MODULE HANDBOOK

Master of Arts

Master Digital Innovation and Intrapreneurship (FS-OI-MAIEE-60)

60 ECTS

Distance Learning

INTERNATIONAL
UNIVERSITY OF
APPLIED SCIENCES

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2022-11-16

1. Semester

Innovation and Entrepreneurial Ecosystems

Module Code: DLMIEEIEE

Module Type	Admission Requirements	Study Level	CP	Student Workload
see curriculum	none	MA	5	150 h

Semester / Term	Duration	Regularly offered in	Language of Instruction and Examination
1. Semester	Minimum 1 semester	WiSe/SoSe	English

Module Coordinator

Prof. Dr. Markus Prandini (Innovation and Entrepreneurial Ecosystems)

Contributing Courses to Module

- Innovation and Entrepreneurial Ecosystems (DLMIEEIEE01)

Module Exam Type

Module Exam	Split Exam
Study Format: Distance Learning Exam, 90 Minutes	

Weight of Module

see curriculum

Module Contents

- Fundamentals of Innovation and Entrepreneurship
- Significance of Innovation for Growth and Prosperity
- Significance of Entrepreneurship for Growth and Prosperity
- Fundamentals of Innovation and Entrepreneurship Ecosystems
- Sectoral Innovation and Entrepreneurship Ecosystems
- Geographical Innovation and Entrepreneurship Ecosystems

Learning Outcomes

Innovation and Entrepreneurial Ecosystems

On successful completion, students will be able to

- define and explain the main characteristics, functions and drivers of innovation and entrepreneurship.
- determine the significance and role of innovation and entrepreneurship for the growth and prosperity of a society and of businesses.
- explain the goals, characteristics and actors of innovation and entrepreneurship ecosystems as a driver to generate new ideas and bring these to commercial reality.
- illustrate the functions and potentials of innovation and entrepreneurship ecosystems in the industry and service sector as well as in the digital economy.
- analyze the historical background and the characteristics of main geographical innovation and entrepreneurship ecosystems.

Links to other Modules within the Study Program	**Links to other Study Programs of the University**
This module is similar to other modules in the field of Business Administration & Management	All Master Programs in the Business & Management field

Innovation and Entrepreneurial Ecosystems

Course Code: DLMIEEIEE01

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		5	none

Course Description

Innovation and entrepreneurship are main drivers for economic growth and prosperity. Both are closely interrelated to one another. It is the entrepreneurial mindset that builds the foundation for the continued creation of all forms and dimensions of innovation. Innovation and entrepreneurship ecosystems have proven to be a powerful catalyst for both innovation and entrepreneurship. An ecosystem is like a complex multi-actor network where the dynamic interaction of human capital, financial resources, physical and non-physical infrastructure and regulatory policies play a vital role to generate new ideas and bring these to commercial reality. This course provides the students with an in-depth view on the significance and role of innovation and entrepreneurship for the growth and prosperity of a society. The course highlights the general characteristics and functionalities of innovation and entrepreneurship ecosystems and illustrates the concept of ecosystems on a sectoral and geographical level. Upon completion of this course the students will be able to make use of ecosystems for their own entrepreneurial ventures or the innovation activities of the organizations where they are active.

Course Outcomes

On successful completion, students will be able to

- define and explain the main characteristics, functions and drivers of innovation and entrepreneurship.
- determine the significance and role of innovation and entrepreneurship for the growth and prosperity of a society and of businesses.
- explain the goals, characteristics and actors of innovation and entrepreneurship ecosystems as a driver to generate new ideas and bring these to commercial reality.
- illustrate the functions and potentials of innovation and entrepreneurship ecosystems in the industry and service sector as well as in the digital economy.
- analyze the historical background and the characteristics of main geographical innovation and entrepreneurship ecosystems.

Contents

1. Fundamentals of Innovation and Entrepreneurship
   - 1.1 Definition, Functions and Characteristics of Innovation
   - 1.2 Definition, Functions and Characteristics of Entrepreneurship
   - 1.3 Economic, Technological and Social Drivers of Innovation and Entrepreneurship

2. Significance of Innovation for Growth and Prosperity
   - 2.1 Macro Perspective: Significance and Role of Innovation for Society
   - 2.2 Micro Perspective: Significance and Role of Innovation for Businesses
   - 2.3 Assessment and Measurement of Innovation

3. Significance of Entrepreneurship for Growth and Prosperity
   - 3.1 Macro Perspective: Significance and Role of Entrepreneurship for Society
   - 3.2 Micro Perspective: Significance and Role of Entrepreneurship for Businesses
   - 3.3 Assessment and Measurement of Entrepreneurship

4. Fundamentals of Innovation and Entrepreneurship Ecosystems
   - 4.1 Goals and Objectives of Innovation and Entrepreneurship Ecosystems
   - 4.2 Characteristics of Innovation and Entrepreneurship Ecosystems
   - 4.3 Actors in Innovation and Entrepreneurship Ecosystems

5. Sectoral Innovation and Entrepreneurship Ecosystems
   - 5.1 Industry Innovation and Entrepreneurship Ecosystems
   - 5.2 Service Innovation and Entrepreneurship Ecosystems
   - 5.3 Digital Innovation and Entrepreneurship Ecosystems

6. Geographical Innovation and Entrepreneurship Ecosystems
   - 6.1 Silicon Valley (USA)
   - 6.2 Greater Bay Area (China)
   - 6.3 Tel Aviv (Israel)

Literature
Compulsory Reading
Further Reading ▪ Drucker, P. (2006). Innovation and Entrepreneurship. Reprint edition, Harper Business, New York. ▪ Engel, J. S. (2016). Global Clusters of Innovation: Entrepreneurial Engines of Economic Growth Around the World. Reprint edition, Edward Elgar Publishing, Cheltenham Glos. ▪ Mazzarol, T. & Reboud, S. (2020). Entrepreneurship and Innovation. Theory, Practice and Context. Springer, Singapore. ▪ Schwarzkopf, C. (2016). Fostering Innovation and Entrepreneurship: Entrepreneurial Ecosystem and Entrepreneurial Fundamentals in the USA and Germany. Springer Fachmedien, Wiesbaden. ▪ World Economic Forum (2019). Accelerating the Emergence and Development of Innovation Ecosystems through Procurement: A Toolkit. WEF, Geneva.

Study Format Distance Learning

Study Format	Course Type
Distance Learning	Online Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
90 h	0 h	30 h	30 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☐ Guideline
☑ Shortcast	☑ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☑ Exam Template	☑ Slides

Entre- and Intrapreneurship

Module Code: DLMIEEEIS

Module Type	Admission Requirements	Study Level	CP	Student Workload
see curriculum	none	MA	5	150 h

Semester / Term	Duration	Regularly offered in	Language of Instruction and Examination
1. Semester	Minimum 1 semester	WiSe/SoSe	English

Module Coordinator

Prof. Dr. Esin Bozyazi (Entre- and Intrapreneurship)

Contributing Courses to Module

- Entre- and Intrapreneurship (DLMIEEEIS01)

Module Exam Type

Module Exam	Split Exam
Study Format: Distance Learning Exam, 90 Minutes	

Weight of Module

see curriculum

Module Contents

- Fundamentals of Entrepreneurship
- Fundamentals of Intrapreneurship
- Entrepreneurs and Intrapreneurs
- Corporate Innovation Management
- Methods of Innovation Management
- Innovation Management in Practice

Learning Outcomes

Entre- and Intrapreneurship

On successful completion, students will be able to

- define the motives, goals and relevance of entrepreneurship as a driver for economic wealth and social prosperity.
- determine the motives, goals and relevance of intrapreneurship as a driver for creating a competitive advantage for an organization.
- analyze the preconditions and determinants that shape an entre- and intrapreneurial mindset.
- explain the types, drivers and success factors of corporate innovation as well as the management practices to foster innovation.
- apply main management methods to create, discover and realize business opportunities.
- derive best-practice learnings from the innovation management of existing companies for own business ventures and innovation activities.

Links to other Modules within the Study Program	**Links to other Study Programs of the University**
This module is similar to other modules in the field of Business Administration & Management	All Master Programs in the Business & Management field

Entre- and Intrapreneurship

Course Code: DLMIEEEIS01

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		5	none

Course Description

Entre- and intrapreneurship are the engine for economic wealth and social progress and a core element of the innovation capacity of a company. Whereas entrepreneurship refers to entrepreneurs who design and build up an own business, intrapreneurship is related to individuals who work on developing new ideas and products within the confines of the business that they already work at. Intrapreneurs include any person within the company that applies entrepreneurial skills, vision, and forward thinking into the role that they have in the company. Both entrepreneurs and intrapreneurs have a drive to foster innovation whenever possible, which is why they share many traits between them, such as persistence, determination, goal orientation, opportunity seeking and hard working. A main difference lies in the risk involved in being an entrepreneur or intrapreneur. Entrepreneurs are required to take on all of the risk that comes along with developing a business, which means that the losses can be significant if failure occurs. However, the rewards can also be practically incalculable. As for intrapreneurs, the risks are minimal, which is also true of the rewards. This course introduces the students to these commonalities and differences of entre- and intrapreneurship. The course is designed to support the students in finding and determining their own motives and goals of becoming an entre- or intrapreneur. The main characteristics of entre- and intrapreneurship are discussed and related to the methods and practices of innovation management. An insight into the innovation management of well-known companies fosters the transfer of the theoretical concepts of entre- and intrapreneurship to a practical context.

Course Outcomes

On successful completion, students will be able to

- define the motives, goals and relevance of entrepreneurship as a driver for economic wealth and social prosperity.
- determine the motives, goals and relevance of intrapreneurship as a driver for creating a competitive advantage for an organization.
- analyze the preconditions and determinants that shape an entre- and intrapreneurial mindset.
- explain the types, drivers and success factors of corporate innovation as well as the management practices to foster innovation.
- apply main management methods to create, discover and realize business opportunities.
- derive best-practice learnings from the innovation management of existing companies for own business ventures and innovation activities.

Contents

1. Fundamentals of Entrepreneurship
   - 1.1 Definition of Entrepreneurship
   - 1.2 The Importance of Entrepreneurship
   - 1.3 The Relationship Between Entrepreneurship and Innovation

2. Fundamentals of Intrapreneurship
   - 2.1 Definition of Intrapreneurship
   - 2.2 The Importance of Intrapreneurship
   - 2.3 The Relationship Between Intrapreneurship and Innovation

3. Entrepreneurs and Intrapreneurs
   - 3.1 Characteristics of Entrepreneurs
   - 3.2 Characteristics of Intrapreneurs
   - 3.3 Types of Entrepreneurs and Intrapreneurs

4. Corporate Innovation Management
   - 4.1 Types of Corporate Innovations
   - 4.2 Drivers and Success Factors of Corporate Innovations
   - 4.3 Management of Corporate Innovation

5. Methods of Innovation Management
   - 5.1 Methods of Innovation Management
   - 5.2 Design Thinking
   - 5.3 Design Thinking Process

6. Innovation Management in Practice
   - 6.1 Google: Building an Infrastructure for Innovation
   - 6.2 SAP: A Customer-Centric Approach to Innovation
   - 6.3 Spinnova: Sustainable Innovation

Literature
Compulsory Reading
Further Reading ▪ Barringer, B.R. & Ireland, R.D. (2015). Entrepreneurship: Successfully Launching New Ventures. 5th Edition, Pearson, New York. ▪ Bessant, J. & Tidd, J. (2015). Innovation and Entrepreneurship. 3rd Edition, John Wiley & Sons, Chichester. ▪ Grant, A. (2016). Originals: How Non-Conformists Move the World. Viking, New York. ▪ Kaplan, J.M. & McGourty, J. (2020). Patterns of Entrepreneurship Management. 6th Edition, John Wiley & Sons, Chichester. ▪ Kuratko, D.F., Hornsby, J.S. & Goldsby, M.G. (2011). Innovation Acceleration: Transforming Organizational Thinking, Prentice Hall, Upper Saddle River.

Study Format Distance Learning

Study Format	Course Type
Distance Learning	Online Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
90 h	0 h	30 h	30 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☐ Guideline
☑ Shortcast	☑ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☑ Exam Template	☑ Slides

Digital Business Models

Module Code: DLMIDBM_E

Module Type	Admission Requirements	Study Level	CP	Student Workload
see curriculum	none	MA	5	150 h

Semester / Term	Duration	Regularly offered in	Language of Instruction and Examination
1. Semester	Minimum 1 semester	WiSe/SoSe	English

Module Coordinator

Prof. Dr. Mario Boßlau (Digital Business Models)

Contributing Courses to Module

- Digital Business Models (DLMIDBM01_E)

Module Exam Type

Module Exam	Split Exam
Study Format: myStudies Exam or Written Assessment: Case Study, 90 Minutes Study Format: Distance Learning Exam or Written Assessment: Case Study, 90 Minutes	

Weight of Module

see curriculum

Module Contents

- History and success factors of digital business
- Trends in Digital Business
- Knowledge and evaluation of alternative business models in digital business
- Procedure for the development of strategic corporate positioning in digital business
- Knowledge of alternative financing models
- Goals and procedures for the creation of the business plan for digital business models

Learning Outcomes

Digital Business Models

On successful completion, students will be able to

- know the history and framework of digital business models.
- understand the basic principles of innovation management.
- know and understand different business models of the digital economy and be able to evaluate their advantages and disadvantages.
- understand the basics of strategic and operational business model planning in e-commerce.
- independently create a business plan for a digital business model.

Links to other Modules within the Study Program	**Links to other Study Programs of the University**
This module is similar to other modules in the fields of Business Administration & Management	All Master Programs in the Business & Management fields

Digital Business Models

Course Code: DLMIDBM01_E

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		5	none

Course Description

This course deals with IT-driven start-ups and business models. Based on the discussion of the historical development and framework conditions of digital business, alternative business models in digital business are systematically presented, analyzed and evaluated with regard to their respective strengths and weaknesses. Students study the central approaches to developing an independent corporate positioning and are enabled to autonomously examine and evaluate the central factors influencing corporate success in digital business. Further, alternative financing concepts for digital business models are presented and critically evaluated and the central components of a business plan are detailed. In addition, the entire process of creating and defining a business plan is presented in detail and tested using practical examples.

Course Outcomes

On successful completion, students will be able to

- know the history and framework of digital business models.
- understand the basic principles of innovation management.
- know and understand different business models of the digital economy and be able to evaluate their advantages and disadvantages.
- understand the basics of strategic and operational business model planning in e-commerce.
- independently create a business plan for a digital business model.

Contents

1. Innovation Management and Business Model Definitions
   - 1.1 Basic Concepts of Innovation Management Regarding Digital Business Models
   - 1.2 Business Models: Genesis - Definition - Relation to Innovation
   - 1.3 Specifics of Digital Business Models and Comparison to Traditional Approaches
2. Digital Business Models: Definition and Elements
   - 2.1 New Elements of Digital Business Models
   - 2.2 Redefinition and Core Elements of Digital Business Models
   - 2.3 Value Architecture and Value Mechanics

3. Basic Architectures, Standard Patterns and Network Integration
   3.1 Basic Digital Business Model Architectures
   3.2 Standard Patterns in Business Model Elements
   3.3 Networks and Differentiation Strategies

4. Success Factors and Strategy
   4.1 Relationships Between Business Model, Success Factors and Strategy
   4.2 Relevant Success Factors of Digital Business Models
   4.3 Strategy Levels and Strategy Examples in the Context of Digital Business Models and Their Elements

5. The Business Case and Special Features of Investment Planning
   5.1 Elements of the Business Case and Connection to Previous Concepts
   5.2 Revenue Mechanics, Revenue Planning and Performance Indicators
   5.3 Special Features of Investment Planning

Literature

Compulsory Reading

Further Reading

- Ahmed, P. K./Shepherd, C. D. (2010): Innovation Management. Context, strategies, systems and processes. Prentice Hall, Upper Saddle River, NJ.
- Bessant, J. R. / Tidd, J. (2018) : Innovation and entrepreneurship. 3rd edition, JOHN WILEY & Sons, Chichester.
- Brynjolfsson, E./Hu, J. Y./Smith, M. D. (2006): From Niches to Riches. Anatomy of the Long Tail. In: Sloan Management Review, 47. Jg., Heft 4, S. 67–71.
- Brynjolfsson, E./Smith M. D. (2000): Frictionless Commerce? A Comparison of Internet and Conventional Retailers. In: Management Science, 46. Jg., Heft 4, S. 563–585.
- Brynjolfsson, E./Hu, J. Y./Rahman, M. (2009): Battle of the Retail Channels. How Product Selection and Geography Drive Cross-Channel Competition. In: Management Science, 55. Jg., Heft 11, S. 1755–1765.
- Chaffey, D./Ellis-Chadwick, F. (2012): Digital Marketing. Strategy, Implementation and Practice. 5th edition, Pearson Education, London.
- Hanson, W./Kalyanam, K. (2007): Internet Marketing and e-Commerce. 2nd edition, Cengage, Boston, MA.
- Laudon, K./Traver, C. G. (2011): E-Commerce. 7th edition, Prentice Hall, Upper Saddle River, NJ.
- Lynch, J./Ariely, D. (2000): Wine Online. Search Costs and Competition on Price, Quality, and Distribution. In: Marketing Science, 19. Jg., Heft 1, S. 83–103.
- Osterwalder, A. / Pigneur, Y. / Clark, T. (2010): Business model generation: A handbook for visionaries, game changers, and challengers. Wiley, Hoboken, NJ.
- Rogers, D. L. (2016): The digital transformation playbook: Rethink your business for the digital age. Columbia Business School Publishing, New York.
- Varian, H. (2000): When Commerce Moves Online. Competition Can Work in Strange Ways. In: New York Times, 24 August 2000.
- Wirtz, B. W. (2019): Digital Business Models: Concepts, Models, and the Alphabet Case Study. Progress in IS. Springer International Publishing, Cham.
- Woerner, S. / Weill, P. (2018): What's Your Digital Business Model?: Six Questions to Help You Build the Next-Generation Enterprise: Harvard Business Review.

