

MANAGEMENT 410

OPERATIONS MANAGEMENT

Winter Quarter 2003

Instructors

SECTIONS A & C: Professor Charles Corbett
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Class Hours

SECTION A:	Tuesdays & Thursdays	8:00am – 9:50am	C-315
SECTION C:	Tuesdays & Thursdays	10:00am – 11:50am	C-315

Office Hours

PROFESSOR CORBETT: Tuesdays, 2pm – 3pm (or whenever I'm in the office, or by appointment)

Final Exam

Tuesday, March 18, 2003, 8:00am – 11.30am; TO BE CONFIRMED

DOTM Assistant

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Required Text

The Goal, 2nd edition, Goldratt and Cox, North River Press, 1992.

Optional Reference Texts; will *not* be used in class

Plant and Service Tours in Operations Management, Roger W. Schmenner, Prentice-Hall.

Operations Management for Competitive Advantage, Chase, Aquilano and Jacobs, Irwin.

Course Website

SECTION A: [HTTP://INTERNAL.ANDERSON.UCLA.EDU/COURSE/2002-2003/wi41001/](http://INTERNAL.ANDERSON.UCLA.EDU/COURSE/2002-2003/wi41001/)

SECTION C: [HTTP://INTERNAL.ANDERSON.UCLA.EDU/COURSE/2002-2003/wi41003/](http://INTERNAL.ANDERSON.UCLA.EDU/COURSE/2002-2003/wi41003/)

Course Description

The purpose of the Operations Management course (MGMT 410) is to introduce you to the strategic and operating issues and decisions involved in managing the business / operational processes within an enterprise. [An operational process is one that: (1) uses an organization's resources to transform inputs into goods or (2) utilizes them to provide a service or, as is often the case, (3) does both.] The course aims to provide you with a conceptual framework and a set of analytical tools to enable you to better understand why processes behave as they do. Given this understanding, you will be positioned to involve yourself in an organization's defining strategic decisions, those relating to key processes affecting your, and your organizational unit's, performance. Further, you will be able to articulate the set of processes that most closely match and enhance your organization's competitive posture.

This course is integrative in nature, drawing upon concepts originally introduced in your previous and current courses in other areas. As we shall see, quantitative approaches are often useful in leading us toward possible solutions. However, in many situations, it is sufficient merely to understand the critical issues and major tradeoffs involved. While many of the operational processes that we will consider in this course will appear familiar, most of you will find yourselves viewing them from a different perspective.

As you are probably already aware, the business press has been particularly critical in the last few years of the lack of understanding of operations within the ranks of U.S. management as the global extension of more and more companies pointed out the competitive necessities of strong operations. A visible result is an increased operational focus by management and a collateral, very large growth in operational consulting practices. The type of consulting

has changed as well from providing conceptual insights and recommendations to implementing those recommendations.

These changes in turn have led to the heavy recruiting of graduating MBAs by management consulting firms. With only one course, it is obvious that you are not going to become an expert in operations management (and we don't intend that you do). Rather, the course is designed to introduce you to what every general manager or consultant should know about the field. Therefore, an important goal of this course is that you understand the fundamental concepts, opportunities and challenges related to operations, in the broadest sense of the word.

Class Format

Basically, the instructional format will be a dialogue between the students and the instructor, tending toward the Socratic approach should the dialogue languish. It is important to note that strong class participation is founded on adequate preparation. You are expected to thoroughly review the material on every case or reading prior to its discussion in class. When a case is concerned, it is expected that you do a thorough analysis of the situation presented, including the process, the problems and the options, and will, upon making a decision between them, prepare a plan of action appropriate to the circumstances. For further suggestions on preparing cases see *Learning by the Case Method* (9-590-008), which was discussed at your Orientation. When you are prepared, the class discussion is greatly enhanced and everyone (including myself!) learns far more than otherwise.

