OM7011-001: Management of Operations

Overview

Operations management (OM) can be defined as “organizing and controlling the fundamental business activity of providing goods and services to customers.” A key course theme is to develop competitive advantage through operations by better matching supply and demand.

Goals

The course seeks to provide you with tools, concepts, and insights for managing operations in manufacturing and service systems:

1. Learn language, issues, metrics, trade-offs, practices, approaches, tools, and innovations in operations management;
2. Develop understanding of process & variability management;
3. Basic quantitative models / analyses for implementation / control.
4. Miscellaneous general goals include improving:
   • Critical Thinking (Quantitative Problem Solving)
   • Effective Communication (Class Discussion)
   • Information Literacy & Knowledge Integration (OM Basics, Intuition, Synthesis, Applications)

Requirements

No pre-requisites. Exposure to BANA 7011 useful. Students should:

1. Get access to the course materials listed alongside.
2. Keep abreast with material at the Blackboard course website.
3. Prepare for, attend, and participate in class. Work regularly.
5. Help improve the structure, content, & execution of OM7011.

Evaluation

40% Two Team-based Case Write-ups (20% each)
30% 3 Homework Assignments
25% Final Exam
5% Class Participation (1=Poor, 3=Satisfactory, 5=Excellent)

Materials

Course materials include:

- **Required Text:** Cachon and Terwiesch, Matching Supply with Demand, 3rd Ed, 2012. [2nd edition is OK with adjustment to account for new data / info.] Book copies are on 2-hour reserve at Langsam library.
- **Required Course Pack:** Copyrighted mat’l available through Harvard Business School, http://cb.bbsp.harvard.edu/cbmp/access/72866651 - Includes two HBS cases and their supplementary Excel spreadsheets, plus access to HBS Beer Distribution Game.
- **Canopy Blackboard website** – access via: https://canopy.uc.edu

Milestones – see schedule

Jan. 22, Feb. 5
Cranberry, Manzana case reports

Jan. 24, Feb. 7, 19
Quantitative Homeworks

Feb. 14
Beer Distribution Game Play – bring laptop

Feb. 24
Take-home Comprehensive Final Exam

Notes:
The order of assessments in weeks 2 thru’ 7 is: HW1, Case1, HW2, Case2, HW3, Final
## OM 7011 Course Schedule (including class date, topic, readings, and assignments / submissions).

<table>
<thead>
<tr>
<th>Class</th>
<th>Date</th>
<th>Topic</th>
<th>Text, 3rd Edn.</th>
<th>Case Study/Readings</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.a</td>
<td>M: 1/8</td>
<td>OM Intro, Process View</td>
<td>Chapters 1, 2</td>
<td>Access HBS material</td>
<td>Student Info. Sheet, Form teams</td>
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<tr>
<td>1.b</td>
<td>W: 1/10</td>
<td>Process View &amp; Capacity Analysis</td>
<td>Chapters 2, 3</td>
<td>The Goal**</td>
<td>Get HBS mat’l (cases + game)</td>
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<tr>
<td>2</td>
<td>M: 1/15</td>
<td>No class, UC closed for MLK day</td>
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<tr>
<td>2.a</td>
<td>W: 1/17</td>
<td>Process Capacity, Labor Costs</td>
<td>Chapters 3, 4*, 7</td>
<td>Prep for Cranberry case</td>
<td>Finalize teams</td>
</tr>
<tr>
<td>2.b</td>
<td>M: 1/22</td>
<td>HBS: National Cranberry Case</td>
<td>Chapter 7</td>
<td>HBS: National Cranberry Case</td>
<td>NCC Case Write-Up</td>
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<tr>
<td>3.a</td>
<td>W: 1/24</td>
<td>Batching: Buffer or Suffer, EOQ</td>
<td>Chapter 7</td>
<td></td>
<td>Quant. HW 1 (Ch:1-3)</td>
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<tr>
<td>3.b</td>
<td>M: 1/29</td>
<td>Variability and Waiting Times</td>
<td>Chapters 8</td>
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<tr>
<td>4.a</td>
<td>W: 1/31</td>
<td>Variability Contd. - Examples</td>
<td>Chapters 8</td>
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<tr>
<td>4.b</td>
<td>M: 2/5</td>
<td>HBS: Manzana Case</td>
<td>HBS: Manzana Case</td>
<td></td>
<td>Manzana Case Write-Up</td>
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<tr>
<td>5.a</td>
<td>W: 2/7</td>
<td>Newsvendor Model</td>
<td>Chapters 12</td>
<td>The Goal**</td>
<td>Quant. HW 2 (Ch:7-8)</td>
</tr>
<tr>
<td>5.b</td>
<td>M: 2/12</td>
<td>Newsvendor Examples, Newsvendor Performance</td>
<td>Chapter 12, 16*</td>
<td>Beer Distribution Game Prep.</td>
<td></td>
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<tr>
<td>6.a</td>
<td>W: 2/14</td>
<td>Beer Distribution Game / Supply Chain</td>
<td>Beer Game Play</td>
<td></td>
<td>Bring Laptop for Game</td>
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<tr>
<td>6.b</td>
<td>M: 2/19</td>
<td>Quality &amp; Lean</td>
<td>Chapters 10, 11</td>
<td>Fast Company: Toyota</td>
<td>Quant. HW 3 (Ch:8,12)</td>
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<tr>
<td>7.a</td>
<td>W: 2/21</td>
<td>Lean Operations (contd.)</td>
<td>Chapter 11</td>
<td>HBR: Fixing Healthcare …</td>
<td>Take-home Final Exam (due 2/24), The Goal Report**</td>
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**Notes:** It is advisable to skim thru’ the readings (including lecture notes) before class and again more carefully after class. Work regularly. For each topic covered, answer some practice problems (posted on Blackboard ➔ Assignments, along with solutions). * Grey font text indicates topics that may not be covered due to time limits. The above schedule may be modified, e.g., if other OM material is deemed useful / the class elects to go for the Toyota Georgetown Plant Tour, www.toyotageorgetown.com, or a class is cancelled due to weather. ** Follow your own schedule for reading The Goal novel – A book report can supplement one assignment or part of the final exam score (discussed below – Misc. Items: Goal Study Questions).

