# COURSE OUTLINE: SPRING 2020 – SECTION 81 [TENTATIVE. SEE CANVAS FOR UPDATED INFORMATION]

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<th>Session</th>
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| 1       | Apr 4  | **Modules 1&2**  
- Introduction to Operations  
- Process Measures and Little’s Law | The Goal: Start  
MBPF, Chapters 1,3                                                | Background survey (Canvas)                                       |
| 2       | Apr 11 | - Aligning Strategy and Operations. Focus  
- Process Flow Analysis. Targeting Improvement | MBPF, Chapters 2  
Article: Chronodrive  
Cases: Wriston Manufacturing, Portland Computer Systems | Little’s Law quiz  
Portland Computer Systems (team submission) |
| 3       | Apr 18 | - Flow Time & Capacity Analysis  
- House Building Game                                              | MBPF, Chapter 5  
The Goal: up to p. 161  
Case: Pizza Pazza                                                |                                                  |
| 4       | Apr 25 | - Flow Time & Capacity Analysis: Peak Loads  
**Module 3: Lean Operations**  
- Paradigm of Lean Operations                                      | Case: National Cranberry Cooperative                           | Capacity and Flow Time quiz  
National Cranberry Cooperative (team submission) |
| 5       | May 2  | - Variability and Quality at the Source  
- Midterm review                                                   | Excel exercise: The Dice Game  
Case: Toyota Motor Manufacturing                                   | Midterm exam handed out                                      |
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<td>6</td>
<td>May 9</td>
<td><strong>Module 4: Data Driven Quality Management</strong>&lt;br&gt;- Managing processes with variable output</td>
<td>The Goal: Finish (up to p. 246) MBPF, Chapter 9 Case: TBD</td>
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<td>May 16</td>
<td><strong>Module 5: Capacity Management in Services</strong>&lt;br&gt;- Capacity, queueing &amp; flow time analysis&lt;br&gt;- Design of service systems: economies of scale</td>
<td>MBPF, Chapter 8 Case: To pool or not to pool</td>
<td>Quality management quiz</td>
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<td>May 23</td>
<td><strong>Module 6: Supply Chain Management</strong>&lt;br&gt;- Optimal service levels&lt;br&gt;- Design of service systems: impact of priorities and limited buffers</td>
<td>Case: The BAT Case</td>
<td>The BAT Case (team submission)&lt;br&gt;Queuing quiz</td>
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<td><strong>Module 6: Supply Chain Management</strong>&lt;br&gt;- Optimal service levels&lt;br&gt;- Design of service systems: impact of priorities and limited buffers</td>
<td>MBPF, Chapter 7: Section 7.3</td>
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<td>9</td>
<td>May 30</td>
<td><strong>Module 6: Supply Chain Management</strong>&lt;br&gt;- Optimal service levels&lt;br&gt;- Design of service systems: impact of priorities and limited buffers</td>
<td>MBPF, Chapter 6&lt;br&gt;MBPF, Chapter 7: (skip Section7.4.2)&lt;br&gt;Case: TBD</td>
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<td>10</td>
<td>June 6</td>
<td><strong>Pooling: Centralization &amp; Postponement</strong></td>
<td>MBPF, Chapter 7: Section 7.5–7.7</td>
<td>Inventory team problem set</td>
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<td><strong>Course wrap-up &amp; review for final</strong></td>
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OPERATIONS MANAGEMENT 430

SPRING 2020

Instructor:  Anton Braverman

Course Description and Objectives

This course provides a general introduction to operations management. Operations management is the design and control of business processes, that is, the recurring activities of a firm. Along with finance and marketing, operations is one of the three primary functions of a firm. At the risk of being simplistic, one may say that marketing generates the demand, finance provides the capital, and operations produces the product or delivers the service. More generally, operations spans the entire organization: COOs are in charge of R&D, design/engineering, production operations, marketing, sales, support and service.

This course aims to (1) familiarize you with the major operational problems and issues that confront managers, and (2) provide you with language, concepts, insights and tools to deal with these issues in order to gain competitive advantage through operations.

This course should be of particular interest to people aspiring a career in designing and managing business processes, either directly (V.P. of Ops, COO) or indirectly (e.g., management consulting). The course should also be of interest to people who manage interfaces between operations and other business functions such as finance, marketing, managerial accounting and human resources. Finally, a working knowledge of operations, which typically employs the greatest number of employees and requires the largest investment in assets, is indispensable for general managers and entrepreneurs.

We will see how different business strategies require different business processes, and vice versa, how different operational capabilities allow and support different strategies to gain competitive advantage. A process view of operations will be used to analyze different key operational dimensions such as capacity management, flow time management, and supply chain management.

Required Texts

Required materials available at the bookstore:
1. Course Pack.

Cases listed in the class-by-class reading list below are found in the Course Pack.

As a novel, *The Goal* is light reading and some sections are quite entertaining. Nevertheless, it is well over 300 pages long, so you are encouraged to start reading now. We will draw on it during the entire course and there may be questions on the based on the book on the exams.

