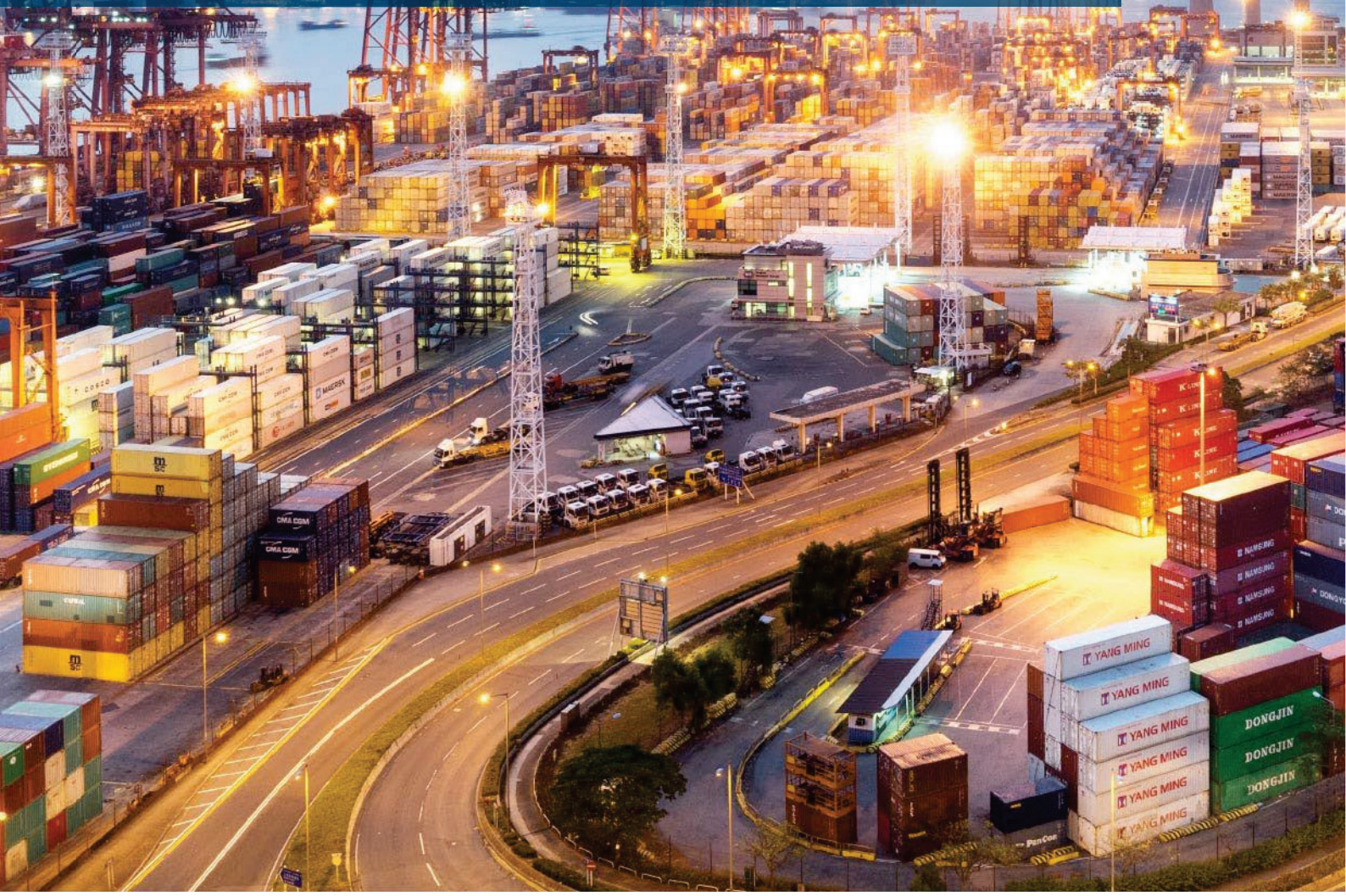
Course catalogue

Master Supply Chain Management (MSc)

Year Sep 2025 Aug 2026



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Breda University
OF APPLIED SCIENCES

Introduction

This is the 6th edition of the course catalogue of the master's programme International Supply Chain Management by Breda University of Applied Sciences (BUas) for the Academic Year September 2025–August 2026.

Section 1 explains the idea, positioning and competency set of the master's programme. In section 2 a description is presented of the two semester periods and an overview of the curriculum with the different modules. Section 3 contains the outline of the module descriptions.

Students will get a student manual for every module. This will be made available on the Electronic Learning Environment (Brightspace) of BUas.

The course catalogue is part of TER (Teaching & Examination Regulations) of the Master International Supply Chain Management of Breda University of Applied Sciences, Academic Year 2025-2026.

In this course catalogue, the name Supply Chain Management (SCM) is used for the course. The reason for this is that in all internal and external communication the course is also used as such by BUas, which paradoxically fits in with the name used in the international educational field.

On behalf of the team,

Albert Mandemakers

Programme coordinator of the Supply Chain Management master's programme

1. Master of Supply Chain Management

Programme profile

The profile and structure of the SCM master's programme is based on the international trends and developments studied and discussed with industry experts, as well as labour market developments. Three main perspectives were identified as being important for future supply chain managers and were used to design the programme:

1. *Changing supply chains in an international business environment:* Markets are changing rapidly in a dynamic and disruptive global environment, requiring supply chains to adapt. This covers the control, planning and (re)design of sustainable and resilient supply chains. Developments in the areas such as e-fulfilment, globalisation and trade, supply chain visibility, and technology (e.g. artificial intelligence, digital twins, control towers, and data analytics) add to the complexity of supply chains. At the same time, these developments are creating new opportunities to organise supply chains more effectively. To seize these opportunities and cope with the increasing complexity levels, young professionals need to be educated as the supply chain leaders of the future. Students will develop knowledge and skills in the fields of change, innovation and business intelligence in supply chain management.

2. *Future supply chain leaders in a cross-cultural business environment:* Future supply chain leaders do not only have specialist knowledge of the entire supply chain and understanding of the latest trends on, for example, data analytics and business intelligence. They also have the right social skills in the areas of leadership, collaboration, interculturality and change. Future leaders are therefore both generalists and specialists, as well as bridge builders between strategic, tactical and operational levels within and between organisations. They are able to optimally organise and manage the current supply chains and they are able to make continuous improvements. In addition to acquiring specific analytical knowledge and skills in the fields of logistics, business intelligence and research methods, students will develop social skills related to leadership and change. Students will explore theories which they apply in practice, develop social skills alongside technical subject matter knowledge, and use qualitative and quantitative research methods. Students who complete the master's programme successfully are expected to take up positions at national and international small and medium-sized enterprises (SMEs) or large industrial and service companies, where they may move on to leading or managerial positions within five years.

3. Innovative capabilities in dynamic intercultural teams: In addition to professional experts who have the necessary quantitative and conceptual knowledge and skills, these supply chain leaders distinguish themselves by competencies such as leadership and innovative capacity. In other words, the ability to implement logistics concepts or logistics improvement processes by working in intercultural teams. This is in line with the increasing demand for university of applied sciences master's level professionals who are able to bridge the gap between academic insights and professional practice. They also develop the right mix of social and

analytical knowledge and skills in leadership, change management and business intelligence. This knowledge and these skills drive supply chain innovation and data-driven decision-making. Students apply them by developing a strategic improvement and implementation plan for the supply chain within their own business environment.