Study Format myStudies

Study Format	Course Type
myStudies	Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam or Written Assessment: Case Study, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
100 h	0 h	25 h	25 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☑ Guideline
☑ Shortcast	☑ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☑ Exam Template	☑ Slides

Study Format Distance Learning

Study Format	Course Type
Distance Learning	Online Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam or Written Assessment: Case Study, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
100 h	0 h	25 h	25 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☑ Guideline
☑ Shortcast	☑ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☑ Exam Template	☑ Slides

Disruptive Innovation

Module Code: DLMIEEEDT1

Module Type	Admission Requirements	Study Level	CP	Student Workload
see curriculum	none	MA	5	150 h

Semester / Term	Duration	Regularly offered in	Language of Instruction and Examination
1. Semester	Minimum 1 semester	WiSe/SoSe	English

Module Coordinator

Prof. Dr. Lena Bernhofer (Disruptive Innovation)

Contributing Courses to Module

- Disruptive Innovation (DLMIEEEDT01)

Module Exam Type

Module Exam	Split Exam
Study Format: Distance Learning Exam, 90 Minutes	

Weight of Module

see curriculum

Module Contents

- Major Areas of Innovation
- Introduction to Disruptive Innovation
- The Process of Disruption
- Significance of Disruptive Innovation
- Management of Disruptive Innovation
- Examples of Disruptive Innovation

Learning Outcomes

Disruptive Innovation

On successful completion, students will be able to

- explain the definitions and basic theory dealing with disruptive innovation.
- distinguish disruptive innovation from other forms of innovation.
- assess major areas in which disruptive innovation may occur.
- understand the essential elements of the process of disruption.
- determine and evaluate the significance of disruptive innovation.
- comprehend and evaluate examples of disruptive innovation.

Links to other Modules within the Study Program	**Links to other Study Programs of the University**
This module is similar to other modules in the field of Business Administration & Management	All Master Programs in the Business & Management field

Disruptive Innovation

Course Code: DLMIEEEDT01

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		5	none

Course Description

The term “Disruptive Innovation” was defined by the American scholar Clayton M. Christensen. A disruptive innovation is an innovative product, service, or business model that eventually overturns the existing dominant businesses in the market. It is therefore also about the failure of incumbent companies to stay on top of their industries when they encounter disruptive types of market and technological changes. Disruptive innovations tend to be produced by small teams, outsiders, or entrepreneurs in start-ups, rather than existing market-leading companies. This module focusses on the process of disruption and the significance of disruptive innovation. It highlights approaches for its management and concludes with examples of disruptive innovations from recent years.

Course Outcomes

On successful completion, students will be able to

- explain the definitions and basic theory dealing with disruptive innovation.
- distinguish disruptive innovation from other forms of innovation.
- assess major areas in which disruptive innovation may occur.
- understand the essential elements of the process of disruption.
- determine and evaluate the significance of disruptive innovation.
- comprehend and evaluate examples of disruptive innovation.

Contents

1. Major Areas of Innovation
   - 1.1 Invention Versus Innovation
   - 1.2 Product and Service Innovation
   - 1.3 Business Model Innovation
   - 1.4 Process and Technology Innovation
   - 1.5 Social and Environmental Innovation

2. Introduction to Disruptive Innovation
   - 2.1 Theory of Disruptive Innovation
   - 2.2 Definition and Classification of Disruptive Innovation
   - 2.3 Types of Disruptive Innovation
   - 2.4 Characteristics of Disruptive Innovation

3. The Process of Disruption
   - 3.1 Modelling Theory of Disruptive Innovation
   - 3.2 Performance Oversupply
   - 3.3 Asymmetry of Motivation
   - 3.4 New-market, and low-end Disruption Process
   - 3.5 Performance Trajectories

4. Significance of Disruptive Innovation
   - 4.1 Characteristics of Disruptor Companies
   - 4.2 Implication for Incumbent Companies
   - 4.3 Possible Responses to Disruptive Innovations

5. Management of Disruptive Innovation
   - 5.1 Triggers of Disruptive Innovation
   - 5.2 “Designing” Disruptive Innovation
   - 5.3 Implementing Disruptive Innovation

6. Examples of Disruptive Innovation
   - 6.1 Retail versus Amazon
   - 6.2 Physical Media versus Music/Video Streaming Services (e.g., Netflix)
   - 6.3 Hotels versus Airbnb / Taxis versus Uber
   - 6.4 In-Classroom Teaching versus Distance Learning
   - 6.5 3D Printing

Literature
Compulsory Reading
Further Reading ▪ Christensen, C. M. (1997): The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail. Boston, MA: Harvard Business School Press. ▪ Gutsche, J., & Gladwell, M. (2020). Create the future: Tactics for disruptive thinking ; The innovation handbook. Fast Company Press. ▪ Silberzahn, P. (DL 2018). A manager's guide to disruptive innovation: Why great companies fail in the face of disruption and how to make sure your company doesn't ((B. Alger, Trans.)). Diateino. ▪ Tidd, J. (2020). Digital disruptive innovation. Series on technology management. World Scientific. ▪ Le Merle, M. C., & Davis, A (2017). Corporate innovation in the fifth era: Lessons from Alphabet/Google, Amazon, Apple, Facebook, and Microsoft.

Study Format Distance Learning

Study Format	Course Type
Distance Learning	Online Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
90 h	0 h	30 h	30 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☐ Guideline
☑ Shortcast	☐ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☑ Exam Template	☑ Slides

Hybrid Project Management in Digital Transformation

Module Code: DLMADTHPDT_E

Module Type	Admission Requirements	Study Level	CP	Student Workload
see curriculum	none	MA	5	150 h

Semester / Term	Duration	Regularly offered in	Language of Instruction and Examination
1. Semester	Minimum 1 semester	WiSe/SoSe	English

Module Coordinator

Prof. Dr. Claudia Heß (Hybrid Project Management in Digital Transformation)

Contributing Courses to Module

- Hybrid Project Management in Digital Transformation (DLMADTHPDT01_E)

Module Exam Type

Module Exam	Split Exam
Study Format: Distance Learning Exam, 90 Minutes	

Weight of Module

see curriculum

Module Contents

- Project Management and Digitalization
- Norms, Standards and Project Management Certifications
- Traditional Project Management
- Agile Project Management
- Hybrid Project Management
- Lateral Leadership in Hybrid Project Management
- Application of Hybrid Project Management in Digital Transformation

Learning Outcomes

Hybrid Project Management in Digital Transformation

On successful completion, students will be able to

- answer the question of the relevance of new forms of project management in the context of digital transformation.
- assess the relevance of key norms, standards and certifications for hybrid project management.
- select the right principles and process models from the traditional and agile project management options for digital change projects.
- design organization-specific hybrid process models for project management.
- convey central principles of lateral leadership for hybrid project management.
- apply hybrid project management principles with a particular focus on digital transformation.

Links to other Modules within the Study Program	Links to other Study Programs of the University
This module is similar to other modules in the field of Project Management	All Master Programs in the Business & Management field

Hybrid Project Management in Digital Transformation

Course Code: DLMADTHPDT01_E

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		5	none

Course Description

Digitalization is accompanied by immense change processes in society, business and industry and it is increasingly influencing classic management approaches. Traditional project management can still be found in many industrial companies and is also affected by this digital transformation. Due to the high degree of standardization in traditional project management, there is an increasing need to integrate more flexibility and dynamics through agile approaches. However, especially in corporate practice, many project managers are unsure when to fall back on agile and when on classic project management principles. Especially in the context of digital change projects in classic industrial companies, a combination of agile and traditional tools and principles therefore proves to be advantageous, which can be summarized with the term "hybrid project management". Against this background, this course teaches important basics of traditional, agile and hybrid project management. In addition, important lateral management principles and application fields of hybrid project management will be highlighted.

Course Outcomes

On successful completion, students will be able to

- answer the question of the relevance of new forms of project management in the context of digital transformation.
- assess the relevance of key norms, standards and certifications for hybrid project management.
- select the right principles and process models from the traditional and agile project management options for digital change projects.
- design organization-specific hybrid process models for project management.
- convey central principles of lateral leadership for hybrid project management.
- apply hybrid project management principles with a particular focus on digital transformation.

Contents

1. Project Management and Digitalization
   - 1.1 Impact of the Digital Transformation on Project Management
   - 1.2 Terminology: Project and Project Management
   - 1.3 Project Portfolio, Multi-project and Program Management
   - 1.4 Project Management Philosophies: Classic, Agile and Hybrid
   - 1.5 New Approaches to Project Management in Digital Change Projects

2. Norms, Standards and Certifications in Project Management
   - 2.1 ISO 21500
   - 2.2 International Project Management Association (IPMA)
   - 2.3 Project Management Institute (PMI)
   - 2.4 PRINCE2
   - 2.5 Agile standards

3. Traditional Project Management
   - 3.1 Classification of Traditional Project Management Methodologies
   - 3.2 Phases in Traditional Project Management
   - 3.3 Continuous Tasks in Traditional Project Management

4. Agile Project Management
   - 4.1 Agile Manifesto and Agile Values
   - 4.2 Agile Frameworks: Scrum and Kanban
   - 4.3 Lean Project Management

5. Hybrid Project Management
   - 5.1 Selection Criteria for Project Management Methodologies
   - 5.2 Configuration of Organization-specific Hybrid Project Management Methodologies
   - 5.3 Integrated Application of Agile and Traditional Project Management Principles
   - 5.4 Project Organization in the Hybrid Approach
   - 5.5 Software Tools in Hybrid Projects

6. Lateral Leadership in Hybrid Project Management
   - 6.1 Management without Disciplinary Authority to Issue Directives
   - 6.2 Leadership Concepts and Styles for Hybrid Project Management
   - 6.3 Team Composition and Development
   - 6.4 Interdisciplinarity of Hybrid Projects in Digitalization
   - 6.5 Team Dynamics and Conflict Management

7. Application of Hybrid Project Management in Digital Transformation
   - 7.1 Hybrid Project Management in Interdisciplinary Product Development
   - 7.2 Hybrid Project Management in Strategic Innovation Management
   - 7.3 Hybrid Project Management in Digital Change Projects
   - 7.4 Further Case Studies and Practical Examples

Literature

Compulsory Reading

Further Reading

- Cobb, C. G. (2015): The project manager's guide to mastering agile. Principles and practices for an adaptive approach, John Wiley & Sons.
- Martinelli, R. J./Milosevic, D. Z. (2016): Project Management ToolBox. Tools and Techniques for the Practicing Project Manager. 2. Aufl., Wiley, s.l.
- Measey, P. et al. (2015): Agile Foundations. Principles, practices and frameworks, BCS Learning & Development Limited, Swindon.
- Project Management Institute (2017): Agile Practice Guide, Project Management Institute, Inc. (PMI).
- Wysocki, R. K. (2019): Effective Project Management. Traditional, Agile, Extreme, Hybrid, Wiley, Indianapolis.

Study Format Distance Learning

Study Format	Course Type
Distance Learning	Online Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
90 h	0 h	30 h	30 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☐ Guideline
☑ Shortcast	☐ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☑ Exam Template	☑ Slides

Advanced Research Methods

Module Code: DLMARM

Module Type	Admission Requirements	Study Level	CP	Student Workload
see curriculum	none	MA	5	150 h

Semester / Term	Duration	Regularly offered in	Language of Instruction and Examination
1. Semester	Minimum 1 semester	WiSe/SoSe	English

Module Coordinator

Prof. Dr. Josephine Zhou-Brock (Advanced Research Methods)

Contributing Courses to Module

- Advanced Research Methods (DLMARM01)

Module Exam Type

Module Exam	Split Exam
Study Format: Distance Learning Written Assessment: Written Assignment Study Format: myStudies Written Assessment: Written Assignment	

Weight of Module

see curriculum

Module Contents

- Social Sience and Research Paradigms
- Case Study Research
- Specific Topics of Qualitative Research
- Advanced Issues of Qualitative Research Conceptualization and Data Analysis
- Underlying Assumptions of Quantitative Research: Concepts and Consequences
- Evaluation Research

Learning Outcomes

Advanced Research Methods

On successful completion, students will be able to

- understand and apply scientific methodologies in conducting empirical research.
- plan, design, and prepare research proposals.
- differentiate between different types of case studies, select and apply different data collection strategies.
- plan, conduct, and analyze case studies and surveys.
- scientifically analyze quantitative and qualitative data.
- conduct evaluation research to determine quality of research.

Links to other Modules within the Study Program	**Links to other Study Programs of the University**
This module is similar to other modules in the field of Methods	All Master Programmes in the Business & Management fields

Advanced Research Methods

Course Code: DLMARM01

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		5	none

Course Description

Advanced research methods, specifically business research, is scientific inquiry that attempts to uncover new information which helps a business improve performance, maximizing shareholder value while adhering to ethical and moral compliance standards.Managers seeking to conduct empirical research must maintain validity, reliability, and trustworthiness when utilizing scientific methodologies in order to produce meaningful and actionable results. Research proposals are typically written prior to conducting research, which have a certain structure, enabling the researcher to properly plan, conduct, and analyze case studies and surveys. Different data collection strategies are used to collect both qualitative and quantitative data, depending on the research proposal goals. Managers utilize their understanding of research methodologies to accurately assess the quality of research.

Course Outcomes

On successful completion, students will be able to

- understand and apply scientific methodologies in conducting empirical research.
- plan, design, and prepare research proposals.
- differentiate between different types of case studies, select and apply different data collection strategies.
- plan, conduct, and analyze case studies and surveys.
- scientifically analyze quantitative and qualitative data.
- conduct evaluation research to determine quality of research.

Contents

1. Theoretical Background: Social Science and Research Paradigms
   - 1.1 What is a Paradigm?
   - 1.2 Empiricism
   - 1.3 Critical Rationalism
   - 1.4 Epistemological Anarchism
   - 1.5 Structural Functionalism
   - 1.6 Symbolic Interactionism
   - 1.7 Ethnomethodology

2. Case Study Research
   - 2.1 Types of Case Study Research
   - 2.2 Maintaining Quality in Case Study Research
   - 2.3 Case Study Design
   - 2.4 Implementing Case Studies
   - 2.5 Analyzing Case Studies

3. Specific Topics of Qualitative Research
   - 3.1 Idea Generation
   - 3.2 Critical Incident Technique
   - 3.3 Understanding Communication: Discourse Analysis
   - 3.4 Perceiving Perception: Interpretive Phenomenological Analysis

4. Advanced Issues of Qualitative Research Conceptualizing and Data Analysis
   - 4.1 Measurement Theory
   - 4.2 Index and Scale Construction
   - 4.3 Types of Scale Construction
   - 4.4 The Problem of Nonresponse and Missing Data
   - 4.5 Implications of IT for Research Strategies

5. Underlying Assumptions of Quantitative Research: Concepts and Consequences
   - 5.1 Classical Test Theory
   - 5.2 Probabilistic Test Theory
   - 5.3 Advanced Topics of Test Theory

6. Evaluation Research
   - 6.1 What is Evaluation Research?
   - 6.2 Types of Evaluation Research
   - 6.3 Meta-Analysis
   - 6.4 Meta-Evaluation

Literature
Compulsory Reading
Further Reading ▪ Babbie, E. R. (2021). The practice of social research (15th ed.). Cengage Learning. ▪ Giles, D. C. (2002). Advanced research methods in psychology. Routledge. ▪ Saunders, M., Thornhill, A., & Lewis, P. (2009). Research methods for business students (5th ed.). Pearson.

