Course Introduction

Phuc H. Duong, *M.Sc.*

phuc@it.tdt.edu.vn

Outline

- Course description

- Syllabus

- Textbooks

- Teaching materials

- Assessment

- Policies

- Teaching staffs

Course description

- This course is designed to introduce students to business intelligence concepts and provide students with an understanding of data mining techniques, mathematical models along with business intelligence tasks, e.g., regression, time series, classification, association rules, clustering.

- We also provide some business intelligence applications.

- Practical experience will be gained by practicing hands-on tutorials with leading BI software (Tableau).

Course goals

- The student will define the importance of business intelligence.

- The student will understand and be able to apply data mining techniques in various business intelligence tasks.

- The student will understand how to use the Tableau software.

Course contents

- This course is broken down into **15** modules designed to provide the student with an overview and details of business intelligence and data mining, together with hands-on practices. Each module contains a prescribed reading, an assignment, and a quiz.

- This course uses weekly sessions to enrich the course and promote interaction as a vital skill in improved idea creation, analysis, and decision-making.

Tentative Syllabus

Week	Subject	Book
1	Introduction to Business Intelligence Read: • Introducing Visualization and Tableau • Catching Up with Tableau 2019 • The Tableau Core • Getting Started with Tableau Desktop	[1] – I.1 [2] – 1 [3] – 1 [3] – 2 [3] – 3
2	Decision support systems Data warehousing Hands-on Practice: • Working with Single and Multiple Data Sources • Connecting to Data and Simple Transformations • Building an Efficient Data Source	[1] – I.2 [1] – I.3 [2] – 2 [3] – 4 [3] – 5
3	Mathematical models for decision making Math: • Mean, Median, Mode, Varian, Standard deviation. Hands-on Practice: • Simplifying and Sorting Your Data	[1] – II.4 [2] – 3

Tentative Syllabus

Week	Subject	Book
4	Data mining Data preparation Math: • Interpolation Hands-on Practice: • Measure Names and Measure Values • Design Insightful Visualizations	[1] – II.5 [1] – II.6 [2] – 4 [3] – 6
5	Data exploration (Part 1) Math: • Lagrange bilinear interpolation Hands-on Practice: • Table Calculations • Powerful Dashboards, Stories, and Actions	[1] – II.7 [2] – 5 [3] – 7
6	Data exploration (Part 2) Math: • Chi-square test Hands-on Practice: • Customizing Data • Publishing and Interacting in Tableau Server	[1] – II.7 [2] – 6 [3] – 8

Tentative Syllabus

Week	Subject	Book
7	Regression (Part 1) Hands-on Practice: • An Introduction to Calculations	[1] – II.8 [3] – 9
8	Regression (Part 2) Hands-on Practice: Statistics	[1] – II.8 [2] – 7
9	Time series (Part 1) Hands-on Practice: • Chart Forms	[1] – II.9 [2] – 8
10	Time series (Part 2) Hands-on Practice: • Advanced Visualization	[1] – II.9 [2] – 9
11	Classification (Part 1) *Hands-on Practice:* • Dashboard and Stories	[1] – II.10 [2] – 10

Tentative Syllabus

Week	Subject	Book
12	Classification (Part 2) Hands-on Practice: • Analytics and Parameters	[1] – II.10 [3] – 10
13	Association rules Hands-on Practice: • Advanced Data Connections	[1] – II.11 [3] – 11
14	Clustering Hands-on Practice: • Dealing with Security	[1] – II.12 [3] – 12
15	Business intelligence applications - Marketing models - Logistic and production models - Data envelopment analysis	 [1] – III.13 [1] – III.14 [1] – III.15

Textbooks

1. Carlo Vercellis. *Business Intelligence: Data Mining and Optimization for Decision Making*. New York: Wiley, 2009.

2. Seema Acharya, Subhashini Chellappan. *Pro Tableau: A Step-by-Step Guide*. Apress, 2017.

3. Tristan Guillevin. *Getting Started with Tableau 2019.2, Second Edition*. Packt Publishing, 2019.

Teaching Materials

- All resources (lectures, exercises, etc.) are available on the following sites:

    - https://duonghuuphuc.com/teaching/cs504049

    - Google Classroom (Code: **hlhfygr**)

Assessment

- **10%**   Exercises (on-class + homework)

- **20%**   Mid-term Test (on-class)

- **20%**   Assignment & Seminar

- **50%**   Final project

Assessment

- **Assignment**

  - The mid-term is graded based on exercise in each week

  - There are at least 10 exercises, the grade will be the average of them

- **Mid-term Test (on-class)**

  - We will hold a mid-term test on-class on (5-11/10 – Tentative).

Assessment

- **Seminar**

    - Each group will study several materials assigned by the instructor

    - Some groups will instruct the class to practice with Tableau

    - Prepare, make presentation and lead classroom discussion

    - The seminar will start from 4th week

    - Recommend using *English* for report document, slide, oral presentation

Assessment

- **Final Project:**

    - The topics will be chosen in consultation with the instructor

    - Using LaTex format for both documents and slides

    - Recommend using *English* for report document, slide, oral presentation

Plans

- 10/8 – 15/8: group registration

- 17/8 – 22/8: assign Seminar topics (instructor)

- 17/8 – 22/8: propose Final Project (FP) topic

- 24/8 – 5/9: present FP proposal

- From 7/9: present Seminar topic

- From 11th week: present FP

Policies

- Attendance

- Collaboration rule

- Academic honesty

Attendance

- For blended class sections, attendance is defined as arriving on time, participating with group discussion, and remaining until dismissed by the instructor at each meeting. The roll is taken at every class meeting. More than one missed class will likely have a negative effect on your final grade. In addition to regular attendance, active participation is also monitored. If you are not routinely completing discussions, quizzes, lab assignments, you risk being dropped from the course for lack of active participation. If you miss more than three classes overall, you may also risk withdrawal for lack of active participation, regardless of your current course grade. Students that are withdrawn from class will no longer have access to the course content for the class.

- For online class sections (if any), attendance and participation are determined by active interaction in the weekly discussion forums and submission of assignments. Failure to complete at least 50% of the work each week will be deemed as lack of active participation in the course.

Collaboration rule

- Students may work with other students on programming assignments but submitted programs must be entirely the work of the submitting student. Please do not refer to course materials from previous terms.

- Collaboration on quizzes and tests is not allowed. If you somehow violate the collaboration policy, your best option is to tell the lecturers before we notice. Mistakes you confess are forgivable.

Academic honesty

- Followed by the regulations of the University.

Teaching Staffs

- **Phuc H. Duong, *M.Sc.***

    - Email: phuc@it.tdt.edu.vn

    - WWW: www.duonghuuphuc.com

    - Office: Room C.112, TDTU Campus

- [And my excellent students and alumnus]

Contact Info

- Contact Form

  - https://forms.gle/rs8sYA5YRz5HvqS57

- Absence Request Form

  - https://forms.gle/oHVz9k1z6ziSGqC67

Too much information!

When the world goes to sleep, developers stay up to chase their dreams.

-- **Apple WWDC 2019**