

INTRODUCTION TO THE COURSE PORTFOLIO IN OPERATIONS MANAGEMENT

Mannheim Master in Management (M.Sc.), Fall 2020

Mannheim | September-24, 2020

Area Operations Management



Welcome to operations management

LOGISTICS & SUPPLY CHAIN MANAGEMENT



Prof. Fleischmann

PRODUCTION MANAGEMENT



Prof. Stolletz

SERVICE OPERATIONS MANAGEMENT



Prof. Schön

PROCUREMENT



Prof. Bode

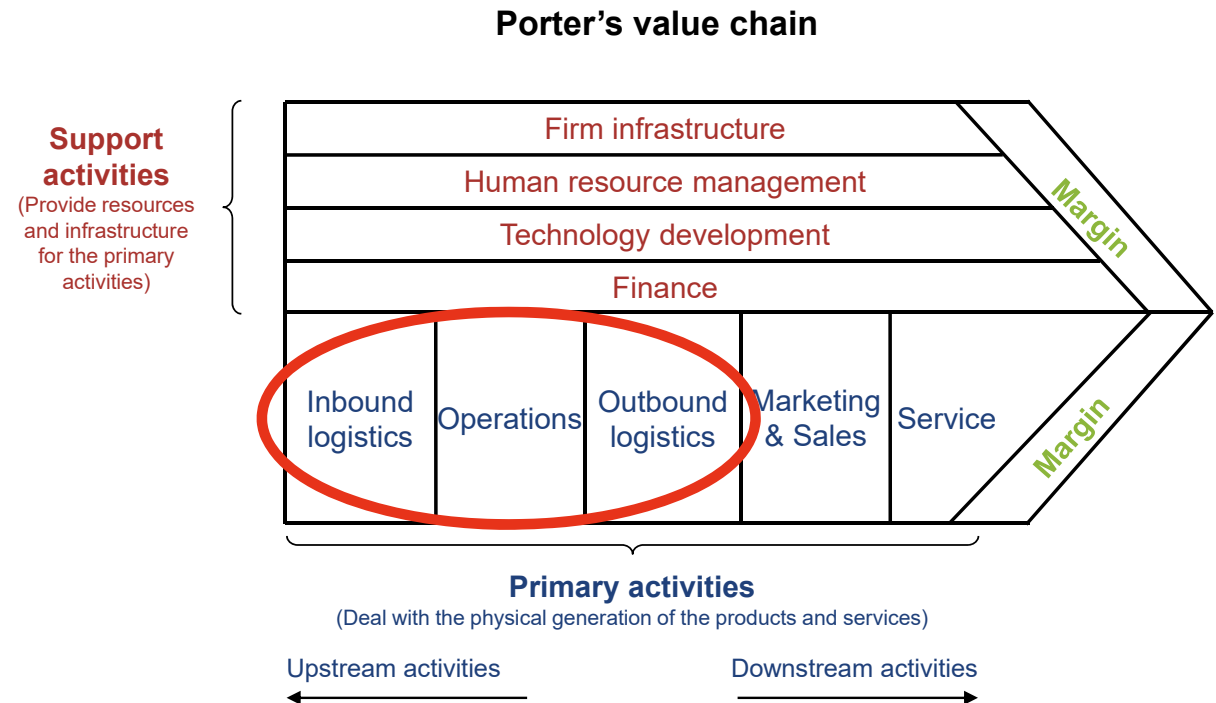
OPERATIONS MANAGEMENT (Assistant Prof.)



Prof. Sonntag

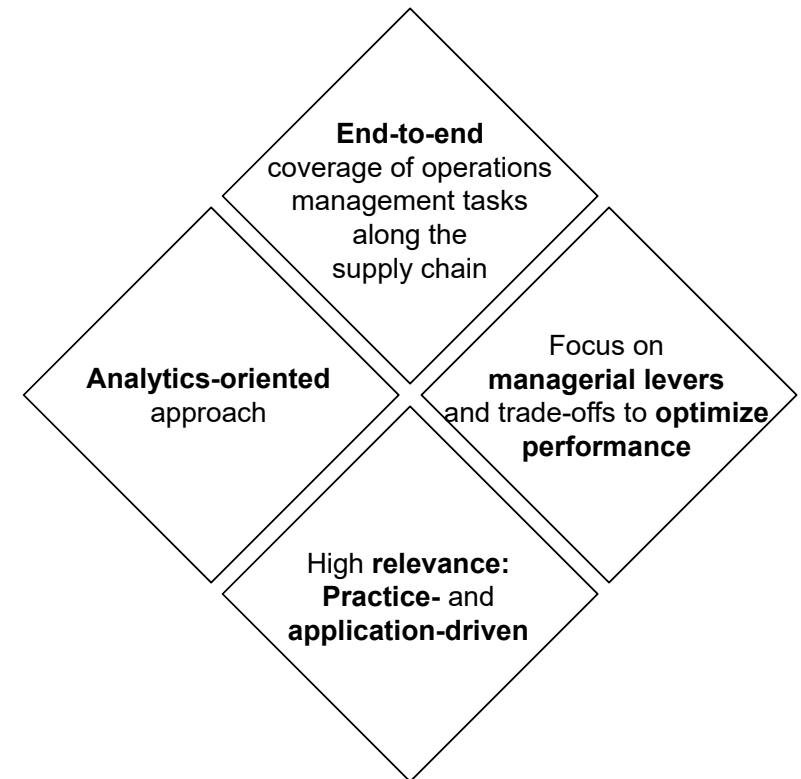
The heart of doing business: Matching **supply** and **demand**!