Grading

Your grade in this course will be based on individual class participation, an examination and group assignments. We shall try to assess your understanding of the tools and concepts covered, your ability to integrate and apply those concepts and your contribution to the learning experience of the class. The final grade will be determined using the following weights:

1. Class Participation	20% (individual)
2. Two Case Write-Ups (15% each)	30% (group)
3. Three Assignments (5% each)	15% (individual)
4. Final Exam	35% (individual)

1. Class Preparation/Participation (20%)

As indicated in the course outline below, readings from course pack are assigned for most class sessions. The assigned material should be read before class to facilitate comprehension and discussion. Also, a case study is assigned for many class sessions. You should read the case thoroughly to understand fully the situation, the pertinent facts and the central issues. We shall discuss and analyze the readings and the case together in class.

You should aim to contribute to the class discussion. To do that, of course, you must show up. Please arrange your other activities to permit you to attend class; drop me a note if you cannot come. Mostly, our discussions will be free form – anyone who has something to contribute can and should. Quality of participation is far more important than quantity, and concise correct remarks will be rewarded while long-winded generalities will not. However, I obviously can not evaluate the quality of your participation if you do not speak up at all, so a certain degree of cold-calling will also be used.

2. Group Case Write-Ups (30%)

The two case write-ups are to be done in your learning team. A learning team may consist of three to five class members and should, if possible, include people with diverse backgrounds and experiences. The learning teams should be formed by about the third class session. Each learning team should submit two written reports that are intended to analyze various operational issues in manufacturing and service systems. Turn in one answer/report per learning team. These reports should be no more than 10 pages in length (excluding exhibits). Case analysis reports should be submitted at the beginning of the class in which the case is discussed. The deadlines for the reports are:

Donner Company:	January 21	(Session 5)
Frost:	March 11	(Session 19)

3. Individual Assignments (15%)

There will be three individual assignments to help you check your understanding of the material covered. The due dates will be:

First Problem Set:	January 28	(Session 7)
Second Problem Set:	February 13	(Session 12)
Third Problem Set:	February 25	(Session 15)

4. Final Exam (35%)

The exact time and place of the final exam will be confirmed later, including more details about the content of the final exam. If you have followed the class discussions, kept up with the readings, and done the individual homework assignments, you should be well-prepared for the exam.

Case Analysis: Using The Case Assignment Questions

The case assignment questions are provided for guidance in reading and analyzing the particular case. It is important to note that these questions are meant to help you focus your thinking rather than to be the complete definition of a satisfactory case analysis. By the same token, you should not assume that the chapter assignments represent the entire focus of the case, or that the case is simply an application of the chapter material. Your task, as always, is to identify and propose a fact-based solution to the most important areas of managerial concern. Narrow these areas to as few as possible – two or three is normally appropriate – for your in-depth attention. Your ability to zero in on the killer concerns facing management in a situation will serve you well in case interviews.

In preparing yourself for a case discussion, the following steps are recommended: Diagnosis; Analysis of Alternatives; Choice; Plan and Persuasion. In a sense, the guiding questions really can be summarized using the following questions: (1) What are the problems? (2) How do you analyze them? (3) What decisions do you propose and why? (4) Be action oriented!

The following approach is often helpful:

1. Read the first and last paragraphs to get a sense of the context of the situation. Look for any non-standard exhibits as these may give an indication of the type of useful information that may be needed to analyze the situation.
2. Skim the case and develop a hypothesis for the causes of the problem and its probable solution.
3. Reread the case more carefully searching for evidence to support or disprove your hypothesis. Perform only those analyses that go toward answering specific questions you have formulated in advance.
4. Always come to conclusions and make (or recommend) the required decisions. Support your recommendations with page references from the current readings whenever possible. Unsupported recommendations/conclusions are not acceptable.
5. Lay out the specific actions that need to be taken to implement the decision. What, Why, Who, When, How and What resources (people, time, money, facilities) are required? Where will you get them if they are not available?
6. One last thing. All implementation plans have risks. An adequate analysis identifies the key, action-specific, implementation risks and how you intend to mitigate/manage them.

