Chaminade University OF HONOLULU

Course Number: BUS 324-01-1
Course Title: Quantitative Methods in Business
Department Name: Management Science, Business Analytics, Management Information Systems (MIS)
College/School/Division Name: School of Business and Communication
Term: Spring 2025 Semester
Course Credits: 3
Class Meeting Days: Mondays, Wednesdays, and Fridays
Class Meeting Hours: 10:30AM – 11:20 AM HST
Class Location: Sullivan Library Hall 201

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Office Hours: Mondays/Wednesday/Fridays 4:30PM-5:30PM HST or by appointment
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Other Professional Contact Information: eduardmerc (Skype) and @EdkoPletko (Twitter)

CHAMINADE UNIVERSITY MISSION STATEMENT

Chaminade University offers its students an education in a collaborative learning environment that prepares them for life, service, and successful careers. Guided by its Catholic, Marianist and liberal arts educational traditions, Chaminade encourages the development of moral character, personal competencies, and a commitment to build a just and peaceful society. The university offers both the civic and church communities of the Pacific region its academic and intellectual resources in the pursuit of common aims.
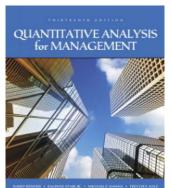
University Course Catalog Description

Catalog Description: Each of the business disciplines uses quantitative information in its planning, operations, and performance evaluation. This course introduces students to a variety of methods and tools for using quantitative data effectively: linear programming, Bayes Decision Rules, forecasting, multiple regression, network models, utility measures and inventory models. Offered every semester. Prerequisites: MA 103, BU 224.

Course Overview

DARE TO LEARN. DARE TO CHANGE. Digital learning removes limits and gives us the freedom to provide education anytime and anywhere, empowering us to overcome our most difficult challenges.[2]

Quantitative Analysis is one of the most widely adopted analyses in management science. Due to the availability of computer software and expansion of applications, quantitative models are now available for business solutions.

Many organizations have demonstrated that Quantitative Analysis is an effective competitive tool. When used with well-conceived marketing and financial plans, organizations have made major penetrations into global and other markets.

This course is designed to address the key challenges that have strategic as well as tactical implications, faced by organizations in the service, business, and manufacturing sectors.

Computer-based applications and examples are extensively used in this edition to help students to understand and connect management science with real world business. Successful procedures are applied to problems showing step-by-step "how – to" instructions. The use of application software allows to focus on managing and solving problems and less time on memorizing algorithms.

Excel software is used in many chapters to simplify formulas calculations. Students can download Excel QM v5.2 and QM for Windows v4 from www.pearsonhighered.com/render to install these apps on their devices.

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[1] Farsighted. How We Make the Decisions that Matter the Most" by Steven Johnson, New York Times best-selling author

[2] Pearson Higher Ed

Business analytics, one of the hottest topics in the business world, makes extensive use of the models in this textbook. A discussion of the business analytics categories is provided, and the relevant management science techniques are placed into the appropriate category.

Methods of Delivery

This course is designed to promote student participation through discussion of current business issues as they relate to the quantitative methods and how they are used in today's digital organization for managerial decision-making processes.

Students will learn to apply quantitative formulas and models, using a scientific approach, to develop pragmatic decision-making processes, e.g., how to operate business more efficiently and generate sales and profits. Each mathematical formula or model will be presented in the classroom to illustrate concepts and develop critical thinking skills and approaches to real-life business issues. Formulas and models may be the only way to solve some complex business problems. Of greater importance is the ability to communicate these problems and solutions to others, for example, the modeling and relationship between global warming and pollution control.

Methods of delivery include (but are not limited to) lectures, case studies, class exercises and/or activities, discussions, and guest speakers to name a few.

Program Learning Objectives (PLOs)

1. List and use appropriate quantitative tools, including statistics and management science, for decision-making process (knowledge)

2. Describe the functional areas of business, including central theories, modes of analysis, tasks, and strategies (comprehension)

3. Demonstrate the usage integrative and reflective thinking to assess and create business strategy appropriate for organizations in specified business environments (application)

4. Appraise and evaluate the legal obligations of organizations and the ethical dilemmas faced by businesses, along with appropriate frameworks for addressing these dilemmas (evaluation)

5. Formulate and organize the connections between academic work and real-life situations as a result of the Service-Learning experiences (synthesis)

Course Learning Outcomes (CLOs)

By the end of our course, students will be able to:
1. **Evaluate** the role of quantitative analysis in the overall business strategy of an organization (lower costs, increase production, reach revenue goals, grow investments, etc.).

