Lakehead University

Department of Mathematical Sciences

MATH-2310-FDE – Elementary Probability and Statistics – Fall 2021

COURSE OUTLINE

Instructor: **Dr. Deli Li, RB-2003, Ext. 8231,** dli@lakeheadu.ca

Notes: **1. If you e-mail me, please put "MATH-2310" in the Subject line so I can tell that your email is not spam.**
2. This course outline is subject to change. Any changes will be announced by emails.

Textbooks: ***Statistics*, 13th Edition** by **James T. McClave** and **Terry Sincich.**
Student's Solution Manual **(Optional)**

Prerequisite: **MHF4U or one FCE in Mathematics**

Credit Weight: **0.5** (Not recognized as a mathematics credit for any Mathematics Major.)

Description:
This course is an introduction to elementary probability and statistics. Topics include sample space and events, elementary probability, descriptive statistics using tables and charts, measures of central tendency, variability and association, basic discrete and continuous distributions, sampling distributions, hypothesis testing and confidence intervals, simple linear regression and correlation, etc. Basically, we will cover Chapters 1-7, and 11. The instructor reserves the right to add or delete sections to the list.

Learner Outcomes:
Successful students of this course will be familiar with and be able to apply the followings:

- Understand the basic concepts and terminologies used in probability and statistics.
- Able to identify the type of data.
- Summarize the data using charts and tables and interpret the findings.
- Calculate the measures of central tendency, variability, and association.
- Understand some basic concept in probability such as sample space and event, event operations and definition of probability, and be able to solve simple problems using classical probability and conditional probability.
- Understand the concept of independent events and to apply our understanding of independent events to real-life scenarios.
- Calculate probabilities using (discrete) probability distribution tables and (continuous) probabilities density functions.
- Become familiar with discrete distributions including Binomial, Hypergeometric, Poisson, etc.
- Become familiar with continuous distributions including normal, uniform, exponential, etc.
- Find probabilities by using normal distribution to approximate binomial distribution.
- Find sampling distributions of sample means and probabilities using the Central Limit Theorem.
- Estimate population parameters (means, variances, standard deviations, proportions, etc.) by constructing confidence intervals.

- Find the correlation between two random variables and interpret the correlation.
- Set up and analyze simple linear regression models.

Lectures:
Mondays & Wednesdays 07:00 PM - 08:30 PM (07 September 2021 - 06 December 2021) via Zoom. See "Zoom Instructions" at the end of this course outline for access instructions.
Attending lectures is not compulsory. According to historical records, however, there is a positive correlation between regular lecture attendance and the final course mark. Pre-reading related sections in the textbook is expected.

Labs:
Mondays 04:30 PM - 05:30 PM (07 September 2021 – 06 December 2021) via Zoom. See "Zoom Instructions" at the end of this course outline for access instructions.
During the lab hours, you will meet your instructor and ask questions about the course materials and even get help to finish your assignments.

Office Hours:
Tuesdays & Thursdays 01:00 PM – 2:30 PM via Zoom
Problems that you are having with this course should be either **a)** discussed with your instructor during these office hours, or **b)** sent to Dr. Deli Li's email address at dli@lakeheadu.ca

Performance Evaluation

Six Assignments (25%):
Each set of assignment problems and their due dates will be posted on D2L
It will be in your own interest to try to work on the problems yourselves. Solutions to some selected problems will be discussed in the labs. For this reason, it is highly recommended that you attend your labs. Assignments should be uploaded and submitted on **D2L** for course **MATH-2310-FDE**. Each assignment file should have a cover page with information including course number, assignment number, student's name, and student's ID number. **Late assignments will not be marked under any circumstances. Sloppy writing may face a mark penalty up to 25%.**

Midterm Exam (25%):
The midterm exam will be written during the regularly scheduled class time **(07:00 PM – 08:30 PM in D2L)** on **Wednesday 20 October 2021. No make-up test is provided for students who miss writing the midterm exam at the scheduled time.** If there is a legitimate (documented) excuse, the final mark will be calculated on basis of the final exam. Otherwise, a grade of **0%** for the missed exam will be averaged with other grades.

Final Exam (50%):

The final exam will be written in the scheduled three hours. It will cover all of the course material. Further details will be provided closer to the exam date.

Notes: Exams will be D2L open books and a non-programmable calculator is allowed.

Marking Disputes: If you feel you have been treated unfairly in the marking of the midterm exam or an assignment, **email your complaint to Dr. Deli Li at dli@lakeheadu.ca**

Drop Date: The final date to withdraw from this course without academic penalty is Friday 05 November 2021.

Academic Dishonesty: All cases of academic dishonesty will be dealt with according to the University's Code of Student Behaviour and Disciplinary Procedures, copies of which are available from the Registrar.

Notes:

Lakehead University is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities and/or medical conditions to ensure they have an equitable opportunity to participate in all their academic activities. If you are a student with a disability and think you may need accommodations; you are strongly encouraged to contact Student Accessibility Services (SAS) and register as early as possible. For more information, please contact Student Accessibility Services http://studentaccessibility.lakeheadu.ca (SC-0003, 343-8047 or sas@lakeheadu.ca)

Zoom instructions

In order to access Zoom lectures, follow the steps below:

(1) Go to the D2L page for this course
(2) Click on "Other Tools" (top right of the page)
(3) A scroll-down menu will appear, scroll all the way down and click on "Zoom"
(4) You will be directed to the "Upcoming Meetings" page in Zoom. All upcoming lectures are listed here. Click to join. Please mute your microphone