Pepperdine University
The George L. Graziadio
SCHOOL OF BUSINESS AND MANAGEMENT

Dr. Bill Bleuel

MBFE 656.82

Quantitative and Strategic Decision Analyses

Spring 2004

Tuesdays

6:00 PM – 10:00 PM

San Gabriel Valley Center
Pasadena, California

SYLLABUS
Quantitative and Strategic Decision Analyses
MBFE 656
Spring 2004

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Course Description
This course covers topics both in theory and with a demonstration of the appropriate quantitative analysis techniques such as modern decision modeling and applied probability, linear programming, network analysis, PERT-CPM, forecasting techniques and queuing processes. The application of computer-based technology is used wherever appropriate.

Course Objectives
Students will be expected to acquire skills to determine which problems of management are susceptible to quantitative analysis. They will be expected to become facile with the computer software to solve quantitative problems.

Tests
Tests will cover the material following the preceding test. The first test will be given the fifth week of class and will cover the material of the first four weeks.

Each test will be approximately 75 minutes in length. Each test will be OPEN BOOK and OPEN NOTES.

Two of the tests will be group tests and will be 105 minutes in length. These tests will consist of individual student responses to the test and then a joint solution submitted by a group of students. Each group will consist of no more than 3 members and each group must be different for each test.

Office Hours
My office is at the Ventura County Center. I am available at that campus Monday through Friday from 9:30am until 4:30pm. I also keep Saturday hours on most weeks from 10:00am until 4:00pm. Appointments can be made for any time.

**Computer Lab**

Software will be used for most of the computational aspects of this course although many computations can be done manually. It will be the individual student’s responsibility to become familiar with and use of the software.

**Text and Software**


Software: EXCEL and software included with text

**Conduct**

The University expects from all of its students and employees the highest standard of moral and ethical behavior in harmony with its Christian philosophy and purposes. Engaging in or promoting conduct or lifestyles inconsistent with traditional Christian values is not acceptable.

The following regulations apply to any person, graduate or undergraduate, who is enrolled as a Pepperdine University student. These rules are not to be interpreted as all-inclusive as to situations in which discipline will be invoked. They are illustrative, and the University reserves the right to take disciplinary action in appropriate circumstances not set out in the catalog. It is understood that each student who enrolls at Pepperdine University will assume the responsibilities involved by adhering to the regulations of the University. Students are expected to respect order, morality, personal honor, and the rights and property of others at all times. Examples of improper conduct for which students are subject to discipline are as follows:
1. Dishonesty in any form, including plagiarism, illegal copying of software, and knowingly furnishing false information to the University.
2. Forgery, alteration, or misuse of University documents, records, or identification.
3. Failure to comply with written or verbal directives of duly authorized University officials who are acting in the performance of assigned duties.
4. Interference with the academic or administrative process of the University or any of the approved activities.
5. Otherwise unprotected behavior that disrupts the classroom environment.
6. Theft or damage to property.
7. Violation of civil or criminal codes of local, state, or federal governments.
8. Unauthorized use of or entry into University facilities.
9. Violation of any stated policies or regulations governing student relationships to the University.

Disciplinary action may involve, but is not limited to, one or a combination of the alternatives listed below:

- **Dismissal** – separation of the student from the University on a permanent basis.
- **Suspension** – separation of the student from the University for a specified length of time.
- **Probation** – status of the student indicating that the relationship with the University is tenuous and that the student’s records will be reviewed periodically to determine suitability to remain enrolled. Specific limitations and restrictions of the student’s privileges may accompany probation.

This section is in accordance with GSBM Catalog.

**Policy on Disabilities**

Assistance for students with disabilities

Students with disabilities, whether mental or physical, are encouraged to contact the Equal Opportunity Office before the academic year begins or soon after classes are in session. This office will assist each student by providing general information about campus facilities and available
resources. The office will assist in providing reasonable accommodation to students with disabilities pursuant to applicable laws. Inquiries should be directed to equal opportunity office, Lauren Breeding, (310) 506-6500. (Students who wish to file a formal grievance should refer to the “Nondiscrimination Policy” which is listed in the “Legal Notices” section of the GSBM catalog.)

This section is in accordance with GSBM Catalog.

**Grading**

The grade will be based on the following division of the total grade:

- 4 exams @10 points 40%
- Forecast Paper 10%
- Review of Edelman Paper 10%
- Decision Lab 15%
- Queuing Lab 15%
- Working Paper 10%

Total 100%

An A grade will require the total points of the student to be at least 95%.

An A- grade will require the total points of the student to be at least 90%.

A B+ grade will require the total points of the student to be at least 87%.

A B grade will require the total points of the student to be at least 84%.

A B- grade will require the total points of the student to be at least 80%.

A C+ grade will require the total points of the student to be at least 77%.

