:50 AM
Saturday, 8:00 - 11:50 AM

WebEx Lecture Link:
https://mahidol.webex.com/mahidol/j.php?MTID=mcf0285193728c658e007f72d212252d5
Meeting Number: 166 707 9461
Password: vM3CSqf8dJ2

WebEx Office Hour ∗ : Tuesday, Wednesday and Thursday 5 - 6 PM
(∗ Contact me in the class Line group.)
Midterm Exam: Sunday, 16 August 2020, Time: 14:00 - 15:50 PM
Final Exam: Monday, 31 August 2020, Time: 14:00 - 15:50 PM

Line Group QR Code/Link "ICMA151 Summer2020"

https://line.me/R/ti/g/lBvnGHaDnX

Required Textbook

D. Diez, M. Cetinkaya-Rundel, C. D. Barr, *OpenIntro Statistics*, 4th edition, 2019. This book can be downloaded from: https://leanpub.com/openintro-statistics

Supplementary Textbook

1. P. Dalgaard, *Introductory Statistics with R*, 2nd edition, 2008. This book can be downloaded from: https://link.springer.com/book/10.1007/978-0-387-79054-1

2. W. Mendenhall, R.J. Beaver, B. M. Beaver, *Introduction to Probability and Statistics*, 14th edition, 2014, Brooks/Cole, New York.

Course Goal

Equip students with well-rounded data literacy by combining statistical methods with meaningful real-life activities.

Course Description

Statistical ideas and concepts, probability, conditional probability, distribution functions, expected value, estimators, good estimators, hypothesis testing

Course Objectives

1. To organize, present and interpret statistical data, both numerically and graphically,

2. To use various methods to compute the probabilities of events,

3. To analyze and interpret statistical data using appropriate probability distributions, e.g. binomial and normal,

4. To apply central limit theorem to describe inferences,

5. To construct and interpret confidence intervals to estimate means, standard deviations and proportions for populations,

6. To perform parameter testing techniques, including single and multi-sample tests for means, standard deviations and proportions, and

7. To perform a regression analysis, and compute and interpret the coefficient of correlation.

Grade Distribution

Six Quizzes (5% each)	30 %
Assignments	20 %
Midterm	25 %
Final	25 %

Letter Grade Distribution

90-100 %	**A**
85-89 %	**B+**
80-84 %	**B**
75-79 %	**C+**
70-74 %	**C**
65-69 %	**D+**
60-64 %	**D**
0-59 %	**F**

*__Note:__ According to the classroom policies, students are required to have at least 80 % class attendance to be eligible to take the final exam. Three late attendances (each of 15 minutes or more) are considered equal to one absence.

Course Outline

*Suggested exercises: Odd number exercises

DATES	TOPICS
3 Aug. 2020	**Chapter 1: Introduction to data** 1.1, 1.2, 1.3
5, 6 Aug. 2020 **(4 - 6 PM)**	**Chapter 2: Summarizing data** 2.1, 2.2 **Quiz 1 (5%)**
7 Aug. 2020	**Chapter 3: Probability** (1) 3.1, 3.2, 3.3
8 Aug. 2020	**Chapter 3: Probability** (2) 3.4, 3.5 **Quiz 2 (5%)**
10 Aug. 2020	**Chapter 4: Distributions of random variables** 4.1, 4.2, 4.3
11, 13 Aug. 2020 **(4 - 6 PM)**	**Chapter 4: Distributions of random variables** 4.4, 4.5 **Quiz 3 (5%)**
Sunday, 16 August 2020 14:00 - 15:50	**Midterm Exam (25 %)** (covering topics from chapters 1 - 4)
17 Aug. 2020	**Chapter 5: Foundations for inference** 5.1, 5.2, 5.3
21 Aug. 2020	**Chapter 6: Inference for categorical data** (1) 6.1, 6.2
22 Aug. 2020	**Chapter 6: Inference for categorical data** (2) 6.3, 6.4 **Quiz 4 (5 %)**
24 Aug. 2020	**Chapter 7: Inference for numerical data** (1) 7.1, 7.2, 7.3
28 Aug. 2020	**Chapter 7: Inference for numerical data** (2) 7.5 **Quiz 5 (5 %)**
29 Aug. 2020	**Chapter 8: Introduction to linear regression** 8.1, 8.2 **Quiz 6 (5%)**
Monday, 31 August 2020 14:00 - 15:50	**Final Exam (25 %)** (covering topics from chapters 5 - 8)