- Operations Management is responsible for **creating** and **delivering** a company's **products and services**. In other words, Operations Management is about delivering on the promises made to the customer – and about allowing these promises to be made in the first place.
- The discipline is paramount to the **creation of any business value**. Carefully designed and well executed operations provide an important source of competitive advantage.



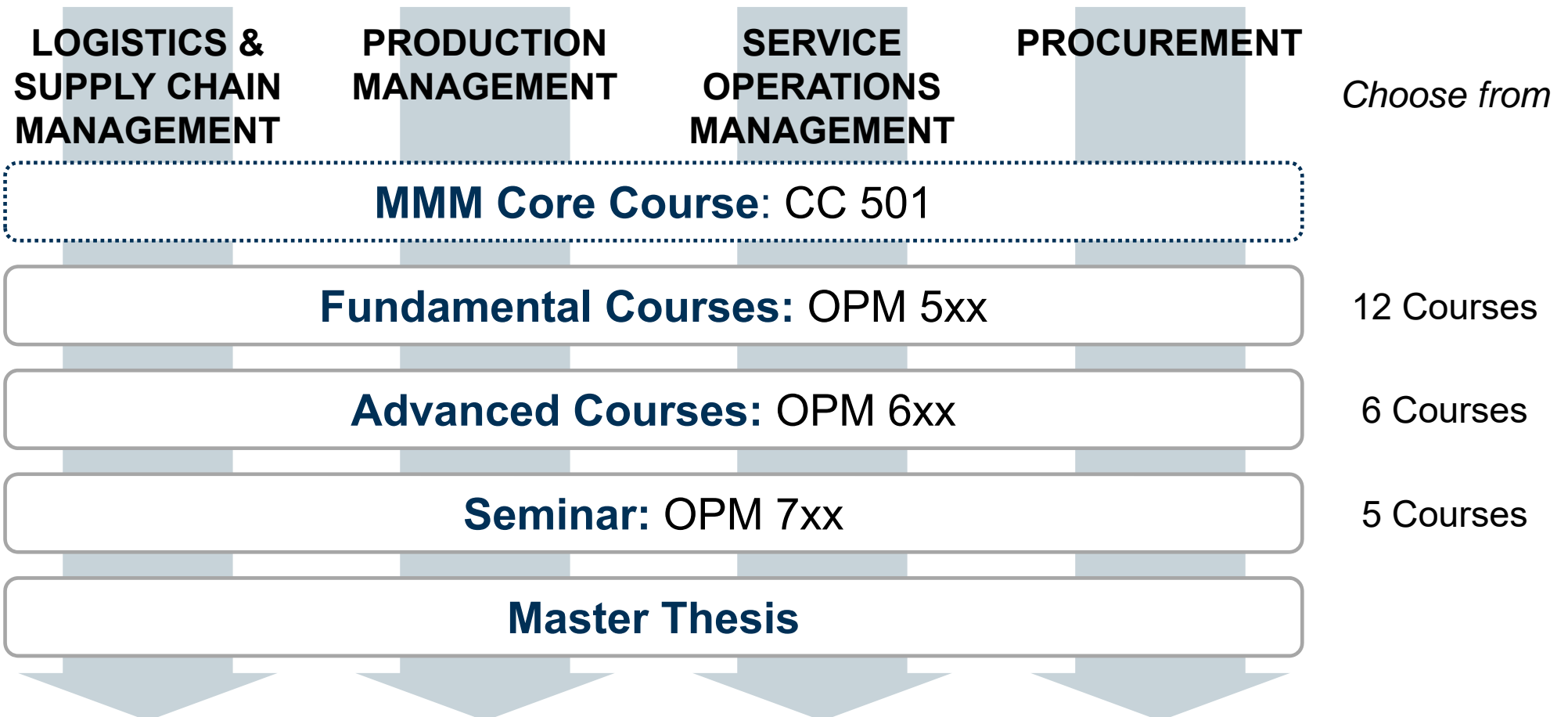
Operations management in Mannheim builds on four pillars

- Our overall goal is to develop and disseminate knowledge that facilitates better decision-making on managerial levers and trade-offs along the entire supply chain, including logistics, production, service operations, and procurement.
- **Four pillars** characterize our approach:
 - **End-to-end** coverage of operations management tasks along the supply chain
 - Focus on **managerial levers** and trade-offs to **optimize performance**
 - **Analytics-oriented** approach
 - High **relevance: Practice- and application-driven**



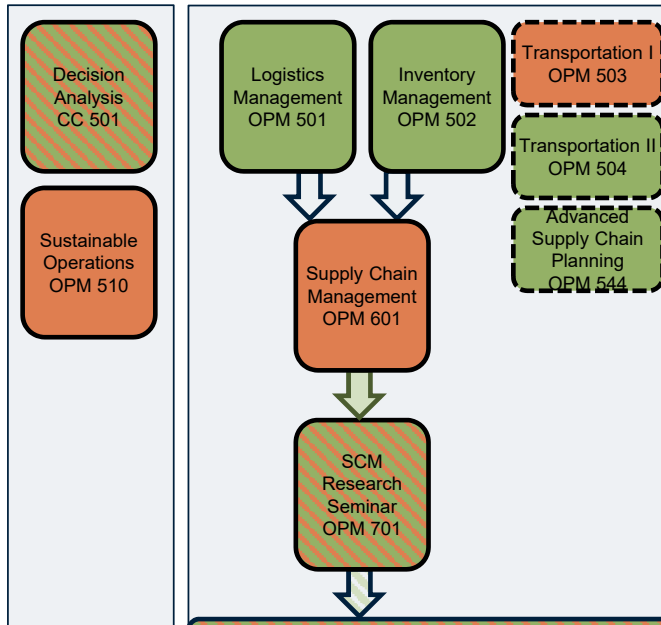
More details: <https://www.bwl.uni-mannheim.de/en/operations/why-om/>