A C grade will require the total points of the student to be at least 74%.

A C- grade will require the total points of the student to be at least 70%.

A student whose total points are less than 70% will receive an F.
# Course Outline

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<th>Topic</th>
<th>Assignment</th>
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<td>Introduction to Modeling</td>
<td>Chapters 1</td>
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<td>2(^{nd}) –</td>
<td>Introduction to Optimization &amp; LP</td>
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<td>Modeling and Solving LP Problems</td>
<td>Chapters 3 &amp; 4</td>
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<td>4(^{th}) –</td>
<td>Integer LP</td>
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<td>5(^{th}) –</td>
<td><strong>Test 1 – LP and Integer LP</strong></td>
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<td>6(^{th}) –</td>
<td>Network Modeling</td>
<td>Chapter 5</td>
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<td>Project Management</td>
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<td>Regression Analysis</td>
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<td>Time Series Forecasting</td>
<td>Chapter 11</td>
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<td>10(^{th}) –</td>
<td><strong>Test 2 - LP Models and Forecasting</strong></td>
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<td>11(^{th}) –</td>
<td>Forecasting Paper DUE</td>
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<td>12(^{th}) –</td>
<td>Queuing Theory/Intro to Simulation</td>
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<td>13(^{th}) –</td>
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<td>15(^{th}) –</td>
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<td><strong>Test 4 – Decision Analysis</strong></td>
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Working Paper (10 points)

A working paper will be required during the course. A working paper is
defined as the application to YOUR work environment of a specific model
covered in class. This will require the use of REAL data from your
company and may require specific release from management to use the
information for the class. If required, I will sign a letter that will assure your
management that I will be the only person to see the information that it will
not be copied, and that I will not use the information in any way other than
to grade your work in class.

The working paper must be at least 10 typewritten pages (using 14 point
type and spaced at 1½ per line with margins not exceeding 1 inch) in length
in addition to any computer output that you may wish to attach. The
working paper has a maximum value of 10 points that will be divided as
follows:

2 points – Background – This section provides sufficient background
information to put the quantitative model in perspective with sufficient detail
so that someone not particularly familiar with your situation can assess the
value of the analysis.

2 points – Problem description and discussion of data – This
section provides the specific quantitative problem description and provides
insight into the accuracy and completeness of the data used to solve the
problem.

2 points – Analysis of the results – Discuss the results of the
computations in the light of the stated problem. Of particular interest is the
implication of incorrect/questionable numerical values and their effect on the
outcome/decision that may result.

4 points – So What? – Now that you have solved a specific
quantitative problem for your company, the question is what to do with the
answer. This section requires the creative aspect of problem solving;
namely, you are asked to reflect how the solution of this problem can impact
the performance of your company! If this section has no meaning, there is
not much use in doing the preceding three sections. Obviously, this section
has the greatest meaning and value and thus will be scored VERY seriously.
As a way of validation that the paper is directly applicable to your company, a management response **must** be discussed in the paper. **Failure to provide this discussion of the management response will result in the loss of 2 points!**

**Homework Assignments**

**Assignment 1 – Forecasting** (10 points)
The first homework assignment is a forecasting analysis of stock. Each student is to select a company listed on one of the stock exchanges for which there is at least 5 years of history. From the **five-year** history extract stock price, revenue and earnings per share at the end of each quarter. Use at least three forecasting models to project the stock price, revenue and earnings per share at the end of the next quarter.

Discuss which of the three forecasting models best forecasts each of the three stock parameters. The written paper should be no less than 5 typed pages and no more than 7 typed pages. Computer output (charts, tables and graphs) may be attached but is not counted as part of the 5 to 7 pages.

**Assignment 2 – Paper review** (10 points)
The second homework assignment is to select an article from the Franz Edelman Award papers which are published annually by INFORMS and are found in the Journal **Interfaces**. The article is to be reviewed in terms of the following:

1. What is your opinion of the value of the article with respect to the business community? Why?
2. What is your opinion of its value with respect to this course?
3. Provide a three-page summary of the article.

The assignment should be no less than 5 pages and no more than 7 pages. Papers submitted that do not follow these guidelines will be penalized at least 2 points. **This paper can be submitted any time prior to but not later than 13th class.**

**Decision Lab/Queuing Lab** (15 points)
These assignments are group assignments. The number per group must be at least three but no more than four. The same group may not perform both assignments. Format for the lab reports is the same as the format for working papers except there is no requirement for a management response. Specific instructions will be given for each assignment at the class meeting on the topic as noted on the class schedule page.

FACSIMILE IS NOT ACCEPTED!

EMAIL OF ASSIGNMENTS IS ONLY ACCEPTED WITH PRIOR WRITTEN PERMISSION OF DR. BLEUEL