MGMT 551-02 Operations Analysis

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INTRODUCTION TO OPERATIONS

Operations analysis refers to the systematic design, direction, and control of business processes that transform inputs into services and products for external, as well as internal customers. As such, this MBA core course is truly about “how to do business” and “how to create better performance.” In particular, we will introduce various concepts and decision-making techniques related to issues such as operations strategy, performance measurement, process improvement, quality control, lean management, inventory, and supply chain management.

COURSE OBJECTIVE

The purpose of this introductory course is to provide MBA students with a thorough introduction to the concepts and analytical skills of operations management needed to understand and improve the business of various organizations. The course aims to expand their managerial (soft) skills as well as hands-on analytical (hard) skills so that they understand how to deliver superior organizational performance in practical business settings. In particular, we focus on developing student strategic thinking and critical thinking capabilities, in terms of understanding how and when to implement the tools of operational analysis, ensuring that enterprise resources are used as efficiently and effectively as possible.

STUDENT LEARNING OUTCOMES (SLO)

At the conclusion of the course our students are expected to be able to:

1. Explain the basic issues, concepts, and terminologies in operations management theory
2. Formulate operations strategies, set and prioritize strategic objectives and relevant action plans
3. Demonstrate fundamental skills as how to measure organizational performance, analyze and improve processes, control process quality, manage inventory, and improve customer service
4. Clarify problems, generate and evaluate alternatives using appropriate analytical and quantitative techniques, and draw conclusions
5. Illustrate capability to apply theory to practical business scenarios and propose possible solutions to improve performance
6. Develop perspectives on how and where today’s business and environmental trends fit into the ethical, global atmosphere
7. Show effective written and oral communication skills to present and justify operational analysis results including recommendations
COURSE MATERIALS

Text Book (Required):
CE: Collier and Evans, OM 5, 2014, South-Western, Cengage Learning (ISBN: 978-1285451374, no online access code is required) (This is as close to a textbook as we have in this course. But we shall use this book less as a text and more as a reference and a supplementary resource. Please read the assigned sections of this text somewhat lightly at first. Go back for a re-read as you deem useful after we discuss the topic(s) in class)

Other Materials:
1. The core teaching materials for the course are all electronic documents posted on our course website canvas.xavier.edu. These digital documents, written by the instructor, include lecture PPT slides and PDF instructional files such as teaching examples, practice problems, homework problems, and teaching notes. Certainly, the in-class lecture will try to integrate all the relevant learning components. Please take class notes appropriately. Every student needs to use a binder (with 2 inch capacity) or a computer device (either a laptop or tablet) to hold all the (loose) teaching documents you download from our course website.
2. Additional cases, examples, book chapters, and articles will also be posted on the course website as well. Unless stated clearly, these documents are supplemental. I will also add latest examples as the course progresses.

COURSE REQUIREMENTS

Mandatory Attendance: 40 points (Individual Based)

This course contains two online classes, the rest are all traditional face-to-face (f2f) classes. All students are normally expected to attend each face-to-face (f2f) class on campus. It is critical that everyone comes to every class on time and pays full attention to class materials and activities. If you have a legitimate need to miss one f2f class, you are still responsible for the materials covered and expected to complete the required work. Under normal circumstances, missing three f2f classes or more will result in an automatic “incomplete” grade.

Assessment method: Your attendance grade for f2f classes is based on the following tentative grading rubric:

| 36-40 points | Attended classes consistently on time, was attentively involved in class learning activities. Demonstrated efforts to catch up for missing classes. |
| 32-35 points | Occasionally arrived late or left classes early or worked on non-class tasks or was not attentive at times. Did poorly on missing class topics. Raised irrelevant questions or distracting issues in classes. |
| 28-31 points | Regularly arrived late or left early or worked on own stuff other than course materials. Was consistently not attentive at times. Missed some classes and did not attempt to catch up. |
| 0-27 points | Sitting in class but was always busy with something else. |
To foster a productive learning environment, it is important that you come to class prepared and willing to contribute to discussions. Here the preparedness means completing all pre-class reading assignments for each class thus it will help you get ideas about what to ask or what to say. Up to 20 bonus points will be given to those who participate regularly. Bonus points are based on factors such as the quantity and quality of speeches, after-class communications, etc. These bonus points will be added to your attendance score on Canvas (you may receive up to 60 out of 40, in this case).