SUMMARY COURSE OUTLINE

Module	Topic	Session
<i>Introduction</i>	Introduction To 410	1
	A Day In The Life Of An Operations Consultant	
	Performance Metrics (Linking Operations Performance With Financial Performance)	2
	Measuring Operations Competitiveness	3
<i>Process Analysis</i>	Introduction	4
	Job Shop And Batch Flow	5
	Assembly Operations (Worker-Paced)	6
	Assembly Operations (Machine-Paced)	7
	Project Management	8
	Continuous Operations; Introduction to Variability	9
	Managing Variability, continued	10
<i>Coordination</i>	Making Supply Meet Demand	11
	Just-in-Time Systems	12
	Supply Chain Management	13
	Information Supply Chains	14
<i>Strategic Operating Issues</i>	Technology Management	15
	Strategic Outsourcing	16
	The Product Development Process	17
<i>Improving Operations</i>	Continuous Improvement / Total Quality Management	18
	Radical Improvement / Process Redesign / Balanced Scorecard	19
<i>Review Session</i>	Review Session	20

Class Schedule and Assignments

Important Note: It will be necessary to have completed reading The Goal before the third meeting on January 15th!

BACKGROUND READINGS (ON RESERVE):

- "Note On How To Approach POM Cases."
- "How To Avoid Getting Lost In The Numbers."

SESSION 1: JANUARY 7

Introduction To 410 & A Day In The Life Of An Operations Consultant

READ:

- "Whatever Happened To The Take-Charge Manager?," Nohria and Berkley, *HBR*, Jan-Feb 1994.

CASE: Deloitte & Touche Consulting Group, *HBS* (9-696-096).

Be prepared to discuss the following questions:

1. Why does SKS need Deloitte's services? What alternatives were available to it? Would you have approached the improvement problem in the same way as an *internal* operations manager?
2. What specific steps would you take to solve SKS short-term and long-term problems?
3. What is your assessment of Maria Chen's performance?
4. Imagine that you are Chen. A foreman comes up to you on the shop floor and asks how many times have you done this before. What will you say?
5. What should Chen do?

SESSION 2: JANUARY 9

Performance Metrics

READINGS:

- "Return-On-Investment And The Operations Manager," *Darden* (UVA-OM-521).
- Make sure you have started reading *The Goal*, which we will discuss next session.

CASE: Leadership Online: Barnes & Noble vs. Amazon.com (A)

Be prepared to discuss the following questions:

1. Compare the business models and operations of Barnes & Noble and Amazon.com, and analyze their impact on ROA.

Use the Excel worksheet on the course website to explore how operations affects ROA. Note: we will use this case primarily as a vehicle to discuss the link between operations and ROA, not to discuss the case in great detail. So, you need to be familiar with the differences between Barnes & Nobles' and Amazon's operations, but we will discuss these operations issues in much more detail as the course progresses.

SESSION 3: JANUARY 14

Measuring Operational Competitiveness

READINGS:

- *The Goal*.

Module on Process Analysis**SESSION 4: JANUARY 16***Process Analysis - Introduction*

READINGS:

- "A Glossary Of TOM Terms," *HBS* (9-687-019).
- "A Note On Process Analysis (Abridged)," *HBS* (9-689-032).

CASE: Kristen's Cookie Company (A), *HBS* (9-686-093).

Be prepared to discuss the following questions:

1. Commencing with a process flow diagram, what is your analysis of the processing operation at Kristen Cookie?
2. What specific actions should be taken to solve these problems?

SESSION 5: JANUARY 21*Process Analysis - Job Shop And Batch Flow*

CASE: Donner Company, *HBS* (9-689-030).

DUE: Write-up for Donner Company. Consider the following questions in your analysis (no more than 10 pages, excluding exhibits):

1. Flowchart the typical order's physical process flow.
2. What order size policy would you institute for the CNC drill? For the CNC router?
3. Plug the required info into the DONNER.XLS Excel model. What do your results tell you?
4. What is the utilization of operations such as the CNC drill, CNC router and artwork generation? The plant as a whole? What else does Exhibit 2 reveal about Donner's operations?
5. Develop a flow chart of the information flows within the Donner system.
6. What is your explanation for each of the problems mentioned by Plummer?
7. What specific actions should Plummer take to solve these problems?

