OPERATIONS MANAGEMENT

Academic Year: **2020/2021**   **Semester/Trimester 2st**

Level of curricular unit: Undergraduate (1st cycle, as defined in the Framework of Qualifications for the European Higher Education Area)

Instructor(s): Laura Wagner, Joren Gijsbrechts, Tiago Pinto Carneiro, Sérgio Cardoso, Amelia Pina

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Biography:

Laura Wagner is an assistant professor in Operations Management. She obtained her Bachelor and Master in Mechanical Engineering and Economics (Dipl.Ing) at the Technical University Graz in Austria, received an MBA from the University of Sankt Gallen in Switzerland and a PhD from MIT-Zaragoza Logistics Center in Spain. As a doctoral student, she spent time at MIT and the University of Pompeu Fabra, and also spent a year as a post-doctoral researcher at IESE-Business School. Her research interests cover Inventory Management, Assortment Planning and consumer choice models, amongst others. Prior to her PhD, she gained business and management experience in several industries, ranging from logistics consulting and product management to test and program management at leading companies including Bosch Rexroth, Protema Logistics Consulting and ThyssenKrupp Presta AG. Additionally, she worked as a supply chain consultant for Médecins Sans Frontières (MSF) and Entercoms.

Joren Gijsbrechts is an assistant professor in Operations Management. He graduated as a Bachelor and Master in Business Engineering at the University of Antwerp in Belgium. Prior to obtaining his doctoral degree from KU Leuven in Belgium, he attained business experience in the Supply Chain and Operations division of Procter and Gamble in Sweden. As a PhD student, he regularly visited Kellogg School of Management and has on-going research projects with renowned researchers from Olin Business School, Kellogg School of Management, Kuehne Logistics University and Exeter University. His research centers around data-driven decision making in Operations Management with a strong focus on the recent developments in Machine Learning and Prescriptive Analytics. His models have assisted companies to improve their inventory and transportation management. In addition to research, he is providing guest lectures and company workshops on the recent developments within Supply Chain Analytics.

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Course overview and objectives:

Operations Management is (OM) is concerned with the management of resources and activities that produce

and deliver goods and services to customers. The major activities of OM are planning, operating, controlling and improving processes within organizations. Efficient and effective operations can provide an organization with major competitive advantages since the ability to respond to customer and market requirements quickly, at a low cost, and with high quality, is vital to attaining profitability and growth through increased market share.

This course provides a basic comprehension of the OM within an organization. Operations are analysed from a strategic and operational perspective, focusing on the competitive advantage that they can create in organizations. Thus, students are provided with concepts, techniques and tools to design, analyse and improve operational capabilities of an organization. Rather than focusing on a particular sector, the course aims to cover a broad range of application domains from industry to services. Upon completing this course, students should be able to: understand the strategic role of OM in creating and enhancing an organization's competitive advantages, identify the main concepts and issues of OM in both manufacturing and service organizations, and apply analytical methods and problem-solving tools to the analysis of operations problems.

Course Objectives:
- Recognize the important role of operations in an organization's success.
- Develop a comprehensive understanding of operational issues and decisions and how they relate to each other, and to other areas of the organization and its environment.
- Understand related operational and economical concepts and techniques.
- Evaluate alternative solutions and analyze the objective to optimize the decision.
- Utilize data, models, techniques, and tools to determine the optimal solution.

Course Content:

Class	Lecture
1	Process Analysis –Little's Law
2	Process Analysis
3	Process Analysis Multi-product flow
4	Queueing Systems
5	Operations Planning and Control
6	Forecasting
	Midterm
7	Inventory Control I
8	Inventory Control II
9	Supply Chain Management / Contracts
10	Revenue Management
11	Machine Learning in Supply Chains
12	Beer Game-Debriefing
	Midterm II
	Final Exam

<u>Required background:</u>
The course is a quantitative course. Therefore basic knowledge in Calculus is appreciated.