Competencies

SCM uses a set of competencies to describe the intended learning outcomes at the final level of the master's programme. From this point onwards, the report refers to these competencies throughout. The competency set of the SCM master's programme fulfils the Professional Master's Standard and the Dublin Descriptors for master's programmes. Based on the discussed profile and T-shaped model, the following competency set was derived for the master's programme:

Context:
By displaying strategic, analytical, design, implementation and leadership competencies, by using justified chosen research methods and techniques, while taking into account organisational conditions, data-complexity, social- and ethical responsibilities, cross-cultural differences and (technological) developments in a changing international environment, graduates are able to:

> A: analyse and evaluate supply chains from a strategic perspective.
> B: develop a supply chain improvement plan that supports a sustainable business model.
> C: create an approach for implementation of the supply chain improvement plan.
> D: demonstrate leadership skills by influencing the improvement process.

In the extension of acquiring these competencies, students will also create, during the master period, a basis for autonomous personal growth and lifelong learning.

The used terminology of the competency set can be elaborated as follows:

(i) *Supply chains:* This refers to different functionalities for improvement within the supply chain: transportation, warehousing, inventory, operations and procurement. These functionalities are analysed and evaluated in a supply chain context (in relation to suppliers and customers). Supply chains apply to a cross-cultural and international context. If e.g. local sourcing is discussed, which may be domestic, it is embedded in a broader regional or global supply chain context.

(ii) *Supply chain improvement plan:* A renewed and innovated design of a supply chain including a proposal and roadmap for improvement.

(iii) *Sustainable business model:* The supply chain improvement plan adds value from a social, a financial-economic and an environmental perspective (triple bottom line) on a cross-company level.

(iv) *Approach for implementation:* Demonstration of change management skills by delivering an implementation plan, by developing support among stakeholders and by creating insight in possible transition effects. Stakeholder engagement is applied at an intercultural level at both inter- and intra-organisational levels within a company or institution.

(v) *Leadership skills:* The ability to inspire, motivate and persuade others, and to reflect on their personal and professional development as an upcoming leader.

Box 1.1: Terminology used in the competencies

2. Programme of the Master of Supply Chain Management

Curriculum design and set-up

Perhaps more so than any other professional, a highly trained supply chain professional must be able to act as a *specialist* and as a *generalist* in equal measure. The supply chain professional will be required to have a versatile T-shaped profile. Specialist action is required for highly trained supply chain professionals who are involved in process optimisation. At the same time, highly trained supply chain professionals are required to approach supply chain issues from a broad generalist and multidisciplinary perspective. The supply chain professional, as a pragmatist and solution-oriented thinker, will make a concrete contribution to changes in the organisation in all processes and will often be seen as a 'master of all arts'. Supply chain experts require innovative, intercultural and leadership qualities. They will be committed to lifelong learning in order to be able to respond to rapid changes within an international supply context. The curriculum design is based on a T-shaped profile and can be considered as a derivative of the competency framework as discussed in the previous chapter. The modules embody the required range of both social and analytical knowledge and skills. Students develop themselves through generating knowledge and skills on a strategic level in the field of supply chain management and by working on supply chain cases. Incoming students start at an operational and tactical level in logistics, operations, and supply chain management. We find the supply chain modules on the axis of the programme. Throughout this master's programme, students develop themselves to become supply chain specialists and, eventually, future supply chain leaders. Adopting a T-shaped profile enables cross-domain cooperation, which is in line with the principles of BUas's educational vision. See Figure 2.1 for the T-shaped curriculum design:

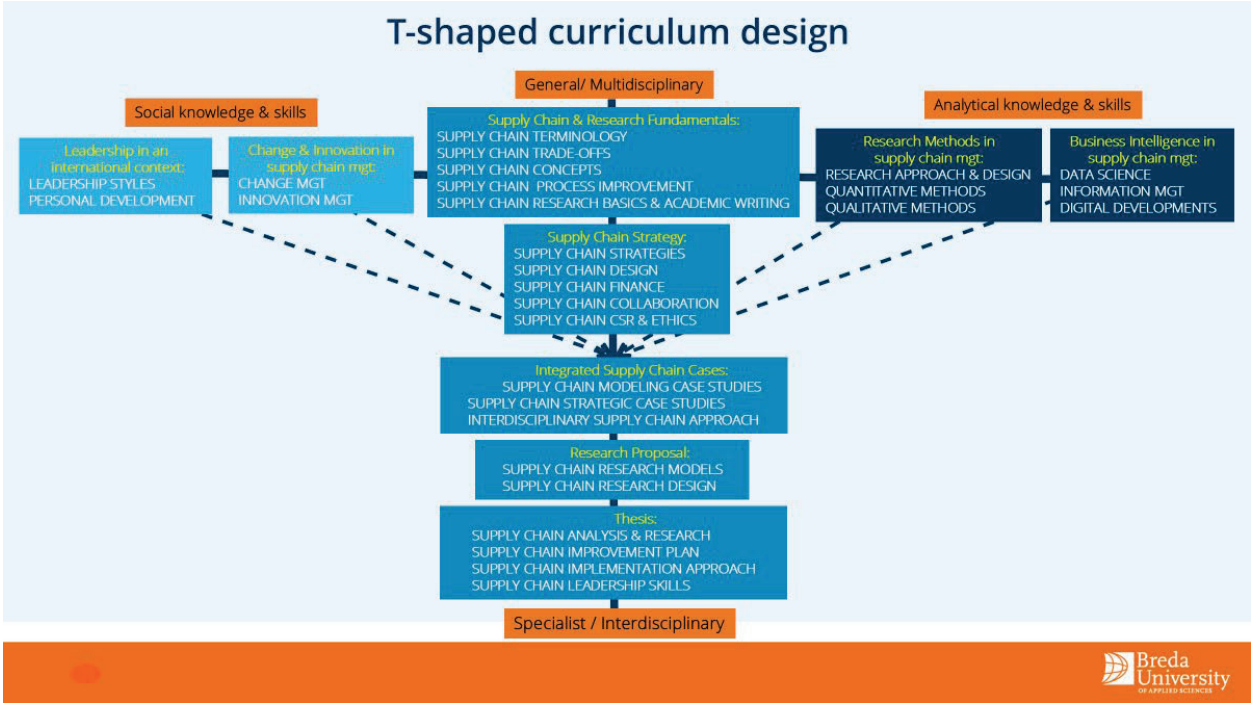

Figure 2.1 T-shaped profile curriculum design

Figure 2.2 contains the current set-up of the curriculum and its timeline. An extended overview of the master's programme can be found in the course catalogue[1]. International and intercultural learning activities are embedded in the design of the curriculum. This is described in detail in the CeQuint report. The curriculum is approved annually by the Degree Programme Committee (DPC).

