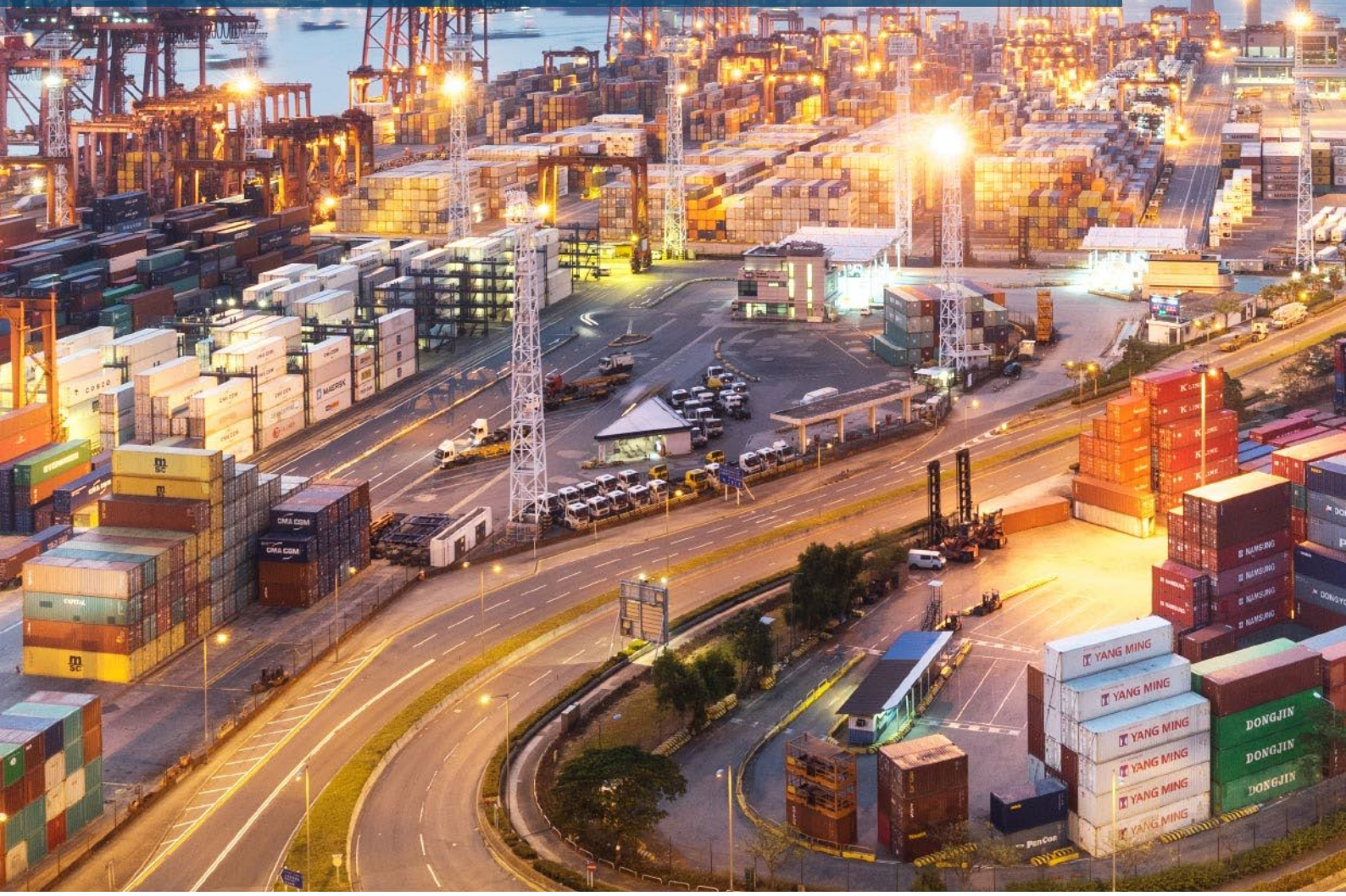
Course catalogue

Master Supply Chain Management (MSc)

Year Sep 2023- Aug 2024



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Breda University
OF APPLIED SCIENCES

Introduction

This is the 4th edition of the course catalogue of the master's programme Supply Chain Management by Breda University of Applied Sciences (BUas) for the Academic Year September 2023– August 2024.

