MAN 6501 SYLLABUS
Modeling and Management of Operations
Fall 2005

6:00 p.m. - 7:15 p.m. TR (Section 81636): Room 39 / 1026, in J. Brooks Brown Hall (College of Health)
7:30 p.m. - 8:45 p.m. TR (Section 81637): Room 39 / 1026, in J. Brooks Brown Hall (College of Health)

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Hours: 2:00 - 3:00 p.m. & 4:25 p.m. - 5:55 p.m. TR
or by appointment

Many questions are easily handled via e-mail, and I check e-mail often; please feel free to use that option.

COURSE PREREQUISITES AND DESCRIPTION:

Prerequisites: ECO 6415 (Decisions with Data). Planning and control of the process of producing and distributing goods and services. Emphasis is on reducing costs while maintaining or increasing output, quality, and customer service. Includes an introduction to optimization and simulation techniques that are useful for addressing problems in production and distribution, as well as problems in finance, marketing, and other areas of management.

COURSE MATERIALS:

TEXT: *Operations Management: Modeling & Management of Operations (MAN 6501)*(paperback, B. Jay Coleman, Ph.D., Editor), McGraw-Hill Primis, 2002, ISBN 0-390-27909-9, specially designed for this course. Material is from *Introduction to Operations Research*(7th Edition) by Frederick Hillier and Gerald Lieberman, and *Operations Management* (7th Edition) by William J. Stevenson. This book will be non-traditional in appearance. I asked the publisher to put together a paperback version of the two combined textbooks, containing only those chapters from the two texts that we cover during the course.

PROBLEM-SOLVING SOFTWARE: You will also have need for the LINDO linear programming package to solve linear and integer programs. You can download a free demo copy of LINDO from the LINDO web site (www.lindo.com). Also, I have written several Microsoft Excel templates which are available for you to use, and are downloadable from the **documents section** of the Blackboard Account for this course.

INTERNET SOFTWARE: In order to access all materials available on this web site and in the Blackboard Account for this class, you will need Internet access on your system, and a web browser such as Netscape or Internet Explorer. Moreover, you will also need to download and install Adobe Acrobat Reader, which is available free of charge from the Adobe web site, in order to read the many printed materials which are in Portable Data Format, or PDF.

COPIES OF POWERPOINT SLIDES USED IN CLASS: Copies of all PowerPoint slides used during the in-class lectures can be downloaded in Adobe Acrobat (PDF) format, from the **documents section** of the Blackboard Account for this course. I would encourage you to download and print copies of the slides in advance of their coverage in class.

ANSWERS TO HOMEWORK PROBLEMS: I will assign practice homework problems on a regular basis (see later sections of the syllabus). Answers to the large majority of these practice problems *from the textbook* are maintained in a reserve folder at the university library. You can check out this folder from the library. Answers to practice homework problems *of my own design* can be found in the **documents section** of the Blackboard Account for this course. Answers to a relatively small number of the practice problems from the textbook can also be found in the Blackboard Account.

GLOSSARY OF TERMS: I have developed one relatively brief glossary covering terminology associated with just-in-time and Japanese manufacturing techniques. It may be downloaded in Adobe Acrobat (PDF) format from the **documents section** of the Blackboard Account for this course.

SUMMARIES OF CERTAIN TOPICS: In a very small number of cases, there is specific material that I want you to know, but which we will not necessarily cover in the lectures. This material is presented in brief summary pages, which are downloadable in Adobe

Acrobat (PDF) format from the **documents section** of the Blackboard Account for this course.

MAJOR FORMULAS AND TABLES: Single-page listings of the major formulas and tables that we will cover in the course can be downloaded in Adobe Acrobat (PDF) format from the **documents section** of the Blackboard Account for this course. Any formula or table found on these pages will be provided to you on tests.

+ Other handouts/readings deemed necessary.

COURSE OBJECTIVES:

Upon successful completion of the course, you will be able to:

- Identify the planning and control functions (e.g., production planning and scheduling, inventory management, quality control) associated with the production and distribution process, which converts resources into goods and services, and delivers them to customers,
- Identify and discuss the key issues involved with performing each function,
- Identify appropriate qualitative and quantitative approaches that are available to solve problems within each function, including (but not limited to) linear programming, integer programming, and simulation modeling,
- Use appropriate qualitative and quantitative approaches to develop problem solutions that reduce costs while maintaining or increasing output, quality, and customer service,
- Identify other business problems (e.g., in finance, marketing, and other areas of management) for which linear programming, integer programming, and simulation modeling are applicable, and develop solutions for such problems.

