IS 4861 – Machine Learning for Business (2019/20 Sem A)
The City University of Hong Kong

*Time & classroom:	12:00 - 14:50 Wed LI-4307 (Online Mode)
Instructor:	Junming Liu, Ph.D. Assistant Professor, Dept IS, CityU
Email:	junmiliu@cityu.edu.hk (Please put IS4861 in email subject line)
*Office:	**AC3 6-276 (3442-9323)**
*Office hours:	Email Appointment

*COURSE OBJECTIVES

Nowadays, the rapid development in social media, smart devices, and the Internet of Things (IoT) resulted in an explosion of data available for analysis. The unprecedented abundance of data gives rise to both value creation opportunities and technical challenges.

Together with other related courses, in this course, students will learn to appreciate the superior value of data through analytics in different applications, such as in finance, marketing, etc. To handle the large amount data for analysis, new technology solutions have been proposed, implemented and improved. This course introduces the practical skills to process and analyze data, which can facilitate more innovative data analysis and decision making applications.

The course will learn to use Python and third party packages in data collection, preparation, and preliminary modelling and visualization. The course will also study issues related to Deep Learning. Upon successful completion of this course, students should be able to better facilitate data-related projects/applications and generate business value.

MATERIALS

Recommended Book:

1. *Introduction to Data Mining*, Pearson, 2019. Pang-Ning Tan; Michael Steinbach; Anuj Karpatne; Vipin Kumar. ISBN-13: 978-0133128901
   eTextbook Link
2. *Hands-On Machine Learning with Scikit-Learn and TensorFlow; Concepts, Tools, and Techniques to Build Intelligent Systems,* OReilly Media, 2017, ISBN-13: 978-1491962299.

***Reading Materials:**

Pending

CLASSROOM POLICIES

Please use only **English** in the classroom and for class related issues. Thanks.
Please do not disturb other people in the classroom (e.g., turn off your cell phones, beepers, & pagers; be on time to the lecture; hold your voice in discussion, etc). Thanks.

GRADING POLICY

Class Participation (30%):
You are expected to attend all classes. I will take attendance. Besides, you participation will be received in a variety of ways, such as answering questions, presentation, quiz, etc. Your participation in online and in-class discussion is highly recommended and will be considered in your final grade.

Assignments (40%):
You effort in homework assignments will be considered in final grading. All exercises and assignment are expected to be handed in on time. Late submissions will only receive partial credits.

Explorative Project (30%):
Students will be invited form small groups (sized 3-4 members) to conduct a projects that applies concepts and techniques learned in the course to investigate real-life problems. They are expected to illustrate the ability to integrate multiple techniques in solving the problem and able to explain the project properly to the classmates.

COURSE SCHEDULE (*TENTATIVE*)

Week	Date	Topics
1	Sep 2	Course Overview
2	Sep 9	Machine Learning process; Python Programming
3	Sep 16	Feature Engineering
4	Sep 23	Advanced Prediction Models I
5	Sep 30	Advanced Prediction Models II
6	Oct 7	Advanced Classification I
7	Oct 14	Advanced Classification II
8	Oct 21	Introduction to Artificial Neural Networks
9	Oct 28	Introduction to Tensor flow
10	Nov 4	Recurrent Neural Networks
11	Nov 11	Deep Learning
12	Nov 18	Course Summary and a real-world case study
13	Nov 25	Project Presentation
Dec 7~19		Final Exam

OTHER IMPROTANT DAYS

Course add/drop deadline	Week 1
Late drop (other than exceptional case)	Week 5
Online Teaching Feedback Questionnaire (TFQ)	Week 11 to Week 13

HINTS FOR SUCCESS

Review materials every week
As me **whenever** you have questions, do not wait to the end
Get your hands dirty -- on the keyboard
Develop a sense of "solving problems using programming"
Try to combine your business knowledge into our projects. The more thinking, the better.

ACADEMIC DISHONESTY

Academic Dishonesty occurs whenever any action or attempted action is pursued that creates an unfair academic advantage or disadvantage for you and/or any member or members of the academic community. All forms of academic dishonesty are subject to sanctions under the Code of Academic Integrity. Sanctions include: written warning, reduction in grade for work involved, disciplinary probation, loss of credit for work involved, failing grade in the course, suspension, and/or expulsion. Various forms of academic dishonesty include, but are not limited to cheating, fabrication, facilitating academic dishonesty, and/or plagiarism.

I assume that you have complete integrity in all your class efforts. Violations of the University's Honor Code will be taken extremely seriously, and they will be addressed promptly according to the established procedures of the City University of Hong Kong. The Code of Academic Honesty can be found at http://www.ap.cityu.edu.hk/safety/academic-honesty.pdf.

ACCOMMODATIONS

If you have an authorized disability and need accommodation, please see me in the first couple of class. Should an accident occur during the semester, please let me know as soon as possible.

Disclaimer:

By continuing with the class, you are assumed to have read and fully agree with the above terms. If you have any problems/questions with the terms, please see the lecturer before class adding/dropping deadline.