<table>
<thead>
<tr>
<th>10-20 points</th>
<th>Often make quality speeches in classes. Speeches demonstrate one or more of the following: provide insightful answers, raise a great question/issue, and/or offer an excellent practical example.</th>
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</thead>
<tbody>
<tr>
<td>1-9 points</td>
<td>Occasionally make speeches in some classes. Speeches demonstrate some level of analysis or understanding.</td>
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</table>

**Online Quizzes: 40×2=80 points (Individual Based, Online Classes Only)**

At the end of each online class you will need to take an open-book quiz covering materials just discussed in that online class. Each online quiz includes 10 multiple-choice questions. The quizzes are individual-based and you should not seek assistance from any other people. *Understanding the key concepts of the teaching materials (text chapters, PPT slides, excluding optional articles) we cover in that module is required before you take the quiz. Make sure you always give your best shot as you cannot redo the quiz even if you are not satisfied with the score.* Please complete the quiz before the deadline. Spend no more than one minute on each question, and you need to finish the quiz in 15 minutes. Test will save and submit automatically when time expires. Also, once started, the quiz must be completed in one sitting. Please contact me and the ITS help desk at XU if you experience any technical difficulties.

**Assessment method:** Quizzes will be given in all online modules to assess the material/topics covered in the associated course learning activities. Quizzes include ten multiple-choice questions (4 points each question, with a total of 40 per quiz). Your quizzes will be graded by the computer automatically.

**Homework Assignments: 240 points (Group Based)**

There will be homework assignments for most f2f classes which mainly include workout problems. It is essentially important for everyone to do all these problems on an individual basis in order to fully understand the methodology and perform well in exams. However, I prefer group to individual work on assignments as I have found that groups develop significantly better solutions (with better grades), and that you learn from one another in group interactions. As such, everyone is strongly encouraged to work in a study group of no more than 3 students. Each group only needs to turn in one hardcopy containing the best answers from the group (*one hard copy per group, can be printed or hand written, make sure I can read*). Please be advised that normally you will have one week to complete the assignments and you need to submit your homework at the beginning of the next f2f class. For longer assignments you will have one extra-week to complete. You are expected to show your relevant work. Homework containing only final numbers (even correct answers) or information unreadable will get 0%. Late homework is not accepted unless you negotiate with the instructor at least one day (before due date) in advance.

**Assessment method:** Solution process and correct answers presented in a professional appearing and well-labeled format will be 85% of the grade. Partial credit will be given. Points will be taken off if your homework includes wrong answers, missing critical steps or processes, and other
essential information. The professional appearance and ease of understanding of the associated explanatory summary will make up the remaining 15% of the grade. The HWs are normally due in the following f2f class. Resubmitted homework is only accepted in the next week after the homework is returned, and only partial credit will be given (normally 50%, e.g., you correct all wrong answers for a regular homework assignment which you got 14 out of 20, a perfect resubmission will allow you to get 14+(20-14)*50%=17). It is your responsibility to contact me if you have any missing or incorrect homework scores on Canvas website.

Project: 140 points (Group Based)

There is a group project paper due by the end of the semester (6 pages of text, excluding appendix, single space, #11 font size). Your entire group also needs to make a project presentation to the class at that time. Your presentation time will be 10 minutes (plus 5 minute possible Q&A time). The paper is worth 100 points, and the presentation is worth 40 points. Note the project proposal will be due in the midterm review class. Please write no more than two pages as your proposal.

The possible outcomes from a project report are: to analyze an existing operations process and suggest any improvements that need to be made, or to study an operations or supply chain research topic such as business model innovation, capacity planning, lean management, process improvement, performance measurement, or big data in operations, etc. The project report should not be a detailed description of everything you have done/researched but a specific set of observations, insights, and recommendations, together with supporting evidences. It should begin with an executive summary no longer than 250 words.

Assessment method: The project paper should be well prepared and include appropriate sections (with subtitles) for the analysis work. The reports are evaluated based on the following criteria:

1. Operations Analysis / Content (75%)
   - Does the paper define the main fighting issue correctly? (What do you want to solve?)
   - Does the analysis apply the proper theoretical methods? (related to the course materials, including concepts and techniques)
   - Does it present author’s own arguments explicitly and supported by own arguments?
   - Is the analysis complete and comprehensive?
   - Does the paper present enough depth of analysis? (do not repeat the given info)
   - Does the paper consider realistic constraints?
   - Is the paper logically consistent and effectively structured to sell its recommendations?
   - Are conclusions in the paper convincing?