COURSE OVERVIEW:

It will be assumed that you have a working knowledge of the topics covered in ECO 6415: Decisions with Data, the prerequisite for this class. Some topics of great relevance to operations management have already been covered in the ECO course, namely forecasting methods (moving averages, exponential smoothing, time series decomposition, and multiple regression).

The following topics will be partially covered, probably in the following order. We will by no means completely exhaust each topic. Some of the topics may be tied together in their presentation. You will be informed of specific assignments in class. *The text in your version of the two combined textbooks is arranged roughly in the order in which you see topics presented here. However, you will see chapter number references in your book that appear out of place, given that the two versions are abridged versions of the normal texts.*

- Introduction to Operations Management (Chapter 1 from Stevenson, pp. 277-308)
  - Overview of the Emphasis, Orientation, and Objectives of Operations Management
  - Three Basic Functions of a Business
  - Manufacturing vs. Service systems
  - Types of Operations Environments
  - Types of Manufacturing Environments
- Introduction to Operations Research: The "Modeling" of Operations (Chs. 1 and 2 from Hillier / Lieberman, pp. 1-22)
  - History, definitions, common applications and techniques
  - Steps in an OR Study
- Introduction to Linear Programming (Ch. 3 from Hillier / Lieberman, pp. 24-67, 79)
  - Overview
  - A Simple Illustration
  - Terminology
  - Common Applications
  - Assumptions
  - The Standard Form
  - Special Conditions
  - A LINDO Solution
- Linear Programming Applications
  - Product Mix
  - Blending
  - Staffing / Scheduling
  - Network Applications
    - Distribution Planning (Transportation / Trans-shipment): Minimum Cost Flow

        - Maximum Flow
        - Financial Planning / Portfolio Selection
- Introduction to Integer Programming (Ch. 12 from Hillier / Lieberman: pp. 109-137; 155-157, 163)
    - General Integer Variables
    - 0/1 Integer Variables
    - Types of Integer Programs
    - Innovative Uses of 0/1 Variables
    - Solving Options
- Integer Programming Applications
    - Capital Budgeting (Project Selection)
    - Assignment
    - Facility Location (Set Covering)
    - Shortest (or Longest) Path in a Network
- Introduction to Monte Carlo Simulation (Ch. 22 from Hillier / Lieberman: pp. 187-195, 200-204, 213-229, 241-243)
    - Description / Overview
    - Advantages / Disadvantages
    - Steps in the Simulation Process
    - An Example of Monte Carlo Simulation
    - Simulating in Excel
- Aggregate Production Planning (Ch. 14 from Stevenson: pp. 309-324, 328-329, 334-337)
    - Overview
    - Changeable Operational Factors in the Intermediate Term
    - Inputs to the Planning Process
    - Techniques for Developing the Plan: Mixed Integer Programming
    - Presenting the Plan Using the Solution Grid
- Inventory Management for Independent Demand Items (Ch. 13 from Stevenson: pp. 343-358, 360-376, 380-386; Ch. 15 from Stevenson: pp. 420-422)
    - Functions and Types of Inventory
    - Key Costs and Decisions
    - Perpetual vs. Periodic Systems
    - ABC Classifications (Pareto Principle)
    - Non-Lumpy Demand, Perpetual Review Items:
        - Quantity: EOQ, Quantity Discount Model
        - Timing: Reorder Point, Safety Stocks and Fill Rates
    - Determining Costs and Inventory Levels
    - Non-Lumpy Demand, Periodic Review (Fixed Order Interval) Items
    - Lumpy (Discontinuous) Demand (from Chapter 15 in Stevenson)
        - The Time-Phased Order Point (TPOP) Grid
        - Lot-Sizing Models (FOQ, EOQ, POQ, PPB, LFL)
- Inventory Management for Dependent Demand Items
    - Distribution Requirements Planning (DRP)
        - Distribution System Structure
        - Dependent Demand in Distribution Systems
        - Shortcomings of Traditional Inventory Management Methods
        - Example of DRP Logic
    - Material Requirements Planning (MRP) (Ch. 15 from Stevenson: pp. 404-422, 425-434)
        - Dependent Demand Items in Manufacturing
        - MRP Inputs (Bill of Material, MPS, Inventory Status File)
        - Component Planned Order Release Explosion
- Quality Control (Ch. 9 from Stevenson: pp. 447-467, Ch. 10 from Stevenson: pp. 469-499)
    - Overview of Terminology
    - Types of Inspections
    - Acceptance Sampling vs. Process Control
    - Statistical Process Control:
        - Control Chart Overview
        - Control Charts for Variables: X-Bar and R charts
        - Process Capability Analysis (Cp, Cpk)
        - Control Charts for Attributes: p-charts
        - How to Read a Control Chart (Runs Tests)

