NOVA SCHOOL OF BUSINESS & ECONOMICS

COURSE SYLLABUS

2644 - Sustainable Operations, 3.5 ECTS

T2

202122

COURSE INSTRUCTOR

Utku Serhatli

SHORT BIOGRAPHY

Utku Serhatli is an Assistant Professor at NOVA School of Business and Economics. He is primarily interested in sustainable operations with a focus on operational and social impacts of economic and environmental issues. His research utilizes data analysis and mathematical modeling such as optimization, dynamic programming, stochastic processes, and game theory. His teaching interests include Operations Management, Operations Strategy, and Sustainable Operations. He obtained a Doctor of Philosophy from INSEAD, prior to joining NOVA SBE. He also holds a Master of Science from INSEAD and a Bachelor of Science from Bilkent University. He previously worked as a financial consultant at TATA Consultancy Group.

INSTITUTIONAL EMAIL

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OFFICE HOURS

To be announced.

PREREQUISITE(S) / PRÉ-REQUISITO(S)

NA

COURSE UNIT AIMS

The social and environmental impact of businesses has become a central issue in modern society. Communities are demanding higher standards of air, water, and soil quality. Climate change is constantly on the news. Social welfare inequality has been rising. Consumers are becoming more aware and conscious of the social impact of business practices. Even though the technology and products to address many of today's global environmental and social challenges already exist, many communities lack access to them. This course is aimed at analyzing and designing operations processes and strategies to deliver these solutions to those who need them the most. The first goal of this course is to provide students with a toolset that will allow them to ***analyze, evaluate, improve, and create*** operations that address some of the major challenges faced by humankind. Exemplary topics include building a circular economy, sustainable agriculture, scaling the operations of a profitable business that addresses a social challenge, industry self-regulation, and digital transformation. The second goal of the course is for students to identify sustainability goals for an industry they are interested in, and to propose and evaluate business models that achieve these goals.

This course is for you if:

- One day you want to design operations of companies, industries, and economic systems that are socially and environmentally sustainable;
- You look at major global challenges you think that there might be business opportunities (and not just charity) among the solutions for these challenges.

- You suspect that economic sustainability might be compatible with environmental and social responsibility, but you want to understand how to do this.
- Doing business in some of the most extreme and exciting places on the globe seems like an interesting adventure.

COURSE UNIT CONTENT

Sessions:	Theme:	Learning Objectives:
Week 1	Session 1: Business Model Innovation for Social and Environmental	• Describe what are planetary boundaries and the UN Sustainable Development Goals; • Critique the definition of social business defined in Yunus et.al. 2010; • Examine how operations management tools such as postponement, pooling, and modularity can be used to design innovative business models that achieve sustainability goals; • Articulate (or at least start to reflect on) why sustainability is important for managers and business leaders.
Week 2	Session 2: Designing Contracts and Managing risk in the Base of the Pyramid	• Describe what is a poverty trap and relate it to market entry strategies in the BoP; • Analyze the risks and costs faced by different players in Essmart's value chain and how this leads to supply not reaching demand; • Assess how Essmart is managing these risks and costs and identify growth barriers; • Examine how marketing and after-sales service can be used to manage risk and act as strategic substitutes.
Week 3	Session 3: Climate Change Blog Posts and Future of Food	• Apply the tools covered in the course to examine the impact of Climate Change in an industry or company of their interest, and describe the consequences of climate change in at least two other industries; • Analyze Climate Change as a "wicked problem" and evaluate the role of business in addressing this challenge; • Assess how Vertical Farming and, more generally, controlled environment agriculture, can be used to disrupt food production systems.
Week 4	Session 4: Sustainable Agriculture Initiatives: Certifications and Policy Making	• Assess and analyze the trade-offs between farmer welfare and low prices; • Implications of government interventions, including farmer subsidies and support programs; • Understand the traceability issue in agricultural supply chains and analyze the sustainability impact from downstream to upstream in the supply chain.
		• Describe what is Life-Cycle Analysis (LCA) and some of the limitations of environmental performance metrics;