SESSION 6: JANUARY 23*Process Analysis - Assembly Operations (Worker-Paced)*

CASE: Shouldice Hospital Limited, *HBS* (9-683-068).

Be prepared to discuss the following questions:

1. How successful is the Shouldice Hospital? How do you account for its performance?
2. What actions, if any, would you take to expand the hospital's capacity?
3. How would you implement the changes you propose? Try to anticipate the various staff reactions and problems and what steps you would take to mitigate them.

VIDEO: Shouldice

SESSION 7: JANUARY 28*Process Analysis Assembly Lines (Machine Paced)*

CASE: Texas Instruments–Time Products Division, *HBS* (9-677-043).

Be prepared to discuss the following questions:

1. How *efficient* is the watch assembly line at Lubbock at the present time? How *effective* is it in meeting the TPD goals? What is the cycle time? Throughput time? Production rate?
2. What opportunities exist for improving operations? How attractive are these? How difficult will they be to realize?
3. What recommendations would you make to Peter Bradley? How would you prioritize them?

VIDEO: Seiko Watch Line

DUE: First Problem Set

SESSION 8: JANUARY 30*Process Analysis – Project Management*

READINGS:

- Chapter 3, "Project Management", in Chase, Aquilano and Jacobs, pp. 58-81.

CASE: DRAGONFLY

Be prepared to discuss the following questions:

1. How can the project schedule be formally represented, showing interdependence and parallelism among activities?
2. What is the *critical path* of the project? What completion time and budget does it imply (pretending that completion times are deterministic)?
3. How does the project schedule change, when activity time uncertainty is introduced? How does the project budget change? (For this question, assume that the interdependence among activities A4 and A9 does not exist.)
4. How is the schedule impacted by the interdependence between A4 and A9? How is the budget impacted?
5. Should any of the proposed activities be shortened to ensure timely completion? If so, which one (i.e., scenarios in Table 5)?

Use the Excel / Crystall Ball worksheet on the course website to assist you with your analyses.

SESSION 9: FEBRUARY 4*Process Analysis - Continuous Operation, Summary Of Types Of Processes & Introduction To Process Variability*

READINGS:

- Introduction: *Plant and Service Tours in Operations Management* (Schmenner).
- Tour A: *Plant and Service Tours in Operations Management* (Schmenner).
- "Variability and Queueing," *Wharton* (OPIM 622).

VIDEO: Types Of Processes

SESSION 10: FEBRUARY 6*Process Analysis - Managing Process Variability*

READINGS:

- "The Psychology Of Waiting Lines," *HBS* (9-684-064).

CASE: "Manzana Insurance–Fruitvale Branch (Abridged)," *HBS* (9-692-015).

Be prepared to discuss the following questions:

1. How is the Fruitvale Branch doing?
2. What are the causes of these problems?
3. Can you identify the problems in the way Manzana is calculating turnaround time in Exhibit 3?
4. If you were Bill Phippen, what would you recommend that Fruitvale do?

Module on Process Coordination

SESSION 11: FEBRUARY 11*Process Coordination: Making Supply Meet Demand*

READINGS:

- "The Newsvendor Model"
- "Making Supply Meet Demand In An Uncertain World," Fisher et al., *HBR*, May-Jun 1994.

CASE: "Sport Obermeyer, Ltd.," *HBS* (9-695-022).

Be prepared to discuss the following questions:

1. Using the sample data given in Exhibit 10 make a recommendation for how many units of each style Wally Obermeyer should order during the initial phase of production. Assume that all ten styles in the sample problem are made in Hong Kong and that Obermeyer's initial production commitment must be at least 10,000 units. (Ignore price differences among styles in your initial analysis.)
2. What operational changes would you recommend to Wally to improve performance?
3. How should Obermeyer management think (both short-term and long-term) about sourcing in Hong Kong versus China?