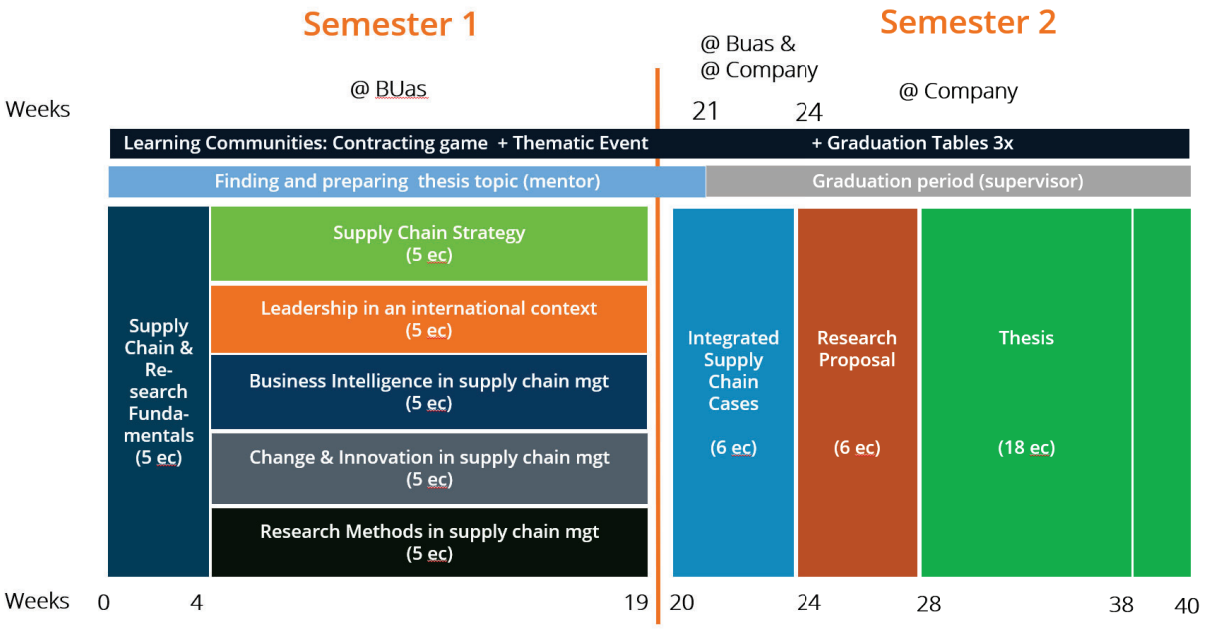

Figure 2.2: The Master Supply Chain Management curriculum and timeline in educational weeks

First semester, weeks 1 to 19: Theoretical backbone and thesis topic approval

The programme lays the foundation for a good start at master's level by starting with Supply Chain & Research Funda-mentals (SCRF). The aim of this module is to ensure that all students have an equal level of initial knowledge and skills in operations, logistics and supply chain management, quantitative research methods, and academic and professional writing. The aim of this introduction is to provide a soft landing and create an effective and safe intercultural learning environment. In this sense, the module is a logical continuation of the introduction and study week (week 0). In a business game, students learn to find sustainable global supply chains solutions. They work in groups with a mixed cultural composition, taking on different leadership roles.

The second part of the first semester builds upon this foundation and takes off with the modules of Change & Innovation in Supply Chain Management (C&I), Supply Chain Strategy (SCS), Business Intelligence in Supply Chain Management (BI), Research Methods in Supply Chain Management (RM), and Leadership in an International Context (LS). These modules give substance to the three perspectives discussed in chapter 1. In the first semester, students come to classes prepared in order to deepen their knowledge and exchange views with their peers and lecturers. The lecturer switches between discussing industry cases and theory in order to enhance understanding, analysis, synthesis and evaluation. Different didactic approaches are applied. In masterclasses, theory is explained and illustrated using industry cases, and vice versa, by linking and comparing industry cases to different theories. The programme also includes a Contracting Game with industry professionals (SCS), Lumina

[1] Course Catalogue of the Master International Supply Chain Management 2025-2026, see Appendix 5.

personal development training for leadership (LS), and a Supply Chain Business Case (C&I). These modules all contribute to building a theoretical foundation while supporting essential skill development and personal development.
While the theoretical foundation is formed, students have to find a suitable host company including a thesis topic. The thesis coordinators have to formally approve the topic and placement proposal before week 18 of the first semester. The study timetable allows time for networking and finding a graduation company . By appointing a mentor from day one and, over time, a graduation supervisor, students will receive encouragement in their search for an appropriate thesis topic. In Learning Communities (LCs) , groups of students are formed to prepare a networking event. The idea is to share knowledge with professionals from the field, lecturers and researchers, and to pave the way for a matching process between students and professionals in the light of finding a thesis topic.

2nd semester, week 20-40, stage 3: Integrated Supply Chain Cases (ISCC), Research Proposal and Thesis

The Integrated Supply Chain Cases (ISCC) course prepares students for the complexities of a professional environment and marks the beginning of the graduation process. Students are individually supervised by their thesis supervisor (formerly their mentor) throughout this period. During weeks 21 to 23, students are expected to spend half their time at the graduation company and half in class. Students will perform a contextual company analysis for their graduation company, comprising internal and external elements. The internal part focuses on the organisational maturity of the company in the fields of strategy, business intelligence, change and innovation, cross cultural dynamics and leadership. The external part focuses on the company's business environment, including their supply chain positioning and market dynamics. The contextual company analysis will be the foundation for the research proposal. Apart from the contextual company analysis, students also simultaneously perform two supply chain modelling cases in class. These cases are also part of ISCC and count for 50%, alongside the contextual company analysis. If students are unable to start this module with an approved thesis topic, they can still perform a contextual company analysis based on a case study after consultation with the lecturer. This would involve a case study from the literature combined with updated online in-formation about the chosen company. This enables students to complete the module without delay.

By the end of week 23, students start the Research Proposal (RP) module by attending two days of masterclasses to support the creation of these RPs. At the end of week 27, students must submit their RP. After submitting their RP, students begin the thesis period. They will continue their journey in a professional environment, where they will be challenged to demonstrate the competencies, they have acquired. According to BUas's educational vision , knowledge development and sharing with the industry is the intended development path and the final step in this master's pro-gramme. During this phase, students will focus entirely on their thesis. This applied approach presupposes a further deepening of theoretical insights during the thesis period. This brings together both substantive qualities and the ability to initiate change within an organisation, in line with the programme's founding principle. Constituting 30% of the master's degree, the thesis is worth 18 ECTS credits, which indicates the importance of applying what has been learnt in practice, as well as the explicit goal of influencing and encouraging the implementation process of the proposed improvement solutions. During the thesis, students are challenged to develop an approach involving analysis, design and

implementation for the company's supply chain. Additionally, students seek to raise awareness and foster support among stakeholders. This enables them to demonstrate their leadership skills. Students develop different aspects of their personal profile based on the LS Lumina training. This requires personal reflection on these aspects. This reflection relates to what is executed and accomplished when implementing an approach and demonstrating leadership skills. It should also relate to peer-reviewed literature on leadership. Students will conclude this period by submitting both a thesis and a leadership report.

The RP and thesis period is supported by online LC sessions (graduation tables). Through the graduation tables, knowledge will be shared between participants, and feedback will be given by industry experts to students. The graduation companies are invited to participate in the LC sessions. Individual supervising will be an important part of this master's programme. This is carried out by a lecturer on behalf of BUas in close cooperation with the supervisor from the graduation company.