Study Format Distance Learning

Study Format	Course Type
Distance Learning	Online Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Written Assessment: Written Assignment

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
110 h	0 h	20 h	20 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☑ Guideline
☑ Shortcast	☑ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☐ Exam Template	☑ Slides

Study Format myStudies

Study Format	Course Type
myStudies	Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Written Assessment: Written Assignment

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
110 h	0 h	20 h	20 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☑ Guideline
☑ Shortcast	☑ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☐ Exam Template	☑ Slides

DLMARM01

2. Semester

Seminar: Current Topics of Innovation and Entrepreneurship

Module Code: DLMIEESCTIE

Module Type	Admission Requirements	Study Level	CP	Student Workload
see curriculum	none	MA	5	150 h

Semester / Term	Duration	Regularly offered in	Language of Instruction and Examination
2. Semester	Minimum 1 semester	WiSe/SoSe	English

Module Coordinator

Prof. Dr. Mirko Bendig (Seminar: Current Topics of Innovation and Entrepreneurship)

Contributing Courses to Module

- Seminar: Current Topics of Innovation and Entrepreneurship (DLMIEESCTIE01)

Module Exam Type

Module Exam	Split Exam
Study Format: Distance Learning Written Assessment: Research Essay	

Weight of Module

see curriculum

Module Contents

The course enables the students to delve into relevant, up-to-date themes related to innovation and entrepreneurship. These include innovation as a driver for a country´s and a company´s competitiveness, hot spots for entrepreneurship around the world, the set-up of an innovation culture in a company, the creation of good ideas as the foundation for innovation, and many more.

Learning Outcomes

Seminar: Current Topics of Innovation and Entrepreneurship

On successful completion, students will be able to

- examine and judge major trends and developments in the field of innovation and entrepreneurship.
- understand and explain the main characteristics, functions and drivers of innovation and entrepreneurship.
- explain the success factors for innovation and entrepreneurship to create a sustainable competitive advantage.
- assess major management practices and methods to foster an environment of innovation and entrepreneurship.
- apply practice-oriented methods and skills to create, discover and realize business opportunities.
- derive best-practice learnings from existing business models for own business ventures and innovation activities.

Links to other Modules within the Study Program	Links to other Study Programs of the University
This module is similar to other modules in the field of Business Administration & Management	All Master Programs in the Business & Management field

Seminar: Current Topics of Innovation and Entrepreneurship

Course Code: DLMIEESCTIE01

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		5	none

Course Description

Innovation and entrepreneurship are main drivers for economic growth and prosperity. Innovation refers to the process of translating an idea or invention into a business model that creates value for which customers are willing to pay money for. Entrepreneurship can be described as the process of setting up and realizing a business venture. The creation of an environment conducive to innovation and entrepreneurship is therefore a key political and economic objective at the local, regional and state levels. The highly dynamic and interconnected nature of today's markets requires companies to be able and willing to maintain and expand their competitive advantage through continuous innovation. This can be done at the product and process level, as well as by constantly questioning and developing their own business model. The seminar enables the students to delve into relevant, up-to-date themes related to innovation and entrepreneurship. They will acquire methods and skills to create and discover business opportunities as well as realize own business ventures.

Course Outcomes

On successful completion, students will be able to

- examine and judge major trends and developments in the field of innovation and entrepreneurship.
- understand and explain the main characteristics, functions and drivers of innovation and entrepreneurship.
- explain the success factors for innovation and entrepreneurship to create a sustainable competitive advantage.
- assess major management practices and methods to foster an environment of innovation and entrepreneurship.
- apply practice-oriented methods and skills to create, discover and realize business opportunities.
- derive best-practice learnings from existing business models for own business ventures and innovation activities.

Contents

- Innovation and entrepreneurship are main drivers for economic growth and prosperity. Both are closely interrelated to one another. It is the entrepreneurial mindset that builds the foundation for the continued creation of all forms and dimensions of innovation. The course enables the students to delve into relevant, up-to-date themes related to innovation and entrepreneurship. These include innovation as a driver for a country´s and a company´s competitiveness, hot spots for entrepreneurship around the world, the set-up of an innovation culture in a company, the creation of good ideas as the foundation for innovation, and many more.

Literature

Compulsory Reading

Further Reading

- Barringer, B.R. & Ireland, R.D. (2015). Entrepreneurship: Successfully Launching New Ventures. 5th Edition, Pearson, New York.
- Bessant, J. & Tidd, J. (2015). Innovation and Entrepreneurship. 3rd Edition, John Wiley & Sons, Chichester.
- Grant, A. (2016). Originals: How Non-Conformists Move the World. Viking, New York.
- Johnson, S. (2011). Where Good Ideas Come from: The Natural History of Innovation. Riverhead Books, New York.

Study Format Distance Learning

Study Format	Course Type
Distance Learning	Seminar

Information about the examination	
Examination Admission Requirements	**BOLK:** no **Course Evaluation:** no
Type of Exam	Written Assessment: Research Essay

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
120 h	0 h	30 h	0 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☐ Course Book	☐ Creative Lab
☐ Vodcast	☑ Guideline
☐ Shortcast	☐ Live Tutorium/Course Feed
☐ Audio	☑ Slides
☐ Exam Template	

DLMIEESCTIE01

Start Up Lab

Module Code: DLMIEESUL

Module Type	Admission Requirements	Study Level	CP	Student Workload
see curriculum	none	MA	10	300 h

Semester / Term	Duration	Regularly offered in	Language of Instruction and Examination
2. Semester	Minimum 1 semester	WiSe/SoSe	English

Module Coordinator

Prof. Dr. Lena Bernhofer (Start Up Lab)

Contributing Courses to Module

- Start Up Lab (DLMIEESUL01)

Module Exam Type

Module Exam	Split Exam
Study Format: Distance Learning Portfolio	

Weight of Module

see curriculum

Module Contents

Becoming one´s own boss might be the dream of many people. Having an own business idea and bring it to market realization has been the starting point of many successful businesses. The Start Up Lab supports ambitious entrepreneurs and founders in identifying market opportunities as the basis for innovative business ideas and business models. The writing of a business plan allows the students to systematically describe and structure the business idea along the various criteria to be covered in the business plan. This way, the students can experience and expand their own start up skills.

Learning Outcomes

Start Up Lab

On successful completion, students will be able to

- develop an own business idea and design a business model as the foundation for writing a business plan.
- describe the reasons for creating a business plan for different business projects as well as explain the structure, form and content of a business plan.
- formulate the vision, the strategic goals and the value proposition for their business project on the basis of a comprehensive business analysis.
- prepare a detailed financial and capital requirement plan for their business project and assess the medium- and long-term advantages and disadvantages of the selected financing.
- evaluate the main risks for their business project and assess them with regard to implementation.
- identify the different types of growth and growth strategies for the development of a business project.

Links to other Modules within the Study Program	**Links to other Study Programs of the University**
This module is similar to other modules in the field of Business Administration & Management	All Master Programs in the Business & Management field

Start Up Lab

Course Code: DLMIEESUL01

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		10	none

Course Description

In this course, students learn how to present and realize a business idea systematically and in a structured manner with a business plan. A business plan is usually created when a company is founded, but is also used for other business projects such as succession planning in a company, the new development of a product, the takeover of a company or expansion abroad. In this module, the focus is on starting an own business to implement the business idea as well as possible growth strategies to expand the business. The preparation of a business plan allows students to apply business management knowledge in a systematic, integrated and practice-oriented manner. This way, the students can experience and expand their own start up skills. They are systematically guided to address all elements of a business plan in order to increase the success for the realization of a business idea. Special emphasis is placed on identifying potential risks for later implementation.

Course Outcomes

On successful completion, students will be able to

- develop an own business idea and design a business model as the foundation for writing a business plan.
- describe the reasons for creating a business plan for different business projects as well as explain the structure, form and content of a business plan.
- formulate the vision, the strategic goals and the value proposition for their business project on the basis of a comprehensive business analysis.
- prepare a detailed financial and capital requirement plan for their business project and assess the medium- and long-term advantages and disadvantages of the selected financing.
- evaluate the main risks for their business project and assess them with regard to implementation.
- identify the different types of growth and growth strategies for the development of a business project.

Contents

- Becoming one´s own boss might be the dream of many people. Having an own business idea and bring it to market realization has been the starting point of many successful companies. It is however not self-evident that a business idea reaches the level of implementation and growth. It requires goal-setting, planning, persistence, commitment, determination and calculated risk-taking to bring an idea to success. The Start Up Lab supports ambitious

entrepreneurs and founders in identifying market opportunities as the basis for innovative business ideas and business models. The writing of a business plan allows the students to systematically describe and structure the business idea along the various criteria to be covered in the business plan such as strategy, market, product/service, value proposition, target customers, marketing, production, finances and risk evaluation. By doing so, the students can experience and expand their own start up skills.

Literature

Compulsory Reading

Further Reading

- Bessant, J. & Tidd, J. (2015). Innovation and Entrepreneurship. 3rd edition, John Wiley & Sons, Hoboken.
- Grant, A. (2016). Originals: How Non-Conformists Move the World. Viking, New York.
- Grant, W. (2020). How to Write a Winning Business Plan: A Step-by-Step Guide to Build a Solid Foundation, Attract Investors & Achieve Success. Walter Grant, Grand Rapids.
- Hoffman, S. (2021). Surviving a Startup: Practical Strategies for Starting a Business, Overcoming Obstacles, and Coming Out on Top. Harper Collins, New York.
- Osterwalder, A., Pigneur, Y., Bernarda, G. & Smith, A. (2010). Value Proposition Design: How to Create Products and Services Customers Want. John Wiley & Sons, Hoboken.

Study Format Distance Learning

Study Format	**Course Type**
Distance Learning	Project

Information about the examination	
Examination Admission Requirements	**BOLK:** no **Course Evaluation:** no
Type of Exam	Portfolio

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
240 h	0 h	60 h	0 h	0 h	300 h

Instructional Methods		
☐ Learning Sprints®	☐ Review Book	☐ Sprint
☐ Course Book	☐ Creative Lab	☐ Interactive Online Lecture
☐ Vodcast	☑ Guideline	
☐ Shortcast	☑ Live Tutorium/Course Feed	
☐ Audio	☐ Reader	
☐ Exam Template	☑ Slides	

DLMIEESUL01

Artificial Intelligence

Module Code: DLMIMWKI

Module Type	Admission Requirements	Study Level	CP	Student Workload
see curriculum	none	MA	10	300 h

Semester / Term	Duration	Regularly offered in	Language of Instruction and Examination
2. Semester	Minimaldauer: 1 Semester	WiSe/SoSe	English

Module Coordinator

Prof. Dr. Claudia Heß (Artificial Intelligence) / Prof. Dr. Tim Schlippe (Seminar: AI and Society)

Contributing Courses to Module

- Artificial Intelligence (DLMAIAI01)
- Seminar: AI and Society (DLMAISAIS01)

Module Exam Type

Module Exam	Split Exam
	Artificial Intelligence • Study Format "Distance Learning": Exam, 90 Minutes • Study Format "myStudies": Exam, 90 Minutes Seminar: AI and Society • Study Format "myStudies": Written Assessment: Research Essay • Study Format "Distance Learning": Written Assessment: Research Essay

Weight of Module

see curriculum

Module Contents

Artificial Intelligence

- History of AI
- AI application areas
- Expert systems
- Neuroscience
- Modern AI systems

Seminar: AI and Society

In this module, students will reflect on current societal and political implications of artificial intelligence. To this end, pertinent topics will be introduced via articles that are then critically evaluated by the students in the form of a written essay.

Learning Outcomes

Artificial Intelligence

On successful completion, students will be able to

- remember the historical developments in the field of artificial intelligence.
- analyze the different application areas of artificial intelligence.
- comprehend expert systems.
- apply Prolog to simple expert systems.
- comprehend the brain and cognitive processes from a neuro-scientific point of view.
- understand modern developments in artificial intelligence.

Seminar: AI and Society

On successful completion, students will be able to

- name selected current societal topics and issues in artificial intelligence.
- explain the influence and impact of artificial intelligence on societal, economic, and polital topics.
- transfer theoretically-acquired knowledge to real-world cases.
- treat in a scientific manner a select topic in the form of a written essay.
- critically question and discuss current societal and political issues arising from the recent advances in artificial intelligence methodology.
- develop own problem-solving skills and processes through reflection on the possible impact of their future occupation in the sector of artificial intelligence.

Links to other Modules within the Study Program	Links to other Study Programs of the University
This module is similar to other modules in the field of Data Science & Artificial Intelligence.	All Master Programmes in the IT & Technology field.

Artificial Intelligence

Course Code: DLMAIAI01

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		5	none

Course Description

The quest for artificial intelligence has captured humanity's interest for many decades and has been an active research area since the 1960s. This course will give a detailed overview of the historical developments, successes, and set-backs in AI, as well as the development and use of expert systems in early AI systems.In order to understand cognitive processes, the course will give a brief overview of the biological brain and (human) cognitive processes and then focus on the development of modern AI systems fueled by recent developments in hard- and software. Particular focus will be given to discussion of the development of "narrow AI" systems for specific use cases vs. the creation of general artificial intelligence.The course will give an overview of a wide range of potential application areas in artificial intelligence, including industry sectors such as autonomous driving and mobility, medicine, finance, retail, and manufacturing.

Course Outcomes

On successful completion, students will be able to

- remember the historical developments in the field of artificial intelligence.
- analyze the different application areas of artificial intelligence.
- comprehend expert systems.
- apply Prolog to simple expert systems.
- comprehend the brain and cognitive processes from a neuro-scientific point of view.
- understand modern developments in artificial intelligence.

Contents

1. History of AI
   - 1.1 Historical Developments
   - 1.2 AI Winter
   - 1.3 Notable Advances in AI
2. Expert Systems
   - 2.1 Overview Over Expert Systems
   - 2.2 Introduction to Prolog

3. Neuroscience
   - 3.1 The (Human) Brain
   - 3.2 Cognitive Processes

4. Modern AI Systems
   - 4.1 Recent Developments in Hard- and Software
   - 4.2 Narrow vs General AI
   - 4.3 NLP and Computer Vision

5. AI Application Areas
   - 5.1 Autonomous Vehicles & Mobility
   - 5.2 Personalized Medicine
   - 5.3 FinTech
   - 5.4 Retail & Industry

Literature

Compulsory Reading

Further Reading

- Russell, S. & Norvig, P. (2010). Artificial intelligence: a modern approach (3rd ed.). Upper Saddle River, NJ: Prentice Hall.
- Lucas, P.J.F & Van der Gaag, L. (1991). Principles of expert systems. Amsterdam: Addison Wesley (copyright returned to author).
- Clocksin, W.F. & Mellish, C.S. (2003). Programming in Prolog (4th ed.). Berlin: Springer-Verlag.
- Ward, J. (2015). The student's guide to cognitive neuroscience. (3rd ed.). New York, NY: Psychology Press.
- Frankish, K & Ramsey, W.M. (Eds.) (2012). The Cambridge handbook of cognitive science. Cambridge: Cambridge University Press.

Study Format Distance Learning

Study Format	**Course Type**
Distance Learning	Online Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
90 h	0 h	30 h	30 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☐ Guideline
☑ Shortcast	☑ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☑ Exam Template	☑ Slides

Study Format myStudies

Study Format	Course Type
myStudies	Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
90 h	0 h	30 h	30 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☐ Guideline
☑ Shortcast	☑ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☑ Exam Template	☑ Slides

Seminar: AI and Society

Course Code: DLMAISAIS01

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		5	none

Course Description

In the current decade, impressive advances have been achieved in the field of artificial intelligence. Several cognitive tasks like object recognition in images and video, natural language processing, game strategy, and autonomous driving and robotics are now being performed by machines at unprecedented levels of ability. This course will examine some of societal, economic, and political implications of these developments.

Course Outcomes

On successful completion, students will be able to

- name selected current societal topics and issues in artificial intelligence.
- explain the influence and impact of artificial intelligence on societal, economic, and polital topics.
- transfer theoretically-acquired knowledge to real-world cases.
- treat in a scientific manner a select topic in the form of a written essay.
- critically question and discuss current societal and political issues arising from the recent advances in artificial intelligence methodology.
- develop own problem-solving skills and processes through reflection on the possible impact of their future occupation in the sector of artificial intelligence.

Contents

- The seminar covers current topics concerning the societal impact of artificial intelligence. Each participant must create a seminar paper on a topic assigned to him/her. A current list of topics is given in the Learning Management System.