2. Report Appearance / Format (25%)
   - Does the paper appear to be professional? (Think you are hired to do the consulting work and you are presenting the report to your customer)
   - Does the paper follow case report writing requirements carefully? (e.g., no typos and editing problems, no format changes from section to section, no handwriting changes or notes, no use of “I” or “my” to refer to any group work)

Writing Exams: 200×2=400 points (Individual Based)

There will be two writing exams in this semester, including one midterm, and one final exam. The exams would cover concepts and analytical techniques presented in lectures. Students are responsible for all materials covered in classes (including any session they did not attend). For the writing exams, each student will be allowed to bring in one 8.5 by 11 inch (double-sided) note sheet containing whatever he or she chooses for reference during the exam. A calculator is
required for taking the exam. Make-up exam will require documentation of illness or other unavoidable emergency, in which case please contact me as early as possible. Please note the makeup exam will only be given during daytime and will be administered by our department secretary.

**Assessment method:** The instructor will grade all exams to determine performance. Partial credit will be given in most (workout problem) cases.

### OTHER EXPECTATIONS

1. In order to do well (get at least B+), be prepared (and willing) to put in time and effort.
2. Students need to come to the class on time each and every time; class starts at 6:00PM. Please attempt to make the most use of your in-class time for learning purposes. Doing so will allow you to maximize your learning efficiency.
3. When using your laptops, tablets, or other mobile devices in class, please make sure it is only for legitimate classroom purposes. *E-mail, instant messaging, surfing the Internet, reading the news, or playing games are not considered legitimate classroom purposes. Such inappropriate use is distracting to those seated around you and is unprofessional.*
4. Go to our course website at least weekly and have access to the instructional information for each class. Bring the binder or tablet to every class, and take in-class notes.
5. You are expected to spend 2-4 hours of after-class time in each week. On average, please spend 0.5-1.0 hour for pre-class reading, and 1.5-3 hours for other work (reviewing and finishing homework assignments). Spend more time if necessary.
6. Contact me with any questions or learning issues.

### GRADING SCALE

All student grades will be posted on Canvas (Grads Tab).

<table>
<thead>
<tr>
<th>Grading Components</th>
<th>Points</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Attendance</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>2. Online Quizzes</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>3. Homework Assignments</td>
<td>240</td>
<td></td>
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<tr>
<td>4. Project</td>
<td>140</td>
<td></td>
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<tr>
<td>5. Exams</td>
<td>400</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>900</strong></td>
<td></td>
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</table>

**Grading Scale**

- **A:** 94% and above
- **A −:** 90% – 93.9%
- **B + :** 85% – 89.9%
- **B:** 80% – 84.9%
- **B −:** 76% – 79.9%
- **C (including + / −):** 60% – 75.9%
- **F =** below 60%
### COURSE CALENDAR

<table>
<thead>
<tr>
<th>Class</th>
<th>Date</th>
<th>Topics</th>
<th>Due Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>08/24</td>
<td>Syllabus</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Introduction to Operations</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>08/31</td>
<td>Operations Strategy</td>
<td></td>
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<tr>
<td></td>
<td>09/07</td>
<td>Labor Day</td>
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<tr>
<td>3</td>
<td>09/14</td>
<td>Capacity Analysis</td>
<td>*Long HW#1 assigned</td>
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<tr>
<td>4</td>
<td>09/21</td>
<td>Flow Time Analysis</td>
<td></td>
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<tr>
<td>5</td>
<td>09/28</td>
<td>Constraint Management</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Process Strategy</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>10/05</td>
<td>Project Management</td>
<td>*Online quiz#1 due</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*Long HW#1 due</td>
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<tr>
<td>7</td>
<td>10/12</td>
<td>Decision Optimization Midterm</td>
<td>*Project proposal due</td>
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<td></td>
<td></td>
<td>Review</td>
<td></td>
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<tr>
<td>8</td>
<td>10/19</td>
<td>Midterm Exam</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>10/26</td>
<td>Quality Management</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>11/02</td>
<td>Statistical Quality Control</td>
<td>*Long HW#2 assigned</td>
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<tr>
<td>11</td>
<td>11/09</td>
<td>Inventory Analysis</td>
<td></td>
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<tr>
<td>12</td>
<td>11/16</td>
<td>Supply Strategies</td>
<td>*Long HW#2 due</td>
</tr>
<tr>
<td>13</td>
<td>11/23</td>
<td>Six Sigma Strategy</td>
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<td></td>
<td></td>
<td>Lean Management</td>
<td></td>
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<tr>
<td>14</td>
<td>11/30</td>
<td>Supply Chain Management</td>
<td>*Online quiz#2 due</td>
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<tr>
<td></td>
<td></td>
<td>Final Review</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>12/07</td>
<td>Group Project Presentation</td>
<td>*Group paper due</td>
</tr>
<tr>
<td>16</td>
<td>12/14</td>
<td>Final Exam</td>
<td>*Group evaluation due</td>
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</tbody>
</table>

