

Standard Course Outline

IS 670 Business Intelligence

I. General Information

- ♦ Course number: IS 670
- ♦ Title: Business Intelligence
- ♦ Units: 3
- ♦ Prerequisites: Graduate standing, IS 601
- ♦ Course Coordinator: Hongyu Chen
- ♦ SCO Prepared by: Hongyu Chen
- ♦ Date prepared/revised: Apr. 27, 2016

II. Catalog Description

Extract information and knowledge from large volumes of data or internet using BI software. Theories and applications in business intelligence, and business analytics. Topics include data visualization, business reporting, dimensional model, recommender system, web text mining, advance customer analytics.

III. Curriculum Justification(s)

Businesses have accumulated a huge amount of data after adopting modern information technologies such as ERP, database and email systems. These data, however, are underutilized, since majority of these data purely serves as records of business transactions. However, these large volumes of data potentially could reveal useful information about the target of interest—customers, in most business contexts. The primary objective of this course is to introduce students to various techniques available to extract useful information from the large volumes of data an organization might possess.

The course will cover general concepts in the BI field (report authoring, ETL), along with many popular data mining techniques like association rules and decision trees, neural networks, classification clustering and advance topics like user-generated content analysis. The focus will be on how the techniques are to be used, and the details of the methodologies will be covered to the extent necessary to understand when and how each technique can be used. Students will also gain experience using BI/DM software (IBM Cognos, SPSS Modeler, MS PowerPivot, SSIS, SSRS and SSAS).

Upon completion, the student will meet the following four specific CBA learning goals:

Learning Goal #6 – Quantitative and Technical Skills

IV. Course Objectives, Student Learning Outcomes, Evaluation Instruments, and Instructional Strategies for Skill Development

OBJECTIVE: To advance students' quantitative and technical skills.

MEASURABLE OUTCOME: Students who pass IS 670 must demonstrate ...

- ability to create data visualization, build data model using PowerPivot, and create interactive reports and dashboard using PowerView

- ability to design BI solutions using commercial BI packages (IBM Cognos, MS SQL server).
- ability to tackle data intensive projects using data mining software.
- ability to using text mining technique to enhance knowledge discovery.

EVALUATION INSTRUMENTS: Specific assignments will vary by instructor, but typical assignments include take-home assignments, in-class exams and take home projects.

INSTRUCTIONAL STRATEGIES: Since data mining is a computer intensive area, the instruction should include demonstration and hand-on for each section. Standards for good discovery report will be discussed in class before and after written assignments.

V. Outline of Subject Matter

1. Introduction to BI, business reporting, data mining
2. Database theory
3. Data visualization, pivot table, pivot chart, drill through
4. PowerPivot, PowerView, PowerMap, Data Analysis Expressions (DAX)
5. Dimensional analysis, SSAS
6. ETL, SSIS
7. SSRS, cognos BI
8. Association rules
9. Clustering , segmentation and hierarchical clustering
10. Classification (Naïve Bayes, Regression, Decision Tree)
11. Classification II (Logistic Regression)
12. Collaborate filtering, KNN
13. Customer analytics - consumer choice, counting & timing, customer loyalty, life-time value, profitability, survival etc.
14. Text mining
15. User-generated content analysis

VI. Methods of Instruction

A. INSTRUCTION MODE.

- Traditional Hybrid Local Online Distance Education

B. CLASSROOM ACTIVITIES.

- i. Demonstration using computer
- ii. Hands-on.

C. EXTENT AND NATURE OF TECHNOLOGY USE.

- i. Extensive usage of computer

VII. Information about Textbooks/Readings

IBM Cognos Business Intelligence 10, by Dan Volitich and Gerard Ruppert, ISBN 9780071775939

Knights' Microsoft Business Intelligence 24-Hour Trainer, by Brian Knight, Devin Knight, Adam Jorgensen, Patrick LeBlanc, Mike Davis. ISBN 9780470889633

Data Mining for Business Intelligence: Concepts, Techniques, and Applications in Microsoft Office Excel with XLMiner, 2e, by Galit Shmueli, Nitin Patel and Peter Bruce. Wiley, ISBN-10: 0470526823, ISBN: 978-0470526828

Predictive analytics : the power to predict who will click, buy, lie, or die, by Eric Siegel, Wiley, ISBN: 9781119145677

Business intelligence : a managerial perspective on analytics by Sharda and Ramesh, Pearson, (ISBN 9780133051056)

Required Software : MS Excel, MS SQL server, IBM SPSS Modeler

VIII. Instructional Policies Requirements

Instructor's syllabi must contain explicit statements regarding their own policies with regard to plagiarism, withdrawal, absences, etc., which should be consistent with the University policies published in the CSULB Catalog. It is expected that every course will follow University policies on [Attendance \(PS 01-01\)](#), [Course Syllabi \(PS 04-05\)](#), and [Final Course Grades, Grading Procedures, and Final Assessments \(PS 12-03\)](#). If some or all sections of the course are to be taught, in part or entirely, by distance learning, the course must follow the provisions of [Academic Technology and the Mode of Instruction \(PS 03-11\)](#).¹ Instructors should refer to the current [CSULB Catalog](#) and to the [Academic Senate website](#) for campus guidelines and policy statements as they develop their individual course policies.

All sections of the course will have a syllabus that includes the information required by the syllabi policy adopted by the Academic Senate. Instructors will include information on how students may make up work for excused absences. When class participation is a required part of the course, syllabi will include information on how participation is assessed.

IX. Course Assessment and Grading (Optional but highly recommended for core courses)

A. Assessment Criteria

Homework

Students will complete individual and group based homework profiling their competence in various subject matters.

Quizzes and Exams

¹ The university policies listed are active as of 2015-2016 but may be subject to change in the future. For the most up-to-date policies, refer to the Academic Senate website's [Policy Statements](#).

Students will complete mid-term exam (required), and final exam (required).

Projects

Instructors are strongly encouraged to assign comprehensive course project (group) that requires problem solving and uses Excel to conduct real-world data analysis.

B. Required Statement

In compliance with university policy: Final grades will be based on at least three, and preferably four or more, demonstrations of competence. In no case will the grade on any class tests count for more than one-third of the course grade.

C. Attendance, Withdrawal, Late Assignments

Students are expected to attend courses and turn in assignments on time. Specific attendance and late assignment policies are up to each individual instructor's discretion. The withdrawal policy is the same as that of the university.

X. Disabilities

Students with disabilities are responsible for notifying their instructor as early as possible of their needs for an accommodation of a verified disability. A student with a disability is urged to consult with Disabled Student Services as soon as possible in order to identify possible accommodations to enhance academic success.

XI. Assistive Technology

In compliance with Accessibility and Faculty Responsibility for the Selection of Instructional Materials (PS 08-11), instructors are responsible for ensuring that their syllabi and instructional materials are accessible to all students.

XII. Bibliography (Optional)

XIII. Consistency of SCO Standards across Sections

XIV. Additional Resources for Development of Syllabi

- ♦ University policy [Course Syllabi and Standard Course Outlines \(PS 11-07\)](#)
- ♦ Academic Technology (ATS) [Accessible Syllabus Template](#)
- ♦ Faculty Center for Professional Development (FCPD) [Sample Syllabus Template](#)