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 Supply Chain Management of Breda University of Applied Sciences, Academic Year 2023-2024.

1. Master of Supply Chain Management

Competencies

This master's programme is based on a competency set developed after a broad and in-depth study in consultation with the professional field. The competency set of the master's programme Supply Chain Management fulfils to the professional master standard and the Dublin Descriptors for master's programmes. The competency set has been mirrored with the EMLog programme (ELA standards, EQF level 7)) and with competency profiles of other Dutch professional master's programmes in supply chain management. The competencies have been compiled in cooperation with and after consultation of the Logistics Industry Committee of BUas.

The competency set is as follows:

Context:
In displaying strategical, 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 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.

Explanation of the used terminology

Supply chains:
This refers to different functionalities 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 chain improvement plan:
A renewed and innovated design of a supply chain including a proposal and roadmap for improvement.

Sustainable business model:
The supply chain improvement plan adds value from a social, a financial-economic and an environmental perspective.

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.

Leadership skills:
The ability to inspire, motivate and persuade others, and to reflect on his/her personal development as an upcoming leader.

Didactic model curriculum

The different modules of the curriculum all contribute to the mastery of the competencies. Mastering the competencies goes through four stages on which the curriculum is based:

- Stage 1 (week 1-4): taking the 1st level, by demonstrating competencies in a standardized controlled environment (classroom) and simulated environment (business game), referring to theoretical and applied knowledge and skills, by bridging to a strategic and multidisciplinary level and by mastering supply chain and research fundamentals.

- Stage 2 (week 5-19): taking the 2nd level, by demonstrating competencies in a standardized controlled environment (classroom) on a multidisciplinary level, referring to theoretical and applied knowledge and skills.

- Stage 3 (week 20-23): taking the 3rd level, by demonstrating competencies in a less controlled environment (real-life context of business cases) on an integrated and interdisciplinary level, referring to theoretical and applied knowledge & skills.

- Stage 4 (week 24-40): taking the 4th level, by demonstrating competencies in an uncontrolled complex environment (professional context) on an integrated and interdisciplinary level, referring to theoretical, applied and behavioural knowledge & skills[1].

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 (ISCC) bridges towards the uncontrolled complex characteristics of a professional environment. Students will continue their path in the professional environment and will be challenged to take the 4th level by demonstrating the acquired competencies. After handing in the Research Proposal, students start with the thesis period The thesis period concludes the master's programme and assesses the end level of the student for the master's programme.

[1] The idea and concept behind this four stages model as presented is developed by the founders of this master's programme and based/derived from Miller, G.E. (1990). The assessment of clinical Skills/competence/performance. *Academic Medicine, 65* (9), 63-67.

2. Programme of the Master of Supply Chain Management

1st semester week 1-19, stage 1-2: Theoretical backbone and an approved thesis topic

In the first semester students come to classes prepared in order to deepen knowledge and to exchange views with others. Knowledge building requires engaged students thoroughly preparing their classes, so that discussions in classes with peers and lecturers deepen their knowledge. The lecturer switches between casuistry and theory in order to enhance understanding, analysis, synthesis and evaluation. Different didactical approaches are applied. In masterclasses type A (classical approach) theory is explained and illustrated by practical casuistry. In masterclasses type B practical cases are linked to theory. Also training sessions and a business games are included and are part of the courses Supply Chain & Research Fundamentals, Leadership and Business Intelligence.
These courses all contribute to a theoretical foundation; in this period a theoretical layer is build and necessary skills are trained. Students are assessed (mostly) at the end of the semester by taking examinations and by handing in papers.

While the base is formed, students have to find a suitable host company including an approved thesis topic by the thesis coordinators before week eighteen of the first semester. The study timetable facilitates time for networking[2] and finding the graduation company[3]. By appointing a mentor from day one (and over time a graduation supervisor), students will be encouraged in their search for an appropriate thesis topic.
In the learning communities[4] for the master's programme, groups of eight students are formed and joined by lecturers and professionals from the industry. The idea is to learn together through the sharing of knowledge, which is applicable to all parties, and by giving mutual feedback. The professionals and contribute through their expertise role.