Program structure

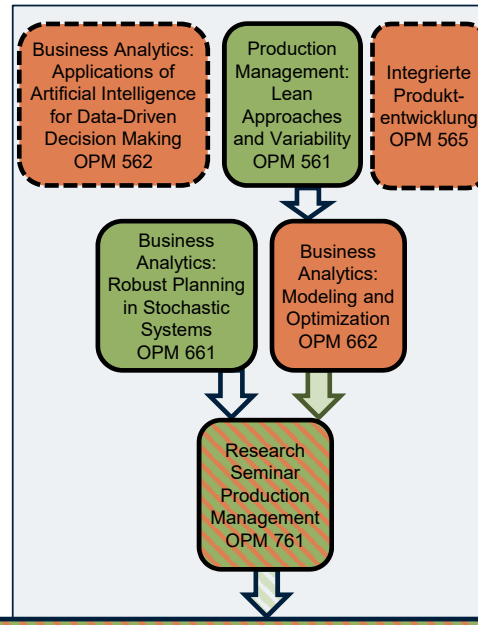


Broad choice and much flexibility

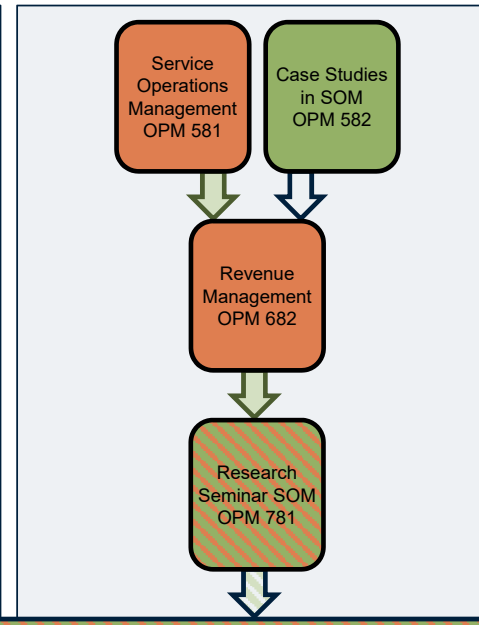
LOGISTICS & SUPPLY CHAIN MANAGEMENT



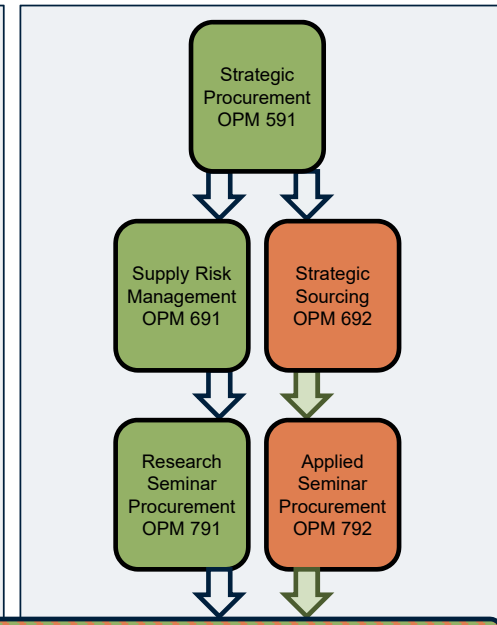
PRODUCTION MANAGEMENT



SERVICE OPERATIONS MANAGEMENT



PROCUREMENT



Core Course

Supplementary Course

Fall Term

Spring Term

Both Terms

The Chairs and Their Course Offerings

Logistics & Supply Chain Management

Logistics & Supply Chain Management is about managing the flow of products and materials along the supply chain to serve the customer.

Key processes include:

- **Transportation** of products between different sites and organizations
- Storage of products in **inventory** to assure availability
- **Coordination and alignment** of activities between different supply chain members

Current focal topics at the chair:

- Last-mile distribution / e-groceries
- Closed-loop / sustainable supply chains
- Data-driven supply chain planning
- Inventory management for seasonal products

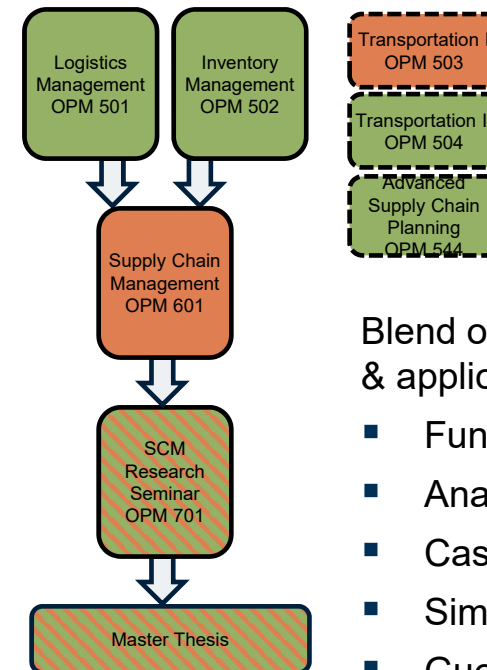
Start OPM 501:

Monday, 28.9., 15:30, ZOOM-BWL-07

Start OPM 502:

Tuesday, 29.9., 10:15, ZOOM-BWL-11

Course portfolio:



Blend of analytics & applications:

- Fundamental concepts
- Analytical tools
- Case studies
- Simulation games
- Guest lectures

More information: <http://www.logistics.bwl.uni-mannheim.de>

Production Management

Production Management is about the design and management of manufacturing capacities.