2. **Determine** the use of the scientific approach in managerial decision-making processes.

3. **Gather, process, manipulate, transform, and interpret** raw data into meaningful information.

4. **Assess** the interdependence of quantitative analysis and other key functional areas in the organization.

5. **Identify and evaluate** key factors, both quantitative and qualitative and the interdependence of these factors in selecting appropriate models for an effective decision-making process.

Student Learning Outcomes – Service Learning

- To demonstrate an understanding of the connections between academic work and real-life situations.

Marianist Values

This class represents one component of your education at Chaminade University of Honolulu. An education in the Marianist Tradition is marked by five principles and you should take every opportunity possible to reflect upon the role of these characteristics below in your education and development:

Education for formation in faith

1. Provide an integral, quality education
2. Educate in family spirit
3. Educate for service, justice, and peace
4. Educate for adaptation and change

This class specifically reflects the component of providing an integral, quality education by teaching students about the most up-to-date industry topics of today's global business environment to prepare you for a successful professional career in business.

Native Hawaiian Values

Education is an integral value in both Marianist and Native Hawaiian culture. Both recognize the transformative effect of a well-rounded, value-centered education on society, particularly in seeking justice for the marginalized, the forgotten, and the oppressed, always with an eye toward God (Ke Akua). This is reflected in the ʻOlelo Noʻeau (Hawaiian proverbs) and Marianist core beliefs:
1. Educate for Formation in Faith (Mana) E ola au i ke akua (ʻŌlelo Noʻeau 364) May I live by God
2. Provide an Integral, Quality Education (Naʻauao) Lawe i ka maʻalea a kūʻonoʻono (ʻŌlelo Noʻeau 1957) Acquire skill and make it deep
3. Educate in Family Spirit (ʻOhana) ʻIke aku, ʻike mai, kōkua aku kōkua mai; pela iho la ka nohana ʻohana (ʻŌlelo Noʻeau 1200) Recognize others, be recognized, help others, be helped; such is a family relationship
4. Educate for Service, Justice, and Peace (Aloha) Ka lama kū o ka noʻeau (ʻŌlelo Noʻeau 1430) Education is the standing torch of wisdom
5. Educate for Adaptation and Change (Aina) ʻAʻohe pau ka ʻike i ka hālau hoʻokahi (ʻŌlelo Noʻeau 203) All knowledge is not taught in the same school

Alignment of Learning Outcomes: PLO, CLO with Marianist, and Hawaiian Values

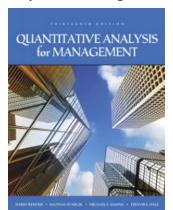|	CLO 1	CLO 2	CLO 3	CLO 4	CLO 5
Marianist Values	1, 2	2	4, 1	3, 2	5
Native Hawaiian Values	1	2	4	3	5
Program Learning Outcomes (PLO)	1, 2, 3, 4	1, 2, 3, 4	4.5	1, 4.5	1, 2, 3, 4, 5

Course Prerequisites

Prerequisites: MA 103, BU 224. Also, please check Chaminade's Course Catalog for any additional pre-requisites for this class at: https://catalog.chaminade.edu/

Required Learning Materials

Textbook: **By Barry Render, Ralph M. Stair, Michael E. Hanna, Trevor S. Hale "Quantitative Analysis for Management,"** *Thirteen Edition*, Pearson Education, Inc., Copyright © 2018,
ISBN-13: 978-0134543161

Note: Check the Chaminade Bookstore for competitive options to buy or rent a hard copy of the textbook. If you are planning to rent or purchase used book, make sure that you use above picture of the textbook, ISBN#, author and edition as specified above.