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<u>Grading</u>:

Midterm I	*35%*
Midterm II	*35%*
Quiz First six courses	*10%*
Case Study (Newsvendor) **	*10%*
Beer Game Report **	*10%*

*There will be videos for each of the first six classes. Students are expected to watch the videos before the practical classes and submit their answers to the quizzes. After practicing the material we will discuss relevant practical applications in the theoretical classes. Thus the course structure of the first part of the course is: i) acquire fundamental understanding of a topic via videos ii) practice course content in your practical class iii) get insights how companies use these frameworks to solve real life challenges (theoretical class).

The second part (after midterm) has the usual structure, that is: i) acquire understanding of a set of operations problems in class and ii) practice the course content in your practical classes.

**The Case study report and Beer Game Report can be delivered in teams of maximum 2 people (give us one copy only with both names, please!). Cases will be submitted on Moodle.
Deliver your slides in practical classes before the presentation.

Grading Rules:
- Average grade obtained during the course period is < 8 values: student is excluded (failed).
- Average grade obtained during the course period is between 8-9 values: student is required to go to the Final Exam
- Average grade obtained during the course period is > 10 values: student is approved.

  Moreover, if you come to the final exam then the following applies:
- 1. The Final exam will replace the grade a student has obtained throughout the course (for good and for worse).
- 2. If you attend the final exam you have to deliver. There is no option to postpone this decision. That means in the worst case that a student that may have been approved (>=10) can fail the course (if the final grade is <10).

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<u>Bibliography</u>:

Mandatory Case:
Link will be provided on Moodle (This case needs to be bought by students)
Recommended Textbook:
The textbook is "Operations and Supply Chain Management", Jacobs & Chase, 15th edition, ISBN-13: 9781259921797, McGrawHill Publisher.

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Miscellaneous information:

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Code of conduct and ethics:

Católica Lisbon School of Business and Economics is a community of individuals with diverse backgrounds and interests who share certain fundamental goals. A crucial element to achieve these goals is the creation and maintenance of an atmosphere contributing to learning and personal growth for everyone in the community. The success of CATÓLICA-LISBON in attaining its goals and in maintaining its reputation of academic excellence depends on the willingness of its members, both collectively and individually, to meet their responsibilities.

Along with all the other members of our community, students are expected to follow professional standards and CATÓLICA-LISBON standards of Academic Integrity. Some details should be mentioned here: Please arrive on time for class with uninterrupted attendance for the duration of the class. Signing attendance sheet for anyone else in the class constitutes fraud and a violation of the CLSBE code of conduct. Use of computers and other electronic devices during the class is not allowed, unless expressly requested by the instructor of the course. Students who persistently act in a disruptive and disrespectful manner during the class session may be invited to leave.

Students are expected to behave at all times according to the fundamental principles of academic integrity, including honesty, trust, fairness, respect, and responsibility. In particular,

a) In **individual graded assignments** of any type, students may not collaborate with others or use any materials without explicit permission from the instructor of the course;
b) In **group assignments and reports**, all students listed as authors shoud have performed a substantial amount of work for that assignment;
c) It is dishonest to fabricate or falsify data in experiments, surveys, papers, reports or other circumstances; fabricate source material in a bibliography or "works cited" list; or provide false information in other documents in connection with academic efforts;
d) **Plagiarizing**, i.e. "to steal and pass off the ideas or words of another as one's own and or to use another's production without crediting the source" (Merrian-Webster Dictionary) is an Academic Integrity breach. It can be avoided by using proper methods of documentation and acknowledgement. Visit this guide for additional resources on how to avoid plagiarism in your written submissions http://en.writecheck.com/plagiarism-guide
e) In **exams** students must not receive or provide any unauthorized assistance. During an examination, students may use only material and items authorized by the faculty. Use of smartwatches or other communication devices is not permitted during the exam.

Academic integrity breaches will be dealt with in accordance with the school's code of Academic Integrity: https://www.clsbe.lisboa.ucp.pt/system/files/assets/files/academicintegritycode.pdf

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