Literature
Compulsory Reading
Further Reading ▪ Turabian, K. L. (2013). A manual for writers of research papers, theses, and dissertations. Chicago: University of Chicago Press. ▪ Swales, J. M., & Feak, C. R. (2012). Academic writing for graduate students, essential tasks and skills. Michigan: University of Michigan Press. ▪ Bailey, S. (2011). Academic writing for international students of business. New York, NY: Routledge

Study Format myStudies

Study Format	Course Type
myStudies	Seminar

Information about the examination	
Examination Admission Requirements	**BOLK:** no **Course Evaluation:** no
Type of Exam	Written Assessment: Research Essay

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
120 h	0 h	30 h	0 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☐ Course Book	☐ Creative Lab
☐ Vodcast	☑ Guideline
☐ Shortcast	☐ Live Tutorium/Course Feed
☐ Audio	☐ Reader
☐ Exam Template	☑ Slides

Study Format Distance Learning

Study Format	Course Type
Distance Learning	Seminar

Information about the examination	
Examination Admission Requirements	**BOLK:** no **Course Evaluation:** no
Type of Exam	Written Assessment: Research Essay

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
120 h	0 h	30 h	0 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☐ Course Book	☐ Creative Lab
☐ Vodcast	☑ Guideline
☐ Shortcast	☐ Live Tutorium/Course Feed
☐ Audio	☑ Slides
☐ Exam Template	

Data Science and Analytics

Module Code: DLMBDSA

Module Type	Admission Requirements	Study Level	CP	Student Workload
see curriculum	none	MA	10	300 h

Semester / Term	Duration	Regularly offered in	Language of Instruction and Examination
2. Semester	Minimum 1 semester	WiSe/SoSe	English

Module Coordinator

Prof. Dr. Ulrich Kerzel (Data Science) / Prof. Dr. Jöran Pieper (Analytical Software and Frameworks)

Contributing Courses to Module

- Data Science (DLMBDSA01)
- Analytical Software and Frameworks (DLMBDSA02)

Module Exam Type

Module Exam	Split Exam
	Data Science • Study Format "myStudies": Exam, 90 Minutes • Study Format "Distance Learning": Exam, 90 Minutes Analytical Software and Frameworks • Study Format "Distance Learning": Written Assessment: Written Assignment

Weight of Module

see curriculum

Module Contents

Data Science

- Introduction to data science
- Use cases and performance evaluation
- Pre-processing of data
- Processing of data
- Selected mathematical techniques
- Selected artificial intelligence techniques

Analytical Software and Frameworks

- Introduction to analytical software and frameworks
- Data storage
- Statistical modeling
- Machine learning
- Cloud computing platforms
- Distributed computing
- Database technologies

Learning Outcomes

Data Science

On successful completion, students will be able to

- identify use cases and evaluate the performance of data-driven approaches.
- understand how domain specific knowledge for a particular application context is required to identify objectives and value propositions for data science use cases.
- appreciate the role and necessity for business-centric model evaluation apposite to the respective area of application.
- comprehend how data are pre-processed in preparation for analysis.
- develop typologies for data and ontologies for knowledge representation.
- decide for appropriate mathematical algorithms to utilize data analysis for a given task.
- understand the value, applicability, and limitations of artificial intelligence for data analysis.

Analytical Software and Frameworks

On successful completion, students will be able to

- comprehend how cloud computing and distributed computing support the field of data analytics.
- understand in-memory database technologies for real-time analytics.
- apply advanced statistics and machine learning solutions to solve data analysis problems.
- compare the capabilities and limitations of the presented software solutions.
- understand how to identify the right technological solution for a specific application domain.

Links to other Modules within the Study Program	Links to other Study Programs of the University
This module is similar to other modules in the field(s) of Data Science & Artificial Intelligence	All Master Programmes in the IT & Technology field(s)

Data Science

Course Code: DLMBDSA01

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		5	none

Course Description

The course provides the framework to create value from data. After an introduction the course covers how to identify suitable use cases and evaluate the performance of data-driven methods. In an interdisciplinary approach, the requirements from a specific application domain need to be understood and transferred to the technological understanding to identify the objectives and value proposition of a Data Science project. The course covers techniques for the technical processing of data and then introduces advanced mathematical techniques and selected methods from artificial intelligence that are used to analyze data and make predictions.

Course Outcomes

On successful completion, students will be able to

- identify use cases and evaluate the performance of data-driven approaches.
- understand how domain specific knowledge for a particular application context is required to identify objectives and value propositions for data science use cases.
- appreciate the role and necessity for business-centric model evaluation apposite to the respective area of application.
- comprehend how data are pre-processed in preparation for analysis.
- develop typologies for data and ontologies for knowledge representation.
- decide for appropriate mathematical algorithms to utilize data analysis for a given task.
- understand the value, applicability, and limitations of artificial intelligence for data analysis.

Contents

1. Introduction to Data Science
   - 1.1 Overview of Data Science
   - 1.2 Terms and Definitions
   - 1.3 Applications & Notable Examples
   - 1.4 Sources of Data
   - 1.5 Structured, Unstructured, Streaming
   - 1.6 Typical Data Sources and their Data Type
   - 1.7 The 4 V's of Data: Volume, Variety, Velocity, Veracity
   - 1.8 Introduction to Probability Theory
   - 1.9 What Are Probabilities and Probability Distributions
   - 1.10 Introduction to Bayesian Statistics
   - 1.11 Relation to Data Science: Prediction as a Probability

2. Use Cases and Performance Evaluation
   - 2.1 Identification of Use Cases for Data Science
   - 2.2 Identifying Data Science Use Cases
   - 2.3 From Prediction to Decision: Generating Value from Data Science
   - 2.4 Evaluation of Predictions
   - 2.5 Overview of Relevant Metrics
   - 2.6 Business-centric Evaluation: the Role of KPIs
   - 2.7 Cognitive Biases and Decision-making Fallacies

3. Pre-processing of Data
   - 3.1 Transmission of Data
   - 3.2 Data Quality and Cleansing of Data
   - 3.3 Transformation of Data (Normalization, Aggregation)
   - 3.4 Reduction of Data Dimensionality
   - 3.5 Data Visualisation

4. Processing of Data
   - 4.1 Stages of Data Processing
   - 4.2 Methods and Types of Data Processing
   - 4.3 Output Formats of Processed Data

5. Selected Mathematical Techniques
   - 5.1 Linear Regression
   - 5.2 Principal Component Analysis
   - 5.3 Clustering
   - 5.4 Time-series Forecasting
   - 5.5 Overview of Further Approaches

6. Selected Artificial Intelligence Techniques
   - 6.1 Support Vector Machines
   - 6.2 Neural Networks and Deep Learning
   - 6.3 Feed-forward Networks
   - 6.4 Recurrent Networks and Memory Cells
   - 6.5 Convolutional Networks
   - 6.6 Reinforcement Learning
   - 6.7 Overview of Further Approaches

Literature

Compulsory Reading

Further Reading

- Akerar, R., & Sajja, P.S. (2016). Intelligent techniques for data science. Cham: Springer.
- Bruce, A., & Bruce, P. (2017). Practical statistics for data scientists: 50 essential concepts. Newton, MA: O'Reilly Publishers.
- Fawcett, T. & Provost, F. (2013). Data science for business: What you need to know about data mining and data-analytic thinking. Newton, MA: O'Reilly Media.
- Hodeghatta, U. R., & Nayak, U. (2017). Business analytics using R – A practical approach. Berkeley, CA: Apress Publishing. (Database: ProQuest).
- Liebowitz, J. (2014). Business analytics: An introduction. Boca Raton, FL: Auerbach Publications. (Available online).
- Runkler, T. A. (2012). Data analytics: Models and algorithms for intelligent data analysis. Wiesbaden: Springer Vieweg.
- Skiena, S. S. (2017). The data science design manual. Cham: Springer.

Study Format myStudies

Study Format	Course Type
myStudies	Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
90 h	0 h	30 h	30 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☐ Guideline
☑ Shortcast	☑ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☑ Exam Template	☑ Slides

Study Format Distance Learning

Study Format	Course Type
Distance Learning	Online Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
90 h	0 h	30 h	30 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☐ Guideline
☑ Shortcast	☑ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☑ Exam Template	☑ Slides

Analytical Software and Frameworks

Course Code: DLMBDSA02

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		5	DLMBDSA01

Course Description

Analytical Software and Frameworks provides insight into contemporary software and platforms solutions for data analytics in business. The course introduces relevant frameworks and software used in modern data science projects. Commercial and open-source for cloud computing, distributed computing and machine learning, as well as a commercial development platform for in-memory database analytics, are covered. Additional software solutions may be covered by the lecturer as convenient. In particular in the written assignment, students are required to apply their technological knowledge to a specific scenario which requires interdisciplinary thinking of how to merge the particularities of a given application domain with the technological options.

Course Outcomes

On successful completion, students will be able to

- comprehend how cloud computing and distributed computing support the field of data analytics.
- understand in-memory database technologies for real-time analytics.
- apply advanced statistics and machine learning solutions to solve data analysis problems.
- compare the capabilities and limitations of the presented software solutions.
- understand how to identify the right technological solution for a specific application domain.

Contents

1. Introduction
   - 1.1 Software Systems
   - 1.2 Frameworks
   - 1.3 Distributed Computing
   - 1.4 Databases and Data Warehousing
2. Data Storage
   - 2.1 Data Clustering
   - 2.2 Data Replication
   - 2.3 Data Indexing
   - 2.4 Data Warehousing

3. Statistical Modeling Frameworks
   - 3.1 The R Project for Statistical Computing
   - 3.2 The Python Ecosystem

4. Machine Learning & Artificial Intelligence
   - 4.1 Overview of Modern Machine Learning Frameworks
   - 4.2 Introduction to TensorFlow & Keras

5. Cloud Computing Platforms & On-Premise Solutions
   - 5.1 Advantages and Disadvantages of Cloud, On-premise, and Edge Solutions
   - 5.2 Overview of Cloud Computing Solutions

6. Distributed Computing
   - 6.1 Overview of Distributed Computing Approaches
   - 6.2 Overview of Streaming Approaches
   - 6.3 Other Solutions

7. Database Technologies
   - 7.1 Overview of Database Approaches
     - 7.1.1 Row-based versus Column-based
     - 7.1.2 In Memory DB
     - 7.1.3 Relational DB versus noSQL
     - 7.1.4 Timeseries DB
   - 7.2 Overview of Database Implementations

Literature
Compulsory Reading
Further Reading

- Elmasri, R., & Navathe, S. (2010). Fundamentals of database systems. Boston, MA: Addison-WesleyPublishing Co.
- EMC Education Services (Ed.). (2012). Information storage and management: Storing, managing,and protecting digital information in classic, virtualized, and cloud environments (2nd ed.).Indianapolis, IN: Wiley.
- Fayad, M., Schmidt, D., & Johnson, R. (1999). Building application frameworks: Object-orientedfoundations of framework design (1st ed., Ch. 1 & 2). New York, NY: Wiley.
- Haslwanter, T. (2016). An introduction to statistics with Python. (pp. 5–42, 237–14). Switzerland:Springer.
- Hugos, M. H., & Hulitzky, D. (2010). Business in the cloud: What every business needs to knowabout cloud computing. Hoboken, NJ: John Wiley & Sons.
- Jackson, J. C., Vijayakumar, V., Quadir, M. A., & Bharathi, C. (2015). Survey on programming modelsand environments for cluster, cloud, and grid computing that defends big data. ProcediaComputer Science, 50, 517–523.
- Jukic, N., Vrbsky, S., & Nestorov, S. (2016). Database systems: Introduction to databases and datawarehouses. Burlington, VT: Prospect Press.
- Lander, J. P. (2017). R for everyone: Advanced analytics and graphics. 2nd ed. Boston, MA: Addison-Wesley Professional.
- Loo, A. W. (Ed.). (2012). Distributed computing innovations for business, engineering, and science.Hershey, PA: IGI Global.
- Özsu, M. T., & Valduriez, P. (2011). Principles of distributed database systems. New York, NY:Springer Science & Business Media.
- Poulton, N. (2015). Data storage networking: Real world skills for the CompTIA storage +certification and beyond (1st ed.). Indianapolis, IN: Wiley.
- Rehman, T. B. (2018). Cloud computing basics. Sterling, VA: Stylus Publishing, LLC.
- Unpingco, J. (2016). Python for probability, statistics, and machine learning. (Ch. 4). Cham:Springer.
- Walkowiak, S. (2016). Big data analytics with R: Utilize R to uncover hidden patterns in your bigdata. Birmingham: Packt Publishing.

Study Format Distance Learning

Study Format	Course Type
Distance Learning	Online Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** no **Course Evaluation:** no
Type of Exam	Written Assessment: Written Assignment

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
110 h	0 h	20 h	20 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☑ Guideline
☑ Shortcast	☐ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☐ Exam Template	☑ Slides

Big Data

Module Code: DLMBBD-01

Module Type	Admission Requirements	Study Level	CP	Student Workload
see curriculum	none	MA	10	300 h

Semester / Term	Duration	Regularly offered in	Language of Instruction and Examination
2. Semester	Minimum 1 semester	WiSe/SoSe	English

Module Coordinator

Dr. Hamzeh Alavirad (Data Utilization) / Dr. Hamzeh Alavirad (Application Scenarios and Case Studies)

Contributing Courses to Module

- Data Utilization (DLMBBD01)
- Application Scenarios and Case Studies (DLMBBD02-01)

Module Exam Type

Module Exam	Split Exam
	Data Utilization • Study Format "Distance Learning": Exam, 90 Minutes Application Scenarios and Case Studies • Study Format "Distance Learning": Written Assessment: Case Study

Weight of Module

see curriculum

Module Contents

Data Utilization

- Pattern recognition
- Natural language processing
- Image recognition
- Detection and sensing
- Problem-solving
- Decision-making

Application Scenarios and Case Studies

- Agile development
- Workflow overview
- Fields of application
- Sprint Planning; Sprint
- Sprint Retrospective
- Committee presentation

Learning Outcomes

Data Utilization

On successful completion, students will be able to

- understand how identity, similarity, and diversity of data can be utilized in problem-solving approaches.
- differentiate between complicated and complex systems of investigation.
- identify the variability of a problem under investigation.
- distinguish between invariant and dynamic features of an investigated system.
- synthesize gained insights to propose a reliable data analytics solution.
- apply different approaches for acquiring and using a knowledge management system.

Application Scenarios and Case Studies

On successful completion, students will be able to

- establish an application scenario for data science within a self-organized team.
- identify requirements and appropriate technologies for data collection.
- evaluate and select applicable technologies for data pre-processing and processing.
- assess challenges and risks of the selected approach.
- define clearly the outcome and value of the approach.
- elaborate a conceptual design document and presentation for decision-makers.

Links to other Modules within the Study Program	Links to other Study Programs of the University
This module is similar to other modules in the fields of Data Science & Artificial Intelligence	All Master Programmes in the IT & Technology fields

Data Utilization

Course Code: DLMBBD01

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		5	none

Course Description

The course Data Utilization introduces case-based applications that take advantage of regularities and patterns found within continuously generated texts, images, or sensor data. The cases solve issues of pattern recognition, natural language processing, image recognition, detection and sensing, problem-solving, and decision support. The cases are related to the application fields of cybersecurity, linguistics, augmented reality, intelligent transportation, problem-solving, and decision support.

Course Outcomes

On successful completion, students will be able to

- understand how identity, similarity, and diversity of data can be utilized in problem-solving approaches.
- differentiate between complicated and complex systems of investigation.
- identify the variability of a problem under investigation.
- distinguish between invariant and dynamic features of an investigated system.
- synthesize gained insights to propose a reliable data analytics solution.
- apply different approaches for acquiring and using a knowledge management system.

Contents

1. Introduction
   - 1.1 The Meaning of Identity, Similarity, and Diversity
   - 1.2 Data Patterns and Ontologies
2. Pattern Recognition
   - 2.1 Analysis of User Interaction, Attitude, and Behavior
   - 2.2 Predictive Analytics
   - 2.3 Preventing the Unknown: User Behavior Analytics in Cybersecurity
3. Natural Language Processing
   - 3.1 Concepts of Natural Language
   - 3.2 Speech Recognition and Acoustic Modeling
   - 3.3 Discerning the Meaning: Linguistics and Social Media

4. Image Recognition
   - 4.1 Basics of Image Representation
   - 4.2 Integral Transforms and Compression
   - 4.3 Exploiting the Visual: Image Recognition for Augmented Reality

5. Detection and Sensing
   - 5.1 Sensor Construction and Techniques
   - 5.2 Intelligent Agents and Surveillance
   - 5.3 Managing the Complex: Sensor Networks in Intelligent Transportation Systems

6. Problem-solving
   - 6.1 Knowledge Sharing and the Cloud
   - 6.2 Rule-based Systems
   - 6.3 Learning from Nature: Expert Systems in Business

7. Decision Support
   - 7.1 Invariants, Determinants, and Alternatives in Decision-making
   - 7.2 Correlation and Causality in Strategic Decision-making
   - 7.3 Approaching the Crossroads: Dashboards and Visualization

8. Data Security and Data Protection
   - 8.1 Securing Data Storage and Processing Infrastructure Against Unauthorized Access
   - 8.2 Compliance and Regulations, GPDR

Literature

Compulsory Reading

Further Reading

- Bajcsy, P., Chalfoun, J., & Simon, M. (2017). Web microanalysis of big image data. Berlin:Springer. (Database: ProQuest).
- Delen, D. (2015). Real-world data mining: Applied business analytics and decision making. NewYork, NY: Pearson.
- Farzindar, A., Inkpen, D., & Hirst, G. (2017). Natural language processing for social media (2nd ed.).San Rafael, CA: Morgan & Claypool Publishers. (Database: ProQuest).
- Hsu, H., Chang, C., & Hsu, C. (Eds.). (2017). Big data analytics for sensor-network collectedintelligence. Cambridge, MA: Academic Press. (Database: ProQuest).
- Pearl, J., & Mackenzie, D. (2018). The book of why: The new science of cause and effect. New York,NY: Basic Books.

