OIDD 611: Operations Management: Quality and Productivity

Faculty Contact Information

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Course Timing

The course will begin Wednesday, September 2 and will consist of 12 class sessions.

The three sections of the course will meet at 9:00 am, 10:30 am, and 1:30pm respectively. The average live class time is 50-60 minutes per session (see below).

Course Format

Due to the Covid-19 pandemic, the class will be delivered online only using a blend of videos to be watched asynchronously (1/3 of the time) and a set of live session (2/3 of the time). Students are expected to spend about seven hours a week on the course. This includes:

- Watching an average of three videos of about 8-10 minute duration before each class (these are averages and the exact number might vary from day to day) => 30 minute preparation per class.
- Preparing an average of one case a week. There is no need to submit a formal case write-up, but students are expected to spend about 1h on case preparation for each case. Detailed instructions on how to prepare each case will be sent out in advance.
- Class time (live) will take about 50-60 minutes per class. Classes will be delivered through BlueJeans and students should expect to spend about 15-20 minutes per class in break-out mode. Again, these numbers are averages, which means that some classes will be done faster and some will take longer.
- Time for reading, reviewing, and preparing for homework assignments and the final exam (about two hours per week, on average).

Canvas will be used to keep track of readings, assignments, and videos.

Course Description

Matching supply with demand is a enormous challenge for firms: excess supply is too costly, inadequate supply irritates customers. In the course, we will explore how firms can better organize
their operations so that they more effectively align their supply with the demand for their products and services. Throughout the course, we illustrate mathematical analysis applied to real operational challenges – we seek rigor and relevance. Our aim is to provide both tactical knowledge and high-level insights needed by general managers and management consultants. We will demonstrate that companies can use (and have used) the principles from this course to significantly enhance their competitiveness.

In this course, the emphasis is on the design of business processes to maximize productivity and to achieve world-class quality. The course details different kinds of business processes and explains how to measure key process parameters like capacity and lead time. The course also covers process improvement and examines classic ideas in quality management and the Toyota Production System.

**Grading**

Each student's final numerical score for each course is based on the following items and weights:

- **Homework assignments** (20% of final grade). Each student must turn in his or her own assignment through Canvas. We encourage students to attempt to complete the assignments on their own. However, to promote learning, students are allowed to discuss each assignment with other students taking OIDD611 in the same quarter.

- **Class participation** (20% of final grade). The class participation score is based on class contributions throughout the entire course. To contribute during case discussions, students must prepare cases carefully before coming to class and be ready to discuss and defend recommended actions.

- **Final exam** (60% of final grade). There is a final exam based on the contents of the course: analytical tools, case discussions, lectures, etc. The format of the final exam is open book and open notes.
Ethics Matrix

<table>
<thead>
<tr>
<th>OID 611 Operations Management: Quality and Productivity</th>
<th>Materials</th>
<th>People</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approved calculator</td>
<td>Laptop / other electronics</td>
<td>Summary sheet</td>
</tr>
<tr>
<td>Homework</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Cases</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Final Exam</td>
<td>A(3)</td>
<td>A</td>
</tr>
</tbody>
</table>

A = Allowed material
Shaded Cell = Not allowed
W = Allowed to work together
D = Discussion of general concepts and procedures is allowed but no sharing of specific answers.
Shaded Cell = Not allowed
W(1) = W(2) = W(3) = W

Other comments:

(1) Students are encouraged to test their understanding of the material by working on the homework individually. Once the student has diagnosed his/her skill level, communication is allowed.

(2) Students are encouraged to collaborate when preparing for cases or working on the end-of-chapter problems.

(3) You are not allowed to pre-program any macros or spreadsheet. To state the obvious, you are also not allowed to interact with fellow students during the exam time.

The information above covers many common situations but will not cover every circumstance. Remember: The Wharton MBA Code of Ethics that you accepted requires, among other things, that you represent yourself and your work honestly, don't try to gain unfair advantage over other students, follow the instructor's guidelines and respect confidentiality of your work and the work of others.

Should you have questions, please contact your ethics liaison or professor.

Course Text, Readings and Handouts

All lectures will follow the textbook by Cachon and Terwiesch very closely:

Cachon, Gerard, Christian Terwiesch, Matching Supply with Demand: An Introduction to Operations Management, 4th edition, McGraw Hill (older editions and the international editions are cheaper to purchase and cover all relevant material)

Though the book is a recommended reading, it is not required. All definitions and formula will be provided in the slide decks.