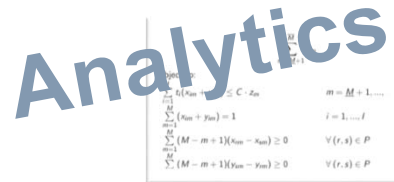
This includes:

- Capacity planning
- Operations planning and scheduling
- Lean management
- Decision support and tools
- Managing uncertainties



Productive 4.0

<https://youtu.be/Hq0HTPrIPGI>



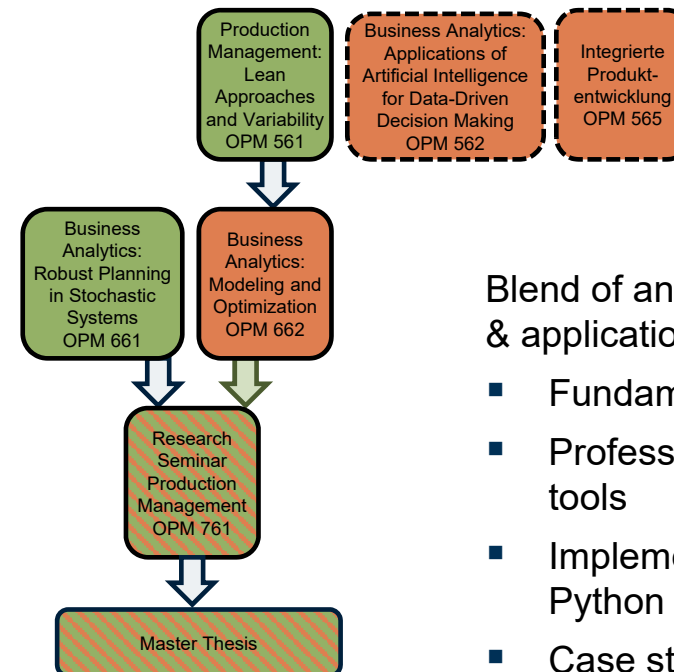
Detailed introduction via zoom:

Wednesday, 30.9., 10:15-11:45

(see www.bwl.uni-mannheim.de/en/stolletz/news)

Start OPM 561: Wednesday 30.9.

Course portfolio:



Blend of analytics & applications:

- Fundamental concepts
- Professional analytics tools
- Implementing AI in Python
- Case studies & field trips
- Guest lectures

More information: www.bwl.uni-mannheim.de/en/stolletz/teaching/master/

Service Operations Management

Services pose particular challenges to managers: intangible nature, perishability, customer involvement.

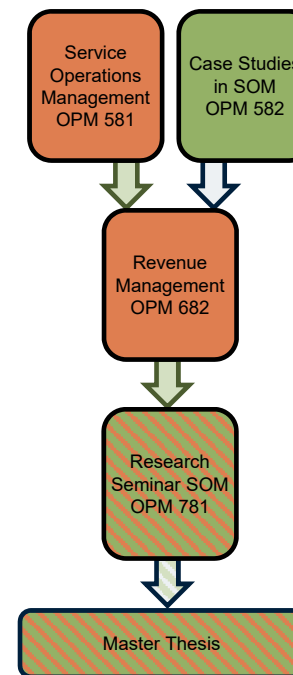
Managing services requires tight integration between operations, marketing, strategy, technology, and organizational issues.

Decisions include

- **Strategic issues** such as the design of service products, processes, networks
- **Tactical and operational issues** such as capacity and revenue management, transport scheduling



| | | |
|--------------------|----|---------------------|
| Mannheim-Friedrich | 11 | |
| Gernsheim | 17 | Train is cancelled |
| Köln Hbf | 7 | Train is cancelled |
| Berlin Hbf | 9 | Train is cancelled |
| Passau Hbf | 6 | Train is cancelled |
| Siegen | 16 | |
| Saarbrücken Hbf | 20 | |
| Fulda | 8 | Train is cancelled |
| Bruxelles-Midi | 19 | Aujourd'hui du qat |
| Hanau Hbf | 5 | loi 5 - Heute auf 6 |



Our focus:

- Relevant concepts
- Quantitative modeling and tools
- Data-driven decision making
- Case studies and real applications
- Guest lectures

More information: <https://www.bwl.uni-mannheim.de/schoen/>

Procurement

*Procurement is an MBA's dream –
Everything is strategy
and everything is deal!*

The McKinsey Quarterly

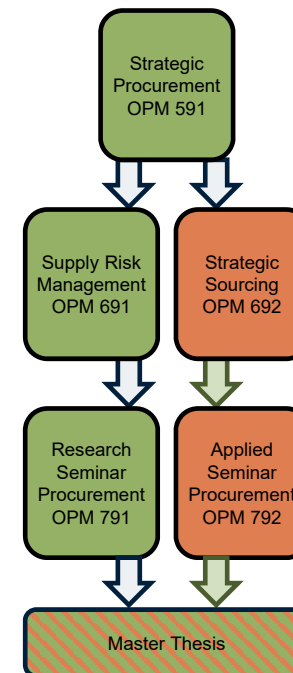
Procurement is about the provision of external resources at the right time, quality, quantity, and cost. This involves:

- **Strategic issues:** make-or-buy decisions, operating model designs, strategic supply base planning etc.
- **Tactical issues:** category optimization using demand, commercial, and technical levers, etc.
- **Operational issues:** executing the purchase-to-pay process, working capital management, etc.

