

ISOM2500 - Business Statistics

Course Outline

LECTURE

Instructor: Prof Xuhu Wan

Room: 4072 (LSK Business building); Email: imwan@ust.hk

Instructional Assistant: Enoch imyin@ust.hk

Class meets:

L5 : MoWe 10:30AM - 11:50AM Rm 2502, Lift 25-26 (120)

L6: WeFr 4:30PM - 5:50PM Rm 4619, Lift 31-32 (126)

REFERENCE BOOK

Stine and Foster, "Statistics for Business: Decision Making and Analysis", 2nd Edition, Pearson.

SYLLABUS

This syllabus is subject to change in the event of extenuating circumstances.

Topic 1 Data description

- Recognizing the type of data
- Using graphs to see the characteristics of data
- Summarizing messy data into neat numbers
- Association and dependence · Covariance, correlation, contingency table, Simpson's paradox

Topic 2 Probability

- Experiment, outcome, sample space, event
- Complement, intersection, union of events
- Disjoint events, (in)dependent events, collectively exhaustive events, partition
- Complement rule, addition rule, multiplication rule, law of total probability, Bayes' rule

Topic3 Random Variable

- Random variable, distribution
- Mean and variance · Properties of expectation
- Discrete random variables: binomial distribution
- Continuous random variables: normal distribution, t distribution

Topic 4 Interval Estimation

- Confidence interval for a normal mean (with known or unknown variance)
- Confidence interval for a proportion

- Large-sample confidence interval for other population mean
- Sample size determination for estimating a mean

Topic 5 Hypothesis testing

- Null and alternative hypotheses, test statistic, rejection region, p-value, Type I and II errors, significance level
- Z-test (known variance) and t-test (unknown variance) for a normal mean
- Large-sample Z-test for a proportion
- Large-sample Z-test for other population mean

Topic 6 Simple linear regression

- Intercept and slope parameters/coefficients, error variance
- Least square estimation
- Coefficient of determination
- Regression assumptions
- Sampling distribution of LS estimates
- Interval estimation and hypothesis test of parameters

COURSE WEBSITE

<http://canvas.ust.hk>

OBJECTIVES AND INTENDED LEARNING OUTCOMES

The objective of the course is to introduce the basic and fundamental knowledge of statistics, probability, statistical inference and linear regression. We emphasize on

1. Hands-on experiences on data collecting and analysis through in-class games.
2. Closer connection to real life and business practice through regular class and online class.
3. Concepts and interpretation over computation practice through different formats of evaluation.

EVALUATION

Your grade in the course is based on:

| | |
|---------------------------------------|-------------|
| Midterm (18 Oct 2023 (WED), 7-9pm) | 30% |
| Final Exam (MCQ) | 50% |
| Participation | 10% |
| Homework | 10% |
| Total | 100% |

Make-up policy: Students missing the midterm exam with valid medical certificate or prior arrangement of proper reason will be offered to take a more difficult final exam, which counts toward 80% (=30% + 50%) of the course assessment.

If the final exam is missed, you will not pass the course. No make-up final exam will be provided.

A. Homework assignment 10%. There will be 3 Group HWs.

Note:

- 1) There should be 3 or less than 3 persons in each group.

Please submit the soft copy of the assignment to us through CANVAS:

For the soft copy, please sign the name on the cover page of assignment (before the deadline); otherwise, you will have no record for HWs. The excuses, i.e., “forget to sign”, “Other members submit the HW without notice” etc. are not accepted.

For CANVAS, visit <http://canvas.ust.hk> and click on “My Assignments”

Note: CANVAS will automatically close the submit channel right after the deadline. It is the supporting evidence to your punctual submission of homework. No argument is allowed for those students who claim that they have submitted the homework, but CANVAS did not receive it, or there is no **submit** button. Because the **submit** button is gone automatically right after the deadline. You are strongly recommended to test the **submit** button and submit your homework earlier.

2) Free riding is not allowed.

If you do not join the discussion of HWs, other members from your group have the right to submit HW without your permission and without your name on it. In addition, if you have little contribution in the discussion (e.g. Show up without preparation), your groupmates can send an email to notice me.

Note: you can use ZOOM meeting, WeChat or WhatsApp for discussion. Please keep a record just in case you need to file a complaint.

B. Participation through the Curriculum 10%.

Your active participation is crucial for this course.

How to get full mark of performance? You will get full mark if attend 10 or more than 10 lectures. If you attend less than 10 lectures, your mark will be counted proportionally.

You cannot leave in the middle of the lecture. If you have something else to do during the period, please choose not to attend the lecture on that day. If you leave in the middle of the lecture, you will get 0% for your participation.

GRIEVANCE PROCEDURE

If you disagree with grades that have been assigned to your work, you have the possibility to meet instructors within one week after the grades have been published on the course website. Be specific about what it is that you do not agree with.

ACADEMIC INTEGRITY

Academic dishonesty includes, but is not limited to, cheating, plagiarizing, fabricating of information facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of other groups, or tampering with the academic work of other groups. All exam answers must be your own, and you must not provide any assistance to other students during exams. Current university policy on academic dishonesty is “if a student is discovered cheating however minor the offence, the course grade will appear on the students' record with an X, to show that the grade resulted from cheating.” This X grades stays on the record until graduation. If the student cheats again and “earns” another X grade, the student will be dismissed from the university.

Submit your soft copy of assignment to us on Canvas which will be the supporting evidence of your submission of assignment. Late submission will not be accepted.