Entrance criteria for the Research Proposal and Thesis

The following entrance criteria are applicable for RP and Thesis:

- Approved thesis topic and graduation placement by the thesis coordinators before January 16, 2026, 17.00 hours. This will enable the start of the graduation trajectory on February 9, 2026. For a delayed start on April 6, 2026, students need to get this approval before March 20, 2026, 17.00 hours.
- In the event that three or more resits have to be taken, given the results of the first semester, the focus from students will be drawn to the resit weeks twenty-nine and thirty. In that case, the start of the graduation trajectory will be delayed to April 6, 2026. A study plan will be discussed with their mentor about when to resubmit insufficient papers. When students start at April 6, they need to include in their RP a dedicated contextual company analysis as an appendix. For this, two additional weeks are incorporated in this RP trajectory. It is assumed that students in this case have already completed ISCC and have been graded for this module including the contextual company analysis based on a case-study from literature. Therefore, in that situation students will only make a contextual company analysis to support their RP. This trajectory will enable students who have passed all resits, to still be able to finish the master's programme including its thesis, before the end of the academic year.
- In the event of an insufficient score for RP, students are obliged to first make necessary revisions to their RP. In case of minor revisions students continue with thesis and not lose any time. In case of major revisions, full focus is required for adjusting RP and the thesis trajectory will be delayed to August. In the latter case students can still finish the master's programme before the end of the academic year (if of course all previous modules have been passed). The supervisors and lecturers of the module RP decide by mutual discussion for students concerned, whether a minor or major revision is required.

Didactic approach

All of the modules in the curriculum contribute to mastering the competencies. Mastering these competencies leads to the three consecutive stages on which the curriculum is based:

- *Stage 1 (weeks 1 to 4), Foundational Learning*: Demonstrating competencies in a standardised, controlled environment (classroom), using industry cases, working towards an initial conceptual and academic level and building initial theoretical, applied, and behavioural knowledge and skills.
- *Stage 2 (weeks 4 to 19), Theory Building & Application*: Demonstrating competencies in a standardised controlled environment (classroom) for different disciplines, using industry cases, working towards a conceptual and academic level and building theoretical, applied, and behavioural knowledge and skills.
- *Stage 3 (weeks 20 to 40), Professional Integration*: Demonstrating competencies in an uncontrolled complex environment (professional context) on an integrated and multidisciplinary level, working towards an applied conceptual and academic level and building theoretical, applied, and behavioural knowledge and skills. Students meet the final level by completing stage 3, demonstrating the final competencies.

Leadership is a recurring theme throughout the curriculum. Students demonstrate their development and competency level in leadership (competency D). In the kick-off SCRF module, a foundation is already laid by playing leadership roles and reflecting upon them in the business game. Consequently, during the Lumina training sessions of the LS module, students have to develop a personal development plan, which is then followed up during the thesis period in a complex, professional environment. This personal development plan involves students reflecting on their personal growth, as well as on how they raised awareness and fostered support among stakeholders.
Table 2.1 shows this process in three stages schematically (the module abbreviations used can be found in Figure 2.1):

Transitioning between the stages S1, S2 & S3 related to competencies A-D and the different modules

MODULES / COMPETENCIES	SCRF	SCS	LS	C&I	RM	BI	ISCC	RP	TH
A	S1	S2			S2	S2	S2 → S3	S3	S3
B	S1	S2		S2	S2	S2	S2 → S3		S3
C	S1		S2	S2	S2		S2 → S3		S3
D	S1		S2	S2			S2 → S3		S3

Table 2.1: Competency framework and programme stages per module (see list of abbreviations)

Each module has its own learning objectives that contribute to the four competencies. See the ISCM competency matrix for a description of the learning objectives of each module and how they connect with the programme's competencies[2]. This is shown schematically in Table 2.2. For example, the SCS module that is taken at stage 2 (S2) entails four learning objectives, two of which (1 and 2) contribute to competency A, and two of which (3 and 4) contribute to competency B. The student manuals of the different modules explicitly set out the learning objectives, how they are examined, and the programme topics covered.

[2] The competency matrix, see Appendix 10.

The cells contain the different learning objectives (1-n) for each module that contribute to mastering the competencies (A-D) in the different stages (S1-S3) towards the final level (last column)

MODULES / COMPETENCIES	SCRF	SCS	LS	BI	C&I	RM	ISCC	RP	Thesis
A	1 – 8	1 & 2		1.1 – 1.3		1 – 10	1	1, 2 , 4 – 7	A S3
B	2 & 3	3 & 4		2.1 – 2.3	1		2 & 3	3 & 8	B S3
C	3		1, 3 & 5		2 – 4		4		C S3
D	3		1 – 5		5		5		D S3
Stages 1, 2 & 3	S1	S2					S2 → S3	S3	

Table 2.2: Connection of module learning objectives to programme competencies and stages

The programme explicitly includes the internationalisation goals at curriculum level, reflecting the four competencies and the learning objectives. These goals have been translated into four areas of application and competency development, in which international and intercultural learning is formulated. These areas of application and competency development are incorporated into the learning objectives, thereby contributing to the development of the four final competencies.
The programme offers a structured, inclusive, and internationally focused learning environment, supported by a rich variety of didactic methods and styles that align with the learning objectives of each module:

- Masterclasses, two styles:
  A. Explaining the theory and linking it to industry cases (Bloom's understanding and applying knowledge)
  B. Explaining industry cases and linking them to theory (Bloom's analysing and evaluating knowledge)
  C. Hybrid: combination of A & B
- Business games: Focus on learning theoretical concepts and leadership roles in a simulated business environment
- Student group work:
  A. that encourages students to learn from peers
  B. that enhances social bonding and intercultural competency development
  C. on an industry case or business game with a group assessment
- Training: Personal skill development on data-analytical capabilities and leadership skills
- Supervision: Focus on both content and process (both on a group and individual level), including personal coaching, mentoring, thesis supervision, and formative feedback on papers, assignments, etc.
- LC: Learning together through sharing ideas, feedback and knowledge by students, lecturers, researchers and professionals from the industry
- Graduation track at a company with an applied thesis topic research and leadership competency development

Box 2.1: Terminology used in the competencies

From a Bloom's Taxonomy[3] perspective, if the emphasis is on understanding and application, one can use type A masterclasses, interspersed with the occasional use of type B masterclasses. In masterclasses of type A, theory is taught and applied using real-life context cases. In type B masterclasses, theory is used to discuss, analyse and evaluate real-life context cases. In practice, these didactic styles are often mixed in class (C: hybrid form). Generally speaking, from the perspective of Bloom's Taxonomy, it can be said that the programme's didactic approach gradually shifts towards using more components of Bloom's Taxonomy. The graduation project in particular demands a great deal of creativity from students.

Use of artificial intelligence (AI) by students

The master's programme has implemented its AI policies for the programme as a whole and for each individual module in accordance with the BUas Student AI Guidelines. These guidelines outline how content generated by large language models can be used for educational purposes. It provides the freedom to ban the use of AI completely, or allow everything, provided that students are transparent and correctly reference and quote in accordance with BUas guidelines. BUas uses five AI levels based on AIAS (AI in Scale Assessment). Decision-making and responsibility for setting the appropriate AI level for each module lies with the lecturers concerned. It is important to align and review proposed choices within a wider team context to learn from each other's experiences. This helps to avoid possible contradictory outcomes and confusion for students. Several team meetings have taken place to ensure alignment within the master's programme. It has been determined for all modules to what level the use of AI is allowed and why. This information has been communicated to students in the study manuals and in this course catalogue.

The master's team applies a dedicated policy within the BUas framework in terms of generating content by large language models. An appeal is made to students' ethics. Students are expected to critically analyse information and assess its relevance, validity and reliability for themselves. Students then synthesise and consolidate the information, reporting on their findings in a professional manner. These activities are part of the students' learning process. During the programme, students write papers and conduct research for their thesis using proven methods. Although content generation by large language models can be quite impressive, it may also contain unreliable information.