Current focal topics at the chair

- Risk, disruptions, and resilience
- Interfirm relationships
- Transparency and visibility
- Sustainability/CSR in supply chains
- Software procurement
- Digitalization and procurement of the future

Course portfolio



Our teaching focus:

- Management theory and empirical insights
- Relevant concepts and tools
- Case studies and industry applications

Highlights this Fall:

- Porsche Case Challenge in OPM 591
- High-caliber guest speakers

More information: <http://procurement.bwl.uni-mannheim.de>

Operations Management (Assistent Prof.)

Start CC 501:

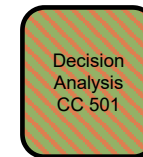
Friday, 02.10., 12:00, ZOOM-BWL-06

Operations Management is about designing and managing the processes of producing and delivering goods and services.

Key processes include:

- **Scheduling** of production activities on e.g. a single machine
- **Forecasting** demands to set production quantities
- **Distribution** of the right goods and services at the right place, right time and right quality

Course portfolio:



- Decision making under certainty and multiple objectives
- Decision making under uncertainty
- Decision making under imperfect information
- Cognitive biases

More information: Ilias group (https://ilias.uni-mannheim.de/ilias.php?ref_id=1019154&cmdClass=ilrepositorygui&cmdNode=vi&baseClass=ilrepositorygui)

Graduating in Operations Management

Planning your study program

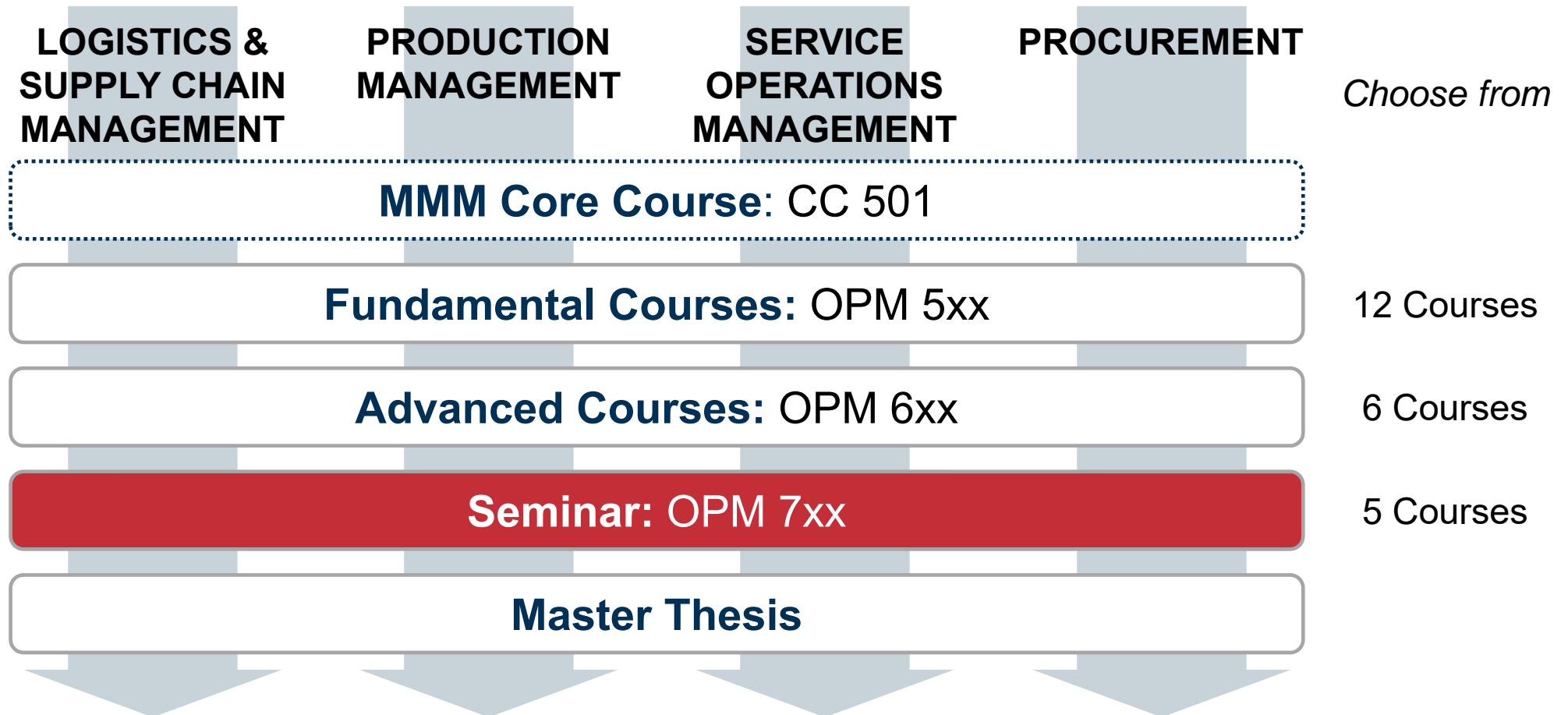
Many opportunities to **customize**:

- Wide range of course offerings, covering the full domain of operations management
- Flexibility to combine courses across chairs
- Flexibility to complement portfolio with courses from other areas
- Flexibility to fit in semester abroad or internship