Study Format Distance Learning

Study Format	**Course Type**
Distance Learning	Online Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
90 h	0 h	30 h	30 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☐ Guideline
☑ Shortcast	☐ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☑ Exam Template	☑ Slides

Application Scenarios and Case Studies

Course Code: DLMBBD02-01

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		5	none

Course Description

This course provides an opportunity for students to work on application scenarios for data science in selected industry sectors. This allows the students to combine the learning objectives from the other modules in a setting which closely resembles further work applications: Starting from the identification of suitable application areas, a specific use-case is selected and a set of metrics and/or KPIs is selected which can be used whether the case study is considered successful and leads to tangible benefit. A broad discussion on which data and type of data, as well as where to obtain, store, and process the data, allows students detailed insight into many practical issues that arise when dealing with data-driven projects, ranging from technical questions about infrastructure to data quality and relevant domain expertise.The actual work on the case study begins with the creation of a detailed project plan which defines objectives, means, and outcome. The plan is then implemented using an agile project management framework.The course closes with delivery of a design document and a final presentation in front of a committee of selected lecturers.

Course Outcomes

On successful completion, students will be able to

- establish an application scenario for data science within a self-organized team.
- identify requirements and appropriate technologies for data collection.
- evaluate and select applicable technologies for data pre-processing and processing.
- assess challenges and risks of the selected approach.
- define clearly the outcome and value of the approach.
- elaborate a conceptual design document and presentation for decision-makers.

Contents

1. Introduction to Agile Frameworks
   - 1.1 Scrum
   - 1.2 Kanban
   - 1.3 EduScrum

2. Fields of Application & Case Study Setup
   - 2.1 Overview of Fields of Application
   - 2.2 Definition of Success
   - 2.3 Selection of either of the fields (1 per team)

3. Data Sources
   - 3.1 Identifying Potential Internal and External Data Sources
   - 3.2 Identifying Potential Data Types and Data Processing Requirements
   - 3.3 Identifying Potential Data Quality Challenges

4. Case Study Work
   - 4.1 Creating a Project Plan
   - 4.2 Implementation of the Case Study Using the Agile Approach

5. Case Study Presentation
   - 5.1 Case Study Presentation: Approach and Key Findings
   - 5.2 Creation and Submission of Case Study Report

Literature

Compulsory Reading

Further Reading

- Ashmore, S. & Runyan, K. (2014). Introduction to agile methods. Addison-Wesley.
- Delhij, A., van Solingen, R., & Wijnandst, W. (2015). The eduScrum guide. Available online.
- Han, J., Kamber, M., & Pei, J. (2012). Data mining: Concepts and techniques (3rd ed.). Morgan Kaufmann.
- Schwaber, K., & Sutherland, J. (2017). The Scrum guide—The definitive guide to Scrum: The rules of the game.

Study Format Distance Learning

Study Format	Course Type
Distance Learning	Case Study

Information about the examination	
Examination Admission Requirements	**BOLK:** no **Course Evaluation:** no
Type of Exam	Written Assessment: Case Study

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
110 h	0 h	20 h	20 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☑ Guideline
☑ Shortcast	☐ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☐ Exam Template	☑ Slides

IT Project and Architecture Management

Module Code: DLMBITPAM

Module Type	Admission Requirements	Study Level	CP	Student Workload
see curriculum	none	MA	10	300 h

Semester / Term	Duration	Regularly offered in	Language of Instruction and Examination
2. Semester	Minimum 1 semester	WiSe/SoSe	English

Module Coordinator

Prof. Dr. Carsten Skerra (IT Project Management) / Prof. Dr. Carsten Skerra (IT Architecture Management)

Contributing Courses to Module

- IT Project Management (DLMBITPAM01)
- IT Architecture Management (DLMBITPAM02)

Module Exam Type

Module Exam	Split Exam
	IT Project Management • Study Format "Distance Learning": Exam, 90 Minutes IT Architecture Management • Study Format "Distance Learning": Written Assessment: Case Study

Weight of Module

see curriculum

Module Contents

IT Project Management

- Organizing the work
- Cost estimation and controlling
- The human factor
- Organizing small and medium projects
- Organizing large projects

IT Architecture Management

- Architecture documentation
- Architecture governance
- Enterprise architecture management (EAM)
- IT application portfolio management
- Enterprise architecture patterns
- Architecture framework: TOGAF

Learning Outcomes

IT Project Management

On successful completion, students will be able to

- critically reflect the status of knowledge on IT project management.
- set up different IT project management formats (small, medium and large projects) and know the methods for managing these different IT projects professionally.
- develop an IT management proposal as the fundament of a professional IT project management concept.
- understand and integrate different IT management project plans (e.g., time plan, cost plan, resources plan, risk plan) and use those plans in an integrative IT project planning and controlling scheme.
- organize and to lead an IT project team and its core and/or extended team members.

IT Architecture Management

On successful completion, students will be able to

- understand that having a well-defined IT architecture blueprint in place is key to success for IT organizations.
- analyze the constraints of existing application, infrastructure and information/ data architectures.
- know different types of IT application portfolio management.
- manage enterprise architecture patterns proactively.
- understand how to initiate change requests in order to modify or extend the IT architecture if the introduction or modification of a service is not possible within a given framework.

Links to other Modules within the Study Program	Links to other Study Programs of the University
This module is similar to other modules in the field(s) of Computer Science & Software Development	All Master Programmes in the IT & Technology field(s)

IT Project Management

Course Code: DLMBITPAM01

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		5	none

Course Description

The purpose of this course is to introduce students to the concepts involved in IT project management. This is achieved through the development of an understanding of the fundamental tenets of project management enhancing the students' ability to apply their knowledge, skills and competencies in analyzing and solving IT project management problems. A special focus is put on the specifics of IT project organization, cost management and the human factor within IT projects.

Course Outcomes

On successful completion, students will be able to

- critically reflect the status of knowledge on IT project management.
- set up different IT project management formats (small, medium and large projects) and know the methods for managing these different IT projects professionally.
- develop an IT management proposal as the fundament of a professional IT project management concept.
- understand and integrate different IT management project plans (e.g., time plan, cost plan, resources plan, risk plan) and use those plans in an integrative IT project planning and controlling scheme.
- organize and to lead an IT project team and its core and/or extended team members.

Contents

1. Introduction: Characteristics of IT Projects
   - 1.1 Defining IT Projects
   - 1.2 Overview on Typical Roles and Phases of IT Projects
   - 1.3 Risks and Challenges of IT Projects
   - 1.4 Role of an IT Project Manager
2. Organizing the Work
   - 2.1 Project Breakdown Structure, Work Packages
   - 2.2 Prioritization
   - 2.3 Time Planning, Milestones, Gantt-Diagram
   - 2.4 Definition of Done

3. Cost Estimation and Controlling
   - 3.1 Challenges of Cost Estimation in IT Projects
   - 3.2 Estimation Techniques: 3-Point Estimation, Double Blind Expert Estimation, Function Points
   - 3.3 Cost Controlling Using Earned Value Analysis
   - 3.4 Risk Management

4. The Human Factor
   - 4.1 Vision Keeping
   - 4.2 Stakeholder Management
   - 4.3 Conflict Management

5. Organizing Small and Medium Projects
   - 5.1 Rational Unified Process (RUP)
   - 5.2 Agile Software Processes
   - 5.3 Scrum
   - 5.4 Plan-driven Project Management in Small Projects

6. Organizing Large Projects
   - 6.1 PMBOK Guide
   - 6.2 Prince2
   - 6.3 Multi Project Management
   - 6.4 Agile Software Processes in Large Projects
   - 6.5 Selection of the Appropriate Project Management Method

Literature

Compulsory Reading

Further Reading

- Stephens, R. (2015). Beginning software engineering. Chichester: John Wiley & Sons. (Database: ProQuest).
- Hans, R. T. (2013). Work breakdown structure: A tool for software project scope verification. Pretoria: Tshwane University of Technology.

Study Format Distance Learning

Study Format	Course Type
Distance Learning	Online Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
90 h	0 h	30 h	30 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☐ Guideline
☑ Shortcast	☐ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☑ Exam Template	☑ Slides

IT Architecture Management

Course Code: DLMBITPAM02

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		5	none

Course Description

The course IT Architecture Management aims to enable students to define a blueprint for the future development of a particular IT landscape, taking into account service strategies and available technologies given to an IT service provider.

Course Outcomes

On successful completion, students will be able to

- understand that having a well-defined IT architecture blueprint in place is key to success for IT organizations.
- analyze the constraints of existing application, infrastructure and information/ data architectures.
- know different types of IT application portfolio management.
- manage enterprise architecture patterns proactively.
- understand how to initiate change requests in order to modify or extend the IT architecture if the introduction or modification of a service is not possible within a given framework.

Contents

1. Introduction to IT Architectures
   - 1.1 The Term “Architecture” in the Context of IT
   - 1.2 Use Cases and Levels of IT Architectures
   - 1.3 Overview on IT Architecture Management
2. Enterprise Architecture Management (EAM)
   - 2.1 IT-Strategy
   - 2.2 Enterprise Architecture
   - 2.3 Roles and Activities in EAM
3. IT Application Portfolio Management
   - 3.1 Application Handbook
   - 3.2 Portfolio Analyses
   - 3.3 Planning the Application Landscape

4. Architecture Framework: TOGAF
   - 4.1 Purpose and Overview on TOGAF
   - 4.2 Architecture Development Method (ADM)
   - 4.3 Guidelines & Techniques
   - 4.4 Architecture Content Framework
   - 4.5 Architecture Capability Framework

5. Architecture Documentation
   - 5.1 Structures, Components, and Interfaces
   - 5.2 Processes and Applications
   - 5.3 Domain Architecture

6. Architecture Governance
   - 6.1 Roles and Committees
   - 6.2 Processes and Decisions
   - 6.3 Management of Architectural Policies

7. Enterprise Architecture Patterns
   - 7.1 Structures, Components, and Interfaces
   - 7.2 Processes and Applications
   - 7.3 Domain Architecture

Literature

Compulsory Reading

Further Reading

- Hanschke, I. (2009). Strategic IT management: A toolkit for enterprise architecture management. Berlin, Heidelberg: Springer. (Database: ProQuest).
- Perroud, T., & Inversini, R. (2013). Enterprise architecture patterns: Practical solutions for recurring IT-architecture problems (Chs. 1-5). Berlin: Springer Berlin Heidelberg. (Database: ProQuest).
- The Open Group Architecture Framework. (2018). TOGAF 9.2 (Chs. 2, 4, 17, 29, 35, scan Chs. 5–16, scan Ch. 18–28, scan Chs. 36–38). (Available on the internet).

Study Format Distance Learning

Study Format	Course Type
Distance Learning	Case Study

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Written Assessment: Case Study

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
110 h	0 h	20 h	20 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☑ Guideline
☑ Shortcast	☐ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☐ Exam Template	☑ Slides

Corporate Finance and Investment

Module Code: DLMBCFIE

Module Type	Admission Requirements	Study Level	CP	Student Workload
see curriculum	none	MA	10	300 h

Semester / Term	Duration	Regularly offered in	Language of Instruction and Examination
2. Semester	Minimum 1 semester	WiSe/SoSe	English

Module Coordinator

Prof. Dr. Andreas Simon (Advanced Corporate Finance) / Prof. Dr. Andreas Simon (Investment Analysis & Portfolio Management)

Contributing Courses to Module

- Advanced Corporate Finance (DLMBCFIE01)
- Investment Analysis & Portfolio Management (DLMBCFIE02)

Module Exam Type

Module Exam	Split Exam
	Advanced Corporate Finance • Study Format "Distance Learning": Exam, 90 Minutes Investment Analysis & Portfolio Management • Study Format "Distance Learning": Exam, 90 Minutes

Weight of Module

see curriculum

Module Contents

Advanced Corporate Finance

- Financing decisions and issuing securities
- Debt financing and leasing
- Options and futures
- Takeovers, corporate control, and governance
- Unsolved issues and the future of finance

Investment Analysis & Portfolio Management

- Introduction to investment analysis and portfolio management
- Portfolio selection and the optimum portfolio
- The equilibrium in capital markets and asset pricing models
- Analysis and management of securities
- Evaluation of the investment performance

Learning Outcomes

Advanced Corporate Finance

On successful completion, students will be able to

- identify methods of issuing corporate debt and equity securities, and understand the role of financial intermediaries.
- discuss dividend policy and corporate capital structure in perfect markets vis-à-vis imperfect markets.
- utilize a range of tools for valuing different kinds of debt.
- describe various financing options and their different forms of application in the context of corporate finance.
- discuss mergers and takeovers and the role of different parties involved in the transaction process.

Investment Analysis & Portfolio Management

On successful completion, students will be able to

- describe the theoretical constructs of investments and portfolio analysis.
- apply the modern portfolio theory and the theory of capital markets to practical questions of investment decisions.
- discuss the conflicting priorities between the normative theoretical approach of portfolio selection and equilibrium asset pricing on the one hand, and the practical application of investment decisions such as stock picking and technical analysis on the other hand.
- utilize various tools for researching and analyzing investment vehicles used in the context of asset pricing and asset allocation decisions.
- identify main features and practices of the global investment advisory industry.
- describe warrants and convertibles, options and futures and discuss the application of these vehicles in a portfolio investment context.

Links to other Modules within the Study Program	Links to other Study Programs of the University
This module is similar to other modules in the field of Finance & Tax Accounting	All Master Programmes in the Business & Management field

Advanced Corporate Finance

Course Code: DLMBCFIE01

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		5	none

Course Description

The last decade has seen fundamental changes in financial markets and financial instruments. Both the theory and practice of corporate finance have been moving ahead with uncommon speed. Participants will be guided through the main areas of modern financial theory, including the pricing of assets and derivatives, corporate financial policy, and corporate control. The course emphasizes the modern fundamentals of the theory of finance and brings the theory to life with contemporary examples.

Course Outcomes

On successful completion, students will be able to

- identify methods of issuing corporate debt and equity securities, and understand the role of financial intermediaries.
- discuss dividend policy and corporate capital structure in perfect markets vis-à-vis imperfect markets.
- utilize a range of tools for valuing different kinds of debt.
- describe various financing options and their different forms of application in the context of corporate finance.
- discuss mergers and takeovers and the role of different parties involved in the transaction process.

Contents

1. Financing Decisions and Issuing Securities
   - 1.1 Types of Corporate Financing
   - 1.2 Corporations and Issuing Shares
   - 1.3 Corporations and Issuing Debt Securities

2. Dividend Policy and Capital Structure
   - 2.1 What's Your Dividend Policy?
   - 2.2 What's Your Debt Policy?
   - 2.3 Weighted Average Cost of Capital (WACC)
   - 2.4 Corporate and Personal Taxes
   - 2.5 Capital Structure and Related Theories

3. Debt Financing and Leasing
   - 3.1 Debt Valuation
   - 3.2 Rating Debt
   - 3.3 Different Kinds of Debt and Hybrid Securities
   - 3.4 Leasing as a Form of Corporate Finance

4. Options and Futures
   - 4.1 Derivative Financial Instruments, Options and Futures
   - 4.2 Valuing Options, the Binomial Model, the Black-Scholes Formula
   - 4.3 Real Options

5. Takeovers, Corporate Control, and Governance
   - 5.1 Mergers and Acquisitions
   - 5.2 LBOs, Management Buyouts, and Going Private
   - 5.3 Private Equity and the Venture Capitalist
   - 5.4 Empirical Testing of Takeover Success
   - 5.5 Corporate Governance and Corporate Control

6. Unsolved Issues and the Future of Finance
   - 6.1 What Do We Know and What Do We Not Know About Finance?
   - 6.2 The Future of Finance

Literature

Compulsory Reading

Further Reading

- Brealey, R., Myers, S. C., & Allen, F. (2016). Principles of corporate finance (12th ed.). New York, NY: McGraw-Hill Education.
- Vernimmen, P., Quiry, P., Dallocchio, M., Le Fur, Y., & Salvi, A. (2014). Corporate finance: Theory and practice (4th ed.). Hoboken, NJ: John Wiley & Sons. (Database: EBSCO).