The use of AI is mostly permitted during the brainstorming, planning and pre-research phases, after which the final submission should be free from AI (AI level 2). Furthermore, specific tasks are permitted, such as generating or improving R-codes for statistical analysis, and using AI-powered transcription tools to transcribe interviews (level 4). Students are also permitted to improve the quality of their writing, using Word features or tools such as DeepL, but these cannot be used to translate large amounts of text (level 3). Students are not permitted to enter company-specific input as a prompt into an AI tool, as this may result in confidentiality issues with companies. Additionally, their Lumina report contains personal information, which should not circulate on the internet (AI level 1). Table 3.2 lists the allowed AI levels for each module of the curriculum:

[3] Bloom's Taxonomy: Krathwohl, D.R., *A Revision of Bloom's Taxonomy: an Overview. 41.4 (2002): 212-218.*

Module	Credits	Summative assessment	AI Level
Supply Chain & Research Fundamentals (SCRF)	5 ECTS	Written examination (75%) and a group assessment (25%) with one mark as a weighted average score; both assessments need to be sufficient (≥ 5.5)	Written examination: Not Applicable. Group assessment: AI level 2, only use AI in brainstorming and planning phase, but the assignment report should be free of AI & AI level 3 for AI-assisted editing*.
Supply Chain Strategy (SCS)	5 ECTS	One individual paper (100%) (≥ 5.5)	Paper: AI level 2, only use AI in brainstorming and planning phase, but the assignment report should be free of AI & AI level 3 for AI-assisted editing*.
Leadership in an international context (LS)	5 ECTS	One individual paper (100%) and a personal development report with an alphanumeric score (a pass is required)	Paper: No AI use (AI level 1) except for: AI level 3 for AI-assisted editing*. PDP report: No AI use (AI level 1) except for: AI level 3 for AI-assisted editing*.
Research Methods in supply chain management (RM)	5 ECTS	Two individual papers (both 50%) with one mark as a weighted average score; both papers need to be sufficient (≥ 5.5)	Two papers: No AI use (AI level 1) except for: AI level 3 for AI-assisted editing*; AI level 4 for generating R-codes and interview transcripts.
Business Intelligence in supply chain management (BI)	5 ECTS	Written exam (75%) and a R-assignment portfolio (25%) with one mark as a weighted average score; both parts need to be sufficient (≥ 5.5)	Written exam: Not Applicable R-assignment portfolio: No AI use (level 1) except for: AI level 3 for AI-assisted editing*; AI level 4 for generating R-codes.
Change & Innovation in supply chain management (C&I)	5 ECTS	Oral examination (60%) and a group assessment (40%) with one mark as a weighted average score; both assessments need to be sufficient (≥ 5.5)	Oral examination: Not applicable Report group assignment: AI level 2, only use AI in brainstorming and planning phase, but the assignment report should be free of AI & AI level 3 for AI-assisted editing*.
Integrated Supply Chain Cases (ISCC)	6 ECTS	One individual paper (50%) and one individual assignment (50%) with one mark as a weighted average score; both parts need to be sufficient (≥ 5.5)	CCA Paper: AI level 2, only use AI in brainstorming and planning phase, but the assignment report should be free of AI + AI level 3 for AI-assisted editing*. Individual assignment: No AI use (AI level 1) except for: AI level 3 for AI-assisted editing*.
Research Proposal (RP)	6 ECTS	One individual paper (100%) (≥ 5.5)	Paper: No AI use (AI level 1) except for: AI level 3 for AI-assisted editing*.
Thesis (TH)	18 ECTS	Graduation assessment, based on a thesis and leadership report including presentation and defence (100%) (≥ 5.5) and an individual pass for all LC activities (contracting game, network event & graduation tables)	Thesis: No AI use (AI level 1) except for: AI level 3 for AI-assisted editing; AI level 4 for generating R-codes and interview transcripts. Leadership report: No AI use (AI level 1) except for: AI level 3 for AI-assisted editing*. LC-activities: Not Applicable.

** To improve the quality of writing, students can use e.g. the Word features or DeepL. This can be used for editing and translating sentences. It is not allowed to use it for translation of large amounts of text.*

Table 2.3: Connection of module learning objectives to programme competencies and stages

Staff

The lecturers that participate in the master's programme all have a doctoral degree in the specific field that they teach, and/or a master's degree with senior experience in the specific field that they teach, and/or senior management experience in the supply chain industry. All lecturers are required to be experts in their respective disciplines, to have current professional experience in the industry (through a job and/or through participation in research projects), and have cross-cultural and international experience.

3. The module descriptions

The order of appearance of the module descriptions in this course catalogue is as follows:

1. Supply Chain and Research Fundamentals (5 ECTS)
2. Supply Chain Strategy (5 ECTS)
3. Leadership in an international context (5 ECTS)
4. Research Methods in supply chain management (5 ECTS)
5. Business Intelligence in supply chain management (5 ECTS)
6. Change & Innovation in supply chain management (5 ECTS)
7. Integrated Supply Chain Cases (6 ECTS)
8. Research Proposal (6 ECTS)
9. Thesis (18 ECTS)

BSE1.SCRF-1SCM	Supply Chain & Research Fundamentals
Size	5 ECTS
Contribution to competencies	A. Analyse and evaluate supply chains from a strategic perspective. B. Develop a supply chain improvement plan that supports a sustainable business model. C. Create an approach for implementation of the supply chain improvement plan. D. Demonstrate leadership skills by influencing the improvement process.
Learning goal	This module enables students to: • strengthen their previously acquired fundamental knowledge of logistics, operations and supply chain management, and acquire knowledge about strategic supply chain thinking. • strengthen their previous acquired knowledge and skills in academic writing and statistics, and acquire new knowledge and skills using the statistical software R.
Objectives	At the end of this module the student is able to: 1. Understand and apply fundamental terminology, concepts and triple bottom line trade-offs in supply chain management. 2. Analyse and evaluate business policies and disruptions and how they can impact supply chains on a strategic, tactical and operational level. 3. Apply and evaluate different leadership roles in analysing and implementing sustainable business decisions and strategy in supply chain management. 4. Learn to read academic articles critically and use them as models for their own writing projects. 5. Read, synthesize and criticise articles for the purpose of their own research project. 6. Apply the basics of academic writing to a paragraph and a report. 7. Perform basic descriptive and inferential statistics in several circumstances and interpret the results in an applied context. 8. Use the software package R to perform basic descriptive and inferential statistics.
Subjects	Subjects covered in this module include: ▪ Demand planning and forecasting ▪ Manufacturing and operations ▪ Procurement and suppliers ▪ Inventory management ▪ Distribution management (transportation & warehousing, last mile, transport modalities & intermodality, LSPs & shippers) ▪ Ethics, Sustainability & Closed loop supply chains ▪ Trade compliance ▪ Academic writing ▪ Types of sources and how to use them to prepare a literature review ▪ Descriptive and inferential statistics ▪ Software R and statistical packages