⇒ **Design your own study program!**

⇒ **Important element: Seminars OPM 7xx**

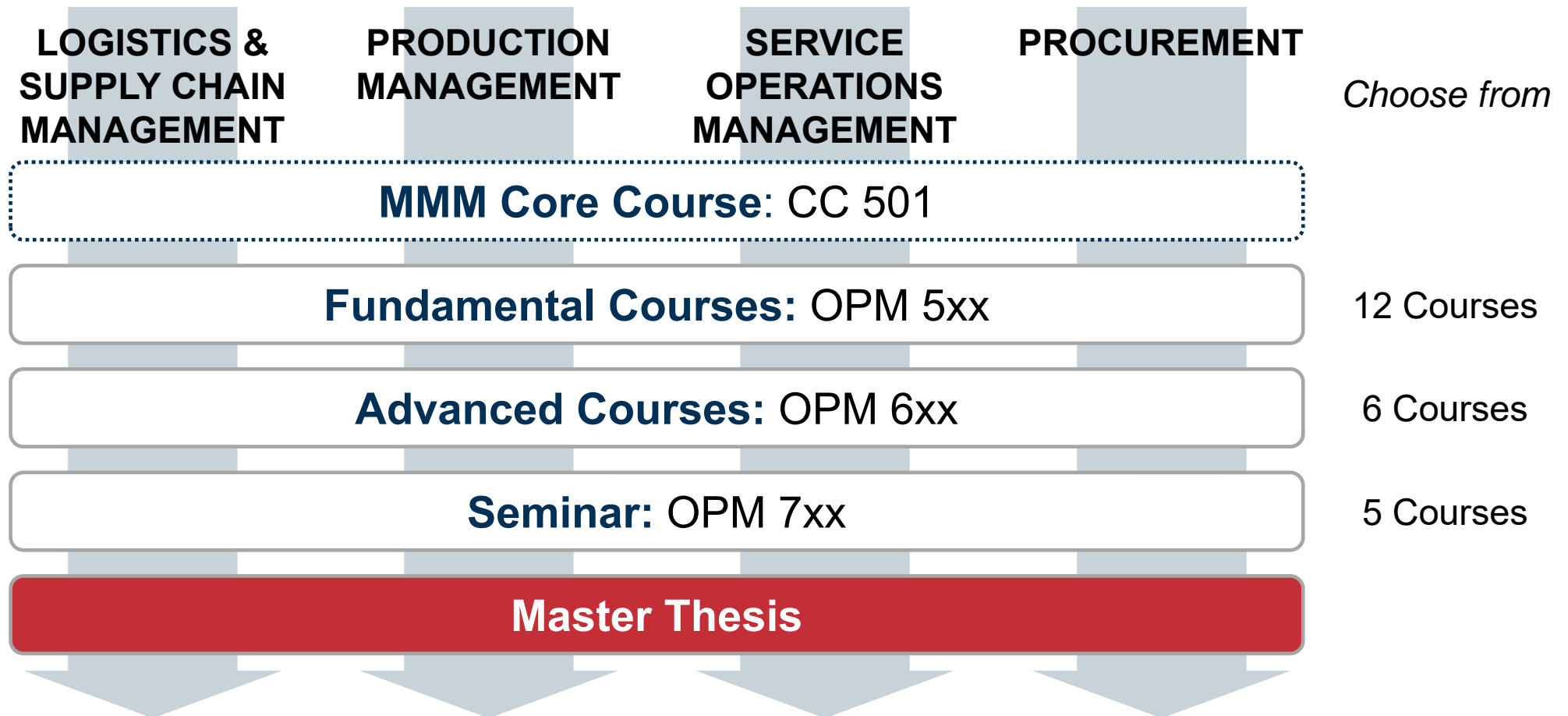
Program structure



Seminars (OPM 7xx)

- Goal: Preparation for Master Thesis
- Insight into scientific literature
- Selection of current topics in operations management
- Two types:
 - **Research Seminar:** Literature based and/or quantitative analysis
 - **Applied Seminar** (OPM 792): In collaboration with companies
- **Admission:**
 - Application at end of each term (details see home pages)
- **Requirements:**
 - At least one module OPM 6xx

Program structure



Master thesis

- Participants write their master thesis at one of the chairs of area, depending on the attended **core courses**.
- **Requirements:**
 - At least one course OPM 7xx and one course OPM 6xx
- **Starting date:** Any
- Application by e-mail (see chairs' homepages)
- **Topics:**
 - Different topics offered by each chair (see homepages)
 - Practice-oriented topics welcome (in cooperation with a company)
 - Own suggestions possible (to be coordinated)
- Variety of research-oriented topics and in-company topics (see homepages of the chairs)

More information

- More information on specific courses: Chair home pages + student portal

- Course companion sites on e-learning platform ILIAS:
 - Detailed schedules
 - Announcements
 - Class material: Slides, readings, spreadsheets,...
 - ➔ Register for the courses you would like to attend

- Information on career options <https://www.bwl.uni-mannheim.de/en/operations/career/>



See you in Operations!

<http://www.bwl.uni-mannheim.de/operations>

Supplementary Information

Course offering by term

Fall 2020

Spring 2021

| Core Courses | | | |
|--|--|-----|---|
| 501 | Decision Analysis | 501 | Decision Analysis |
| Chair of Logistics and Supply Chain Management | | | |
| 501 | Logistics Management | 503 | Transportation I |
| 502 | Inventory Management | 601 | Supply Chain Management |
| 504 | Transportation II | 701 | Research Seminar |
| 544 | Advanced Supply Chain Planning | | |
| 701 | Research Seminar | | |
| Chair of Production Management | | | |
| 561 | Production Management: Lean Approaches and Variability | 562 | Business Analytics: Applications of Artificial Intelligence for Data-Driven Decision Making |
| 761 | Research Seminar | 565 | Integrierte Produktentwicklung |
| | | 662 | Business Analytics: Modeling and Optimization |
| | | 761 | Research Seminar |
| Chair of Service Operations Management | | | |
| 582 | Case Studies in Service Operations Management | 581 | Service Operations Management |
| 781 | Research Seminar | 781 | Research Seminar |
| Endowed Chair of Procurement | | | |
| 591 | Strategic Procurement | 692 | Strategic Sourcing |
| 691 | Supply Risk Management | 792 | Applied Seminar Procurement |
| 791 | Research Seminar Procurement | | |
| Joint Courses | | | |
| | | 510 | Sustainable Operations Management |

