ISOM2600 (L1-L6)
Fall, 2023
Introduction to Business Analytics

DESCRIPTION
This course introduces students with the foundation needed to apply data analytics to real-world challenges they will confront in their future career. It covers statistical methods in descriptive analytics and predictive analytics, including regression, variable selection. This course provides students with the fundamental concepts and tools needed to understand the emerging role of business analytics in organizations and shows students how to apply basic business analytics methodology using the current popular software, and how to communicate with analytics professionals to effectively use and interpret analytic models and results for making better business decision. Emphasis is placed on statistical reasoning and interpretation of results, rather than proof of theory and coding. Students only use Python language as a tool to analysis data.

LEARNING OBJECTIVE
1. To gain an understanding of how managers use business analytics to formulate and solve business problems and to support managerial decision making.
2. To select and apply appropriate statistical models in the analysis of quantitative and qualitative data from a variety of business scenarios.
3. To learn how to use Python to apply the statistical models on the business problems.

PREREQUISITES
ISOM2500 Business Statistics
ISOM2020 Coding for Business

LECTURE
Instructor: Prof Xuhu Wan, imwan@ust.hk

Teaching Assistant:
Enoch Yin L1, L2, L6 (imyin@ust.hk)

ssignments . Lab instructors will be

Enoch Yin LA3, LA7, LA8 (imyin@ust.hk)

COURSE WEBSITE
http://canvas.ust.hk

SYLLABUS
This syllabus is subject to change in the event of extenuating circumstances. We will learn how to do data analysis with python. The assignments will ask you to do some simple coding. But the exam will not test how to code from the scratch but will test your understanding of codes. For example what is data.std()? You will know that it is to calculate the standard deviation of the data. To do this course well, you cannot forget things learned from ISOM2500. Topic 1 and 2 are challenging parts which are the bridge between ISOM2020 and analytic part. Topic 3 and Topic 4 are extensions from ISOM2500. You will see some fun applications.

Topic 1: List, Array and Pandas (1 Lecture)
- List
- Array
- Pandas DataFrame and Series

Topic 2: Data Processing (2.5 Lectures)
- Missing data
- Data slicing
- Feature engineering
- Exploratory data analysis

Topic 3: Learning Regression with Python (2.5 Lectures)
- Review of simple linear regression model
- Parameter Estimate and Interpretation
- Residual Analysis
- Multicollinearity
- Hypothesis testing and confidence interval
- Evaluate prediction accuracy using test set
- Make prediction and outliers

REFERENCE BOOK
* Python Data Science Handbook, Jake Vanderplas

PROGRAMMING LANGUAGE
Python

GRADING
Your grade in the course is based on: Lab assignment 30%, Final exam 60%, Class participation 10%

Lab Assignment 1 (3 students/group) 15%

Lab Assignment 2 (3 students/group) 15%

Final exam (individual, Multiple choice, 1 hour) 60%

Class participation (In class quiz) 10%

Class participation (in class quiz) 10%

Notes:

A. Lab assignment 30%. There will be 2 Group HWs.

Note:

1) There should be 3 persons (You can choose to do it alone)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.

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 don't 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 group-mates 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. Final Exam 60%

Individual, 30MC, 1-hour exam. Python will be tested.

Appropriate documentation proving the student's illness on the day of the missed final assessment MUST be provided. The make-up final will have 35 MC questions in 1 - hour since you have more time to prepare comparing to your classmates.

C. Class participation 10%.

How to get full mark of class participation?

Finish the in-class quizzes in the first three lectures. (Lecture 4,5,6 and lab participation will not be counted toward the 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 don't 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.