Course Website:

Our course website in Canvas can be accessed by clicking this link:
https://chaminade.instructure.com/courses/35663

Technical Assistance for Canvas Users:
- Search for help on specific topics or get tips in Canvas Students
- Live chat with Canvas Support for students
- Canvas Support Hotline for students: +1-833-209-6111
- Watch this video to get you started
- Online tutorials: click on "Students" role to access tutorials
- Contact the Chaminade IT Helpdesk for technical issues: helpdesk@chaminade.edu or call (808) 735-4855

Tutoring and Writing Services

Chaminade is proud to offer free, one-on-one tutoring and writing assistance to all students. Tutoring and writing help is available on campus at Kōkua 'Ike: Center for Student Learning in a variety of subjects (including, but are not limited to: biology, chemistry, math, nursing, English, etc.) from trained Peer and Professional Tutors. Please check Kōkua 'Ike's website (https://chaminade.edu/advising/kokua-ike/) for the latest times, list of drop-in hours, and information on scheduling an appointment. Free online tutoring is also available via TutorMe. Tutor Me can be accessed 24/7 from your Canvas account. Simply click Account – Notifications – TutorMe. For more information, please contact Kōkua 'Ike at tutoring@chaminade.edu or 808-739-8305.

Course Expectations

This course is designed to promote student participation through discussions of current business issues as they relate to management decision-making processes. Students will study and apply quantitative techniques to practical issues and decisions faced by management to include global markets. Thus, it is important to know quantitative methods and understand their limitations and assumptions in order to use them appropriately.

Applications, technology, and audio-visual tools will make this course highly interactive and experiential. The undergraduate course will be taught, as follows:

a) **Lectures** supported by PowerPoint presentations.

b) **Case Studies** will be presented in the classroom to illustrate concepts and develop critical thinking skills and approaches to real-life business issues.

c) **Case Studies** also will be assigned to student teams to develop team skills; each student will have an opportunity to make a case resolution presentation.

d) **Supplementary materials** and handouts will be provided to students to aid in understanding quantitative concepts.

e) **In-class exercises** comprised of challenging questions will be presented and the handling of resolutions and certain quantitative techniques will be discussed in order to provide an overall approach for the concepts presented.

f) **Chapter handouts** will be made available to students; these handouts will be used by students to follow the lectures, Power Point presentations and for note taking purposes. These handouts can be used for exam preparation.

g) **Excel QM and POM-QM for Windows Version 5** will be used, where possible and as time permits to make classes more interesting and trigger classroom discussions.

Your final grade will be based on your performance on exams and quizzes, assignments, class participation, professionalism, and attendance.
- The average student can expect to spend approximately 6-9 hours per week preparing for this class.
- Active student participation in all required discussions and weekly assignments is required.
- Honest communication with me personally or via e-mail is expected if any unexpected changes occur in your life.
  - Note: In case of class cancelation, you will be notified via Canvas and your Chaminade email.

Recommended Learning Strategies

1. **Chapter Assignments** must be read prior to each class. Students familiar with chapter materials will more effectively participate in class by being prepared to offer critical comments and pose thoughtful questions.

2. **Complete** self-tests after each chapter to reinforce the understanding of presented concepts.

3. **Take** tests and quizzes after each chapter to reinforce the learning material.

4. **Deliver** assigned homework on time.

5. **Contribute to and participate in** team projects. You will learn to become a confident public speaker and improve your presentation skills.

6. **Participate** in classroom discussions and ask questions.

7. **Review** supplementary materials in preparation for midterm and final exams.

8. **Complete and return** the final exam, as scheduled.

Computer Proficiency Expectations

Students in this course are expected to be proficient in the following technology areas:
- Canvas LMS
- Chaminade email
- Microsoft Word (or other word processing software), MS Excel, and MS PowerPoint

Course Attendance Policy

Students are expected to attend daily and log in to Canvas daily to check for course announcements, materials, and assignments. Class begins on time. Excessive lateness will be counted as an absence from class. Unexcused absences equivalent to more than a week of classes may lead to a grade reduction for the course. Any unexcused absence of two consecutive weeks or more may result in being withdrawn from the course by the instructor.

Behavioral Expectations

You are expected to conduct yourself in a manner compatible with the college's function as an institute of higher learning. To uphold this principle in the face-to-face BUS classroom, no cell phones, or "side conversations" that disrupt the learning process or interfere with the primary activity are allowed. Laptop computers may be used for taking notes or engaging in class activities. Please refrain from surfing the Internet, or using your computer for anything other than classwork. Lastly, please silence your cell phones before entering class. Thank you in advance!

