

DSCI 3870.001
Management Science
Course Syllabus
Fall 2014

INSTRUCTOR: Dr. Shailesh S. Kulkarni
CLASS MEETS: T & R, 2:00 PM to 3:20 PM, BLB 005
OFFICE: BLB 312-E
PHONE: 940-565-4769(**always follow up with email**)
OFFICE HOURS: T, R & F: 1:00 p.m. - 1:45 p.m. and by appointment
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URL: For "clicker" registration <https://learn.unt.edu/>
For course material:
<http://www.cob.unt.edu/itds/faculty/kulkarni/Teaching.htm>

COURSE OBJECTIVES:

To provide the student with a working knowledge of management science/operations research techniques for use in business. This will be achieved by using a real-world problem oriented approach, and using examples that emphasize the multi-disciplinary nature of business problems. Spreadsheets will be used to strengthen students' ability to make business decisions. The course uses case studies and assignments that require communication and interaction, to strengthen students' understanding. Techniques covered will include linear, integer, and non-linear programming, network optimization and implementation issues. This course may seem challenging, but it will provide you with "current" and "marketable" skills in the field of Quantitative Analysis/Business Analytics.

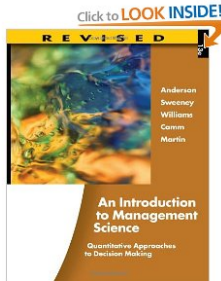
PREREQUISITES:

See UNT Undergraduate Catalog, 2014-2015

(It is assumed that students taking this course have completed the college algebra course and also have a good foundation in calculus, basic statistics and probability theory as covered in the basic statistics course. Although some review of elementary concepts and terminology is provided in the textbook, it is not intended to replace a complete course, but rather to refresh your memory. While a high degree of mathematical skill is not necessary in an "applied" course such as this, there are certain insights into the course that are gained through the mathematics involved.)

REQUIRED TEXT:

Anderson, Sweeney, Williams, Camm and Martin, *An Introduction to Management Science: Quantitative Approaches to Decision Making* (with CD-ROM and included Bind-In Printed Access Card), 13th Edition, © 2011 South Western Educational Publishing (an imprint of Cengage Learning) ISBN-10: 1439043272, ISBN-13: 9781439043271.



(It is alright if you have bought the 12th Edition of this textbook, which has the author "Camm" missing in the author roll. You will however need to reconcile the Self test Exercises, end-of-chapter Cases and problems with the 13th edition as needed. I will be using the 13th edition in class.)

For those of you who intend to enroll in DSCI 4510 in Spring 2015, please don't sell your book (either edition). We will be using it in DSCI 4510 too.

eBook: Please visit the URL given below for details about the eBook version of the above text. You can buy chapters or rent the entire text for some finite duration.

<http://www.cengagebrain.com/shop/ISBN/9781111532222?cid=APL1>

ResponseCard RF-LCD 9781934931400

Author: Turning Point - This is the "clicker" that we will be using in the classroom for interactive sessions.

Non-credit and for-credit (i.e. extra credit) quizzes will be administered during the semester. These quizzes will use the "clicker" for entering responses. There will be no prior announcement for any of these quizzes. In short, keep up with the material, attend class regularly, bring the "clicker" with you always and get a shot at some potentially very useful extra-credit points! **I anticipate having at least 5 quizzes for credit**



worth 5 points each. Please be sure to register your clicker at the link within your course at <https://learn.unt.edu/>

REQUIRED RESOURCES:

Business or scientific calculator; must be able to perform at least the following functions: square, square root, raise to n^{th} power, extract n^{th} root, logarithm. The lack of a calculator does not excuse the student from making math errors on exams. Graph paper will also prove to be quite useful.

COURSE POLICIES:

Assignments/Readings

Problems, including those marked as "Self test" from the textbook will be assigned as the course progresses. Some "Self test" problems are already assigned in the "Tentative Course Agenda" which appears later. The student is responsible for solving these problems in a timely manner. **The assigned problems will not be collected or graded.** Students are however welcome to see me if they have difficulty solving any of the assigned problems. I will also hand out readings (magazine articles, newspaper clippings etc.), which I expect the student to go through.

Attendance & Participation

The student is expected to attend each class session and actively participate in class proceedings by asking relevant questions and keeping up with the material discussed in earlier class sessions.

