Supply Chain Management (Bachelorseminar) - LV 14271.0003

Course Description

To determine whether a supply chain system will perform a required task, a manager must closely analyze it. In most cases, managers work with a model to study the system. Because physical or analytical models can be expensive and time-consuming or simply not accessible, practitioners often rely on simulation as an alternative. Simulation enables decision-makers to test potential system design and evaluate system-related decisions before implementation.

Simulation is a helpful tool for any system that changes with time, such as a queue where customers randomly arrive. Some examples of essential performance measures are the average time a customer spends in the queue or the probability that an arriving customer must wait for service. Analytically determining these values is only possible for simple systems. For real-world problems, simulation can be used to evaluate these measures for different setups. For example, one can generate the following insight from a simulation model: *the customer waiting times can be reduced by introducing an additional server or decreasing the service times*.

This course aims to familiarize students with (1) the core concepts in discrete event simulation within a supply chain management context and (2) scientific writing and presentation. The students will learn how to model, set up, execute, and evaluate simulation models. Furthermore, the students will be introduced to an exemplary supply chain application for discrete event simulation. With this example, students will be able to apply the knowledge gained from the course to solve a real-life supply chain simulation project. Finally, the students will be taught how to summarize their findings in a scientific report and present their key results to an audience.

Course Administration

Class Times	See Course Agenda (Page 3)
Faculty	Jun.-Prof. Dr. Florian Sachs Room: 2.519 in Building 415 Telephone: +49 221 470-76574 Email: florian.sachs@uni-koeln.de Faculty office hours: by appointment Jun.-Prof. Dr. Henrik Franke Room: tba Telephone: tba Email: franke@wiso.uni-koeln.de Faculty office hours: by appointment
Secretary	Stephanie Rauscher Room: 2.509 in Building 415 Telephone: +49 221 470-7935 Email: stephanie.rauscher@uni-koeln.de
Project	There will be a simulation project to be worked on in groups. The project consists of three parts (details provided on the first day of class). (1) Simulation model on a supply chain system (2) Video presentation of project findings (3) Written scientific report on project findings
Assignments	There will be three homework assignments. These will not be graded. You can collect up to 3 bonus points for handing in homework assignments.

Deadlines	Registration deadline for the examination: <mark>**Tuesday, April 04, 2023 at 11:59 PM via KLIPS.**</mark>
	Simulation model and video presentation: <mark>**Friday, May 19, 2023 at 11:59 AM via ILIAS.**</mark>
	Project report ("exam date"): <mark>**Friday, May 26, 2023 at 11:59 AM via ILIAS**</mark>
	Late submissions will not be accepted.
Handouts	Class handouts summarizing the main points covered for each session are provided. The handouts will typically be available for download via ILIAS 24 hours before class.
Grading	The final grade is based on the following components:

  i. Project Report (80 %)
  ii. Project Video Presentation (20 %)

Note that the **grading will be based on individual performance.**

For more information on the course following your study curriculum, please contact the WiSo Student Service (Studienberatungszentrum)

Language	English
Prerequisites	There are no specific prerequisites, just an interest in quantitative approaches in business administration.
Literature	Required readings will be announced during the lectures.
Software	AnyLogic (available online) and StatFit or similar program (available online)
Registration	Registration to the course is only possible via KLIPS. The number of participants is restricted.

Course Overview

Introduction to Simulation

- Theory: basics on supply chain simulation, conceptual modeling, input distribution selection, and output analysis
- Computer lab exercises: simulating a supply chain system with the AnyLogic software

Soft Skills Sessions

- Scientific writing workshops
- Presentation skills

Group Work

- Project: simulation of a real-life supply chain system including data collection & simulation model building using AnyLogic

- Video presentation on the key findings of the project
- Scientific report on the project results

Course Schedule

Session Locations:

- Lecture Sessions in 415 Seminarraum -1.502
- Hands-On/Programming Sessions (please bring your laptops) in 415 PC-Seminarraum 0.505
- Support Sessions (optional, per group and by appointment)

	Monday	Tuesday	Wednesday	Thursday	Friday
April 2023	03	04	05	06	07
		Introduction to Simulation 10:00 to 11:30		**AnyLogic Hands-On 1** 10:00 to 11:30	**HW 1 Due (Friday, 11:55 pm)**
	10	11	12	13	14
	National Holiday	**AnyLogic Hands-On 2** 10:00 to 11:30		**Input Analysis** 10:00 to 11:30	**HW 2 Due (Friday, 11:55 pm)** **HW 3 Due (Sunday, 11:55 pm)**
	17	18	19	20	21
		Building a full simulation model 10:00 to 11:30		**Output Analysis & Feedback on Modeling Idea** 10:00 to 11:30	
	24	25	26	27	28
May 2023	01	02	03	04	05
	National Holiday	**Support Session 1** (9:00 to 12:00)			
	08	09	10	11	12
		Support Session 2 (9:00 to 12:00)		**Workshop: Presentation Skills** 10:00 to 11:30	
	15	16	17	18	19
				National Holiday	**Video Presentations & Simulation Models Submission** **Due at 11:59 am (noon)**
	22	23	24	25	26
					Project Reports Submission **Due at 11:59 am (noon)**