In the online classroom, civil discourse must be adhered to both in synchronous live meetings as well as asynchronous discussion rooms and/or interactions whether they are with the instructor or peers. Students should use proper netiquette at all times online.

Every student has the right to a respectful learning environment. In order to provide this right, students must take individual responsibility to conduct themselves in a mature and appropriate manner. I appreciate your serious approach to education.

Assessment

Assessment methods include quizzes, exams, oral and written assignments, class discussions, class activities, and group work. Every effort will be made to return all student work within two weeks of the due date.

Grading and Assignments

Class sessions are designed to promote student participation through the discussion of current events in the business world as they relate to the use of quantitative analysis for managerial decision-making processes.

Grading Distribution	Final Grade Requirements
Attendance = 150 points	A = 900 or more
Exam #1 (Midterm Exam) = 150 points	B = 800 to 899
Exam #2 (Final Exam) = 200 points	C = 700 to 799
8 Module/Chapter Quizzes/Problem Sets = 400 points (8x50 each)	D = 600 to 699
Journal/Reflection Discussions = 100 points	F = Below 600

Grading Standards

"A" students do not miss classes during the semester. They read and critically engage all the assigned readings before class on their own, and with classmates and the instructor. All assignments are not only complete but go beyond more than just the minimum requirements. Their assignments are turned in on time or early, exhibit proper style, grammar, and format, are well-organized, integrate strategic planning and targeting, and are written precisely and concisely. They take advantage of all rewrite and extra credit opportunities. These students always keep up with current news events, both locally and globally.

"B" students miss a few classes during the semester. They usually read the assigned readings before class. Their assignments exhibit proper style, grammar, and format, are well-organized, integrate strategic planning and targeting, and are written precisely and concisely. They take advantage of all rewrite and extra credit opportunities. These students usually keep up with current events.

"C" students miss several classes during the semester. They complete the assigned readings before exams. Written assignments and exams usually exhibit proper style and formatting, but do not always integrate strategic planning and targeting, and are not always well organized or written precisely and concisely. All assignments are turned in on time, and most rewrite opportunities are used. These students sometimes keep up with current events.

"D" students miss four or more classes during the semester and skim assigned readings. Assignments and exams usually exhibit proper style and formatting, but they often lack integrated strategic planning and targeting, and are often not well-organized, or written precisely and concisely. Assignments are not always turned in on time and only some rewrite opportunities are used. They do not keep up with current events.

"F" students fail to attend class consistently, miss exams, written assignments; do not use rewrite opportunities.

Suggestions for Success

Manage your time wisely and stay organized! Learn how to use the required technology. Come to class prepared. Engage in the learning, discussions, and activities that take place in the classroom. Don't be distracted or distract others. Always do your best! ☺

Challenging a Grade on an Individual Assignment

Should a student find at any point during the semester that they wish to challenge a grade they have received on an assignment, they are welcome to do so. Following are the grade challenging guidelines:

- Students must wait 48 hours after receipt of their assignment before challenging the grade
- Grade challenges must be submitted in writing via email, in respectful and professional prose
- Students must articulate, based on the merits of their work (not on circumstances) and the guidelines of the assignment/rubric, why they feel their grade should be amended

- Students have up to 2 weeks to challenge an assignment grade, attempts to challenge a grade after 2 weeks from receiving an assignment back will be automatically forfeited

Students also retain the right to academic grievance for final course grades through standard Chaminade processes should they feel this step is necessary.

Course Policies

Late Work Policy

All work in this course will be due at (Midnight) 11:59PM HST every Sunday, at which point online submission boxes will promptly close. Late work is NOT accepted in this course. Assignments which are not submitted on or before their due date will receive an automatic zero. If you find that you are having technical difficulties, please contact the Chaminade IT Helpdesk for issues related to Chaminade technology. If you have documentation from the Helpdesk indicating that they have identified a problem with the technology, I will allow you to submit the assignment once a resolution has been reached at no penalty to you. If students are unsure of their home technology, they should plan ahead to use the computer lab on-campus in order to submit work in a timely manner.

Grades of "Incomplete"

Incomplete grades are reserved for cases of illnesses and other emergencies that cause a student to be unable to complete the course by the due date. In such cases, the instructor has the option of issuing an "incomplete" grade at the end of the semester. Requests for an "incomplete" must be accompanied by substantive documentation.