Literature	▪ Chopra, S. (2019) *Supply Chain Management: Strategy, Planning and Operation*, 7th edition, Global Edition ISBN 9781292257891 ▪ Zijm, W.H., Klumpp, M., Heragy, S., Regattieri, A. (2019) *Operations, Logistics and Supply Chain Management*. Springer. ▪ Gray, D. E. (2022). *Doing research in the real world* (5. ed). Sage. ISBN 9781529742442 ▪ Peer reviewed articles related to the topics examined throughout the course from publications with a high Scientific Journal Rank (SJR). *Can be found via* https://www.buas.nl/library/library-metasearch*, while some will be provided by the course instructors via proxy links.*
Planning 1st semester	Weeks: 1-4 Each week will involve the following: 2 lectures of 2 contact hours for supply chain fundamentals 2 lectures of 3 contact hours for research fundamentals 4 to 6 contact hours supply chain management game (Triple Connection) Week 4: Hand in assignment management game Week 4: Written exam
Examination	The examination will be as follows: Written exam: 75% (partly open-ended questions and partly multiple-choice) Group assessment supply chain management game: 25% (based on game results and a paper) Each examination component must be assessed with a minimum of 5.5 to pass the module. Formative assessment, especially in Masterclasses B (training exam questions and cases).
Module owner	A. Mandemakers (PhD candidate)
Professors	A. Mandemakers (PhD candidate), A. Kokkinou (PhD), R. van der Wegen (MA) and M. Miranda-Ackerman (PhD)

BSE1.SCST-1SCM	Supply Chain Strategy
Size	5 ECTS
Contribution to competencies	A. Analyse and evaluate supply chains from a strategic perspective. B. Develop a supply chain improvement plan that supports a sustainable business model.
Learning goal	This module enables students to analyse, evaluate and propose a Supply Chain Strategy, impacted by macro & meso developments. This Supply Chain Strategy focuses on how to create market competitiveness and added value to customers.
Objectives	At the end of this module the student is able to: 1. Analyze and evaluate the current corporate and supply chain strategy and set-up related to the dynamics and impacts of external influences within the context of the business, industry, market. Determine the strategic fit and define a relevant improvement topic. 2. Compare different perspectives of the improvement topic within the supply chain and adapt a framework that derives from the literature and has relevance for the chosen company. 3. Design an alternative strategic supply chain design and its expected impact on financials, sustainability, resilience, supply chain performance metrics and network design at a strategic level.
Subjects	Subjects covered in this module include: ▪ Supply chain strategies ▪ Supply chain strategic framework ▪ Supply chain collaboration ▪ Supply chain network design ▪ Supply chain finance ▪ Supply chain sourcing ▪ Supply chain resilience ▪ Supply chain ethics and sustainable development goals
Literature	• Chopra, S. (2019) Supply Chain Management: *Strategy, Planning and Operation*. 7th edition, Global Edition. ISBN 9781292257891 • Nakano, M. (2020). *Supply chain management: strategy and organization*. Singapore: Springer Nature. • Peer reviewed articles related to the topics from publications with a high Scientific Journal Rank (SJR). • *Can be found via* https://www.buas.nl/library/library-metasearch.
Planning 1st semester	Week 5-11 & 13-17: masterclasses, based on Masterclass A and B format. Week 18: hand in individual paper.
Examination	Individual paper (100%) Formative assessment with planned feedback moments on the individual paper during masterclasses.
Module owner	R. van der Wegen (MA)
Professors	R. van der Wegen (MA) and M. Miranda-Ackerman (PhD) with guest professorships of Cranfield University (UK).

BSE1.LINC-1SCM	Leadership in an international context
Size	5 ECTS
Contribution to competencies	C. Create an approach for implementation of the supply chain improvement plan. D. Demonstrate leadership skills by influencing the improvement process.
Learning goal	The 'Leadership' module enables students to explore the challenges of leadership and to experiment with and acquire leadership skills in a simulated situation as a first step in their development as a supply chain leader.
Module parts	The module is structured in two parts: 1. Masterclasses based on the book *Leadership in Organizations* and peer reviewed articles focusing on existing theories on leadership, the complexity and challenges of leadership, related to leading teams and organizations in the supply chain. 2. Training programme focusing on team building, personal characteristics, communication styles and behaviour, and experimenting with supply chain leadership skills.
Objectives	At the end of this module the student is able to: 1. Explore and evaluate the influence and effects of leadership behaviour and communication in leading supply chain teams and organizations. 2. Act consciously, according to a personal development plan, to develop leadership skills and adjust this plan based on academic and professional insights, experiences, and reflection. 3. Distinguish different leadership concepts, leadership styles, types of leadership behaviour and the effectiveness in different situations and organizations linked as much as possible towards supply chain. 4. Analyse relationships between leadership behaviour, leadership traits and skills, decision making, power and influence tactics, and the implications they have on effective leadership. 5. Analyse the relationship between cultural values, leadership behaviour, diversity, and their relevance in a cross-cultural context.
Subjects	Subjects covered in this module include: ▪ The nature of supply chain leadership and leadership behaviour ▪ Leadership theories and concepts such as, and not limited to, adaptive leadership, charismatic leadership, transformational leadership, value-based leadership, ethical leadership, cross cultural leadership, diversity linked as much as possible towards supply chain. ▪ Methods to analyse leadership behaviour and leadership concepts ▪ Model for personality test and development (Lumina Learning) ▪ Model for personal branding, own qualities and points for development related to leadership
Literature	Yukl, G., & Gardner III, W. L. (2020). *Leadership in Organizations*, Pearson Education. ISBN 9781292314402 Approximately 5 peer reviewed articles will be included in the program, aiming at discussing the latest relevant developments. *Can be found via* https://www.buas.nl/library/library-metasearch. Lecturer will inform in class which articles will be studied.
Planning 1st semester	Week 5: Kick-off lecture Week 6 -11 & 13-17: Masterclasses B including discussions about the theory in the book, papers and cases linked as much as possible towards supply chain and a training focusing on personal development related to leadership. Week 12: Hand in Lumina training assignment Week 18: Hand in paper

Examination	Participation in Lumina training sessions and personal development plan (conditional with alphanumeric score) Individual paper assignment (100%). Formative assessments in Master classes (which is planned in week 14)
Module owner	E.D. van Diffelen (MSc, MBA)
Professors	E.D. van Diffelen (MSc, MBA) ; B.F. Groot (MA)

BSE1.RMSC-1SCM	Research Methods in supply chain management
Size	5 ECTS
Contribution to competencies	A. Analyse and evaluate supply chains from a strategic perspective. B. Develop a supply chain improvement plan that supports a sustainable business model. C. Create an approach for implementation of the supply chain improvement plan.
Learning goal	The 'Research Methods' module enables students to conduct research aimed at solving knowledge gaps in supply chain management situations. Students will take relevant supply chain management variables chosen by lecturers, formulate research questions, analyse existing questionnaire data on these variables using descriptive and inferential statistics, and report on findings including their practical and academic implications. Based on these implications they will formulate a second round of research questions, collect and analyse qualitative data, and report on findings including their practical and academic implications.
Objectives	At the end of this module the student is able to: 1. Formulate research questions based on a given business or consumer (related) problem and relevant variables (placed into a sustainable supply chain context). 2. Choose between experiment, case study, longitudinal, and cross-sectional research designs based on research questions and context. 3. Compose a critical literature review demonstrating synthesis and criticism of academic and professional sources while using an academically based referencing system. 4. Justify and apply the use of interviewing as a qualitative data collection method, including designing the interview item list and applying inductive thematic coding as a qualitative data analysis method. 5. Justify and apply the use of questionnaires as a quantitative data collection method including designing a quantitative self-response questionnaire based on existing literature. 6. Operate R via RStudio, including basics of opening, running, and saving script and data files and exporting data and graphs. 7. Produce and interpret appropriate descriptive measures of central tendency and dispersion, and linear models of bivariate relationships including relevant inferential and effect size statistics, for variables of all levels of measurement. 8. Justify the use of and report the results of qualitative and quantitative analysis using the appropriate combination of original text, quoting from interviews, and conceptual diagrams, written text, tables, and graphs to an academic audience, in English, at a publishable level of quality. 9. Argue for the contribution of research findings to present practical and academic knowledge. 10. Critically reflect on the choices made during the research process.
Subjects	Subjects covered in this module include: ▪ Research philosophy; ▪ Research questions; ▪ Research design; ▪ Literature review; ▪ Interviewing approach, methods, and practice; ▪ Questionnaire approach, methods, and practice; ▪ Inductive thematic coding; ▪ R and R Studio; ▪ Data handling; ▪ Exploring and graphing data;