SESSION 12: FEBRUARY 13*Process Coordination: Just-in-Time Systems*

READINGS:

- "Getting Control of Just-in-Time", Karmarkar, *Harvard Business Review*

CASE: "Toyota Motor Manufacturing, U.S.A., Inc.," *HBS* (9-693-019).

Be prepared to discuss the following questions:

1. As Doug Friesen, what would you do to address the seat problem? Where would you focus your attention and solution efforts?
2. What options exist? What would you recommend? Why?
3. Where, if at all, does the current routine for handling defective seats deviate from the principles of the Toyota Production System?
4. What is the real problem facing Doug Friesen?

DUE: Second Problem Set

SESSION 13: FEBRUARY 18*Process Coordination: Supply Chain Management*

READINGS:

- "The Bullwhip Effect In Supply Chains," Lee et al., *Sloan Management Review*, Spring 1997.

CASE: Barilla SpA (A)

Be prepared to discuss the following questions:

1. Diagnose the underlying causes of the difficulties that the JITD program was created to solve. What are the benefits and drawbacks of this program?
2. What conflicts or barriers internal to Barilla does the JITD program create? What causes these conflicts? As Giorgio Maggiali, how would you deal with these?
3. As one of Barilla's customers, what would your response to JITD be? Why?
4. In the environment in which Barilla operated in 1990, do you believe JITD (or a similar kind of program) would be feasible? Effective? If so, which customer would you target next? How would you convince them that the JITD program was worth trying? If not, what alternatives would you suggest to combat some of the difficulties that Barilla's operating system faces?

SESSION 14: FEBRUARY 20*Process Coordination: Information Supply Chains*

READINGS:

- "Information Flows In Manufacturing Under SAP R/3," *Stanford* (OIT-13).
- "Silicon Valley On The Rhine," *Business Week*, November 3, 1997.

CASE: Aspect Development Inc.

Visit the websites of some of the leading providers of various types of enterprise systems: SAP, Oracle, Baan, Siebel, i2 Technologies, Manugistics, etc, and try to understand what value each of these systems provides.

Be prepared to discuss the following questions:

1. Analyze the production process for data base production in Aspect's data factory.
2. Sketch the entire supply chain for data from the component manufacturer to the user of the Aspect product. Compare this with the supply chain prior to the availability such data services.
3. Estimate the production volume and the aggregate productivity of Aspect's system (a rough estimate is adequate). Discuss measures that could be used to estimate work loads, and capacity requirements.
4. Describe how the Aspect production process addresses the measures of cost, quality, time and flexibility. Be sure to consider the major dimensions of quality (performance, conformance, support, etc.).
5. What are the key competitive advantages of Aspect Development? What is the role of the production process, the supply chain, the technology used, and the design of the product in competition?

Module on Strategic Operating Issues

SESSION 15: FEBRUARY 25*Technology Management*

READINGS:

- "Postindustrial Manufacturing," Jaikumar, *HBR*, Nov-Dec 1986.
- "What's Your Strategy For Managing Knowledge?," Hansen et al., *HBR*, Mar-Apr 1999.
- "Leveraging Processes For Strategic Advantage," Garvin, *HBR*, Sept-Oct 1995.

CASE: "McKinsey & Company: Managing Knowledge and Learning," *HBS* (9-396-357).

Be prepared to discuss the following questions:

1. How was this obscure little firm of "accounting and engineering advisors" able to grow into the world's most prestigious consulting firm fifty years later? What was the unique source of competitive advantage developed by James O. McKinsey and later Marvin Bower?
2. Judging by the evidence in the three mini-cases of front-line activities in the mid-1990s, how effective has the firm been in its two-decade long change process?
3. What is your evaluation of Rajat Gupta's "four-pronged" approach to knowledge development and application within McKinsey? As a senior partner, what specific advice would you give him?
4. How should knowledge management at McKinsey be different from that at other firms?

DUE: Third Problem Set

SESSION 16: FEBRUARY 27*Strategic Outsourcing*

READINGS:

- "Strategic Outsourcing," Quinn and Hilmer, *SMR*, Summer 1994.
- "Partnerships To Improve Supply Chains," Corbett et al., *SMR*, Summer 1999.