Writing Policy

APA Style writing will be used in this class. For more information about this writing style, please visit:
https://apastyle.apa.org/

Instructor and Student Communication

Questions for this course can be emailed to the instructor at Eduard.Merc@chaminade.edu. Online, in-person and phone conferences can be arranged. Response time will take place up to 24 hours.

Cell phones, tablets, and laptops

Out of consideration for your classmates, please set your cell phone to silent mode during class. Students are encouraged to bring laptops or tablets to class as the instructor will assign online activities and readings that will require the use of a laptop or tablet. Laptops and tablets should not be misused, such as checking distracting websites. Use your best judgment and respect your classmates and instructor.

Credit Hour Policy

The unit of semester credit is defined as university-level credit that is awarded for the completion of coursework. One credit hour reflects the amount of work represented in the intended learning outcomes and verified by evidence of student achievement for those learning outcomes. Each credit hour earned at Chaminade University should result in 45 hours of engagement. This equates to one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for approximately fifteen weeks for one semester, 10-week term, or equivalent amount of work over a different amount of time. Direct instructor engagement and out-of-class work result in total student engagement time of 45 hours for one credit.

The minimum 45 hours of engagement per credit hour can be satisfied in fully online, internship, or other specialized courses through several means, including (a) regular online instruction or interaction with the faculty member and fellow students and (b) academic engagement through extensive reading, research, online discussion, online quizzes or exams; instruction, collaborative group work, internships, laboratory work, practica, studio work, and preparation of papers, presentations, or other forms of assessment. This policy is in accordance with federal regulations and regional accrediting agencies.

How This Course Meets the Credit Hour Policy:

1. Seat time: 50 minutes MWF= 150 minutes weekly X 15 weeks = 2,250 minutes or 37.5 hours

2. Time Spent on Key Assessments:

    · Individual/Group Discussions = 10 hours establishing synergy, studying, researching and writing discussion summaries + 5 hours reading, replying, and sharing own weekly reflections = 15 hours

    · Weekly Modules (quizzes and MS Excel problem sets) = 15 hours reading, studying, researching and practicing QM calculations + 20.5 hours actual weekly module homework submissions= 35.5 hours

    · Midterm and Finals = 8 hours studying and 2 hours during finals + 8 hours studying = 18 hours

3. Homework (Reading, QM Homework, Business Article Research): 29 hours
About 2 additional hours each week

TOTAL: 135 hours of learning per student per this class/per semester

Important Information

Academic Honesty

Academic honesty is an essential aspect of all learning, scholarship, and research. It is one of the values regarded most highly by academic communities throughout the world. Violations of the principle of academic honesty are extremely serious and will not be tolerated.

Students are responsible for promoting academic honesty at Chaminade by not participating in any act of dishonesty and by reporting any incidence of academic dishonesty to an instructor or to a University official. Academic dishonesty may include theft of records or examinations, alteration of grades, and plagiarism, in addition to more obvious dishonesty.

Questions of academic dishonesty in a particular class are first reviewed by the instructor, who must make a report with recommendations to the Dean of the Academic Division. Punishment for academic dishonesty will be determined by the instructor and the Dean of Academic Division and may include an "F" grade for the work in question, an "F" grade for the course, suspension, or dismissal from the University.

For the most up to date information, please refer to the Academic Honesty Policy on the Chaminade University Catalog website.

Title IX and Nondiscrimination Statement

Chaminade University of Honolulu is committed to providing a learning, working and living environment that promotes the dignity of all people, inclusivity and mutual respect and is free of all forms of sex discrimination and gender-based violence, including sexual assault, sexual harassment, gender-based harassment, domestic violence, dating violence, and stalking. As a member of the University faculty, I am required to immediately report any incident of sex discrimination or gender-based violence to the campus Title IX Coordinator.

Nondiscrimination Policy & Notice of Nondiscrimination

Chaminade University of Honolulu does not discriminate on the basis of sex and prohibits sex discrimination in any education program or activity that it operates, as required by Title IX and its regulations, including in admission and employment. Inquiries about Title IX may be referred to the University's Title IX Coordinator, the U.S. Department of Education's Office for Civil Rights, or both and contact information may be found at the Chaminade University Title IX Office Contact Information and Confidential Resources website. On-campus Confidential Resources may also be found here at CAMPUS CONFIDENTIAL RESOURCES.

