

# Lakehead University

## Department of Mathematical Sciences

### MATH-2311-WA – Elementary Statistical Methods – Winter 2020

## COURSE OUTLINE

**Instructor:** Dr. Deli Li, RB-2003, Ext. 8231, [dli@lakeheadu.ca](mailto:dli@lakeheadu.ca)

**Notes:** 1. If you e-mail me, please put “MATH-2311” in the Subject line so I can tell that your email is not spam.  
2. This course outline is subject to change. Changes will be announced by emails.

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**Textbooks:** *Statistics, 13<sup>th</sup> Edition* by James T. McClave and Terry Sincich.  
**Optional:** Student’s Solution Manual.

**Prerequisite:** MATH-2310

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

### **Description:**

This course is an introduction to the elementary statistical methods. Techniques include estimation, tests of hypothesis, simple linear regression and correlation, multiple regression, analysis of variance (ANOVA), analysis of categorical data, topics in experimental design, and basic nonparametric statistics. Basically this course will cover Chapters 7, 8, 9, 10, 11, 12, 13, and 14. 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:

- Descriptive statistics methods to summarize data and explore correlations between variables, and give interpretations;
- Analyze and develop the integrity, meaning, and mechanics of the confidence interval reasoning process in inferential statistics using the techniques of descriptive statistics and the concept of probability;
- Analyze and develop the integrity, meaning, and mechanics of the hypothesis testing reasoning process in inferential statistics using the techniques of descriptive statistics and the concept of probability;
- Perform hypothesis testing regarding the population mean, variance, and proportion;
- Use appropriate statistical tests to compare means, variances, or proportions from different populations;
- Linear regression with one or more variables;
- Analysis of variance methods;
- Goodness of fit tests;
- Selected topics such as: non-parametric methods, experimental designs, analysis of covariances;
- Use of statistical software(s).

## **Lectures:**

### **Monday & Wednesday 02:30 PM - 04:00 PM (06 January – 03 April) in AT-2001**

Attending lectures is not compulsory. According to historical records, however, there is a positive correlation between the regular lecture attendance and the final course mark. Pre-reading related sections in the textbook is expected.

## **Labs:**

### **Thursday 10:30 AM - 11:30 AM (06 January – 03 April) in AT-2001**

During the lab hours, you will meet your instructor and ask questions about the course materials and even get help to finish your assignments. If there is no student showing up during the first 5 minutes, this Q's and A's will be moved to the instructor's office (RB-2003).

## **Office Hours:**

### **Tuesday & Thursday 02:00 PM – 4:00 PM or by appointment. For an appointment, please email Dr. Deli Li**

Problems that you are having with the course should be either **a)** given to your instructor in class, or **b)** left in Dr. Deli Li's mail-box in the Math Secretary's office RB-2012. If you are having a problem then most likely other people in the class are having the same problem, thus it will be worth to take class time to discuss the problem. If I don't discuss your problem in the lecture to your satisfaction please come and see me in my office during the office hours.

## **Performance Evaluation**

### **Six Assignments (20%):**

#### **A list of assignment problems will be emailed you**

It will be 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 in your interest to attend your labs. Assignments should be dropped in the **MATH-2311-WA** assignment box on the second floor of Ryan Building before the due time or simply bring them to Wednesday's lectures. All assignments, hand written or printed, 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 20%.** Each student's lowest assignment mark will be dropped for the final mark calculation.

### **Midterm Exam (25%):**

**The midterm exam will be written during the regularly scheduled class time on Wednesday 26 February 2020 (02:30 PM - 04:00 PM in AT-2001). No make-up test is provided for any student who misses writing the midterm exam at the scheduled time.** If there is a legitimate (documented) excuse, the final mark will be calculated on the basis of the final exam. Otherwise, a grade of **0%** for the missed exam will be averaged with other grades.

### **Final Exam (55%):**

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 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, **put your complaint in writing on the front of the paper and return it to the instructor.** Do not put it back in the Assignment Box.

**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 of 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](mailto:sas@lakeheadu.ca))

**Winter 2020 Term Important Dates**

First Day of Classes	Monday, January 6, 2020
Final Day of Classes	Friday, April 3, 2020
Final Date to Register (Add)	Friday, January 17, 2020
Final Date to Withdraw (Drop)	Friday, March 6, 2020
Examination Period	Monday, April 6, 2020 - Sunday, April 19, 2020 (10 days - No exams April 10-13)
Exam Contingency Date	Monday, April 20, 2020
Marks Due	Thursday, April 23, 2020