2nd semester, week 20-40, stage 3-4: Integrated Supply Chain Cases (ISCC) and Graduation

During these four weeks of stage 3 (up to and including week twenty-three), it is expected from the students that they keep in touch with their graduation company and supervisor, in order to take preparations for the thesis topic and their time at the graduation company. During this period students attend masterclasses ISCC and they work on assignments.
In week twenty-four students start at their graduation company and they will have masterclasses for the module Research Proposal (RP). Students work on preliminary research of the supply chain as

[2] This is a possibility that is created within the roster. This time can be used for self-study as well.

[3] This condition will be discussed with the prospective student and is subsequently included in the communication before enrolment and at the kick-off of the master programme.

[4] A learning community connects students, lecturers, researchers and industry professionals with each other. Knowledge sharing through exchanging ideas, concepts, methods, experiences, etc. will stimulate the performance and achievements of the individual students as well as the industry professionals and lecturers. See reference 12 on page iv for a definition. See appendix 6, slide 13, for a detailed outline of learning communities explaining the specific roles and interests of the different parties.

demarcated in their approved thesis topic. This will be the foundation for the research proposal that students have to hand in by the end of week twenty-seven.
According to BUas' educational vision, knowledge development and sharing with the industry is the intended development path and the final step in this master's programme, by conducting a thesis at the graduation company. Starting point is the research proposal of the previous module. The research proposal can be altered during the thesis period if new insights come up. This needs consultation with the supervisor. During this final phase, students fully concentrate on their thesis. This practical approach presupposes further deepening of theoretical insights during the thesis period. This brings together both the substantive qualities and the ability to make a start with implementing change in an organisation, which is aligned with the starting principle of the master's programme. The thesis constitutes almost 30% of the master's degree and thus indicates the importance of the actual application of what has been learned, 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 come to an analysis, design and implementation plan for the proposed, improved or innovated, supply chain of the graduation company. On top of that, students carry out a part of the implementation plan whereby they create support among stakeholders and generate insight in expected transition effects of the improvement process. This enables them to demonstrate their leadership skills.
Through learning communities, in the form of graduation tables, new insights are gained and knowledge from other theses are shared. Again, 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 the Thesis

- Approved thesis topic and graduation placement by the thesis coordinators for the start of the course Research Proposal.
- In the event that three or more resits have to be taken given the results of the first semester, the focus from students will solely be drawn to the resit weeks twenty-nine and thirty, and starting with the Research Proposal will be prohibited. From week thirty-one onwards, they can fully focus on starting with Research Proposal. This will enable students who have passed all resits, to finish the master's programme including its thesis, before the end of the academic year.
- In the event of an insufficient score for the Research Proposal, students are forced to first make necessary revisions to their paper for the Research Proposal before they can continue with their thesis, unless the graduation coordinators decide to make an exception in case of minor revisions. This will also enable these students to finish the master's programme before the end of the academic year (if of course all previous modules have been passed).

Curriculum design

The curriculum design is based on a T-shaped profile. The courses embody the required range of both social and analytical knowledge & 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 that require an interdisciplinary approach. The starting point is a basis on an operational and tactical level in logistics, operations and supply chain management. Hence, in the axis of the programme, we find the supply chain modules. Students develop themselves throughout this master programme to become supply chain specialists and eventually future supply chain leaders. See figure 3.1 for the T-shaped curriculum design:

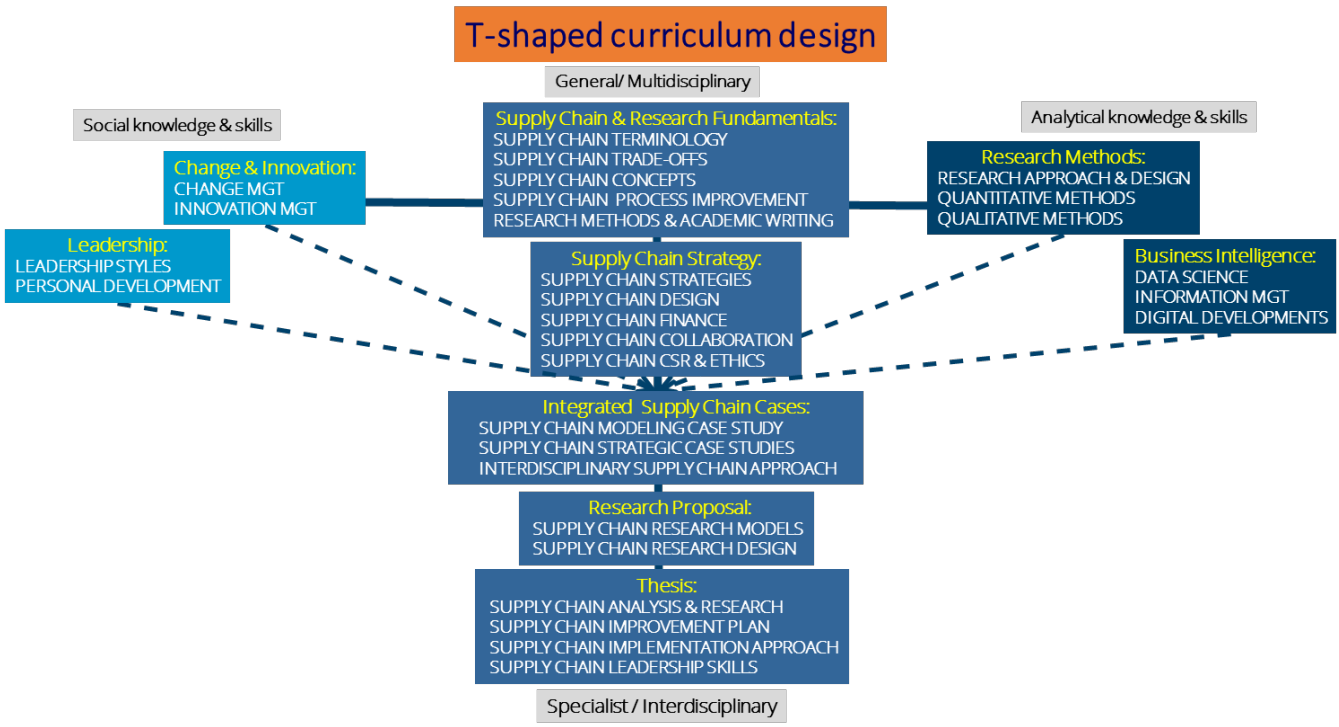

Figure 3.1. T-shaped profile

The schedule below (figure 3.2) shows an overview of the different modules that compose the curriculum in a chronological order which also mark the four stages as discussed:

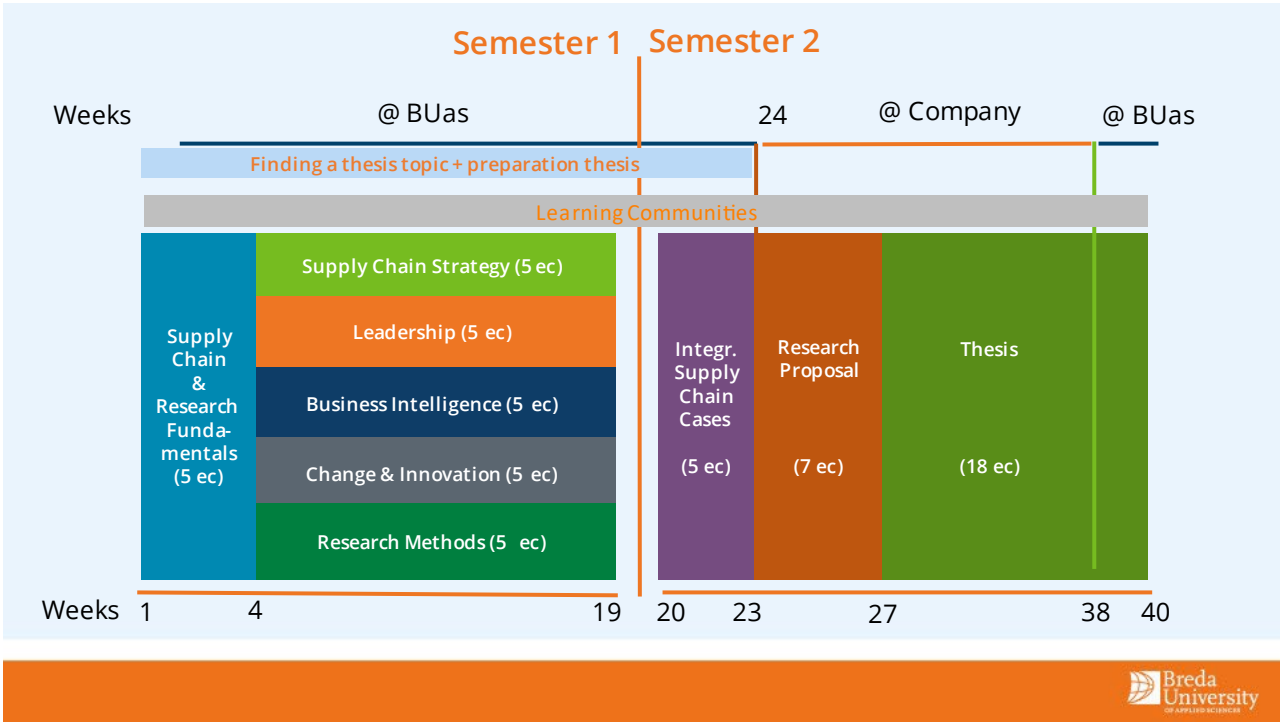

Figure 3.2 Curriculum composition

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 ec)
2. Supply Chain Strategy (5 ec)
3. Leadership (5 ec)
4. Research Methods (5 ec)
5. Business Intelligence (5 ec)
6. Change & Innovation (5 ec)
7. Integrated Supply Chain Cases (5 ec)
8. Research Proposal (7 ec)
9. Thesis (18 ec)

BSCM.SR-01	Module Supply Chain & Research Fundamentals Module description
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 ▪ 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. ▪ 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) and R. van der Wegen (MA)

BSCM.SC-03	Module Supply Chain Strategy Module description
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 evaluate impacts on Supply Chain Strategies. These impacts include volatile demands, legal-, technological- and knowledge developments. The module focuses on how to deliver more strategic value and on how to create competitive supply chains.
Objectives	At the end of this module the student is able to: 1. Evaluate the nature and dynamics of supply chain strategies in order to assess the impact of external influences on strategic decisions in different organisational contexts. 2. Analyse the strategic and competitive position of different supply chains in different networks and organisational contexts. 3. Propose an alternative strategic supply chain design that provides effective improvements to product or service. 4. Develop an evaluation plan that outlines all the necessary details needed for strategic development.
Subjects	Subjects covered in this module include: ▪ Supply chain strategies ▪ Supply chain coordination, cooperation and collaboration ▪ Supply chain finance ▪ Supply chain design ▪ Supply chain strategic disruption evaluation ▪ Stakeholder analysis ▪ Strategic supply chain decisions & corporate social responsibility (CSR)
Literature	▪ Hines, T. (2013). *Supply chain strategies: demand driven and customer focused*. Abingdon, Oxfordshire: Routledge. ▪ Nakano, M. (2020). *Supply chain management: strategy and organization*. Singapore: Springer Nature. ▪ Peer reviewed articles related to the topics: Finance, CSR, Disruption Management, Ethics and related to the perspectives from publications with a high Scientific Journal Rank (SJR). *Can be found via* https://www.buas.nl/library/library-metasearch.
Planning 1st semester	Week 4: kick-off lecture Week 5-17: Masterclasses A & B including formative feedback on individual paper & Learning Community sessions.

	Week 17: hand in whitepaper Week 18: hand in individual paper.
Examination	Individual paper (75%) Group assessment (25%) based on whitepaper Each examination component must be assessed with a minimum of 5.5 to pass the module. Formative assessment with planned feedback moments on the individual paper during masterclasses and feedback moments on the whitepaper during learning community sessions.
Module owner	R. van der Wegen (MA)
Professors	R. van der Wegen (MA) and J.W. Proper (PhD) with guest professorship of Cranfield University.

