

Standard Course Outline

I. General Information

- ♦ Course number: SCM 620
- ♦ Title: Business Analytics
- ♦ Units: 3
- ♦ Prerequisites: Graduate standing
- ♦ Course Coordinator / SCO Prepared by Dr. Xuemei Su
- ♦ Date prepared / revised: Jan. 15, 2013

II. Catalog Description

Use advanced techniques such as predictive analytics, optimization, and simulation to make data-orientated decisions that improve operational effectiveness and supply chain coordination. Topics include business statistics, Solver, dynamic optimization, and case studies using Arena simulation. Letter grade only (A-F).

III. Curriculum Justifications

Business Analytics combines operations research and operations management, and use applied mathematics and computer applications in a business environment. Due to vast amount of business data readily available in the digital era, business organization has resorted to analytical tools to dig out useful information from data and base managerial decision upon it. Recent graduate students with business analytics training have found excellent job placement, with positions as analysts in many functions, including supply chain management, manufacturing, operations, health-care analysis, marketing research, and consulting, among others. The hands-on skills gained from this course prepare students to be a well-rounded professional in the operations and supply chain management field. Embedded in the specific subject matter of the course is an appreciation of the following CBA graduate learning goals:

- Critical Thinking (General)
- **Quantitative & Technical Skills** (Management-specific)

IV. Course Objective(s)

The following six course objectives have been identified

- Find, extract, organize, and describe data to support business decisions
- Understand and apply quantitative modeling techniques, including probability, statistics, optimization, and simulation, to the solution of business problems.
- Achieve additional depth in one or more of the above techniques.

- Use standard and advanced business analytics technologies and software to derive cross-functional solutions for business problems such as transportation & transshipment modeling, personnel assignment, simulation, & decision analysis.
- Develop skill in modeling and quantifying in unstructured or new environments
- Communicate findings effectively both orally and in writing.

V. Outline of Subject Matter

Topics to be covered:
Business Analytics overview
Probability distribution
Descriptive and graphical statistical methods
Sampling and sampling distributions, estimation
Regression
Linear programming formulation
Computer solutions; Sensitivity analysis
Network LP models, Integer LP
Nonlinear optimization
Goal programming
Basic of Spreadsheet modeling, Excel tutorial
Advance Excel skills, write customize function using VBA
Simulation
Decision analysis
Case Study: Transportation & transshipment modeling
Case Study: Customer life-time value, profitability, survival

VI. Methods of Instruction

- a) Instructors should use appropriate instruction methods that are consistent with the graduate level of instruction and the course description stated in Section II, and serve the course objectives listed in Section IV of this SCO. Examples of instruction methods for the course include:
- Class lecture/examples/discussion
 - Individual and team case analysis
 - Individual and team projects
 - Simulations
- b) The textbooks for this course should be chosen in accordance with the University Policy on textbooks. Instructors should use appropriate readings, cases and/or text books that are consistent with the graduate

level of instruction and the course description stated in Section II, and serve the course objectives listed in Section IV of this SCO. Given the diverse nature of the material covered, a custom course pack may be appropriate. The following is illustrative:

- An Introduction to Management Science: Quantitative Approaches to Decision Making, 13e, South-Western, Thomson Learning, ISBN 0-324-20231-8
 - Data Analysis & Decision Making with Microsoft Excel, 4th edition, South-Western Cengage Learning, ISBN 0-324-66244-0
 - Appropriate graduate level cases from Harvard or Ivey
 - Business analytics instruction manual, SAP University Alliance.
- c) Instructors in planning the exams, and other grading procedures, should adhere to the relevant University Policy on “Grades, Grading Procedures, and Final Assessments, Final Course.” Examinations must be essay-type and/or problem solving questions and avoid the predominant use of multiple-choice questions.

VII. Instructional Policies Requirements

Instructional policies should be consistent with the course description stated in Section II, and should serve the course objectives listed in section IV of this SCO.

Instructors may specify their own policies with regard to plagiarism, withdrawal, absences, etc., as long as these policies are consistent with the University policies published in the CSULB Catalog. It is expected that every course will follow University policies on Final Course Grades, Grading Procedures, and Final Assessments (PS 05-07), Attendance (PS 01-01), Course Syllabi (PS 11-07), Final Course Grades, Grading Procedures, and Final Assessments (PS 05-07), and Withdrawals (PS 02-02 rev). If some or all sections of the course are to be taught, in part or entirely, by distance learning in the future, the course must follow the provisions of PS 03-11, Academic Technology and the Mode of Instruction.

All sections of the course will have a syllabus that includes the information required by the syllabus 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.

Students with 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.