    - Special Considerations in Process Control
- Just-in-Time and Japanese Manufacturing Techniques (Ch. 11 from Stevenson: pp. 520-551; Ch. 16 from Stevenson: pp. 552-582; Glossary of Japanese Manufacturing Terms and Names)
    - Goals and Objectives of JIT (and a Discussion of Similar Terms)
    - JIT and Japanese Manufacturing Techniques and Concepts: SMED, Heijunka (Level Loading / Mixed Model Production), Kanbans (Push vs. Pull Production), Kaizen, Source Inspection (Poka-Yoke, Jidoka, Andons), Keiretsu & Sole/Single Sourcing, Quality Loss Function

The following is an *approximate* breakdown of the coverage of the above topics:

Topic	***Portion of Course***
Introduction to Production / Operations / Modeling	5%
Introduction to Linear and Integer Programming	20%
Introduction to Monte Carlo Simulation	10%
Aggregate Production Planning	10%
Independent Demand Inventory Mgt	20%
Dependent Demand Inventory Mgt (MRP and DRP)	10%
Quality Control	10%
JIT and Japanese Manufacturing Techniques	5%
Tests (including final)	10%
Total	**100%**

GRADING POLICY:

(Midterm test dates are tentative. If a test date is moved, it will be moved to a later date, very likely within one week of the date shown.)

Midterm #1	25%	(September 29, Thursday)
Midterm #2	25%	(November 3, Thursday)
Final (somewhat comprehensive)	25%	(6:00 class: Dec. 6, Tuesday (3:00 - 4:50); 7:30 class: Dec. 8, Thursday (7:30-9:20))
Problem Set	25%	(Due November 29, Tuesday)

NOTE: ***There is no extra credit work available in this course.***

GRADE SCALE:

Unless otherwise notified, a standard 10-point grading scale will be used, where $A \geq 90$, $80 \leq B < 90$, $70 \leq C < 80$, and $F < 60$. **No plus or minus grades will be assigned.**

TESTS:

Tests will be closed book / closed notes, problem-oriented and open-ended in nature. With rare exception, you will not be expected to memorize lengthy formulas or complex relationships. Concerted effort will be made to see that tests are returned within one week of the test date.

An outline of a sample test is provided in the **documents section** of the Blackboard Account for this course. The sample test gives an idea of the style of questioning and the typical format of the test.

On ***any*** work done out of class to be handed in, unless otherwise instructed, your work should be typed on 8.5 x 11 paper, using only the front of the page. The work should be neat and in a sequential manner. ***Multiple sheets should be stapled.*** Points will be deducted otherwise. You are expected to be neat and succinct. Written discussion should be placed first, followed by any supporting documents, but only if such items are requested.

HOMEWORK:

Practice homework will be assigned virtually every class meeting, which you should be able to complete after the lecture of that day. The practice homework is problem oriented. Its purpose is to help you become proficient at the "mechanics" of solving problems like those discussed in class. It will partially prepare you for the problem-solving portion of the exams. (To solve exam problems well, you will also need to be familiar with concepts, terms, purposes of a technique, when and where a technique is best applied, etc. This part comes from the reading, being attentive in class, good note-taking, studying consistently, and being able to "think": that is, being able to apply your knowledge in a slightly different context.) The practice homework will **not** be taken up for grading. Although you can complete the practice homework at your leisure, I would strongly encourage you to do it as it is assigned, for maximum benefit. Should you have specific questions about practice homework problems, please consult with me. The answers to all practice problems *from the textbook* will be maintained on reserve in the aforementioned homework answer folder in the library. Answers to practice homework problems *of my own design*, as well as a relatively small number of practice problems from the textbook, can be found in the **documents section** of the Blackboard Account for this course.

PROBLEM SET:

You will be required to develop solutions for a set of comprehensive problems drawn from the group of topics covered in the course. You will be required to work in *groups of at least three but not more than four individuals*. Your group members will be of your own choosing, and you are not to do any work with other group members. When you determine who will be in your group, let me know.

Once you have performed ANY problem set work with another student in the class, that person will be by definition assumed to be in your group (i.e., you can't work part of the assignment with one person, and then decide to switch groups and work with another person.) In other words, you must choose your group before you start work. Only one document will be handed in by the group, and all individuals in a group will receive identical grades. The problem set will be provided to you later in the semester.