Study Format Distance Learning

Study Format	Course Type
Distance Learning	Online Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
90 h	0 h	30 h	30 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☐ Guideline
☑ Shortcast	☐ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☑ Exam Template	☑ Slides

Investment Analysis & Portfolio Management

Course Code: DLMBCFIE02

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		5	none

Course Description

Security analysis, asset allocation strategies, and the optimal composition of portfolios of financial assets are some of the most important fields of advanced financial management. This course is designed to bring together investment analysis and portfolio theory and their implementation with regard to portfolio management. Topics to be covered are the theory of portfolio selection and the theory's application, the hypotheses of efficient capital markets and the capital market equilibrium, analysis of investments and the evaluation of portfolios (or mutual funds) of common stocks, bonds, international assets, and other asset classes. Students will be directed through a broad and critical evaluation of the various investment strategies for maximizing returns and minimizing risk on portfolios. Investment analysis and portfolio management is a truly global topic. As a consequence, the course will take an international perspective, provide an insight into the global investment advisory industry, and discuss best-practice approaches around the globe.

Course Outcomes

On successful completion, students will be able to

- describe the theoretical constructs of investments and portfolio analysis.
- apply the modern portfolio theory and the theory of capital markets to practical questions of investment decisions.
- discuss the conflicting priorities between the normative theoretical approach of portfolio selection and equilibrium asset pricing on the one hand, and the practical application of investment decisions such as stock picking and technical analysis on the other hand.
- utilize various tools for researching and analyzing investment vehicles used in the context of asset pricing and asset allocation decisions.
- identify main features and practices of the global investment advisory industry.
- describe warrants and convertibles, options and futures and discuss the application of these vehicles in a portfolio investment context.

Contents

1. Introduction to Investment Analysis and Portfolio Management
   - 1.1 The Asset Management and Investment Advisory Industry
   - 1.2 Financial Instruments, Derivatives, and Organization of Securities Markets
   - 1.3 The History of Investment Analysis

2. Portfolio Selection and the Optimum Portfolio
   - 2.1 Mean Variance Portfolio Theory
   - 2.2 The Calculation of Risk and Return
   - 2.3 Efficient Portfolios and Techniques for Calculating the Efficient Frontier
   - 2.4 Single-Index Models and Multi-Index Models
   - 2.5 International Diversification

3. Equilibrium in Capital Markets and Asset Pricing Models
   - 3.1 Equilibrium in Capital Markets and the Standard Capital Asset Pricing Model
   - 3.2 Empirical Tests of Equilibrium Models
   - 3.3 Extensions to the Single-Factor Capital Asset Pricing Model
   - 3.4 Multifactor Asset Pricing Models: Arbitrage Pricing Theory and the Fama-French Model

4. Analysis of Securities
   - 4.1 Macro- and Microanalyses of Industries and Companies
   - 4.2 Stock Valuation, Intrinsic Value and Market Value Determinants, and Valuation Techniques
   - 4.3 The Analysis and Valuation of Bonds
   - 4.4 Technical Analysis and Behavioral Finance

5. Management of Securities
   - 5.1 The Efficient Market Hypothesis
   - 5.2 Stock and Bond Portfolio Management Strategies Using Active vs Passive Strategies
   - 5.3 Asset Allocation Strategies

6. Investment Vehicles
   - 6.1 Mutual Funds: Types, Industry, and Participants
   - 6.2 Hedge Funds
   - 6.3 Private Equity Funds

7. Evaluation of Investment Performance
   - 7.1 Globalization and International Investing
   - 7.2 Investment Process
   - 7.3 Evaluation of Portfolio Performance Using the Sharpe Ratio, Jensen Measure, Treynor Measure, and Other Measures
   - 7.4 Evaluation of Security Analysis

Literature
Compulsory Reading
Further Reading ▪ Bodie, Z., Kane, A., & Marcus, A. J. (2017). Essentials of investments (10th ed.). New York, NY:McGraw-Hill Education. ▪ Fabozzi, F. J., & Modigliani, F. (2009). Capital markets: Institutions and instruments (4th ed.). UpperSaddle River, NJ: Prentice Hall. ▪ Reilly, F. K., & Brown, K. C. (2012). Investment analysis and portfolio management (10th ed.).Boston, MA: Cengage Learning. ▪ Smart, S., Gitman, L. J., & Joehnk, M. D. (2017). Fundamentals of investing (13th ed.). Upper SaddleRiver, NJ: Pearson. (Database: EBSCO).

Study Format Distance Learning

Study Format	Course Type
Distance Learning	Online Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
90 h	0 h	30 h	30 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☐ Guideline
☑ Shortcast	☐ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☑ Exam Template	☑ Slides

Consumer Behavior and Brand Management

Module Code: DLMIEEECBBM

Module Type	Admission Requirements	Study Level	CP	Student Workload
see curriculum	none	MA	10	300 h

Semester / Term	Duration	Regularly offered in	Language of Instruction and Examination
2. Semester	Minimum 1 semester	WiSe/SoSe	English

Module Coordinator

Caterina Fox (International Consumer Behavior) / Caterina Fox (Global Brand Management)

Contributing Courses to Module

- International Consumer Behavior (DLMBCBR01)
- Global Brand Management (DLMBSPBE01)

Module Exam Type

Module Exam	Split Exam
	International Consumer Behavior • Study Format "myStudies": Exam, 90 Minutes • Study Format "Distance Learning": Exam, 90 Minutes Global Brand Management • Study Format "Distance Learning": Exam, 90 Minutes

Weight of Module

see curriculum

Module Contents

International Consumer Behavior

- Consumer Behavior
- The Consumer Decision-Making Process
- Internal Influences on Consumer Behavior
- External Influences on Consumer Behavior
- International Consumer Behavior
- International Marketing Strategy and Consumer Behavior

Global Brand Management

For most companies, a major opportunity to grow their business involves looking for possibilities outside their native country. However, taking brands beyond national boundaries presents a new set of branding issues as the global marketplace is constantly changing. At the same time, various forms of regionalization are taking place, adding another layer of complexity to managing a brand portfolio. Arguably, products, pricing and distribution are increasingly becoming commodities and the new competitive arena is brand value, creating long-term, profitable brand relationships. Ultimately, strong brands will transcend industries and provide an organization with one of its most valuable assets. This course ultimately aims to introduce students to the differentiation of products and services in a world of alternatives and the benefits/disadvantages of providing customers with the power of choice.

Learning Outcomes

International Consumer Behavior

On successful completion, students will be able to

- outline the purchase decision-making process undertaken by the consumer.
- describe the internal and external influences on the consumer decision-making processes.
- identify the different research methods available to companies to collect relevant data regarding their consumers and their behavior
- develop a plan to generate required market research data regarding consumer behavior and decision-making.
- be able to generate, analyze, interpret and report relevant data regarding consumers.
- present the key concepts characterizing international consumer behavior and discuss their impact on global marketing strategies.

Global Brand Management

On successful completion, students will be able to

- analyze brands, brand components and brand management.
- examine how brands are positioned and re-positioned in regional, national and international markets and explore the concept of shared- and co-operative branding.
- promote the importance of brand valuation and measurement techniques within their company.
- form and apply tactics to address brand falsification and protection as well as to develop strategies to manage a brand crisis.
- analyze the main challenges facing international brands, and be able to measure their brand equity
- understand the factors that contribute to increasing or losing consumer-based brand equity.
- analyze a company's current brand strategy and propose viable alternatives as well as make informed decisions with greater probability of success.

Links to other Modules within the Study Program	**Links to other Study Programs of the University**
This module is similar to other modules in the field of Marketing & Sales	All Master Programs in the Marketing & Communication field

International Consumer Behavior

Course Code: DLMBCBR01

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		5	none

Course Description

In a global economy characterized by greater competition, companies operating internationally need comprehensive market-driven strategies to survive in the market place. The course provides students with the relevant concepts for understanding the international environment of the company with focus on the demand side/the consumer. Students learn how differences in culture, economic systems, and political environments impact consumers' behavior in terms of decision-making in the fields of acquisition, consumption, and disposal of products, services, experiences, and ideas.

Course Outcomes

On successful completion, students will be able to

- outline the purchase decision-making process undertaken by the consumer.
- describe the internal and external influences on the consumer decision-making processes.
- identify the different research methods available to companies to collect relevant data regarding their consumers and their behavior
- develop a plan to generate required market research data regarding consumer behavior and decision-making.
- be able to generate, analyze, interpret and report relevant data regarding consumers.
- present the key concepts characterizing international consumer behavior and discuss their impact on global marketing strategies.

Contents

1. Consumer Behavior
   - 1.1 Consumer Behavior and International Marketing
   - 1.2 Consumer Decision-Making in the Marketplace
2. The Consumer Decision-Making Process
   - 2.1 The Pre-Purchase Stage
   - 2.2 The Purchase Stage
   - 2.3 The Post-Purchase Stage

3. Internal Influences on Consumer Behavior
   - 3.1 Motives and Motivation
   - 3.2 Perception
   - 3.3 Attitude

4. External Influences on Consumer Behavior
   - 4.1 Culture
   - 4.2 Subculture
   - 4.3 Groups and Families

5. International Consumer Behavior
   - 5.1 Cultural Dimensions
   - 5.2 The Influence of Social Media on Consumer Decision-Making

6. International Marketing Strategy and Consumer Behavior
   - 6.1 International Market Segmentation and Product Positioning
   - 6.2 Consumer Behavior and Product Strategy
   - 6.3 Consumer Behavior and Communication Strategy
   - 6.4 Consumer Behavior and Pricing Strategy
   - 6.5 Consumer Behavior and Distribution Strategy

Literature

Compulsory Reading

Further Reading

- Schiffman, L. G., & Kanuk, L. L. (2014). Consumer behavior. Frenchs Forest.: Pearson Education Australia.
- Solomon, M. (2016). Consumer behavior: Buying, having, and being (12th ed.). New York City, NY: Pearson.

Study Format myStudies

Study Format	Course Type
myStudies	Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
90 h	0 h	30 h	30 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☐ Guideline
☑ Shortcast	☐ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☑ Exam Template	☑ Slides

Study Format Distance Learning

Study Format	**Course Type**
Distance Learning	Online Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
90 h	0 h	30 h	30 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☐ Guideline
☑ Shortcast	☐ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☑ Exam Template	☑ Slides

Global Brand Management

Course Code: DLMBSPBE01

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		5	none

Course Description

For most companies, a major opportunity to grow their business involves looking for possibilities outside their native country. However, taking brands beyond national boundaries presents a new set of branding issues as the global marketplace is constantly changing. At the same time, various forms of regionalization are taking place, adding another layer of complexity to managing a brand portfolio. Arguably, products, pricing and distribution are increasingly becoming commodities and the new competitive arena is brand value, creating long-term, profitable brand relationships. Ultimately, strong brands will transcend industries and provide an organization with one of its most valuable assets. This course ultimately aims to introduce students to the differentiation of products and services in a world of alternatives and the benefits/disadvantages of providing customers with the power of choice.

Course Outcomes

On successful completion, students will be able to

- analyze brands, brand components and brand management.
- examine how brands are positioned and re-positioned in regional, national and international markets and explore the concept of shared- and co-operative branding.
- promote the importance of brand valuation and measurement techniques within their company.
- form and apply tactics to address brand falsification and protection as well as to develop strategies to manage a brand crisis.
- analyze the main challenges facing international brands, and be able to measure their brand equity
- understand the factors that contribute to increasing or losing consumer-based brand equity.
- analyze a company's current brand strategy and propose viable alternatives as well as make informed decisions with greater probability of success.

Contents

1. Introduction to Global Brand Management
   - 1.1 Brand, Brand Equity, and Brand Value
   - 1.2 Brand Management and Brand Leadership
   - 1.3 Integrating Marketing Activities

2. Culture and Branding
   - 2.1 What is Culture?
   - 2.2 Culture and Consumer Behavior
   - 2.3 The Global-Local Dilemma of Branding

3. Creating Global Brands
   - 3.1 Brand Positioning
   - 3.2 Designing and Implementing Stages of Branding Strategies
   - 3.3 Choosing Brand Elements to Build Brand Equity
   - 3.4 Designing Marketing Programs to Build Brand Equity

4. Managing Global Brands
   - 4.1 Branding Strategy
   - 4.2 Brand Hierarchy
   - 4.3 Business-to-Business (B2B) Brand Management Strategies

5. Growing and Sustaining Brand Equity
   - 5.1 Extending the Brand
   - 5.2 Brand Alliances
   - 5.3 Green and Cause Marketing

6. Measuring Global Brand Equity and Performance
   - 6.1 Brand Equity Measurement Systems
   - 6.2 Measuring Sources of Brand Equity
   - 6.3 Measuring Outcomes of Brand Equity

7. Brand Analysis and Strategy Across Multiple Markets: A Managerial Approach
   - 7.1 Internal Analysis
   - 7.2 External Analysis
   - 7.3 Global Brand Management Scenarios

8. Managing a Brand Crisis
   - 8.1 Revitalizing a Brand
   - 8.2 Brand Falsification
   - 8.3 Brand Protection Strategies
   - 8.4 Brand Crises

Literature
Compulsory Reading
Further Reading ▪ Aaker, D. A. (1991). Managing brand equity. New York, NY: Free Press. ▪ de Mooij, M. (2014). Global marketing and advertising: Understanding cultural paradoxes (4th ed.). Thousand Oaks, CA: Sage. ▪ Kapferer, J. N. (2012). The new strategic brand management: Advanced insights and strategic thinking (5th ed.). London: Kogan Page. ▪ Keller, K. L., Aperia, T., & Georgson, M. (2013). Strategic brand management: A European perspective (2nd ed.). Upper Saddle River, NJ: Prentice Hall. (Database: MyiLibrary).

Study Format Distance Learning

Study Format	Course Type
Distance Learning	Online Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
90 h	0 h	30 h	30 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☑ Vodcast	☐ Guideline
☐ Shortcast	☐ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☑ Exam Template	☑ Slides

DLMBSPBE01

Leadership and Change

Module Code: DLMMGELC

Module Type	Admission Requirements	Study Level	CP	Student Workload
see curriculum	none	MA MBA	10	300 h

Semester / Term	Duration	Regularly offered in	Language of Instruction and Examination
2. Semester	Minimum 1 semester	WiSe/SoSe	English

Module Coordinator

Prof. Dr. Georg Berkel (Leadership) / Prof. Dr. Magdalena Bathen-Gabriel (Change Management)

Contributing Courses to Module

- Leadership (DLMBLSE01)
- Change Management (DLMBCM01)

Module Exam Type

Module Exam	Split Exam
	Leadership • Study Format "myStudies": Exam, 90 Minutes • Study Format "Distance Learning": Exam, 90 Minutes Change Management • Study Format "Distance Learning": Written Assessment: Case Study

Weight of Module

see curriculum

Module Contents

Leadership

- Foundations of professional leadership
- Leadership and motivation in the corporation
- Leadership and corporate culture
- Leadership and change management

Change Management

- The context and meaning of change
- The change process
- Perspectives for understanding change
- Implementing change

Learning Outcomes

Leadership

On successful completion, students will be able to

- recognize underlying beliefs and attitudes towards leadership and compare the influence of various theories of leadership on the identification and development of leaders.
- recognize the impact of cultural environments on leadership, and understand the challenges and opportunities of cross-cultural management.
- outline the influence of social roles on leaders and employees, and assess the influence of roles types on the interactions between leaders and those they are leading.
- ,as a leader, support employees by drawing on empirical evidence to effectively meet the expectations of employees.
- recognize the roles and conflicting interests inherent to leadership positions and develop strategies to address locomotion and cohesion.
- discriminate between effective and non-effective methods for managing staff and organizational activities, and apply those techniques and tools in practice to maximize the satisfaction and effectiveness of staff.
- perform the various responsibilities delegated to a leader such as communicate with employees, lead planning activities, delegate tasks, and plan and lead controlling activities.
- create a plan to support employees through the process of change within an organization.
- assess personal leadership style using a variety of measures and evaluate leadership activities relative to transactional and transformational leadership styles.