Week 5	Session 5: Cradle to Cradle Design and Circular Economy	• Contrast LCA and Cradle-to-Cradle and the role of systems-thinking in designing environmental KPIs; • Evaluate the challenges of implementing a circular initiative in a company. In particular, the students examine the challenge of reverse logistics, changing organizational behavior, and supplier relationships; • Analyze how a circular economy required new business models and how this creates challenges for incumbents.
Week 6	Session 6: Business Model Innovation and the SDGs Blog Post	• Propose a new business model or examine a recent innovative business model that can help achieve United Nation¿s Sustainable Development Goals.

LEARNING OBJECTIVES

A. Knowledge and Understanding
- Understanding the main concepts related to sustainability and operations.
- Assessing the main trade-offs in operations and sustainability.

B. Subject-Specific Skills
- Running an innovation project related to sustianability
- Case and project presentations
- Application of the concepts to various sectors
- Awareness of the world's most urgent problems

C. General Skills
- Verbal and written communication
- Developing knowledge on how to make business model innovation

DEMONSTRATION OF THE COHERENCE OF THE SYLLABUS WITH COURSE UNIT AIMS/LEARNING OBJECTIVES

Throughout this class, we will also examine and discuss global issues related to climate change, energy, waste, labor, and poverty. All these issues are crucial components of today's most important sustainability-related challenges. Therefore, the material we will use is directly linked to finding practical solutions to sustainable operations. Another objective of this course is to contribute to NOVA SBE's mission towards sustainable development goals (SDG). It aims to create a network of NOVA SBE students and alumni that are interested in sustainability and social entrepreneurship. This network could shape future versions of the class and will become a resource available to the students throughout their careers.

TEACHING AND LEARNING METHODS

We will leverage many tools, methods, and frameworks. These include some operations models, case studies, business games, and group projects. In addition, we will review the modern **schools of thought** for these issues in a way that is relevant for entrepreneurs and managers. The course will be a mix of lectures and case discussions. As part of the course, students will also propose a business innovation that addresses a social or environmental need (either within an existing company or as a start-up idea) and write a couple of blog posts on Moodle page of the course.

ASSESSMENT

The breakdown of the evaluation is given below:

- Cases, readings & blog posts (25%)
- Innovation Exercise (report and presentation) (25%)
- Class Participation (10%)
- Final Exam (40%)

Student participation will be graded on the familiarity with the assigned preparation material and constructive engagement in class (both quantity and quality).

BIBLIOGRAPHY

Some potential bibliography is given below. Any extra readings will be announced by the professor before the related session.

Yunus, M., Moingeon, B. and Lehmann-Ortega, L., 2010. Building social business models: Lessons from the Grameen experience. Long range planning, 43(2-3), pp.308-325.

Calmon, A.P., Nanjie, A. Romero. G., 2017. "Essmart: Contracts and Risk in the Base of the Pyramid". INSEAD Case

Henderson, Rebecca M., Sophus A. Reinert, and Mariana Oseguera. "Climate Change in 2020: Implications for Business." Harvard Business School Background Note 320-087, January 2020

Kittilaksanawong, Curcuraci, 2017. ¿Ferrero Group: Achieving Sustainability Through Supply Chain Integration¿, Ivey Publishing Case Study

Lee, D. and Bony, L.J., 2009. "Cradle-to-cradle design at Herman Miller: moving toward environmental sustainability". Harvard Business School Case 607-003, May 2007.

ADDITIONAL INFORMATION

Course Impact Relation

Throughout the teaching period, students are challenged to address challenges across the SDG Agenda - on topics such as climate change, sustainable agriculture or circular economy. It equips today's learners with the knowledge and skills needed to promote business model innovation for environmental and social challenges, through a deepend comprehension of operations and sustainability. This understanding is then evaluated through the assessment forms.