### FYI, Other Interesting Readings related to OM Topics: [Unfortunately, this list is not up-to-date due to limits on my reading.]

- **The World is Flat**, Thomas Friedman, 2005.
- **The Organized Mind**, Daniel J. Levitin, 2014
- **The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies** by E. Brynjolfsson and A. McAfee, 2016

### Some Miscellaneous Items: (see next page)
Course Webpage: The course will utilize the Blackboard Web Page system, which can be accessed at https://canopy.uc.edu. Email and Blackboard Announcements will be the primary means of my contacting you outside of class. Please make sure that Blackboard contains your current email address and that you check your email and Announcements periodically. Blackboard will be a repository for class materials and for posting assignments. Check the Blackboard web site regularly.

Required Course Pack: Available from Harvard Business School Publishing at http://cb.hbsp.harvard.edu/cbmp/access/72866651 (you will need an HBS account); should cost $8.50 + 15 for two HBS cases + Online Beer Distribution Game.

Course Method: This class will be a mix of lectures, problem assignments, case discussions, and hands-on (or experiential) exercises. Case studies / readings will be heavily emphasized and active discussion is expected. Come to class prepared and willing to participate. Prepared means that you have read the assignments, familiarized yourself with the presented theory from the previous classes, given thought to the problems presented in the readings, considered how these problems could be addressed using applications of the theory presented in this class, and completed any assigned write-ups or practice problems. Your willingness and ability to contribute to class discussion and ask meaningful questions will affect your class participation grade.

Cases: Case write-ups in this course generally include the opportunity, and expectation, for quantitative analysis and a problem-solving methodology. Your case write-ups should be carefully thought out and your recommendations/ conclusions should be supported by analysis. Additionally, you will be graded on the clarity and cogency of your writing and overall presentation. Write your report as if you were advising a senior company executive with decision-making capability (during the time of the case). Assume case facts are known to all and use these selectively to conduct your analysis and support your recommendations. It is best to write a logical report that presents the key problems, a summary of your analysis (with details in Appendices, as appropriate), and a discussion of your conclusions / recommendations, along with limitations of your analysis, and alternative perspectives, recommendations or contingency plans, as appropriate. Case write-ups may be completed in groups of no more than 4 students and must be submitted before the case is discussed in class. There are two required case reports – National Cranberry, Manzana Fruitvale, each accounting for 20% of your course grade. Questions to guide your analysis are available on Bboard; avoid a Q&A case report format. You should complete your write-ups in four pages or less (minimum 11 pt font, 1.5 line spacing, 1 inch margins), excluding any technical appendices with calculations, additional figures, etc. Note: The cases can be challenging; please set aside sufficient time to fully analyze these complex cases.

Practice Problems: I have assigned quantitative practice problems. The problems will not be graded, but you are strongly encouraged to work on these problems, as they will help you prepare for classes, cases, the quizzes / exam. You can work on these practice problems in groups, I will post solutions and sometimes go over solutions in class. Doing quantitative practice problems is a good way to learn course content and to build relevant reusable spreadsheets. You will do much better in this class if you complete the practice problems! Failure to complete practice problems is a good method of ensuring a poor course grade. P.S. A low-quality scan of practice problems is posted on Blackboard FYR. Refer to the text for cleaner version of these problems.

Homework Assignments / Exam: In Spring 2018, there will be three assignments and a final exam accounting respectively for 30 and 25% of your course grade. The questions will be mostly quantitative and similar to practice problems; the final is comprehensive (syllabus will be provided for exam review). Details on the structure of assignments and the exam TBD and will be discussed in class.