Change Management

On successful completion, students will be able to

- recognize common features of organizational change and anticipate some of the standard difficulties encountered when an organization engages in change processes.
- explain the importance of organizational change.
- develop a conceptual framework for planned and improvised organizational change, and differentiate between anticipated, emergent, and opportunity-based change.
- utilize and redesign formal organizational structures to facilitate change processes.
- recognize the role of informal organizational structures and identify key stakeholders to promote change processes.
- analyze the social networks that exist within an organization, map independencies and motives/interests, and plan how to distribute information and redesign work flows.
- differentiate between groups of stakeholders and identify the most suitable strategy to adopt with each group.
- recognize the role of the change leader as a political broker and build social capital through informal methods.
- utilize stories and symbols when communicating with others in an organization to maximize leverage as a cultural change leader.
- draw on empirical evidence to plan and implement change processes in an organization.

Links to other Modules within the Study Program	Links to other Study Programs of the University
This module is similar to other modules in the fields of Business Administration & Management	All Master Programmes in the fields of Business & Management

Leadership

Course Code: DLMBLSE01

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MBA	English		5	None

Course Description

In today's knowledge-based society, employees are a firm's most valuable resource. A key responsibility of leadership is to develop the knowledge, expertise, and skills of employees. Good leadership is crucial for the continued success of a firm in the face of increasingly competitive markets. This course presents the necessary competencies of the leader in a modern, knowledge-based organization. Central questions raised by modern leadership theory are presented and discussed. In doing so, the course focuses on requirements and instruments of professional leadership, aspects of situational leadership, and leadership communication and interactions, both in the context of strategic management and change processes. The methodological and conceptual foundations of leadership are presented to students, along with empirical examples and best-practice principles, with the intent for students to master the challenges of enhancing the firm's most valuable asset—its employees—via professional and contemporary leadership practices.

Course Outcomes

On successful completion, students will be able to

- recognize underlying beliefs and attitudes towards leadership and compare the influence of various theories of leadership on the identification and development of leaders.
- recognize the impact of cultural environments on leadership, and understand the challenges and opportunities of cross-cultural management.
- outline the influence of social roles on leaders and employees, and assess the influence of roles types on the interactions between leaders and those they are leading.
- ,as a leader, support employees by drawing on empirical evidence to effectively meet the expectations of employees.
- recognize the roles and conflicting interests inherent to leadership positions and develop strategies to address locomotion and cohesion.
- discriminate between effective and non-effective methods for managing staff and organizational activities, and apply those techniques and tools in practice to maximize the satisfaction and effectiveness of staff.
- perform the various responsibilities delegated to a leader such as communicate with employees, lead planning activities, delegate tasks, and plan and lead controlling activities.
- create a plan to support employees through the process of change within an organization.
- assess personal leadership style using a variety of measures and evaluate leadership activities relative to transactional and transformational leadership styles.

Contents

1. An Overview of Leadership
   - 1.1 Leadership and Personality: Trait Theories
   - 1.2 Leadership as a Skill: Attribute and Behavior Theories
   - 1.3 Positive Reinforcement: Behavioral Theories
   - 1.4 Leadership Dependent on the Situation: Situational Approaches
   - 1.5 Situational and Contingency Theories
   - 1.6 Theory of Functional Leadership Behavior
   - 1.7 Integrated Psychological Theory
   - 1.8 Transactional and Transformative Leadership
   - 1.9 Leadership as an Emotionally Charged Process
   - 1.10 Neo-Emergent Theory

2. Leadership as a Social Role
   - 2.1 Roles and Groups
   - 2.2 Role Types
   - 2.3 Formal Conditions for Social Roles – Corporate Context Determining Roles in Organizations
   - 2.4 The Individual and The Group – Conforming and Deviating Behavior
   - 2.5 The Problems of Formalized Role Understanding and Self-Concept

3. Leadership from the Employee's Perspective
   - 3.1 General Expectations for Managers
   - 3.2 Truthfulness and Authenticity
   - 3.3 Handling Conflicts Competently
   - 3.4 Conflicts in Groups
   - 3.5 Conflict Resolution Pattern According to Matzat
   - 3.6 Enthusiasm
   - 3.7 Ability to Cope with Pressure
   - 3.8 Assertiveness
   - 3.9 Empathy
   - 3.10 Expertise

4. Leadership from the Manager's Perspective
   - 4.1 Self-Concept as a Manager
   - 4.2 Locomotion and Cohesion
   - 4.3 Individual Problems and Learning Dimensions of Management Behavior
   - 4.4 The Concept of Human Nature and Its Influence on Management Behavior: Theories from Maslow, McGregor, and Herzberg
   - 4.5 Ambiguity Tolerance

5. Management Tools
   - 5.1 Management Tools - Definition
   - 5.2 Organizational Management Tools
   - 5.3 Personnel Management Tools

6. Managerial Functions
   - 6.1 Responsibilities of a Manager
   - 6.2 Communication
   - 6.3 Foundations of Interpersonal Communication
   - 6.4 Planning
   - 6.5 Setting Objectives
   - 6.6 Delegating
   - 6.7 Controlling
   - 6.8 Creating a Feedback Culture

7. Organizational Change
   - 7.1 Knowledge
   - 7.2 Cultural Value Change and Subjectification
   - 7.3 Globalization
   - 7.4 Technological Progress
   - 7.5 Change Management – Leadership in Times of Change

8. Successful Employee Management
   - 8.1 Measuring Leadership Style and Leadership Behavior
   - 8.2 Measuring Transactional and Transformational Leadership with the Multifactor Leadership Questionnaire (MLQ)
   - 8.3 Correlation of Leadership Behavior with Subjective and Objective Success Criteria
   - 8.4 Validation of Leadership Success Using Situational Factors
   - 8.5 Leadership Principles Guiding Leadership Behavior

Literature

Compulsory Reading

Further Reading

- Gneezy, U., & Rustichini, A. (2000). Pay enough or don't pay at all. The Quarterly Journal of Economics,115(3), 791–810. (Database: EBSCO).
- Goleman, D., Boyatzis, R., & McKee, A. (2004). Primal leadership: Learning to lead with emotionalintelligence. Boston, MA: Harvard Business School Press.
- Hechter, M., & Opp, K.-D. (2001). Social norms. New York, NY: Russell Sage Foundation.
- Herzberg, F., Mausner, B., & Bloch Synderman, B. (1993). The motivation to work. New Brunswick:Transaction Publishers. (Database: EBSCO).
- Kouzes, J. M., & Posner, B. Z. (1999). Encouraging the heart: A leader's guide to rewarding and recognizingothers. San Francisco, CA: Jossey-Bass. (Database: CIANDO).
- Maslow, A. (1954). Motivation and personality. New York, NY: Harper & Row.
- Norton, R. W. (1975). Measurement of ambiguity tolerance. Journal of Personality Assessment, 39(6), 607–619. (Database: EBSCO).
- Trilling, L. (1972). Sincerity and authenticity. Cambridge, MA: Harvard University Press. (Database: EBSCO).

Study Format myStudies

Study Format	Course Type
myStudies	Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
90 h	0 h	30 h	30 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☑ Vodcast	☐ Guideline
☐ Shortcast	☑ Live Tutorium/Course Feed
☑ Audio	☑ Slides
☑ Exam Template	

Study Format Distance Learning

Study Format	Course Type
Distance Learning	Online Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
90 h	0 h	30 h	30 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☑ Vodcast	☐ Guideline
☐ Shortcast	☑ Live Tutorium/Course Feed
☑ Audio	☑ Slides
☑ Exam Template	

Change Management

Course Code: DLMBCM01

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		5	none

Course Description

We live in a world characterized by constant change. This affects not only individuals but also organizations. Even successful organizations need to constantly reinvent themselves in order to remain successful. This course presents a discussion of change in relation to the complexities of organizational life, with an emphasis on applying theory to actual practice. Organizational change is an international phenomenon and the course includes many international case examples. With a focus on organizational change as opposed to personal change and/or entrepreneurship, this course has a distinctly different focus from the related modules "Leadership" and "Innovation and Entrepreneurship." The first part of the course considers the nature of change and different change models. The second part focuses on how different perspectives complement one another and can be used to better understand, analyze, and diagnose change processes. The course deals with issues of structure, culture, and politics. In the later part of the course, the implementation of change is considered in detail. Given that many change processes fail, this part is an important learning component to complement an in-depth understanding of change.

Course Outcomes

On successful completion, students will be able to

- recognize common features of organizational change and anticipate some of the standard difficulties encountered when an organization engages in change processes.
- explain the importance of organizational change.
- develop a conceptual framework for planned and improvised organizational change, and differentiate between anticipated, emergent, and opportunity-based change.
- utilize and redesign formal organizational structures to facilitate change processes.
- recognize the role of informal organizational structures and identify key stakeholders to promote change processes.
- analyze the social networks that exist within an organization, map independencies and motives/interests, and plan how to distribute information and redesign work flows.
- differentiate between groups of stakeholders and identify the most suitable strategy to adopt with each group.
- recognize the role of the change leader as a political broker and build social capital through informal methods.
- utilize stories and symbols when communicating with others in an organization to maximize leverage as a cultural change leader.
- draw on empirical evidence to plan and implement change processes in an organization.

Contents

1. Organizational Change
   - 1.1 What is Organizational Change About?
   - 1.2 Organizational Change is Ubiquitous
   - 1.3 Change is Difficult

2. Change Management
   - 2.1 The Context of Organizational Change
   - 2.2 Planned Versus Improvisational Change Management
   - 2.3 The Congruence Model of Change

3. Designing Structure
   - 3.1 Formal Structure in Organizations
   - 3.2 Grouping
   - 3.3 Linking
   - 3.4 The Change Leader as an Architect

4. Social Networks
   - 4.1 What are Social Networks?
   - 4.2 Key Terms of Social Network Analysis
   - 4.3 Unique Characteristics of Social Networks
   - 4.4 Social Networks and Organizational Change

5. Politics
   - 5.1 Organizations as Political Arena
   - 5.2 Politics and Change
   - 5.3 The Importance of a Political Perspective on Change

6. Sense-Making
   - 6.1 Organizational Culture
   - 6.2 Sense-Making in Organizations
   - 6.3 The Change Leader as Shaman

7. Change Implementation
   - 7.1 How to Implement Change Successfully
   - 7.2 Four Perspectives on Change

Literature
Compulsory Reading
Further Reading ▪ Bolman, L. G., & Deal, T. E. (2013). Reframing organizations: Artistry, choice, and leadership (5th ed.). San Francisco, CA: Jossey-Bass. ▪ Cameron, K. S., & Quinn, R. E. (2011). Diagnosing and changing organizational culture: Based on the competing values framework (3rd ed.). San Francisco, CA: Jossey-Bass. ▪ Pentland, A. (2014). Social physics: How good ideas spread – The lessons from a new science. New York, NY: Penguin Press. ▪ McChrystal, S., Collins, T., Silverman, D., & Fussell, C. (2015). Team of teams: New rules of engagement for a complex world. New York, NY: Penguin Press. ▪ Worren, N. A. M. (2012). Organisation design: Re-defining complex systems. Harlow: Pearson.

Study Format Distance Learning

Study Format	Course Type
Distance Learning	Case Study

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Written Assessment: Case Study

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
110 h	0 h	20 h	20 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☑ Guideline
☑ Shortcast	☐ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☐ Exam Template	☑ Slides

Performance Management

Module Code: DLMIEEEPM

Module Type	Admission Requirements	Study Level	CP	Student Workload
see curriculum	None	MBA MA	10	300 h

Semester / Term	Duration	Regularly offered in	Language of Instruction and Examination
2. Semester	Minimum 1 semester	WiSe/SoSe	English

Module Coordinator

Dr. Tobias Broweleit (Performance Management) / Prof. Dr. Hans-Jörg Beilharz (Applied Statistics)

Contributing Courses to Module

- Performance Management (DLMBPM01)
- Applied Statistics (MMET02-01_E)

Module Exam Type

Module Exam	Split Exam
	Performance Management • Study Format "Distance Learning": Exam, 90 Minutes • Study Format "myStudies": Exam, 90 Minutes Applied Statistics • Study Format "Distance Learning": Exam, 90 Minutes • Study Format "myStudies": Exam, 90 Minutes

Weight of Module

see curriculum

Module Contents

Performance Management

- Performance Measurement Concepts
- Measuring Financial Performance
- Drivers of Financial and Operational Performance

Applied Statistics

- Data and Statistics
- Bivariate Analysis
- Probability Distributions and Measures
- Statistical Estimation Methods
- Hypothesis Testing
- Single Regressions

Learning Outcomes

Performance Management

On successful completion, students will be able to

- Describe the history of performance measurement theory and its influence of present-day understanding of performance measurement.
- Report on a business's financial performance using accounting calculations (such as return on equity, return on assets, return on investment, earnings per share, gross profit margin, etc.) and market-based calculations (such as price-to-earnings ratio, net present value, internal rate of return, etc.).
- Explain the economic value added (EVA) model and calculate this metric using data from the company.
- Identify, define, and track drivers of operational performance, specifically quality, dependability, speed, cost, and flexibility.
- Derive performance metrics, such as customer satisfaction or sales forecast-to-plan performance, and link these with overall performance targets to create a performance measurement system.
- Conduct a customer profitability analysis using activity-based costing and calculate customer lifetime value using company data.
- Summarize strategies for benchmarking and measuring intellectual capital.
- Measuring organizational performance using the following tools: Balanced Scorecard, the EFQM Excellence Model, the Performance Prism and the SMART Pyramid approach.
- Evaluate the strengths and weaknesses of different performance measurement metrics and frameworks.

Applied Statistics

On successful completion, students will be able to

- recognize and explain the role and importance of statistical methods in practical decision-making processes.
- understand the relevance of data to answer empirical questions.
- apply statistical methods in the overall context of concrete problems.
- solve statistical problems by using special statistical software.

Links to other Modules within the Study Program	**Links to other Study Programs of the University**
This module is similar to other modules in the fields of Business Administration & Management and Methods	All Master Programs in the Business & Management field

Performance Management

Course Code: DLMBPM01

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MBA	English		5	None

Course Description

After specifying a company's strategic goals, managers face the challenge to implement these strategies. Performance measurement and performance management support the implementation of strategy by using performance measures to address financial and non-financial/operational aspects. Consequently, students get to know the function of performance measurement and performance management as part of the overall management functions. Furthermore, they will acquire an understanding of various performance aspects (e.g. financial drivers measured by the economic value added, customer drivers measured and managed by customer lifetime value, process drivers measured and managed in the context of continuous improvement programs). Understanding financial performance measurement concepts is especially crucial before students go on to identify operational drivers.

Course Outcomes

On successful completion, students will be able to

- Describe the history of performance measurement theory and its influence of present-day understanding of performance measurement.
- Report on a business's financial performance using accounting calculations (such as return on equity, return on assets, return on investment, earnings per share, gross profit margin, etc.) and market-based calculations (such as price-to-earnings ratio, net present value, internal rate of return, etc.).
- Explain the economic value added (EVA) model and calculate this metric using data from the company.
- Identify, define, and track drivers of operational performance, specifically quality, dependability, speed, cost, and flexibility.
- Derive performance metrics, such as customer satisfaction or sales forecast-to-plan performance, and link these with overall performance targets to create a performance measurement system.
- Conduct a customer profitability analysis using activity-based costing and calculate customer lifetime value using company data.
- Summarize strategies for benchmarking and measuring intellectual capital.
- Measuring organizational performance using the following tools: Balanced Scorecard, the EFQM Excellence Model, the Performance Prism and the SMART Pyramid approach.
- Evaluate the strengths and weaknesses of different performance measurement metrics and frameworks.

Contents

1. Performance Measurement as Part of the Overall Management Framework
   - 1.1 Theories Before 1950
   - 1.2 Theories After 1950

2. Measuring Financial Performance
   - 2.1 Reviewing Traditional Models of Financial Performance Measurement
   - 2.2 The Economic Value Added (EVA) Metric

3. Drivers of Operational Performance
   - 3.1 The Five Operations Performance Objectives
   - 3.2 Analysis of Performance Drivers

4. Customer Profitability Analysis, Lifetime Value, and Benchmarking
   - 4.1 Profitability Analysis
   - 4.2 Customer Lifetime Value
   - 4.3 Benchmarking

5. Intellectual Capital Measurement and Management
   - 5.1 Importance and Challenges of Intellectual Capital Measurement
   - 5.2 Approaches of Managing and Measuring Intellectual Capital

6. Performance Measurement Concepts
   - 6.1 Objectives of Performance Measurement Systems
   - 6.2 The Balanced Scorecard
   - 6.3 Performance Prism and SMART Pyramid
   - 6.4 European Foundation for Quality Management (EFQM)

7. Common Characteristics of Different Concepts
   - 7.1 Common Characteristics of Different Concepts
   - 7.2 Pitfalls in Performance Measurement and Management

Literature
Compulsory Reading
Further Reading ▪ Neely, A. (2007). Business performance measurement: Theory and practice (2nd ed.). Cambridge: Cambridge University Press. ▪ Simons, R. (2000). Performance measurement and control systems for implementing strategy: Text and cases (International ed.). Upper Saddle River, NJ: Prentice Hall.