**Grading**

The grade you receive for the course is intended to certify your demonstrated proficiency in the course material. Proficiency will be estimated by measuring your performance on class contribution, written team assignments, individual quizzes and exams. There will be four short (3 to 5 questions) quizzes over the quarter. These will be administered through Canvas. The midterm exam will be in class, closed-book, and will be held during regular class session 10. The final will be a three-hour, in-class exam with open readings, open class handouts and notes. It will be comprehensive, covering material from all course modules. It will only be available during the exam period.

Your course grade will be based on a weighted evaluation of the following categories:

1. Class contribution  
2. Case write-ups and problem set  
3. On-line quizzes  
4. Midterm examination  
5. Comprehensive final examination

**Preparation for Class**

Course assignments are designed to engage you in the issues, to teach you ways to think about and analyze operational problems, and to prepare you to be effective managers. The enclosed course outline and detailed schedule provides you, class by class, with a brief description of the class, the readings and case preparation questions (if any).

As part of your class preparation, please consider how you would answer each of the discussion questions. The readings and assignments should require an average of about three to four hours of preparation per class meeting. If you find yourself averaging more preparation time per session, please let me know. (Typically, students find the class load high in the first three weeks. As you become more comfortable with the material, this subjective assessment will change for the better.)
Case Write-Ups

Each case write-up should address the question in italics that goes with the case assignment. In preparing your write-up, please adhere to the following guidelines:

⇒ Be concise and well-structured: Recommendations should be summarized on the first page and be complemented by a crystal-clear discussion on how these follow from your analysis.
⇒ Your write up should not exceed 2 pages of text (11pt, 1½ lines spaced), not including exhibits. (Remember: 2 pages is a limit, not a quota.)
⇒ Be to the point: Know that you write to someone who knows the facts of the case; focus on your explaining, and making a clear case for, your recommendations.
⇒ Submit your team’s write up through Canvas.
⇒ Be punctual: Late submissions will not be accepted.

All case write-ups are to be done in assigned groups. Group assignments will be available by the end of the first week of the term. For most cases, 3 to 4 hours of team-time (after personal prep) should be sufficient. Some cases are detailed and more open-ended. You should use your team’s judgment to figure out how to tackle those cases. The goal of the team approach to case prep is to have you think and experiment while sensitizing you to those issues that are novel and that will be further discussed in class.

The Kellogg Honor Code stipulates that you may put your name on the submission only if you contributed to the group discussion. Toward the end of the term, you will be asked to fill out an assessment of teammates’ contributions to group assignments. These assessments will play a role in determining final grades.

The Kellogg Honor Code also stipulates that you may not use any outside materials in preparing the case write ups. This includes (but is not limited to) handouts from past terms and materials found on the Internet.

Class Contribution

In-class contribution will consist mainly of voluntary contributions, although I may call to encourage broader participation. (Although cold calling may increase anxiety, the GMA suggests that “supportive” cold calling encourages you to be better prepared for class and improves overall class discussion.)

Classroom Etiquette

The Kellogg Code of Classroom Etiquette can be found at http://www.kellogg.northwestern.edu/stu_aff/policies/etiquette.htm.
This etiquette policy was developed by students to foster an atmosphere that is conducive to collective learning. While attendance for any given class session is not compulsory (though encouraged), students’ compliance with the Kellogg classroom etiquette policy will be enforced.

In particular, you may not:
1. Engage in cross-talking.
2. Engage in disruptive movement (e.g., arrive late, leave class for a coffee or snack).
3. Use of a smart phone or other device for texting, e-mail etc.
4. Indulge in any other behavior that may be deemed by other students or the instructor to be inappropriate or inconsistent with Kellogg Code of Classroom Etiquette.

Laptop and tablet use during class is not permitted.

**Use of the Canvas**

Canvas will be used to facilitate course communication through announcements. Also, on the class Canvas site you will find:

- Lecture slides
- MBPF textbook exercises and solutions.
- Sample midterm and final exam questions & solutions.
- Excel spreadsheets for cases.

**Suggested Readings**

None of these readings are a requirement for the course. Nonetheless, you may find them interesting.


*Call Center Management on Fast Forward: Succeeding in Today’s Dynamic Customer Contact Environment* by Brad Cleveland, ICMI Press, 2006.


Final Exam

In preparing for the final, review the sample final (available on Canvas) and MBPF examples and exercises (solutions are available on Canvas). In addition, be aware of the following:

1. The final will be an in-class exam. You will have 180 minutes (three hours) to complete it.
2. The exam will only be available during exam period.
3. The exam is cumulative.
4. The exam is open book. You may consult your textbook, class handouts (including material from the class Canvas site), and class notes. You may use the computer worksheets used in class. You may not use any other materials.
5. You may use a calculator and/or laptop computer. A laptop may only be used for a calculator, Excel, or to access downloaded class files.