CASE: "Laura Ashley and Federal Express Strategic Alliance," *HBS* (9-693-050).

Be prepared to discuss the following questions:

1. Evaluate the decision to enter a strategic alliance from the perspective of both Laura Ashley and Federal Express. What are the real opportunities and risks from this approach?
2. Evaluate the structure of the relationship. Do the financial arrangements make sense? Is the loose nature of the partnership appropriate, or should a more structured approach be taken? Scope out an alternative. What type of leadership was necessary to make such a deal and what leadership skills will be necessary to implement it successfully?
3. How likely is it that the partnership will succeed over the long term and what will it take for both companies to make it successful? Are there specific organizational or human resource policy reforms that would enhance LA's performance?
4. Assume the partnership is successful. What new strategic operating capabilities will it provide for Laura Ashley? How, specifically, should they be used to expand its business?

Module on Improving Operations

SESSION 17: MARCH 4

The Product Development Process

READINGS:

- "Getting the Most out of Your Product Development Process", Adler et al., *Harvard Business Review*, March-April 1996.

CASE: IDEO Product Development

Be prepared to discuss the following questions:

1. How would you characterize IDEO's process, organization, culture, and management?
2. Should IDEO accept the Visor project as is (on a dramatically reduced schedule)? Should they try to persuade Handspring's management to change its aggressive launch schedule? Or should they simply decline the project? In your discussions, please consider both the IDEO and the Handspring perspectives.
3. Should other companies follow IDEO's approach to their own in-house product development efforts? Should Toyota do so? How about Microsoft?

Video: The Deep Dive.

SESSION 18: MARCH 6

Continuous Improvement / Total Quality Management / Environmental Management

READINGS:

- "Competing On The Eight Dimensions Of Quality," Garvin, *HBR*, Nov-Dec 1987.
- "A Note on Quality: The Views of Deming, Juran, And Crosby," *HBS* (9-687-011).
- "Total Quality Environmental Management: The Primer", Global Environmental Management Initiative, 1993.
- "Does ISO 9000 Certification Pay?", Corbett, Montes, Kirsch and Alvarez-Gil, *ISO Management Systems*, July-August 2002.

Be prepared to discuss the following questions:

1. What are the similarities and differences between the Malcolm Baldrige award (see <http://www.quality.nist.gov/>), Total Quality Management, Six Sigma, and ISO 9000? Use the library or the web to find more information on any of these programs, if necessary.
2. What links are there between "quality management" and "environmental management"?

SESSION 19: MARCH 11

Radical Improvement / Process Redesign / Balanced Scorecard

Several concepts have recently received an inordinate amount of play in consulting circles and in the business press: Business Process Reengineering (BPR), and the Balanced Scorecard. We will put these concepts into perspective with the other process improvement activities we examined above in the course.

READINGS:

- "Reengineering Work: Don't Automate, Obliterate," Hammer, *HBR*, Jul-Aug 1990.
- "Putting The Balanced Scorecard To Work," Kaplan and Norton, *HBR*, Sep-Oct 1993.
- Chapter 1: *The Witch Doctors: Making Sense Of The Management Gurus*, Micklethwait and Wooldridge, Random House, 1996.

CASE: "Frost, Incorporated (A)," *HBS* (9-690-084).

DUE: Case write-up on Frost. Address the following questions:

1. Why is Frost having such little success in diversifying? How important is diversification for the company?
2. Is the decision to purchase the CNC equipment a good one? Economically? Strategically? Why?
3. How well has Chad prepared his organization to implement his decision?
4. To fully exploit the new technology what process changes will be needed in (a) operations, (b) sales and marketing, (c) engineering and design, (d) accounting and (e) human resources?
5. What is your recommendation, plan of action and steps you would take to mitigate risk?
6. Summarize the strategic direction Chad wants to take with Frost in the form of a balanced scorecard.

SESSION 20: MARCH 13

Review Session: Review of Key Concepts from Sessions 1 through 19.