Example study plans for an Operations Management Profile

- **General Operations Management (OPM) Profile**
=> Thesis at any OPM chair
- **OPM Profile, Supply Chain Management Focus**
=> Thesis in Supply Chain Management (Prof. Fleischmann)
- **OPM Profile, Production Management Focus**
=> Thesis in Production Management (Prof. Stolletz)
- **OPM Profile, Service Operations Focus**
=> Thesis in Service Operations (Prof. Schön)
- **OPM Profile, Procurement Focus**
=> Thesis in Procurement (Prof. Bode)

Example study plan: General Operations Management Profile

1st Semester - Fall

| Course Title | ECTS |
|--|------|
| OPM 502 - Inventory Management | 6 |
| OPM 561 - Production Management: Lean Approaches and Variability | 6 |
| OPM 591 - Strategic Procurement | 6 |
| CC 501 - Decision Analysis | 6 |
| CC 502 - Applied Econometrics | 6 |

= 30 ECTS

2nd Semester - Spring

| Course Title | ECTS |
|---|------|
| OPM 581 - Service Operations Management | 6 |
| OPM 601 – Supply Chain Management | 6 |
| OPM 662 - Business Analytics: Modeling and Optimization | 6 |
| OPM 682 - Revenue Management | 6 |
| OPM 692 – Strategic Sourcing | 6 |

= 30 ECTS

3rd Semester - Fall

| Course Title | ECTS |
|--|------|
| OPM 701/761/781/791 – Research Seminar | 6 |
| CC 504 - Corporate Social Responsibility | 4 |
| BE 510 - Business Economics I | 6 |
| | |
| Additional Modules (OPM or other) | 16 |

= 30 ECTS

4th Semester - Spring

| Course Title | ECTS |
|--------------------------------|------|
| BE 511 – Business Economics II | 6 |
| | |
| Thesis at an OPM chair | 24 |

= 30 ECTS

$\Sigma = 120$ ECTS

Example study plan*: SCM Focus

1st Semester - Fall

| Course Title | ECTS |
|---|----------|
| OPM 501 - Logistics Management | 6 |
| OPM 502 - Inventory Management | 6 |
| OPM 561 - Production Management or OPM 591 Strategic Procurement | 6 |
| CC 501 - Decision Analysis | 6 |
| BE 510 - Business Economics I | 6 |

= 30 ECTS

2nd Semester - Spring

| Course Title | ECTS |
|--|----------|
| OPM 601 – Supply Chain Management | 6 |
| OPM 503 – Transportation II | 4 |
| OPM 581 - Service Operations Management | 6 |
| BE 511 – Business Economics II | 6 |
| Additional Modules (OPM or other) | 8 |

= 30 ECTS

3rd Semester - Fall

| Course Title | ECTS |
|---|----------|
| OPM 701 - Research Seminar SCM | 6 |
| OPM 504 – Transportation I | 4 |
| OPM 544 – Advanced Supply Chain Planning | 4 |
| OPM 561 - Production Management or OPM 591 Strategic Procurement | 6 |
| CC 504 - Corporate Social Responsibility | 4 |
| Additional Module (OPM or other) | 6 |

= 30 ECTS

4th Semester - Spring

| Course Title | ECTS |
|--|-----------|
| CC 502 - Applied Econometrics | 6 |
| Thesis in SCM (Prof. Fleischmann) | 24 |

= 30 ECTS

Σ = 120 ECTS

* can be modified to accommodate an exchange term or an internship in either Fall or Spring

Example study plan: Analytics & Production Management Focus

1st Semester - Fall

| Course Title | ECTS |
|---|------|
| OPM 561 - Production Management: Lean Approaches and Variability | 6 |
| OPM 661 - Business Analytics: Robust Planning in Stochastic Systems | 6 |
| OPM 502 - Inventory Management | 6 |
| OPM 591 - Strategic Procurement | 6 |
| <i>Additional analytics-oriented courses</i> | 6 |

30 ECTS

2nd Semester - Spring

| Course Title | ECTS |
|--|------|
| OPM 562 - Business Analytics: Applications of AI for Data-Driven Decision Making | 6 |
| OPM 662 - Business Analytics: Modeling and Optimization | 6 |
| OPM 581 - Service Operations Management | 6 |
| CC 501 - Decision Analysis | 6 |
| <i>Additional analytics-oriented courses</i> | 12 |

30 ECTS

Analytics-oriented courses

| Course Title | ECTS |
|---|-------|
| Area Operations: | |
| • OPM 501 - Logistics Management | 6 |
| • OPM 582 - Case Studies in SO Management | 6 |
| • OPM 601 - Supply Chain Management | 6 |
| • OPM 682 - Revenue Management | 6 |
| • OPM 691 - Supply Risk Management | 4 |
| • OPM 692 - Advanced Procurement | 6 |
| • ... | |
| Other Areas: | |
| • IS 554 – Computational Thinking | 8 |
| • ... | |
| Electives (other School): | |
| • Computer Science | 14-24 |
| • Mathematics | 18-20 |

3rd Semester - Fall

| Course Title | ECTS |
|---|------|
| OPM 761 - Research Seminar Production Management (Prof. Dr. Raik Stollertz) | 6 |
| CC 502 - Applied Econometrics or CC 503 - Empirical Methods | 6 |
| CC 504 - Corporate Social Responsibility | 4 |
| BE 510 - Business Economics I | 6 |
| <i>Additional analytics-oriented courses</i> | 8 |