You will be required to evaluate the performance of yourself and each of your teammates on eleven different performance factors. The **team performance evaluation materials** found in the **documents section** of the Blackboard Account for this course will be used by each member of the group to evaluate every other individual member of the group. Each team member will receive a Total Performance Rating, which will be the average numerical evaluation across all eleven factors from all teammates.

I will assign one grade for the problem set. However, each teammate's grade for the project ***may*** potentially be adjusted **downward** based on the team member's Total Performance Rating as compared to the average Total Performance Ratings of the rest of the team. If the ratio between a team member's Total Performance Rating and the average Total Performance Ratings of the rest of the team is in my opinion significantly less than 1.00, this ratio will be multiplied by the problem set grade I assign to get that team member's grade.

ACADEMIC DISHONESTY POLICY:

Cheating, plagiarism, or other inappropriate assistance on examinations or the problem set will result in a grade of "F" for the course. Any take-home portion of a test, or work on a problem set, is to be treated identically to an in-class test: the work should be entirely your (or your group's) own, with absolutely no outside help or influence. ***When working on the problem set, you should not discuss the assignment with anyone outside of your own group or outside the class.***

Moreover, and according to University policy, if you become aware of any misconduct related to academic integrity, you should inform me or another proper authority (e.g., the dean, associate dean, department chair, etc.).

MISSING A TEST / LATE PROBLEM SET:

Those missing a test due to an excused absence will have an opportunity to make up the test at a later time agreed upon with me. The make-ups will probably be difficult and stringently graded. If you know you will be missing a test beforehand (for a very good reason--defined by me), arrangements generally can be made to take it early.

In order to be considered for a make up of an in-class test, you ***must*** notify me (via phone, fax, e-mail, or personal conversation with me) either ***before*** the day of the in-class test, or within one calendar day of the in-class test, that you will be missing, or have missed, the test. Failure to do so will result in a grade of zero for the exam. Exceptions to this policy will only be made in very extreme cases.

Failure to hand in the problem set ***in class*** on its due date will result in a reduction of the maximum grade by one letter grade for ***each day*** that the assignment is late. If the assignment is handed in more than 6 days late, the grade will be zero. An assignment handed in after class on the due date will be considered one day late.

ATTENDANCE:

Roll will not be taken, but regular attendance is both important and encouraged. You will have difficulty in the course without it.

DISABILITIES:

Individuals who require reasonable accommodations must contact the Disability Resource Center in the first floor of Building 10, 904-620-2769, as soon as possible.

IMPORTANT DATES:

- September 5 (Monday) - Labor Day (no effect on our class).
- November 7 (Monday) - Last day to withdraw (the registrar's academic calendar can be found here).
- November 11 (Friday) - Veteran's Day (no effect on our class).
- November 24-26 (Thursday-Saturday) - Thanksgiving Holiday (no class on Thursday).
- December 1 (Thursday) - Last class meeting.
- December 5-9 (Monday-Friday) - Final exam week: 6:00 class exam is Tuesday, December 6, at 6:00 - 7:50; the 7:30 class exam is on Thursday, December 8, at 7:30 - 9:20 (the complete final exam schedule can be found here).

The complete university matriculation calendar can be found here.

***WALL STREET JOURNAL* PARTNERSHIP**

Each student enrolling in one or more Coggin College of Business (CCB) courses numbered 3000 or higher is assessed a $15 fee during each fall and spring semester. The fee is just $15, regardless of how many CCB courses the student takes. The fee is assessed at the same time and in the same manner as all other UNF fees, and the student pays this fee when he/she pays his other tuition and fees. In return, each student is able to pick up a copy of *The Wall Street Journal* (WSJ) from locations within the College. Moreover, each student will receive access to all of the *WSJ*'s on-line editions (e.g., European, Asian), as well as the *WSJ Employment Edition* and *Barron's*. Access to these publications is free during summer terms for students enrolled in these courses. Students who already have personal subscriptions can have the *WSJ* refund those dues. For information on that process, as well as more about CCB's partnership with the *WSJ*, please visit http://www.unf.edu/ccb/wsj.htm.

DAILY HOMEWORK PROBLEMS: (I may add to or change this list periodically.)

