BSc Seminar on Operations Management: Artificial Intelligence in Operations and Supply Chain Management

Winter term 2024/25, version: 1 October 2024

Please note: This document reflects our planning before the term started; it will **not** be updated regularly. For short-term changes regarding rooms or times, see Campus. Changes regarding the content will be discussed in class and, if appropriate, communicated via Ilias.

Learning objectives

After successfully finishing the course, students can:

- independently understand, summarize, and criticize a scientific paper;
- put a scientific paper into context with regard to broader discussions in the field of operations management;
- constructively integrate feedback from peers or supervisors into their work;
- write a short scientific report;
- give an academic presentation.

Content

The seminar asks students to independently acquire knowledge based on a scientific paper. This paper has to be understood, summarized, criticized, and put into context. Students write a report and hold a presentation about their understanding and findings.

Requirements

One course in the bachelor elective "Operations Management" successfully passed.

Literature

Students are requested to choose one scientific article from the following list, on which their seminar paper and presentation will be based (additional topics can be provided if more students want to attend the course). Papers will be allocated top-down:

1. Zhang, Fuqiang, Xiaole Wu, Christopher S. Tang, Tianjun Feng, and Yue Dai. "Evolution of operations management research: From managing flows to building capabilities." *Production and Operations Management* 29, no. 10 (2020): 2219-2229.
2. Seyedghorban, Zahra, Danny Samson, and Morgan Swink. "Quo vadis OSCM? An analysis of past and future trends in operations and supply chain management research." *Decision Sciences* 53, no. 3 (2022): 429-451.

3. Pratt, Jean A., Liqiang Chen, Hans F. Kishel, and Abraham Y. Nahm. "Information systems and operations/supply chain management: A systematic literature review." *Journal of Computer Information Systems* 63, no. 2 (2023): 334-350.

4. Dogru, Ali K., and Burcu B. Keskin. "AI in operations management: applications, challenges and opportunities." *Journal of Data, Information and Management* 2, no. 2 (2020): 67-74.

5. Mendonça, Guilherme Dayrell, and Orlando Fontes Lima Junior. "Artificial intelligence applied to supply chain operations management: a systematic literature review." *International Journal of Logistics Systems and Management* 45, no. 1 (2023): 1-30.

6. Kumar, Vipin, Harikumar Pallathadka, Sanjay Kumar Sharma, Chetan M. Thakar, Manisha Singh, and Laxmi Kirana Pallathadka. "Role of machine learning in green supply chain management and operations management." *Materials Today: Proceedings* 51 (2022): 2485-2489.

7. Papadopoulos, Thanos, Uthayasankar Sivarajah, Konstantina Spanaki, Stella Despoudi, and Angappa Gunasekaran. "Artificial Intelligence (AI) and data sharing in manufacturing, production and operations management research." *International Journal of Production Research* 60, no. 14 (2022): 4361-4364.

8. Mithas, Sunil, Zhi-Long Chen, Terence JV Saldanha, and Alysson De Oliveira Silveira. "How will artificial intelligence and Industry 4.0 emerging technologies transform operations management?" *Production and Operations Management* 31, no. 12 (2022): 4475-4487.

9. Naz, Farheen, Anil Kumar, Abhijit Majumdar, and Rohit Agrawal. "Is artificial intelligence an enabler of supply chain resiliency post COVID-19? An exploratory state-of-the-art review for future research." Operations Management Research 15, no. 1 (2022): 378-398.

10. Melnyk, Steven Alexander, Matthias Thürer, Constantin Blome, Tobias Schoenherr, and Stefan Gold. "(Re)-discovering simulation as a critical element of OM/SCM research: call for research." *International Journal of Operations & Production Management* 44, no. 7 (2024): 1376-1389.

Timetable

Date, time	Topic	Where?	Who?
24/10/2024, 11:30–13:00	Kick-off: explanation of procedures and topics	M11.11	Größler
07/11/2024, 11:30–13:00	Organized peer-review of table of contents	M11.11	Wiesner
14/11/2024, 11:30–13:00	**Introduction to scientific writing (1/2)***	**M11.11**	**Wiesner**
13/11/2024–04/12/2024	Please register on C@mpus for examination	C@mpus-System	
21/11/2024, 11:30–13:00	**Introduction to scientific writing (2/2)***	**M11.11**	**Wiesner**
	How to write a seminar paper	Video lecture (see Ilias)	Größler
05/12/2024, 11:30–14:00	Intermediate oral presentation & discussion: outline, progress, questions	**M11.11**	Wiesner
19/12/2024, 11:30–13:00	Organized peer-reviews of papers	M11.11	Wiesner
16/01/2025, 11:30–13:00	How to give a seminar presentation	Video lecture (see Ilias)	Größler

	Organized peer-review of presentations	M11.11	Wiesner
29/01/2025, 12:00	Deadline for submitting papers and presentation material on ILIAS	Ilias	
30/01/2025, 11:30–17:15	**Presentation of seminar papers***	**Tba**	**all**

* Attendance compulsory for passing the course

Intermediate supervision

During the period of writing the seminar paper and preparing the presentation, advice can be sought with the research associates of the department, Ms Horn and Mr Wiesner in KII, 07.005 after making an appointment. **It is mandatory that students use this opportunity at least once** but not more than five times.

Examination

Student assessment is based on a written and an oral examination: seminar paper and seminar presentation. Weight: seminar paper 60%, seminar presentation 40%.

The seminar paper should not be longer than 12 pages (or 15 pages including cover sheet, table of contents, and literature list), font size 12 points, font type Times New Roman, line spacing 1.5, margins 2.5 cm (top and bottom) and 2 cm (left and right). Please provide page numbers. The cover page should include the title of the paper, the student's name and matriculation number. Please provide an electronic (on Ilias) as well as a paper version before the presentations (**i.e., deadline: 29 January 2025, 12:00 noon**). With regard to the criteria for a good paper, please check the learning objectives. A structure with more than five sections or more than two levels of sub-sections is not useful for a seminar paper. More information on formal requirements can be found at https://www.bwi.uni-stuttgart.de/studium/pdfs/Zitierrichtlinien.pdf.

The seminar presentation should not be longer than 30 minutes, including time for discussion. Thus, it must focus on the importance and relevance of the topic being discussed, the method employed, the most important findings within the paper, and a criticism of these findings and methods. Powerpoint slides are a possible way to support the talk but other forms (e.g., speech with hand-outs, Prezis, posters, Pecha-Kuchas) are also encouraged but must be organized by the students. Presentation material must be made available to the teachers for assessment. Students must be prepared to answer questions regarding their presentation and paper.