Goal Study Questions: Study questions designed to help your reading and comprehension of the optional The Goal book are posted on Blackboard. There are two sets of questions (chapters 1-20 and 21-40). Students who will not focus on Quantitative Operations and don’t do well on assignments or the exam may choose to replace 9% points out of either their assignments total or exam score with a Goal report – that's max 9% out of (30+25). This report should summarize key OM concepts from the Goal book by answering any 7 bolded questions from the BBoard list of questions. Due-date is Feb. 24 (may be submitted earlier). I recommend that all students read The Goal, or preview part of the movie at https://www.toc-goldratt.com/en/product/the-goal-movie-how-to-version, which may be screened in installments in class, if enough students are interested.

Team Course Project Presentation: Teams of students have the option to replace their final exam with a short (15 minute) course project presentation on an Operations Management topic of their choice that either supplements or complements the
course content of OM7011. Projects describing industry practice (based on interaction with people at a company or a synthesis of relevant articles) or a synopsis of a relevant OM case or topic or teaching materials or software are acceptable. Project presentations will be evaluated by the audience on content and style, using a Likert like scale. (NA for Spring 2018)

Experiential Learning Game: On Feb. 14, we will play the Beer Distribution Game using software from Harvard (where you purchased the course pack). On the game play day, students must bring to class a laptop or computer device with internet connectivity; 4 students with 4 computer devices will be in a supply chain team and play the role of retailer, wholesaler, distributor, and manufacturer. The game seeks to illustrate Supply Chains & the Bull-whip Effect.

Class Time: I understand that a technically-oriented evening class can be difficult for some students. The “no-pain, no-gain” theory and content uniformity with other sections suggest we work hard during class time. I will make this course more user-friendly (with breaks / videos), but students must plan to invest extra effort in OM7011 than other functional area classes. It is possible that some class time may be replaced with off-line content / work, especially if a class is cancelled due to weather.

Class Participation: Class participation includes being present, fully prepared and participating in class discussions. In particular, I expect active discussions during our case analysis classes and quantitative problem solving. I will also occasionally ask questions and expect feedback throughout this course (including completion of end-of-semester online course evaluations). A portion of class participation could be based on group evaluation (for team-based work). Criteria for effective class participation include: Is the participant a good listener? Are the points made relevant to the discussion and linked to the comments of others? Do the comments show evidence of analysis of the problem or case? Is there a willingness to participate? Do the comments clarify, highlight, and synthesize important aspects of earlier comments and lead to a clearer statement of the concepts being covered or to new knowledge/insights? Do the comments add value by identifying overlooked points or points that turn out to be influential in further discussion? Are comments well thought out rather than just thrown out?

Academic Dishonesty: Any submissions for OM7011 must be your own work done for this class; any sources used should be cited. Academic dishonesty is taken very seriously and may result in a failing grade as well as being reported to the college; cheating twice at Lindner can get you suspended – is the return worth the risk? A discussion of what constitutes academic dishonesty at the University of Cincinnati is available at http://www.uc.edu/ucinfo/conduct.html. Be aware that plagiarism, including the use of past / online case write-ups, exam questions, or discussions with students who have taken the OM7011 course previously, constitutes academic dishonesty. Cheating in a class robs you of the opportunity to develop useful skills.

Special Needs Policy: If you have any special needs related to your participation in this course, including identified visual impairment, hearing impairment, physical impairment, communication disorder, and/or specific learning disability that may influence your performance in this course, contact the instructor to arrange for reasonable provisions to ensure an equitable opportunity to meet all requirements of this course. Some accommodations may require prior approval by Disability Services.

Computer / Phone Usage: The use of computer programs, specifically Microsoft Office and internet access, will be required for this course. You must make sure that you have access to these, either through the university or your own computer, and to familiarize yourself with the basics of tools such as Excel. Use of computing and communication devices in class should be restricted to class work. Out of respect for your classmates, please turn off (or put on vibrate) all cell phones while you are in class.

“The Three Sons” Puzzle: To experience critical thinking (and fill remaining space on page) ….

Sandy Miller had just finished the job interview for an operations analytics position and was standing in front of the company’s office with the interviewer. This part of the visit seemed easy: this was the casual part of the conversation.

Sandy: I understand you have three sons. How old are they? Interviewer: I’ll give you a hint. The product of their ages is 36.
Suddenly, Sandy realized that the conversation wasn’t just casual. Maybe this was part of the interview—a test of quantitative thinking, perhaps.

Sandy: I need more information.
Interviewer: The sum of their ages is the same number as the number of windows in the building behind you.

Sandy: I still need more information. Interviewer: My oldest son has blue eyes.
At this point, Sandy confidently gave the ages of the three sons. What were their ages?