	▪ Descriptive and inferential statistics; ▪ Writing a research report; ▪ Linking findings to literature and society; ▪ Quality criteria for research; ▪ Using research to address business and consumer problems.
Literature	Gray, D. E. (2022). *Doing research in the real world* (5. ed). Sage. ISBN 9781529742442 Articles (references provided through Brightspace)
Planning 1st semester	Week 5: Kick-off lecture Week 5-11 & 13-17: Masterclasses A & B Week 12 & 18: Hand in papers
Examination	Individual paper assignments: quantitative research (50%), and qualitative research (50%). Each examination component must be assessed with a minimum of 5.5 to pass the module. Formative assessment, especially in masterclasses B, peer feedback, individual consultations.
Module owner	O. Mitas (PhD)
Professors	O. Mitas (PhD) and A. Kokkinou (PhD)

BSE1.BISC-1SCM	Business Intelligence in supply chain management
Size	5 ECTS
Contribution to competencies	A. Analyze and evaluate supply chains from a strategic perspective. B. Develop a supply chain improvement plan that supports a sustainable business model.
Learning goal	The 'Business Intelligence' module enables students, as future leaders, to make faster and more informed decisions based on the available information. Business Intelligence is the collective name for processes of collecting and analyzing correct and reliable data, so that the right decisions can be made in complex supply chains. Attention is paid to the role of 'Business Intelligence' in relation to supply chain control and supply chain collaboration.
Module parts	The BI module is structured in two parts: ▪ Part I will expose the students to some of the main techniques employed in modern data science with an emphasis on the initial steps (data preparation and data exploration) and final steps (interpretation of the outcomes, and taking decisions on the basis of these outcomes) of the typical data science process. The middle steps of the process consist of intuitive understanding of the algorithms, their strengths and weaknesses, and potential uses. ▪ Part II will introduce data-analytic thinking, in the context of the strategic information needs of managers of organizations across the supply chain. . This part will also zoom in on related new developments.
Objectives	At the end of the 1st part of the module the student is able to: 1. Evaluate the obtained information from key analytical techniques, using the main assessment models. 2. Interpret the information stemming from selected key analytical techniques and use this information for making informed decisions and recommendations. 3. Evaluate the impact of new developments in business intelligence on the management of supply chains. At the end of the 2nd part of the module the student is able to: 4. Apply the principles of enterprise data management, and the relationship between strategic management and business intelligence. 5. Apply the main models for data architectures and the key terms related to these models. 6. Apply the principles of data management and the importance of governance aspects of data in supply chain management.
Subjects	Subjects covered in this module include: ▪ Definition and understanding of business intelligence (functions; roles; deliverables; and metrics) ▪ Enterprise data management ▪ Definitions of big data and smart data ▪ Big data analytics ▪ Blockchain ▪ Predictive analysis ▪ Managerial aspects of business intelligence and business analytics (strategy; tools; applications; and models) ▪ Recent developments in the field of business intelligence, big data and smart services ▪ The information needed to support the mission and strategy of an organization and a supply chain design ▪ Internal and external data sources needed to be able to produce the requested information

	▪ The application of business analysis techniques and methods ▪ Laws and agreements regarding privacy and confidentiality ▪ Problems regarding reliability, security and privacy
Literature	Jaggia, Sanjiv, Alison Kelly, and Kevin Lertwachara. 2025. *Business Analytics*. Third Edition. New York: McGraw-Hill Education. ISBN 9781264901531 Articles (both academic and non-academic) *NOTE: for sources like Harvard Business Review you can make an account and read a few free articles per month.*
Planning 1st semester	Week 5 Kick-off lecture Week 5-11 & 13-17: Masterclasses, including R-trainings with an assignment Week 12: Hand in assignment portfolio R-trainings Week 19: Written exam
Examination	Written exam (75%) Portfolio of Data Analytics Projects Using R (25%) Formative assessment, especially in Masterclasses B (training exam questions and cases).
Module owner	A. Kokkinou (PhD)
Professors	A. Kokkinou (PhD) with P. de Hoon (MSc) & guest lecturers

BSE1.CISM-1SCM	Change & Innovation in supply chain management
Size	5 ECTS
Contribution to competencies	B. Develop a supply chain improvement plan that supports a sustainable business model. C. Create an approach for implementation of the supply chain improvement plan. D. Demonstrate leadership skills by influencing the improvement process.
Learning goal	The Change & Innovation (C&I) module enables students to explore the multiple perspectives of C&I processes in general, and in supply chains in specific, at the individual, team, and organization level. By combining theory on C&I with practical cases, students develop the ability to develop, plan, lead and implement C&I processes successfully.
Objectives	At the end of this module the student can: 1. Design a change management strategy and improvement plan based on a well-defined business problem by applying innovation management models and methods 2. Compare and evaluate change management models and methods to formulate an implementation plan for a supply chain strategic innovation 3. Select a leadership approach to lead teams, and supervise and control the supply chain innovation implementation
Subjects	Subjects covered in this module include: • Individual, team and organization behaviour and cultural awareness • International supply chain innovation and trends • Main schools of change & innovation management • Cases of international intercultural approaches to supply chain change. • Innovation and organizational structures • Planned and emergent change in turbulent regional and global context • Leadership and challenges in the change process • Organisational and cross culture issues and its impact on C & I • Change implementation and control planning
Literature	Cameron, E., Green, M. (2024) *Making Sense of Change Management. A Complete Guide to the Models, Tools and Techniques of Organizational Change.* Kogan Page Ltd. ISBN 9781398612853 Peer reviewed articles with a high Scientific Journal Rank (SJR) will be included in the programme aiming at discussing the latest relevant developments. *Can be found via* https://www.buas.nl/library/library-metasearch.
Planning 1st semester	Week 4: Kick-off lecture Week 5-11 & 13-17: Masterclasses A&B Week 16: Hand in group assignment paper Week 19: Oral exam
Examination	Oral exam (60%)* and group assessment (40%) – Each examination component must be assessed with a minimum of 5.5 to pass the module*. – Formative assessment with planned feedback moments on the paper will take place during masterclasses. – Formative assessment with feedback moment on the oral exam will take through an mock oral assessment during a masterclass. ** The group report forms the basis for the oral exam. If you miss the opportunity to hand it in (1st opportunity) or do not reach at least a 4.5 mark, you are not invited for the oral exam. The oral exam will then be graded with a 'Missed Opportunity.*
Module owner	M. Miranda-Ackerman (PhD)

Professors	M. Miranda-Ackerman (PhD) and J. van Kelle (MSc) with J. Roevens (PhD) and D. Dermout (MSc)

