

IS6400 – Business Data Analytics (2021/22 Sem B)

*Time & classroom: **IS6400-S61** TBD
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TA: TBD

COURSE DESCRIPTION

The course aims to teach students the process, models, and tools for data analysis and analytics in business, such as in finance, marketing, etc. The course will teach students the practical skills to implement software packages (such as spreadsheets and Python) to tackle business data analysis problems for corporation manage, and decision making. On completion of the course students should be able to

1. understand the target and requirements of a selection of critical business data analysis problems.
2. manage the statistical techniques and machine learning models for data analytics.
3. implement the models into a software packages, such as Python, and adapt the models through programming capabilities.
4. analyze and interpret the outputs of models to support decision making in finance, marketing, accounting, etc.

READINGS:

Instructional Materials: Lecture slides, tutorial materials and other readings will be distributed throughout the semester.

Textbook (optional):

1. *Introduction to Data Mining*, Pearson, 2019. Pang-Ning Tan; Michael Steinbach; Anuj Karpatne; Vipin Kumar. ISBN-13: 978-0133128901 [eTextbook Link](#)
2. *Business Analytics: Data Analysis and Decision Making*, Albright, S.C. and Winston W.L., Cengage Learning, 2014.

ASSESSMENT:

Item#	Assessment	Weight
1	Class Participation	5%
2	Individual Assignments	25%
3	Group Project Presentation	10%
4	Group Project Report	20%
5	Exam	40%

COURSE SCHEDULE (*TENTATIVE*)

Week#	Lecture	Hands-on Tutorial
1	Course Introduction	ETL Processes
2	Descriptive Analytics	Descriptive statistics and correlation analysis
3	Feature Selection and Dimension Reduction	Principle Component Analysis
4	PCA continues; Data Reduction: FA	Factor Analysis
5	Predictive Analytics: Time series analysis	Holt's Model
6	Project Briefing	
7	Unsupervised Learning: Bisecting KMeans, DBSCAN	Clustering Methods
8	Supervised Learning: Decision Trees, Ensemble Learning	Classification Methods
9	Deep Learning and Text Mining	Text mining
10	Model Assessment	Model Selection
11	Course Review	
12	Group Project Presentation	
13	Group Project Presentation	

Notes about grading:**1. Class Participation**

In several classes that are chosen randomly, an in-class quiz (and signup sheet) will be conducted during the class. The portion of times that you conduct quiz correctly (and in class) will be used to assess your participation grade.

2. Individual Assignments

There are about eight assignments, which will be distributed later in the semester. Assignments are highly related to the lectures and the tutorials conducted in class. Late submission will result in 20% deduction per day delay.

3. Group Reports

The project presentations and report will be graded according to the quality of presentation and report. Detailed guidance about the group presentation and report will be discussed in the class. Late submission for group report will result in 10% deduction per day delay.

4. Final Exam

A final exam will be given at the end of the semester, which will cover the course materials in the lectures and labs.