Complaints/Concerns

If any student has a problem directly related to my teaching ability or grading procedure, he or she needs to speak to me first about the problem. Only if the problem is unresolved, he or she may take the issue to Dr. Mary Jones, Chair of ITDS Dept., (Phone: 565-3110).

Disabilities

If a student has a disability (sight, hearing, motion impairment, or learning disability) that has been documented by the Office of Disability Accommodations, it is the student's responsibility to notify me with a Special Accommodation Request (SAR) form. This will let me look into what accommodations need to be made for the student.

If a student with a disability needs additional time to take the exam, or needs to take the exam in the Office of Disability Accommodations, the student must give three (3) days notice to me before the date of the exam. This will allow me time to get the exam to the ODA.

For more information about ADA compliance and allied topics, contact the Office of Disability Accommodations.

Examinations

There will be three examinations during the semester, the first two worth 133 points and the third exam worth 134 points. (See section on Grading). All exams will most likely be multiple choice or a combination of multiple choice and problem formulation/analysis. **The exams will be open book, open notes. Laptop computers will also be allowed during an examination.**

Students are responsible for their materials on an exam. There will be no loaning or sharing of books, calculators, or other items, or sharing of any type of information among students while taking the exam. If the student fails to bring his or her required materials, he or she must perform the exam to the best of his or her ability without them.

Allow for a **minimum** of 1 class session for the exams to be processed/graded. Students are encouraged to collect the exams when they are returned.

Grade Appeals

The student may appeal any grade he or she receives. Appealing a grade, however, does not guarantee that the instructor will change the grade; just that he will check for any errors in grading or in tallying total points.

To appeal the final grade, the student must go through the formal procedure listed in the UNT Undergraduate Catalog.

Grading

There are 400 total points for this course. The Point Distribution is as follows:

| | |
|---------------|-------------------|
| Exam 1 | 133 points |
| Exam 2 | 133 points |
| Exam 3 | 134 points |
| Total | 400 points |

(The **extra credit** clicker-based quiz points @ **25 points maximum** will be added to your grand total at the end of the semester.)

The following percentage scale shall be used in evaluating the students' performance, and assignment of the letter grade:

| | | |
|---|--|---|
| A | 90 and up (360 points or more) | Superior work |
| B | 80 to < 90 (320 - 359 points) | Good quality of work. |
| C | 70 to < 80 (280 - 319 points) | Average level of work. |
| D | 60 to < 70 (240 - 279 points) | Below average: more work expected from the student. |
| F | Less than 60 (Less than 240 points) | Unacceptable quality of work. |

Grounds for Dismissal from the Course

A student can be dismissed from the course with a grade of "WF" for reasons of unsatisfactory progress. Grounds for unsatisfactory progress are specified as follows:

1. The student is absent at the Final Exam for no excusable reason.
2. The student has more than 3 class periods of un-excused absences.
3. The student is caught cheating on an examination. (Grade submitted here will be "F."). Please also see section on Academic Integrity.

If a student is suspected of unsatisfactory progress, the instructor will first issue a warning (oral) to the student. Upon issuance of the warning, the student has three (3) actual days to provide evidence contrary to the suspicion. The following evidence will be accepted as tenable:

- * Written and valid doctor's excuse for illness
- * Inability to reach class due to inclement weather (i.e. ice and/or snow, flooding, etc.)
- * Valid UNT sponsored event(s) (must provide signed reference from head of sponsoring department.)

Only one or more of the above will be accepted as tenable excuse for missing any major exam. If the student provides satisfactory evidence, the instructor will reinstate him or her to the class and make arrangements for the student to catch up on any assignments or quizzes / exams missed.

If a student misses the final exam, he or she must provide the same information as stipulated above. If the excuse is tenable, the instructor will submit an "I" grade for the final grade and the student must make up the exam within the first two (2) weeks of the school session immediately following the one in which the "I" was earned. **THIS IS THE ONLY CIRCUMSTANCE IN WHICH AN "I" GRADE WILL BE AWARDED.** If a student has a valid excuse for missing more than 2 class periods and is yet getting an "I", he or she must retake DSCI 3870 to remove the "I" in the session immediately following the one in which the "I" was earned.

If the student is caught cheating, he or she will be immediately removed from the class with an "F" grade. To be reinstated, the student must provide substantial evidence to the contrary in a hearing held in the Dean of Students Office, University of North Texas.