30 ECTS

4th Semester - Spring

| Course Title | ECTS |
|--------------------------------|------|
| BE 511 - Business Economics II | 6 |
| Thesis | 24 |

30 ECTS

Σ = 120 ECTS

Example study plan: Analytics & Production Management Focus (with exchange semester)

1st Semester - Fall

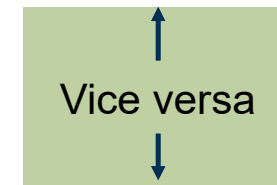
| Course Title | ECTS |
|--|------|
| OPM 561 - Production Management: Lean Approaches and Variability | 6 |
| OPM 661 - Business Analytics: Robust Planning in Stochastic Systems | 6 |
| OPM 502 - Inventory Management | 6 |
| OPM 591 - Strategic Procurement | 6 |
| BE 510 - Business Economics I | 6 |
| 30 ECTS | |

2nd Semester - Spring

| Course Title | ECTS |
|--|------|
| OPM 662 - Business Analytics: Modeling and Optimization | 6 |
| OPM 581 - Service Operations Management | 6 |
| BE 511 - Business Economics II | 6 |
| CC 501 - Decision Analysis | 6 |
| CC 503 - Empirical Methods | 6 |
| 30 ECTS | |

3rd Semester - Fall (Exchange Semester)

| Course Title | ECTS |
|---|------|
| Courses about Operations Management, Analytics, Management Science, Operations Research | 26 |
| Corporate Social Responsibility (replacing CC504) | 4 |
| 30 ECTS | |



4th Semester - Spring

| Course Title | ECTS |
|---|------|
| OPM 761 - Research Seminar Production Management (Prof. Dr. Raik Stolletz) | 6 |
| Thesis | 24 |
| 30 ECTS | |

Σ = 120 ECTS

Example study plan: Service Operations Focus

1st Semester - Fall

| Course Title | ECTS |
|--|----------|
| CC 501 - Decision Analysis | 6 |
| OPM 501 - Logistics Management | 6 |
| OPM 561 - Production Management: Lean Approaches and Variability | 6 |
| OPM 582 - Case Studies in Service Operations Management | 6 |
| <i>Additional modules</i> | 6 |
| = 30 ECTS | |

2nd Semester - Spring

| Course Title | ECTS |
|--|----------|
| CC 504 – Corporate Social Responsibility | 4 |
| OPM 581 - Service Operations Management | 6 |
| OPM 682 – Revenue Management | 6 |
| <i>Additional modules</i> | 14 |
| = 30 ECTS | |

3rd Semester - Fall

| Course Title | ECTS |
|---|----------|
| CC 502 - Applied Econometrics or CC 503 - Empirical Methods | 6 |
| BE 510 – Business Economics I | 6 |
| OPM 661 - Business Analytics: Robust Planning in Stochastic Systems | 6 |
| OPM 781 - Research Seminar Service Operations Management | 6 |
| <i>Additional modules</i> | 6 |
| = 30 ECTS | |

4th Semester - Spring

| Course Title | ECTS |
|--|-----------|
| BE 511 – Business Economics II | 6 |
| Thesis in Service Operations Management (Prof. Schön) | 24 |
| = 30 ECTS | |

Σ = 120 ECTS

Example study plan: Service Operations Focus (2)

| <i>Additional modules</i> |
|---|
| Course Title |
| Area Operations: <ul style="list-style-type: none"> • OPM 501 – Logistics Management (6 ECTS) • OPM 601 – Supply Chain Management (6 ECTS) • OPM 591 – Strategic Procurement (6 ECTS) • OPM 662 – Business Analytics (6 ECTS) • OPM 691 – Supply Risk Management (6 ECTS) • OPM 692 – Strategic Sourcing (6 ECTS) • ... |
| Other Areas: <ul style="list-style-type: none"> • MKT 510 – Price and Product Management (6 ECTS) • MKT 560 – Services Marketing (4 ECTS) • IS 510 – Prozessmanagement (6 ECTS) • IS 554 – Computational Thinking (8 ECTS) • IS 615 – Design Thinking and Lean Development in Enterprise Software Development (6 ECTS) • IS 602 – Business Intelligence and Business Analytics Systems • MAN 646 – HR Analytics (6 ECTS) • ... |

Example study plan*: Procurement Focus

1st Semester - Fall

| Course Title | ECTS |
|--|----------|
| CC 501 – Decision Analysis | 6 |
| OPM 501 – Logistics Management | 6 |
| OPM 502 – Inventory Management | 6 |
| OPM 591 – Strategic Procurement | 6 |
| <i>Additional modules</i> | 6 |

= 30 ECTS

2nd Semester - Spring

| Course Title | ECTS |
|---|------------|
| CC 504 – Corporate Social Responsibility | 4 |
| OPM 601 – Supply Chain Management | 6 |
| OPM 692 – Strategic Procurement | 6 |
| OPM 792 – Applied Seminar Procurement [Option 1] | [6] |
| <i>Additional modules</i> | 8 – 14 |

= 30 ECTS

3rd Semester - Fall

| Course Title | ECTS |
|--|------------|
| CC 502 or CC 503 | 6 |
| BE 510 – Business Economics I | 6 |
| OPM 691 – Supply Risk Management | 4 |
| OPM 791 – Research Seminar Procurement [Option 2] | [6] |
| <i>Additional modules</i> | 8 – 14 |

= 30 ECTS

4th Semester - Spring

| Course Title | ECTS |
|---|-----------|
| BE 511 – Business Economics II | 6 |
| Thesis in Procurement (Prof. Bode) | 24 |

= 30 ECTS

Σ = 120 ECTS

* can be modified to accommodate an exchange term or an internship in either Fall or Spring