BSCM.LS-03	Module Leadership Module description
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 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 programme, 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 4: Kick-off lecture Week 5-17: 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 11: Hand in Lumina training assignment Week 17: Q&A session Week 18: Hand in paper
Examination	The training needs to be assessed as sufficient (alphanumeric assessment) as a precondition for participating in the examination. Individual paper assignment (100%). Formative assessment with planned feedback moments on the paper during masterclasses.
Module owner	E.D. van Diffelen (MSc, MBA)
Professors	E.D. van Diffelen (MSc, MBA) with B.F. Groot (MA)

BSCM.RM-04	Module Research Methods Module description
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 to analyse and evaluate supply chains and develop a supply chain improvement plan. Students will select a business or consumer (related) problem in a supply chain context. By studying relevant literature and/or secondary data, they will formulate research questions, collect and analyse qualitative data, and generate a conceptual framework based on these data. They will subsequently operationalize the conceptual framework as a self-response questionnaire or structured observation, collect quantitative data using this instrument, analyse quantitative data using descriptive and inferential statistics, 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. (2021). *Doing research in the real world* (5. ed). Sage. Articles (references provided through Brightspace)
Planning 1st semester	Week 4: Kick-off lecture Week 5-17: Masterclasses A & B Week 17: Q&A session Week 11 & 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)

BSCM.BI-03	Module Business Intelligence Module description
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 analysing 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 introduce data-analytic thinking, in the context of the strategic information needs of managers of organizations across the supply chain. ▪ Part II 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. Easy-to-use tools for visual programming will be used for the purpose of illustration and clarification. 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: 1.1. Apply the principles of enterprise data management, and the relationship between strategic management and business intelligence. 1.2. Apply the main models for data architectures and the key terms related to these models. 1.3. Apply the principles of data management and the importance of governance aspects of data in supply chain management. At the end of the 2nd part of the module the student is able to: 2.1. Evaluate the obtained information from key analytical techniques, using the main assessment models. 2.2. Interpret the information stemming from selected key analytical techniques and use this information for making informed decisions and recommendations. 2.3. Evaluate the impact of new developments in business intelligence on the management of supply chains.

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 ▪ Data mining ▪ Block chain ▪ Critical performance management ▪ 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, S., Kelly.A., Lertwachara, K & Chen.L (2021). *Business Analytics*. McGraw-Hill. ISBN 9781260576016
Planning 1st semester	Week 4: Kick-off lecture Week 5-17: Masterclasses, including R-trainings with an assignment Week 8 + 12: Hand in final assignment R-trainings Week 17: Q&A session Week 19: Written exam
Examination	Assignment based on R-trainings needs to be assessed as sufficient (alphanumeric assessment) as a precondition for participating in the examination. Written exam (100%). 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

BSCM.CI-04	Module Change & Innovation Module description
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 (habits & routines), organization (business model), network, and industry level. By combining theory on C&I with practical cases, students develop the ability to lead and implement C&I processes successfully.
Objectives	At the end of this module the student is able to: - Explore how to lead organizational C&I processes - Compare the quality of change models and methods in order to lead organizational change projects - Advise management on the most appropriate C&I strategy and intervention methods - Synthesize insights from change management in a change approach - Influence change dynamics by applying theories about resistance and willingness to change - Predict the effects of organizational change on attitude and behaviour of employees - Formulate recommendations to optimize organizational development and change - Examine and evaluate an organization's business model, its supply chain, and the various levels at which innovations can take place.
Subjects	Subjects covered in this module include: Group formation, team dynamics, planned and emergent change, ikigai, sustainability, change leader toolbox, exploration and exploitation, organizational structure and culture, environmental change, dynamic capabilities and organizational agility, personal innovation skills
Literature	Cameron, E., Green, M. (2019) *Making Sense of Change Management. A Complete Guide to the Models, Tools and Techniques of Organizational Change.* Kogan Page Ltd. ISBN 9780749496975 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 5-17: Masterclasses A&B Week 16: Hand in group assignment paper Week 19: Oral exam
Examination	Oral exam (75%) and group assessment (25%) 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 during masterclasses.
Module owner	S. van Boxtel (MA)
Professors	S. van Boxtel (MA) and J. van Kelle (MSc) with J. Roevens (PhD) and D. Dermout (MSc)