Chapter numbers are in **bold** (these are the chapter numbers from the full version of each text):

1. Linear programming assumptions: **3**: 3.3-1, 3-3-2, 3.4-1, 3.4-2
2. Basic linear programming formulation problems: **3**: 3.1-6(bcd), 3.1-7, 3.1-8, 3.1-9(a), 3.1-10, 3.1-11(a), 3.2-1(a), 3.2-3(b), 3.4-7(a), 3.4-8, 3.6.1(a), 3.6-2(a), 3.6-3(a); **Note: You need not do any parts of these problems that ask you to get a graphical solution!**
3. Advanced linear programming formulation problems: **3**: 3.4-9(a), 3.4-10(a), 3.4-11(a), 3.4-12(a), 3.4-12(a: but this time, formulate as a maximum flow problem, where M1 and M2 each have 250 tons produced), 3.4-14(a), 3.4-15(a), 3.4-16(a), 3.4-17(a), 3.4-18(a), 3.4-19 (a), 3.4-20(a), 3.6-4(a), 3.6-5(a), 3.7-1(a)
4. Linear programming LINDO solutions: **3**: Solve each of the following using LINDO: 3.1-4, 3.1-5, 3.2-4, 3.2-5, 3.2-6(b), 3.2-6(c)); On the following, simply solve in LINDO: 3.1-11(b), 3.4-7(c), 3.4-9(b), 3.4-10(b), 3.4-11(b), 3.4-12(a) (formulate as a maximum flow), 3.4-12(b), 3.4-13(c), 3.4-14(b), 3.4-15(b), 3.4-16(b), 3.4-17(b), 3.4-18(b), 3.6-4(a), 3.6-5(a),
5. General Integer Programming formulation problems: **12**: 12.1-6(a), 12.1-7(a), 12.3-5(a)
6. Basic 0/1 Integer Programming formulation problems: **12**: 12.1-1(a), 12.1-2(a), 12.1-3(a), 12.1-4(a), 12.1-5
7. Mixed Integer Programming formulation problems: **12**: 12.1-8(a), 12.3-4(a), 12.3-7(a)
8. 0/1 Integer Programming formulation problems with Innovative Uses of 0/1 Variables: **12**: 12.3-1(a), 12.3-2, 12.3-3, 12.4-1(a,c), 12.4-3 (a)
9. Advanced 0/1 Integer Programming formulations: Formulate the following as integer programs: **12**: 12.4-6(a) (shortest path), 12.4-8(a) (set covering), 12.4-9 (set covering), 12.4-10 (set covering), 12.4-11, 12.4-12, 12.6-7 (assignment)
10. Integer Programming LINDO solutions: **12**: Solve each of the following using LINDO: 12.1-1(c), 12.1-2(c), 12.1-4(c), 12.1-8(b), 12.3-4 (b), 12.3-7(b), 12.3-1(b)
11. Manual Simulation: **22**: 22.1-1(abc), 22.1-2(a), 22.1-3 (abcd), 22.4-6(ab)
12. Simulation using Excel: **22**: 22.4-6 (cd -- use Excel), 22.4-8(abc -- use Excel), 22.4-14(b -- use Excel), 22.6-3 (simulate 20 times on Excel), 22.1-3(e) (simulate 20 times on Excel)
13. Aggregate Planning using Mixed Integer Programming: **14:** Formulate the following problems as mixed integer programs: 2a, 2b, 3 (ignore the "hint" in parentheses), 10 (do plan B, but allow for any number of additional workers at $200 each (don't limit it to just one new hire), don't allow any firings, and ignore the "i.e." phrase in parentheses), 11 (ignore the restriction on having the same number of

part-timers in any period in which they are used, and ignore the comment about trying to make up backlogs as soon as possible), 12