The University's Nondiscrimination Policy and Grievance Procedures can be located on the University webpage at: https://chaminade.edu/compliance/title-ix-nondiscrimination-policies-procedures/.

To report information about conduct that may constitute sex discrimination or make a complaint of sex discrimination under Title IX, please refer to the Campus Incident Report form. Chaminade University of Honolulu prohibits sex discrimination in any education program or activity that it operates. The NOTICE of NONDISCRIMINATION can be found here: Notice of Nondiscrimination.

CUH Alert Emergency Notification

To get the latest emergency communication from Chaminade University, students' cell numbers will be connected to Chaminade's emergency notification text system. When you log in to the Chaminade portal, you will be asked to provide some emergency contact information. If you provide a cellphone number, you will receive a text from our emergency notification system asking you to confirm your number. You must respond to that message to complete your registration and get emergency notifications on your phone.

Assessment for Student Work

With the goal of continuing to improve the quality of educational services offered to students, Chaminade University conducts assessments of student achievement of course, program, and institutional learning outcomes. Student work is used anonymously as the basis of these assessments, and the work you do in this course may be used in these assessment efforts.

Student with Disabilities Statement

Chaminade University of Honolulu offers accommodations for all actively enrolled students with disabilities in compliance with Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act (ADA) of 1990, and the ADA Amendments Act (2008).

Students are responsible for contacting Kokua Ike: Center for Student Learning to schedule an appointment. Verification of their disability will be requested through appropriate documentation and once received it will take up to approximately 2–3 weeks to review them. Appropriate paperwork will be completed by the student

before notification will be sent out to their instructors. Accommodation paperwork will not be automatically sent out to instructors each semester, as the student is responsible to notify Kokua Ike via email at ada@chaminade.edu each semester if changes or notifications are needed.

Kōkua 'Ike: Tutoring & Learning Services
Chaminade is proud to offer free, one-on-one tutoring and writing assistance to all students. Tutoring and writing help is available on campus at Kōkua 'Ike: Center for Student Learning in a variety of subjects (including, but are not limited to biology, chemistry, math, nursing, English, etc.) from trained Peer and Professional Tutors. Please check Kōkua 'Ike's website for the latest times, list of drop-in hours, and information on scheduling an appointment. Free online tutoring is also available via TutorMe. Tutor Me can be accessed 24/7 from your Canvas account. Simply click on Account > TutorMe. For more information, please contact Kōkua 'Ike at tutoring@chaminade.edu or 808-739-8305.

NOTE: This semester schedule is official, but subject to change at the instructor's discretion.

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3.	Chapter #1
4.	Chapter #2
5.	Chapter #2
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8.	Chapter #3; Business Faculty Visit
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41.	Chapter #15
42.	Chapter #15
43.	Chapter #15
44.	Finals Week; Final Exam
45.	Finals Week; Final Exam
46.	All Homework is due by 11:59PM HST on May 5th, 2024.

Chapter 1 - Introduction to Quantitative Analysis

This chapter is about solving the problem: define the problem, develop model, gather data, develop solution, analyze, and interpret results.

➕ **Case Study: Food and Beverages at Southwestern University Football Games**
Prepare a report for the president of Southwestern University about food and beverage needs during football games; goal is to create a service profit center.

Chapter 2 - Probability Concepts and Applications

Today, risk or probability is a part of our daily lives. Learn about the foundation of probability analysis, type of events, Bayes' Theorem, binominal, normal, F, exponential, and Poisson distributions. Can we mitigate risk by understanding probability?

➕ **Case Study: Case Study Toledo Leather Company**

Chapter 3 - Decision Analysis

Six steps in Decision Making; decision environments: uncertainty and risk, decision tree, Utility Theory.

➕ **Case Study: Blake Electronics**
➕ **Case Study:** Starting Right Corp.
A retired elementary school teacher is considering investing in "Starting Right" Corp.
1. What do you recommend?

Chapter 4 - Regression Models

Use regression analysis to predict the value of one variable based on the value of others by understanding relationships between variables, for example, the relationship between level of education and income.