BSCM.IC-03	Module Integrated Supply Chain Cases Module description
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	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 the four perspectives (Strategy, Business Intelligence, Change, Leadership) in a real-life context of business cases.
Module parts	The module Integrated Supply chain cases is structured in two parts: ▪ Part I: Model Building (2,5 ECTS) ▪ Part II: Supply Chain Case Studies (2,5 ECTS)
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 problems with a solution method and appropriate software. Part II: 3. Explore problems in real-life cases about supply chains from an interdisciplinary perspective. 4. Create solutions in different supply chain environments. 5. Make decisions in complex supply chain situations 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: Gap-analysis, maturity models, interdisciplinary trade-offs, data-management, trade, supply chain compliance, supply chain (tax and duties) and controlling and implementation of supply chain strategy development.
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: Model Building & Integrated Cases: Masterclass A and B & Lab (online Learning Community) Week 21: Model Building & Integrated Cases: Masterclass A and B Week 22: Model Building & Integrated Cases: Masterclass A and B & Lab Week 23: Model Building & Integrated Cases: Masterclass A and B Week 23: Hand in both individual papers
Examination	For both parts, an individual paper has to 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: Lab, Masterclasses B and feedback sessions.
Module owner	J.W. Proper (PhD)
Professors	J.W. Proper (PhD) and A. Gijsberts (MSc) with A. Kokkinou (PhD), A. Mandemakers (PhD candidate) and R. van der Wegen (MA) with guest lecturers from industry

BSCM.RP-03	Module Research Proposal Module description
Size	7 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 first conducting a preliminary research from an interdisciplinary perspective. This preliminary research is used to refine the thesis topic and examine the feasibility of the chosen thesis topic.
Module parts	The module is the follow up course to ISCC and is divided in two parts. ▪ Part I: Preliminary research ▪ Part II: Research proposal, based on Part I
Objectives	At the end of this part of the module the student is able to: Part I: 1. Analyse and evaluate the current supply chain on a strategic level. 2. Analyse and evaluate current maturity levels in the fields of supply chain strategy, business intelligence, leadership and change & innovation, in order to determine an interdisciplinary approach. 3. Estimate preliminary improvement areas. 4. Evaluate and reflect on the thesis topic and if necessary, redefine the thesis topic. Part II: 5. Explain the business problem that the company is facing and formulate a clear objective. 6. Critically review literature on the focal topic, demonstrating synthesis and criticism of academic and professional sources while using an academically based referencing system. 7. 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. 8. Anticipate on the issues and choices that will need to be made during the research process.
Subjects	Subjects covered in this module include conducting research in a professional supply chain context: Part I: Performing a supply chain analysis including a value stream analysis and a business environment & market analysis and performing an interdisciplinary approach on the subject matter. Part II: Formulating the research design.

Literature	No prescribed literature. Relevant excerpts & references to study books will be provided.
Planning 2nd semester	Week 23: kick off lecture (including explanation about the KD&R Programme and Projects) Week 24-27: @Graduation Placement (four days per week); @BUas in class (one day per week on Wednesdays) in the lab (learning community) and individual supervision. Lectures about designing a Research Proposal and about (supply chain) research methods and topics. The lab supports the development of the preliminary research and the research proposal. Week 27: hand in Research Proposal.
Examination	Individual paper/ Research Proposal (100%) Formative assessment: masterclasses B, lab and individual supervision
Module owner	A. Kokkinou (PhD)
Professors	A. Kokkinou (PhD) and A. Mandemakers (PhD candidate) with J.W Proper (PhD)

BSCM.TH-04	Thesis Module description
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 - 38: @Graduation Placement (five days per week); @BUas (one day every 3 or 4 weeks on Wednesdays). During the thesis period graduation tables (learning community) and individual supervision are organized at BUas. The graduation tables are organised to support the development of the research during the thesis period. The graduation tables enable students to give feedback, to benchmark their findings, to learn from each other and to learn from lecturers, researchers and professionals from the industry. These graduation tables form a continuation of the formed labs of the previous module (Research Proposal). Week 38: hand in Thesis report
Examination	Individual thesis report, presentation and defense (100%) 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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