Cases will be made available via Canvas / Study.net.
Use of Electronic Devices
The following states our policy with respect to the usage of electronic devices during class time and during the final exam.

In class, students are allowed to use laptops and tablets only for work directly related to the class (no email, no other work). We will use BlueJeans to stay in touch during the live sessions and students are expected to follow along and be ready to participate.

Beyond the BlueJeans screen sharing and the Canvas learning management system, a Google Doc Spreadsheet will be used to quickly organize student input.

Session overview
There are 12 sessions in this course and two homework assignments. Cases and exercises are taken from a broad range of industries, including financial services, hospitality, retailing, manufacturing, and healthcare.

<table>
<thead>
<tr>
<th>Class</th>
<th>Date</th>
<th>Videos</th>
<th>Other prep</th>
<th>Live session</th>
<th>Live Lecture</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2-Sep</td>
<td>Introduction 1</td>
<td>Preclass survey, read Mortgage Case</td>
<td>Mortgage exercise</td>
<td>Efficiency frontiers, Three system inhibitors</td>
</tr>
<tr>
<td>2</td>
<td>9-Sep</td>
<td>Flow</td>
<td>Map out your mortgage process</td>
<td>Review mortgage exercise performance</td>
<td>Process lecture (bottleneck and capacity)</td>
</tr>
<tr>
<td>3</td>
<td>14-Sep</td>
<td>Flow 2.4, Subway video</td>
<td>WTP drivers for a sandwich restaurant</td>
<td>Subway case</td>
<td>Flow lecture</td>
</tr>
<tr>
<td>4</td>
<td>16-Sep</td>
<td>Little 1</td>
<td>Inventory and cogs of your favorite retailer</td>
<td>Inventory turns discussion</td>
<td>Little 2 and 3</td>
</tr>
<tr>
<td>5</td>
<td>23-Sep</td>
<td>Multi 1.4</td>
<td>Submit performance measures</td>
<td>Pulp Downs</td>
<td>KI lecture</td>
</tr>
<tr>
<td>6</td>
<td>29-Sep</td>
<td>Lean 1.4</td>
<td>Capital One case</td>
<td>Capital One</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>29-Sep</td>
<td>Wait 1.3</td>
<td>Radiology case (A)</td>
<td>Radiology exercise</td>
<td>Tq lecture, Improvement strategies</td>
</tr>
<tr>
<td>8</td>
<td>30-Sep</td>
<td>Wait 4.6</td>
<td>Call center case</td>
<td>Call center</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>5-Oct</td>
<td>Loss 1.2</td>
<td>Radiology case (B)</td>
<td>Radiology exercise</td>
<td>Platforms, Urbanization</td>
</tr>
<tr>
<td>10</td>
<td>7-Oct</td>
<td>Quality 1.1</td>
<td>Six sigma analysts</td>
<td>Innovation vs Six Sigma</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>12-Oct</td>
<td>Quality 4.6</td>
<td>Toyota case</td>
<td>Toyota case</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>14-Oct</td>
<td>Conclude</td>
<td>How to prepare for final exam</td>
<td>Review / exam prep</td>
<td></td>
</tr>
</tbody>
</table>

Some of the detailed session planning might change. Please check the Canvas for the final assignments.

Some Personal Thoughts on the Pandemic
The Covid Pandemic has caused a major damage to our life as a community. Rather than coming together in Huntsman Hall, we find ourselves sprinkled all over the world. And, though we are connected through the Internet, time zones, bandwidth, family obligation, health, and many other variables all cause friction and have the potential to reduce our learning experience.

I have spent the better time of this summer to redesign the class for online delivery. This includes producing many hours of videos, building animations, replacing the many inclass exercises that are the signature of this class into online exercises, and much more.

No matter how hard we work, there is nothing like coming together in the class room. But, that doesn’t mean we shouldn’t try. In addition to the class sessions, I intend to schedule regular sessions for office hours and social time. This is time that we can talk about the course,
Operations Management, and life more broadly. Based on my research and personal interests, a preliminary list of topics includes:

- Healthcare delivery
- COVID-19
- Electric mobility
- German Economy and Politics
- Innovation and disruption
- Connected Strategy
- Working for a business school
- Bike commuting in Philadelphia
- How to train for an Ironman

If you have any suggestions on how to improve the learning experience in the course, please contact me as soon as possible.