➕ **Case Study:** North-South Airline
The fleet cost analysis for the merger of Northern Airlines with Southeast Airlines.
1. Whether the average fleet age was correlated?
2. Whether there was a relationship between average fleet age and direct engine maintenance cost?

Chapter 5 – Forecasting

Use forecasting models to reduce uncertainty and to make better estimates of what will happen in the future.

➕ **Case Study**: Forecasting attendance at Southwestern University, Stephenville, TX, football games.
1. Develop forecasting model, justify its selection over other techniques
2. Project attendance through 2013.
3. What revenues are to be expected in 2012 and 2013?
4. Discuss the school's options.

Chapter 6 - Inventory Control Models

Determine *when* and *how much* to order and identify the quantity discounts?

⬥ **Case Study**: Martin-Pullin Bicycle Corporation

Chapter 7 - Linear Programming Models: Graphical and Computer Methods

Learn the requirements and formulate Linear Programming (LP) Problems, including four special cases in LP and sensitivity analysis.

⬥ **Case Study:** Mexicana Wire works.
   1. What recommendations should Ron Garcia make, with what justification? Provide a detailed analysis with charts, graphs and computer printouts included.
   2. Discuss the need for temporary inventory workers in the drawing department.
   3. Discuss the plant layout.

Chapter 8 - Linear Programming Modeling Applications

Review of LP problems from various areas of business: marketing, manufacturing, scheduling, finance, transportation, and transshipment; the goal will be to solve these problems with Excel's Solver and QM for Windows.

⬥ **Case Study:** Case Study: Andrew Carter, Inc., Canadian producer, and distributor of outdoor lighting fixtures.
   1. Evaluate the various configurations of operating and closed plants that will meet weekly demand.
   2. Determine which configuration minimizes total costs.
   3. Discuss the implications of closing plants.

Chapter 9 - Transportation and Assignment and Network Models

Explore a practical use of transportation models to optimize distribution of goods from sources to destinations. Determine the most efficient number of people to projects and thereby minimize total cost and time.

⬥ **Case Study:** Case Study: Andrew Carter, Inc., Canadian producer, and distributor of outdoor lighting fixtures.

Chapter 10 - Integer Programming, Goal Programming and Nonlinear Programming (to be discussed as time permits)

Business managers have objectives to maximize profit and market share, maintain full employment and minimize cost. These conflicting goals are difficult to qualify.

Case Study:
⬥ **Case Study:** Oakton River Bridge

Chapter 11 – Project Management

Learn how to manage complex projects by using Program Evaluation and Review (PERT) Technique and Critical Path Method (CPM).

⬥ **Case Study:** Using Network Models resolve Southwestern University traffic problems (maximum flow) and for Binder's Beverage find the shortest route from the soft drink plant to the warehouse.
   1. Develop a network drawing for Hill Construction and determine the critical path(s). How long is the project expected to take?

2. What is the probability of finishing in 270 days?
3. If it were necessary to crash to 250 or 240 days, how would Hill do so, and at what costs? As noted in the case, assume that optimistic time estimates can be used as crash times.

Chapter 12- Waiting Lines and Queuing Theory Models

Find the ideal level of service for an organization. Recognize trade-offs that must take place between the costs of service and the costs of customer waiting time.

➕ **Video Library:** New England Foundry

Chapter 13 – Simulation Modeling

Simulation is one of the most widely used quantitative analysis tools. Simulation imitates a real-world situation with a mathematical model that does not affect operations. Learn the seven steps of simulation discuss the advantages and disadvantages and make action decisions based on the results of the simulation.

➕ **Video Library:** Alabama Airlines

Chapter 14 – Markov Analysis

How to deal with probabilities of future occurrences by analyzing presently known probabilities; Markov Analysis is used to predict future event states or conditions based on the known probabilities of the current state or condition.

➕ **Case Study:** Rental Tracks

Chapter 15 – Statistical Quality Control (to be discussed as time permits)

Quality is a conformance to requirements. Total Quality Management (TQM) is a systematic way of guaranteeing that organized activities happen the way they are planned. It emphasizes a commitment by management to drive excellence in all aspects of the products and services that are important to the customer.

Miscellaneous Student Notes:

Aloha from Professor Eddie Merc, Ph.D./MBA, CAPM