Academic Integrity

This course adheres to the UNT policy on academic integrity. The policy can be found at <http://vpaa.unt.edu/academic-integrity.htm>. If you engage in academic dishonesty you will receive a failing grade on the test or assignment, or a failing

grade in the course. In addition, the case may be referred to the Dean of Students for appropriate disciplinary action.

Campus Closures

Should UNT close campus, it is your responsibility to keep checking your official UNT e-mail account (EagleConnect) to learn if your instructor plans to modify class activities, and how.

SETE (Student Evaluation of Teaching Effectiveness):

The Student Evaluation of Teaching Effectiveness (SETE) is a requirement for all organized classes at UNT. This short survey will be made available to you at the end of the semester, providing you a chance to comment on how this class is taught. I am very interested in the feedback I get from students, as I work to continually improve my teaching. I consider the SETE to be an important part of your participation in this class. Please participate and complete the SETE.

Tentative Course Agenda

There will be no formal announcements regarding change of dates of topics coverage. Exam dates are also subject to change.

Some or all of the Case Problems may be solved in class. Self-test Problems will not be collected or graded. However it is imperative for students to solve these problems and also go through any assigned.

In case of a change in an Exam date(s), I will announce the new date(s) in class in advance and will email it to your "EAGLECONNECT" account which you are required to check regularly, as per University policy. You can check deadlines to withdraw etc. at:

<http://essc.unt.edu/registrar/schedule/fall/withdraw.html>.

"STE" below stands for Self-test Exercises that appear in the book.

| <u>WEEK</u> | <u>TOPICS/CASES</u> | <u>Practice Problems</u> |
|---------------|---|--------------------------------|
| Week 1 | Course philosophy Introduction | Chapter 1 |
| Week 2 | Introduction Data Tables in MS Excel | Chapter 1 STE - 8,12 |
| Week 3 | An Intro. to LP Video Screening (Don't miss this!) | Chapter 2 STE - 1,2,6,13,24 |
| Week 4 | An Intro. to LP Case Problem 1- Workload Balancing | Chapter 2 STE - 34,42,43 |
| Week 5 | Review for Exam 1 | |
| Week 6 | Tuesday, September 30th | EXAM 1 |
| Week 6 | (Thursday, October 2nd) Linear Programming- Sensit. Analysis and Interpr. of Soln. | Chapter 3 STE- 6,10 |
| Week 7 | Linear Programming- Sensit. Analysis and Interpr. of Soln. | Chapter 3 STE - 12,13 |
| Week 8 | Linear Programming- Sensit. Analysis and Interpr. of Soln. | Chapter 3 |

| <u>WEEK</u> | <u>TOPICS/CASES</u> | <u>Practice Problems</u> |
|-------------|---------------------|--------------------------|
|-------------|---------------------|--------------------------|

Case Problem 1 - Product Mix

LP Applications in Mktg.,
Finance and Oper. Mgmt.

Chapter 4

Week 9 LP Applications in Mktg.,
Finance and Oper. Mgmt.

Chapter 4
STE - 1, 15

Week 10 LP Applications in Mktg.,
Finance and Oper. Mgmt.

Chapter 4
STE - 19

Case Problem 3 - Textile
Mill Scheduling

Review for Exam 2

Week 11 Tuesday, November 4th, Review for Exam 2

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|---|
| Week 11 Thursday, November 6th EXAM 2 |
|---|

Week 12 Distrbtn. and Network Models

Chapter 6
STE - 1,2,6

Week 13 Distrbtn. and Network Models

Chapter 6
STE - 9,17,23,29

Integer Linear Programming

Chapter 7

Week 14 November 25th

NO CLASS MEETING. SELF-STUDY WORK WILL BE ASSIGNED

Integer Linear Programming

Chapter 7
STE - 2,5,7

Case Problem 1 - Txtbk. Publshng.

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|---|
| Week 14 Thursday, November 28th, University Closed Thanksgiving Holiday |
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Week 15 Nonlinear Optimization Models
(Sections 8.1 and 8.4 only)

Chapter 8
STE - 5,10

Review for Exam 3

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| FINALS WEEK |
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| Exam 3 is on Thursday, December 11th, 1:30 pm - 3:30 pm in our classroom. |
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