

**ISOM 3530**  
**A Second Course in Business Statistics**  
**FALL 2016**

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**Class Meets:**

- Lecture: LSKG005 on Tuesdays & Thursdays 09:00 – 10:20
- Tutorial: LSKG005 on Fridays 09:30 – 10:30

**Course Objective and Intended Learning Outcomes**

The course provides an introduction to statistical thinking and statistical methods for business students. Data analysis, modeling variables by regression, diagnostic checking the adequacy of the model, the general model building procedure and the analysis of variance for designed experiment will be discussed. Theory will be presented whenever appropriate. The emphasis is, however, on the applications to business related problems. The goals to be accomplished in this course are:

- To practice a scientific approach to problem formulation and solution.
- To understand and apply basic statistical analysis to practical problems and to present the result in a meaningful way.
- To recognize and remedy shortcomings in statistical analysis.

**Course Materials**

- Required Textbook: Kleinbaum, David G., Kupper, Lawrence L., Nizam, Azhar, and Rosenberg, Eli S. (2014). *Applied Regression Analysis and Other Multivariable Methods*, 5th Edition, Cengage Learning, ISBN-10: 1-285-05108-4, ISBN-13: 978-1-285-05108-6.
- Lecture notes and assignment questions will be posted on course website (<https://canvas.ust.hk/>)
- Required software: MINITAB

## Prerequisite or Background

ISOM 2500 or MATH 2411

## Evaluation

<b>Assessment</b>	<b>Weight</b>
Assignments	10%
Minicases:	
Minicase 1	10%
Minicase 2	20%
Midterm Exam	25%
Final Exam	35%
Total	100%

## Explanation of Assessment

- **Assignments**

Assignments will be given regularly throughout the semester and you are allowed to work individually or in a team of no more than three members. You are required to **show your work clearly** and **NO** credit will be given if it is not met. All assignments will be collected and returned by your teaching assistant during the weekly tutorial sessions.

- **Minicases**

There will be two minicases for this course and you are supposed to work in a team of no more than three members. These minicases require the use of the MINITAB software to perform some data analyses and the reports must be typed or they will not be accepted. Computer outputs such as graphs and computational results must accompany the reports, either at the end, as an appendix, or incorporated into the main body. All computer outputs must be original printouts; photocopies will not be accepted. Again, the minicases will be collected and returned by your teaching assistant during the weekly tutorial sessions.

- **Midterm & Final Exams**

There will be a midterm exam and a final exam for this course and they will be closed book, closed note. However, you may prepare a summary sheet (A4-sized) and the relevant statistical tables will be provided. The summary sheet with your name on it must be turned in along with the exam. Last but not least, remember to bring your own writing instruments and calculator as you are not allowed to use mobile phone as substitute or share writing instruments and calculator with you fellow classmate.

## **Student Responsibilities/Behavioral Expectations**

- **Personal Electronic Devices (PED)**

PED such as cell phones, blackberries, mobile presenters, wireless tablets, digital recorders, beepers, palms, iPods, MP3 players, camera phones or digital cameras are not to be used during class unless the professor authorizes their usage for a class-related purpose. In particular, cell phones are to be turned off and are not to be used during a class. Students using any electronic device in class for an activity not related to the learning experience, or without instructor's authorization will receive a verbal warning for the first offence. If a second offence occurs, the student will be expelled from the class session and will receive no credit for any activities or assignments scheduled for that day. A third offence results in the removal of the student from the course.

- **E-mail Procedures**

Student **MUST** use the HKUST student email address for all emails in this course (xxx@stu.ust.hk). The SUBJECT line in all emails must be exactly:

- ISOM3530SECxx: *The subject of your email.* For example, if you are a student in Section 1 of ISOM3530 writing to enquire about your assignment, your subject line would say => ISOM3530SEC01: Assignment Inquiry

Also, remember to sign with your full name and student identification number.

- **Participation**

Your participation in class is important for your understanding of the course material even though it is not listed as a component in the Evaluation section. Quality participation will be consequently factored into your final grade for the course.

## **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 grade stays on the record until graduation. If the student cheats again and "earns" another X grade, the student will be dismissed from the university. Please make sure you adhere to the HKUST Academic Honor Code at all time (see <http://www.ust.hk/vpao/integrity/>).

## Tentative Course Outline

<b>Dates</b>	<b>Chapters</b>	<b>Topics</b>	<b>Remarks</b>
<b>Weeks 1 - 3</b> Sep 1 – 23	1 – 3	Class Organization and Topic 1 (Review of Basic Statistical Concepts): descriptive statistics, probability and distributions (normal, $t$ , $F$ and sampling distributions) and inferential statistics (estimation and hypothesis testing).	Sep 1 – 14: Add/Drop Period
<b>Weeks 4 - 5</b> Sep 26 – Oct 7	4 – 7	Topic 2 (Simple Linear Regression Analysis): fitting the simple linear regression equation (method of least squares), understand the underlying assumptions of the simple linear regression model, making inferences about the regression coefficients, assessing the fit of the regression equation and using it for estimation and prediction, and residual analysis.	
<b>Weeks 6 - 9</b> Oct 11 – Nov 4	8 – 16	Topic 3 (Multiple Regression Analysis): fitting the multiple regression equation (method of least squares), understand the underlying assumptions of the multiple regression model, making inferences about the regression coefficients, assessing the fit of the multiple regression equation and using it for estimation and prediction, comparing two multiple regression models and discussing the different variable selection methods. Problems in multiple regression & residual analysis.	Oct 14: Minicase 1 due Oct 20: Midterm Exam
<b>Weeks 10 - 11:</b> Nov 7 – 18	17 – 19	Topic 4 (Analysis of Variance): Analysis for Completely Randomized Design, Randomized Block Design, Two-Way Factorial Experiments and Multiple Comparisons of Means.	
<b>Weeks 12 - 13:</b> Nov 21 – 30	22 & 24	Topic 5 (Nonlinear Regression Analysis): Logistic & Poisson Regression Analyses.	Nov 25: Minicase 2 due
<b>Weeks 13 - 14:</b> Dec 1 – 6		Study Beak	
<b>Weeks 14 - 16:</b> Dec 7 – 19		Final Exam (Date, Time & Location will be announced later)	

*Note: Both the syllabus and course outline are subject to change without notice at the instructor's discretion.*