14. Presenting Solutions Using the Solution Grid: Fully complete the aggregate plan solution grids for the LINDO solutions to problems 2a, 3, 10b, 11, and 12 in Chapter 12 (the LINDO input files and solutions can be found in the homework answers on reserve, as well as in the **documents section** of the Blackboard Account for this course.)
15. ABC Classification: **13:** 1, 2, 33a
16. Economic Order Quantity: **13:** 3, 4, 5, 6, 7, 8, 28a, 32b, 33b
17. Economic Order Quantity: See extra EOQ Problems and Solutions from the **documents section** of the Blackboard Account for this course.
18. Quantity Discount Model: **13:** 13 (use 16.67% holding cost rate), 14ab, 15, 16, 17, 25a
19. Quantity Discount Model: See extra Quantity Discount Problems and Solutions from the **documents section** of the Blackboard Account for this course.
20. Perpetual Review Reorder Points and Safety Stocks: **13:** 18, 19, 20, 21ac,22, 23, 24, 25b, 26ab, 27a, 28b, 32a
21. Fill Rates: **13:** 27b, 28cd, 29, 30
22. ROP, SS, and Fill Rates: See Extra ROP & SS Problems and Solutions from the **documents section** of the Blackboard Account for this course.
23. Fixed Order Interval Model: **13:** 21b, 26c, 31, 32c
24. Time-Phased Order Point Models: **15:** 14ab, 15; Also on 14 and 15, do LFL, EOQ (already requested on 14), and POQ as well; When doing 14, assume BI=30, SS=10, LT=1; Also assume that when doing EOQ and POQ, take the average demand over the last **7 periods** only (I did not include the blank period at the beginning of the horizon in my calculations); When doing 15, assume BI=80, SS=20, LT=1, and also use H=.65/week for EOQ and POQ work
25. Distribution Requirements Planning: Do DRP problems at end of this homework problem list (below)
26. Material Requirements Planning: **15:** 1-3,5, 9 (ignore part c), 10-13, 18 (do all parts of all questions, except for those parts requesting assembly time charts); Note: On #11c, use LFL for all items, and build on the MPS in solved problem #2
27. Material Requirements Planning: See extra MRP Problems and Solutions from the **documents section** of the Blackboard Account for this course.
28. X-Bar and R-Charts: **10:** 1, 2, 3, 4, 12a, 20(all but e)
29. Process Capability Analysis: **10:** 17, 21, 22, 23, 24, 25, 26; Also calculate the natural tolerances and the Cp indices for the following problems: 1 (assume specs of 23.5-25.5), 2 (assume specs of 0.96-1.04), 3 (assume specs of 2.7-3.5), 4 (assume specs of 77-83), 12 (assume specs of 3.4-4.3)
30. Statistical Quality Control (X-bar and R charts, Cp indexes): See extra Statistical Quality Control Problems and Solutions from the **documents section** of the Blackboard Account for this course.
31. p-Charts: **10:** 5abcfgh, 6, 9
32. Runs Tests: **10:** 12b, 13, 14 (use problem 9's data for part (a)), 15

DRP Problems:

I. Assume that a central distribution center (CDC) serves three regional distribution centers (RDCs); Forecasts at each of the RDCs for the next eight weeks are as follows:

Week:	1	2	3	4	5	6	7	8
RDC 1	25	25	25	25	25	25	25	25
RDC 2	10	10	10	10	20	20	20	20
RDC 3	5	15	10	10	0	15	0	15

Compute planned order releases for all three RDCs as well as the CDC, assuming the following order quantities (or lot-sizing rules), safety stocks, and lead times for each DC:

a. CDC: Q=200,SS=0,LT=2,BI=150
RDC1: Q=50,SS=15,LT=1,BI=50
RDC2: Q=30,SS=10,LT=1,BI=20
RDC3: Q=20,SS=10,LT=1,BI=15

b. CDC: Q=LFL, SS= 0, LT=2
RDC1: Q=POQ, SS=15, LT=1
RDC2: Q=LFL, SS=10, LT=1
RDC3: Q=POQ, SS=10, LT=1
(All BI's same as for (a))
(For POQ, use H=1, S=100)

II. Again assume that a central distribution center (CDC) serves three regional distribution centers (RDCs); Forecasts at each of the RDCs for the next eight weeks are as follows:

Week:	1	2	3	4	5	6	7	8
RDC 1	35	30	25	25	30	40	50	60
RDC 2	20	20	10	10	20	30	10	20
RDC 3	5	15	25	25	35	15	0	15

a. CDC: Q=250,SS=0, LT=3,BI=200
RDC1: Q=100,SS=25,LT=2,BI=100
RDC2: Q=40, SS=20,LT=1,BI=75
RDC3: Q=40, SS=10,LT=1,BI=45

b. CDC: Q=PPB, SS= 0, LT=3
RDC1: Q=LFL, SS=25, LT=2
RDC2: Q=LFL, SS=20, LT=1
RDC3: Q=LFL, SS=10, LT=1
(For each RDC, assume BI=SS;
For CDC, use BI=200,H=1,S=100)
(Also for each RDC, assume that you
have scheduled receipts that exactly cover
the gross req's in the first "LT"
periods of the grid.)

NOTICE OF POTENTIAL CHANGE

All of the above (e.g. schedules, policies, and assignments) is intended to be a good representation of what you can expect in this course. However, the instructor reserves the right to make changes as deemed appropriate.