### CODE OF ACADEMIC HONESTY
The mission of the Graduate School of Business at Xavier University is to educate students of business, enabling them to improve organizations and society, consistent with the Jesuit tradition. The pursuit of truth demands high standards of personal honesty. Academic and professional life requires a trust based upon integrity of the written and spoken word.

Plagiarism is a serious offense. The faculty and administration of Xavier University wish to make it clear that the following acts are regarded as serious violations of personal honesty and the academic ideal that binds the university into a learning community:

Submitting as one's own:
- material copied from a published source: print, Internet, CD-ROM, audio, video, etc.
- another person's unpublished work or examination material.
- a rewritten or paraphrased version of another person's work.
- allowing another or paying another to write or research a paper for one's own benefit.
- purchasing, acquiring, and using for course credit a pre-written paper.

The critical issue is to give proper recognition to other sources. To do so, is both an act of personal, professional courtesy and of intellectual honesty. If, after giving proper recognition to sources other than one's own, the student has nothing left to call his or her own, insufficient work has been done.

All work submitted for academic evaluation must be the student's own. Certainly, the activities of other scholars will influence all students. However, the direct and unattributed use of another's efforts is prohibited as is the use of any work untruthfully submitted as one's own.

Penalties for violations of this policy may include one or more of the following:
- a zero for that assignment or test,
- an "F" in the course,
- and expulsion from the University.

**DISABILITY SERVICE**

It is my goal that this class be an accessible and welcoming experience for all students. If you are a student with a disability who may have trouble participating or effectively demonstrating learning in this course, contact me to arrange an appointment to share your Accommodation Letters from Disability Services and to discuss your needs. Disability related information is confidential. If you have not contacted Disability Services (located in the Learning Assistance Center) to arrange accommodations, I encourage you to do so by contacting Cassandra Jones, by phone at 513-745-3280, in person on the Fifth Floor of the Conaton Learning Commons, Room 514, or via e-mail at jonesc20@xavier.edu as soon as possible as accommodations are not retroactive.

**FACULTY BIO**

Dr. Lifang Wu is an associate professor of Operations Management at Xavier University, Cincinnati, Ohio. He teaches operations management and global supply chain management courses at undergraduate, MBA and executive levels. He received his PhD degree in Operations Management from the University of Iowa, Iowa City, Iowa in 2004. Before starting his PhD
study, Dr. Wu spent 8 years working as an assistant engineer, operations manager, vice president of operations, and member of supervisory board for one of the top 500 private companies in China. He also holds dual Bachelor’s degrees (Electrical Engineering and Management Science) from Tianjin University and an MBA degree from Zhejiang University, both leading universities in China. His research interests include global supply chain management, operations management, process improvement, and operations strategy. His research work has appeared in journals such as *International Journal of Logistics Management, IEEE Transactions on Engineering Management, Supply Chain Management Review, Total Quality Management, Business Process Management Journal*, and *International Journal of Electronic Business*. He was the first place winner of APICS Operations Management Doctoral Dissertation Research Competition in 2004. His paper on dynamic outsourcing through process modularization was chosen as the Best Paper Award Winner for *Business Process Management Journal* in 2010. While teaching at Xavier, Dr. Wu also consults with many manufacturing and service organizations in greater Cincinnati area and in mainland China. He is an enthusiast of using analytics to solve practical business problems and improve organizational performance.

(The End)