BSE1.ISCC-1SCM	Integrated Supply Chain Cases
Size	6 ECTS
Contribution to competencies	A. Analyse and evaluate supply chains from a strategic perspective. B. Develop a supply chain improvement plan that supports a sustainable business model. C. Create an approach for implementation of the supply chain improvement plan. D. Demonstrate leadership skills by influencing the improvement process.
Learning goal	The Integrated Supply Chain Cases module enables students to make efficient and effective decisions in supply chains through mathematical programming (and network analysis) and by integrating knowledge and skills from five perspectives (Strategy, Business Intelligence, Change & Innovation, Leadership, International) in a real-life environment.
Module parts	The module Integrated Supply Chain Cases is structured in two parts: ▪ Part I: Modelling (Model Building) ▪ Part II: Integrated Cases (Contextual Company Analysis)
Objectives	At the end of this module the student is able to: Part I: 1. Model complex supply chain problems in a mathematical format. 2. Solve network problems with exact algorithms or heuristics and appropriate software. Part II: 3. Explore problems in a real-life case about a supply chain from an interdisciplinary perspective. 4. Analyze and identify opportunities in a complex supply chain environment and cope with ambiguities.
Subjects	Subjects covered in this module include: Part I: Mathematical programming (LP, MIP) and network problems (e.g.: VRP) Part II: Business environment, macro and industry trends, market dynamics, supply chain capabilities and company maturity, strategic improvement and research opportunities identification.
Literature	Part I: Scientific articles related to network analysis. *Can be found via* https://www.buas.nl/library/library-metasearch Papers on software tools like Excel Solver, Open Solver and VRP Spreadsheet Solver Part II (Integrated Cases): Paper: Peer reviewed articles from publications with a high Scientific Journal Rank (SJR). *Accessible via:* https://www.buas.nl/library/logistics/library-logistics-databases
Planning 2nd semester	Week 20: Contextual Company Analysis: Masterclass, Guest lecture(s) Model Building A. Week 21: Contextual Company Analysis: Masterclass, Learning Community Model Building A Week 22: Contextual Company Analysis: Masterclass Hand-in Model Building A /Model Building B Week 23: Contextual Company Analysis: Masterclass, Feedback Model Building B. Hand in assignment paper Contextual Company Analysis and Model Building B.
Examination	For both parts, an individual paper must be presented. Each part counts for 50% of the module Integrated Supply Chain Cases. Each component (part) should be assessed with min. 5.5 to pass the module. Formative assessment: Masterclasses B, feedback sessions.

Module owners	Part I: A Gijsberts (MSc) Part II: M.A. Miranda Ackerman (PhD)
Professors	A. Gijsberts (MSc) and M.A. Miranda Ackerman (PhD) with J.W. Proper (PhD), A. Mandemakers (PhD candidate), A. Kokkinou (PhD) and R. van der Wegen (MA) with guest lecture(s) from industry.

BSE1.REPR-1SCM	Research Proposal
Size	6 ECTS
Contribution to competencies	A. Analyse and evaluate supply chains from a strategic perspective. B. Develop a supply chain improvement plan that supports a sustainable business model.
Learning goal	The 'Research Proposal' module enables students to write a well-founded research proposal for their thesis topic and graduation placement by building on the preliminary research conducted in during ISSC.
Module parts	The module is the follow up course to ISCC.
Objectives	At the end of this part of the module the student is able to: 1. Explain the business problem that the company is facing and formulate a clear objective by using (and if necessary refining) the preliminary analysis conducted during ISSC. 2. Critically review literature on the focal topic, demonstrating synthesis and criticism of academic and professional sources while using an academically based referencing system in a way that supports the thesis objective 3. Compare and contrast the analysis of the company's context conducted during ISSC to the literature and use it to formulate relevant research questions. 4. Argue for, and apply the appropriate research design (experiment, case study, longitudinal, cross-sectional research designs and supply chain research models) based on the research questions and professional context. 5. Anticipate on the issues and choices that will need to be made during the research process and reflect on how they influence the quality of the research for decision-making.
Subjects	Subjects covered in this module include conducting research in a professional supply chain context: Formulating a research proposal (introduction, literature review, contextual company analysis, empirical research design, reflection) that supports the achievement of a business objective and taking into consideration the business context.
Literature	Literature and resources used in the first semester remain relevant. Other relevant excerpts & references to study books will be provided.
Planning 2nd semester	Week 24-27: Graduation Placement Week 24 & 25: Kick-off lecture and lectures about designing a Research Proposal Week 25-27: Online Q&A and individual supervision. Week 27: hand in Research Proposal.
Examination	Individual paper/ Research Proposal (100%) Formative assessment: masterclasses B, individual supervision and graduation table
Module owner	A. Kokkinou (PhD)
Professors	A. Kokkinou (PhD), A. Mandemakers (PhD candidate), J.W. Proper (PhD) & M. Miranda-Ackerman (PhD)

BSE1.THES-1SCM	Thesis
Size	18 ECTS
Contribution to competencies	A. Analyse and evaluate supply chains from a strategic perspective. B. Develop a supply chain improvement plan that supports a sustainable business model. C. Create an approach for implementation of the supply chain improvement plan. D. Demonstrate leadership skills by influencing the improvement process.
Learning goal	The thesis contributes to the competencies A, B, C and D and has the following learning goal: Students bring about a supply chain improvement plan and -process in a professional context and thereby demonstrate professional communication and leadership skills.
Module parts	The different modules of the curriculum all contribute to the mastery of the competencies. The thesis period concludes the master's programme and assesses the end level of the student for the master's programme. At the end of the first semester (by the end of week 17) students need to hand in the final draft of the thesis topic and graduation placement. The thesis coordinators need to approve the handed in topics and placements. The course Integrated Supply Chain Cases bridges towards the uncontrolled complex characteristics of a professional environment at the graduation company. After handing in the Research Proposal, students start with the thesis period. Students will continue their path in the professional environment and will be challenged to demonstrate the acquired competencies.
Objectives	1. To deliver a thesis report that contains a description of a research conducted, based on the thesis topic. 2. This implies to deliver a supply chain analysis and a design. The design includes an improvement plan and an implementation approach of the supply chain. 3. It is required (to a certain extent) to realize the first steps of the implementation process towards an improved and/or innovated supply chain and to demonstrate leadership skills.
Subjects	Subjects covered in this module include: ▪ Thesis topics that refer to the different functionalities of the supply chain. These functionalities are analysed and evaluated in a supply chain context (in relation to suppliers and customers) at a strategical level. ▪ Supply chain analysis and design including an improvement plan and an implementation plan of the supply chain. ▪ The first steps of the implementation process towards an improved and/or innovated supply chain.
Literature	No prescribed literature. Relevant excerpts & references to study books will be provided during supervision and graduation tables.
Planning 1st semester	Week 28 - 39: @Graduation Placement (five days per week); @BUas for supervision purposes. The thesis period is individually supervised by both a University lecturer and a company advisor. During the thesis period graduation tables (learning community) and individual supervision are organized at BUas. The graduation tables enable students to give feedback, to benchmark their findings, and to learn from peers, lecturers, researchers and professionals. Week 38: hand in Thesis & Leadership report Week 39: Presentation & Defense
Examination	Individual thesis and leadership report, presentation and defense (100%) Assignment based on Learning community theme products including participation needs to be assessed as sufficient (alphanumeric assessment) as a precondition for participating in the examination.

	Formative assessment: Graduation tables and individual supervision
Module owner	A. Mandemakers (PhD candidate)
Professors	A. Mandemakers (PhD candidate) and A. Kokkinou (PhD)

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