Study Format Distance Learning

Study Format	Course Type
Distance Learning	Online Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
90 h	0 h	30 h	30 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☐ Guideline
☑ Shortcast	☑ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☑ Exam Template	☑ Slides

Study Format myStudies

Study Format	Course Type
myStudies	Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
90 h	0 h	30 h	30 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☐ Guideline
☑ Shortcast	☑ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☑ Exam Template	☑ Slides

Applied Statistics

Course Code: MMET02-01_E

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		5	none

Course Description

In everyday working life, enormous amounts of data are continuously generated, for example in production processes, customer data or population statistics. In this context, the field of statistics is a useful discipline that enables the user to analyze and evaluate this data in order to get to the information content of the underlying data. This information can make a valuable contribution to the control or optimization of underlying processes and knowledge, or help to support strategic or social decisions. Methods of descriptive and inferential statistics are considered in uni-, bi- and multivariate ways and discussed with reference to probability theory.

Course Outcomes

On successful completion, students will be able to

- recognize and explain the role and importance of statistical methods in practical decision-making processes.
- understand the relevance of data to answer empirical questions.
- apply statistical methods in the overall context of concrete problems.
- solve statistical problems by using special statistical software.

Contents

1. Basics
   - 1.1 Descriptive statistics
   - 1.2 Closing statistics
   - 1.3 Probability calculation
2. Bivariate analyses
   - 2.1 Crosstabulations
   - 2.2 Mean comparison test
   - 2.3 Correlations
3. Probability distributions
   - 3.1 Random variables and their distributions
   - 3.2 Normal distribution
   - 3.3 t distribution

4. Statistical estimation methods
   - 4.1 Point estimation
   - 4.2 Interval estimation

5. Hypothesis Testing
   - 5.1 Expected value with known standard deviation (z-test)
   - 5.2 Expected value with unknown standard deviation (t-test)

6. Simple Linear Regression*
   - 6.1 Conceptual considerations
   - 6.2 Regression line
   - 6.3 Quality assessment
   - 6.4 Applications

Literature

Compulsory Reading

Further Reading

- Anderson, D. R., Sweeney, D. J., & Williams, T. A. (2012). Contemporary business statistics with Microsoft Excel: Contemporary business statistics. South-Western College Publishing.
- Harpale, V. K., & Bairagi, V. K. (2019). Applied statistics. Chapman and Hall/CRC.
- McEvoy, D. M. (2018). A guide to business statistics. Wiley.

Study Format Distance Learning

Study Format	Course Type
Distance Learning	Online Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
90 h	0 h	30 h	30 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☑ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☐ Guideline
☑ Shortcast	☑ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☑ Exam Template	☑ Slides

Study Format myStudies

Study Format	Course Type
myStudies	Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
90 h	0 h	30 h	30 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☑ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☐ Guideline
☑ Shortcast	☑ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☑ Exam Template	☑ Slides

Product Development and Design Thinking

Module Code: DLMBPDDT

Module Type	Admission Requirements	Study Level	CP	Student Workload
see curriculum	none	MA	10	300 h

Semester / Term	Duration	Regularly offered in	Language of Instruction and Examination
2. Semester	Minimum 1 semester	WiSe/SoSe	English

Module Coordinator

Prof. Dr. Dorian Mora (Product Development) / Prof. Dr. Dorian Mora (Design Thinking)

Contributing Courses to Module

- Product Development (DLMBPDDT01)
- Design Thinking (DLMBPDDT02)

Module Exam Type

Module Exam	Split Exam
	Product Development • Study Format "myStudies": Exam, 90 Minutes • Study Format "Distance Learning": Exam, 90 Minutes Design Thinking • Study Format "Distance Learning": Written Assessment: Project Report

Weight of Module

see curriculum

Module Contents

Product Development

- Production planning techniques
- Design tasks
- Product development approaches
- Digital product development and organizational aspects

Design Thinking

This course will put students in the mindset of Design Thinking. Students will be introduced to phases and distinct methods for inspiration, as well as the ideation and implementation of products. A current list of topics is located in the Learning Management System.

Learning Outcomes

Product Development

On successful completion, students will be able to

- know the basic definitions and principles of (new) product development.
- understand the key skills in product development.
- discuss, differentiate, and select appropriate product development approaches with respect to a given scenario.
- work with digital product development tools and techniques like CAD, PDM and PLM at a basic level.
- develop own solutions and approaches to academic and practical questions.
- discuss, evaluate, and adapt different digital product development techniques and tools.

Design Thinking

On successful completion, students will be able to

- comprehend, critically reflect on, and adopt the Design Thinking mindset.
- understand the inspiration, ideation, and implementation phases.
- evaluate and identify appropriate methods from the toolbox of human-centered design for given design tasks and challenges.

Links to other Modules within the Study Program	**Links to other Study Programs of the University**
This module is similar to other modules in the field of Design	All Master Programs in the Design, Architecture & Construction fields

Product Development

Course Code: DLMBPDDT01

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		5	none

Course Description

This course aims to provide basic work and problem-solving methods for the successful development of products. It introduces the definition of key design tasks and various alternative product development approaches such as flow-based, lean product development, and design thinking. Finally, the students will become familiar with the use of computer-aided design (CAD) tools and how they integrate into modern product development approaches.

Course Outcomes

On successful completion, students will be able to

- know the basic definitions and principles of (new) product development.
- understand the key skills in product development.
- discuss, differentiate, and select appropriate product development approaches with respect to a given scenario.
- work with digital product development tools and techniques like CAD, PDM and PLM at a basic level.
- develop own solutions and approaches to academic and practical questions.
- discuss, evaluate, and adapt different digital product development techniques and tools.

Contents

1. Introduction
   - 1.1 Basic Definitions
   - 1.2 The Product Development Process
   - 1.3 Indicators and Metrics
   - 1.4 Product Development Models
   - 1.5 Current Trends in Product Development
2. The Product Development Process
   - 2.1 Planning
   - 2.2 Concept Development
   - 2.3 Design
   - 2.4 Testing and Refinement
   - 2.5 Production and Ramp-up

3. Product Development Approaches
   - 3.1 Lean Product Development
   - 3.2 Design Thinking
   - 3.3 Human-Centered Design
   - 3.4 User Experience Strategy
   - 3.5 Open Innovation

4. Digital Tools
   - 4.1 Computer-Aided Design
   - 4.2 Computer-Aided Quality
   - 4.3 Product Data Management
   - 4.4 Product Lifecycle Management

5. Organizational Perspective
   - 5.1 Incremental, Platform, and Breakthrough Development
   - 5.2 Building Teams
   - 5.3 Political Issues in Organizations
   - 5.4 Distributed New Product Development

Literature

Compulsory Reading

Further Reading

- Kahn, K. B., Kay, S. E., Slotegraaf, R. J., & Uban, S. (Eds.). (2012). The PDMA handbook of new productdevelopment (3rd ed.). Hoboken, NJ: John Wiley & Sons. (Database: ProQuest).
- Ottosson, S. (2018). Developing and managing innovation in a fast changing and complex world:Benefiting from dynamic principles. Cham: Springer. (Database: ProQuest).
- Ulrich, K. T., & Eppinger, S. D. (2016). Product design and development (6th ed.). New York, NY:McGraw Hill.

Study Format myStudies

Study Format	Course Type
myStudies	Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
90 h	0 h	30 h	30 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☑ Vodcast	☐ Guideline
☐ Shortcast	☐ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☑ Exam Template	☑ Slides

Study Format Distance Learning

Study Format	Course Type
Distance Learning	Online Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
90 h	0 h	30 h	30 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☑ Vodcast	☐ Guideline
☐ Shortcast	☐ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☑ Exam Template	☑ Slides

Design Thinking

Course Code: DLMBPDDT02

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		5	none

Course Description

In this course, students will receive a hands-on introduction to human-centered design via the Design Thinking method. Beyond conveying the individual basic principles, the procedures in Design Thinking are examined in detail. In order to fully understand Design Thinking in terms of important aspects in practice, selected methods for the individual process steps are presented in theory and application. Students will learn to improve their design process by reflecting on and adapting their activities.

Course Outcomes

On successful completion, students will be able to

- comprehend, critically reflect on, and adopt the Design Thinking mindset.
- understand the inspiration, ideation, and implementation phases.
- evaluate and identify appropriate methods from the toolbox of human-centered design for given design tasks and challenges.

Contents

- The course covers current topics and trends in Design Thinking, illustrating some methods and techniques as well as case studies. Each participant must create a project report on a chosen project, where he/she describes the application of the Design Thinking approach to a real product development scenario.

Literature
Compulsory Reading
Further Reading ▪ IDEO.org. (2015). The Field Guide to Human-Centered Design. A step-by-step guide that will get you solving prob-lems like a designer. Retrieved from http://www.designkit.org/resources/1 ▪ Pressman, Andy (2019): Design Thinking. A Guide to Creative Problem Solving for Everyone, New York : Routledge. ▪ Lockwood, T., & Papke, E. (n.d.). Innovation by design : how any organization can leverage design thinking to pro-duce change, drive new ideas, and deliver meaningful solutions. ▪ Lewrick, M., Link, P., Leifer, L. J., & Langensand, N. (2018). The design thinking playbook : mindful digital transfor-mation of teams, products, services, businesses and ecosystems. John Wiley & Sons.

Study Format Distance Learning

Study Format	Course Type
Distance Learning	Project

Information about the examination	
Examination Admission Requirements	**BOLK:** no **Course Evaluation:** no
Type of Exam	Written Assessment: Project Report

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
120 h	0 h	30 h	0 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☐ Course Book	☐ Creative Lab
☐ Vodcast	☑ Guideline
☐ Shortcast	☐ Live Tutorium/Course Feed
☐ Audio	☑ Slides
☐ Exam Template	

DLMBPDDT02

Agile Start Up Methods

Module Code: DLMIEEEASUM

Module Type	Admission Requirements	Study Level	CP	Student Workload
see curriculum	none	MA	10	300 h

Semester / Term	Duration	Regularly offered in	Language of Instruction and Examination
2. Semester	Minimum 1 semester	WiSe/SoSe	English

Module Coordinator

Prof. Dr. Thomas Winkle (Agile Project Management) / Prof. Dr. Lena Bernhofer (Lean Start Up)

Contributing Courses to Module

- Agile Project Management (DLMIEEAPM01)
- Lean Start Up (DLMIEELSU01)

Module Exam Type

Module Exam	Split Exam
	Agile Project Management • Study Format "Distance Learning": Written Assessment: Case Study Lean Start Up • Study Format "Distance Learning": Exam, 90 Minutes

Weight of Module

see curriculum

Module Contents

Agile Project Management

- Fundamentals of Agile Methods in Project Management
- Traditional and Agile Approaches to Project Management
- Agile Project Management with Scrum
- Agile Project Management with Kanban
- Implementing Agile within the Organization
- Expanding Agile across the Organization

Lean Start Up

- Fundamentals of Lean Start Up
- Lean Start Up: The Core Concept
- The Build-Principles
- The Measure-Principles
- The Learn-Principles
- Lean Start-Up: Use Cases

Learning Outcomes

Agile Project Management

On successful completion, students will be able to

- understand the significance of agile methods to efficiently and effectively manage projects within and across organizations.
- compare the major characteristics of traditional and agile approaches to project management.
- apply the Scrum methodology as a main framework of agile project management.
- apply the Kanban methodology as a main framework of agile project management.
- implement agile value-driven strategies and effective agile product roadmaps into the organization.
- judge the scaling of agile practices across the entire organization.

Lean Start Up

On successful completion, students will be able to

- define the Lean Start Up methodology, its emergence and describe its predecessors – lean management and customer development.
- analyze and describe the concept of Lean Start Up as a new entrepreneurial management method, especially the experimental design and the Build-Measure-Learn-Loop and their relevance for building a start-up in an insecure market environment.
- explain the experimental framework and role of using hypotheses and assumptions for validating a new business idea as well as the building of a Minimum Viable Product.
- explain and apply the systematically measure procedures for testing the underlying assumptions to achieve a problem-solution- and at a later stage a solution-market-fit.
- explain and apply the learning principles based on the systematically measured outcomes to pivot business models, to establish growth and design the start-up organization as an adaptive institution.
- derive typical use cases out of the start-up environment and as well as apply it as an innovation framework for already established companies.

Links to other Modules within the Study Program	**Links to other Study Programs of the University**
This module is similar to other modules in the field of Project Management and Business Administration & Management	All Master Programs in the Business & Management field

Agile Project Management

Course Code: DLMIEEAPM01

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		5	none

Course Description

Agile methods accelerate the development and delivery of a product or service by the division of tasks into short phases of work and frequent reassessment and adaptation of plans. While originally used for software programming, the agile methodology has become a widely used approach in many areas of business. When applied to project management situations, agile contributes to a more flexible planning, a faster determining of the requirements and a more effective executing of a project. The concept of agile is based on the Agile Manifesto which includes four key values and twelve main principles to guide an iterative and people-centric managing of projects. In this course, students are introduced to the agile project management framework with an emphasis on the product owner's role. They learn how to develop the product vision and the product roadmap, organize the project team, identify user roles, write user stories and establish an operant project risk management. This way, students shall also develop a mindset for the agile methodology. The course puts a special emphasis on the Scrum and Kanban framework as two main pillars to agilely manage projects within and across organizations.

Course Outcomes

On successful completion, students will be able to

- understand the significance of agile methods to efficiently and effectively manage projects within and across organizations.
- compare the major characteristics of traditional and agile approaches to project management.
- apply the Scrum methodology as a main framework of agile project management.
- apply the Kanban methodology as a main framework of agile project management.
- implement agile value-driven strategies and effective agile product roadmaps into the organization.
- judge the scaling of agile practices across the entire organization.

Contents

1. Fundamentals of Agile Methods in Project Management
   - 1.1 Definition and Significance of Agile Methods in Project Management
   - 1.2 The Agile Manifesto
   - 1.3 The Agile Values and Principles

2. Traditional and Agile Approaches to Project Management
   - 2.1 Traditional Approaches to Project Management
   - 2.2 Agile Approaches to Project Management
   - 2.3 Comparison of Traditional versus Agile Project Management

3. Agile Project Management with Scrum
   - 3.1 Scrum Values and Principles
   - 3.2 Scrum Roles, Events and Artifacts
   - 3.3 Application Areas of Scrum

4. Agile Project Management with Kanban
   - 4.1 Kanban Values and Principles
   - 4.2 Kanban Boards and Cards
   - 4.3 Application Areas of Kanban

5. Implementing Agile within the Organization
   - 5.1 Implementing Agile Value-driven Delivery Strategies
   - 5.2 Creating an Effective Agile Product Roadmap
   - 5.3 Coaching an Agile Team

6. Expanding Agile across the Organization
   - 6.1 Agile at Scale Practices across the Organization
   - 6.2 Agile Portfolio Management
   - 6.3 Scaled Agile Framework (SAFe)

Literature
Compulsory Reading
Further Reading ▪ Campell, A. (2021). Agile Guide: Perfect Guide to Agile Project Management for Successful Leader. Independently published. ▪ Goodpasture, J. (2015). Project Management the Agile Way: Making it Work in the Enterprise. 2nd edition, J. Ross Publishing, Plantation (Florida/USA). ▪ Hill, T. (2019). Agile Project Management: How to Skillfully Implement Scrum, Run Effective Teams, and Cultivate High-Performance Leadership. Independently published. ▪ Rigby, D.K., Sutherland, J. & Noble, A. (2018). Agile at Scale: How to go from a few teams to hundreds. Harvard Business Review. (URL: https://hbr.org/2018/05/agile-at-scale [last access: 15.03.2021]). ▪ Wysocki, R. K (2019). Effective Project Management: Traditional, Agile, Extreme. 7th edition, Wiley Publ., Indianapolis.

Study Format Distance Learning

Study Format	Course Type
Distance Learning	Case Study

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Written Assessment: Case Study

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
110 h	0 h	20 h	20 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☑ Guideline
☑ Shortcast	☐ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☐ Exam Template	☑ Slides

Lean Start Up

Course Code: DLMIEELSU01

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		5	none

Course Description

In recent years, entrepreneurs and especially start-ups gain high attention for their work and their potential to transform the economy and society by extending the innovation and digital capabilities. Lean Start Up is developed out of the product development experiences of start-ups and is seen as a new entrepreneurial management method. Inspired by the two concepts of lean management and customer development, Lean Start Up achieves a faster and customer-centric product and business model process by adopting a combination of business-hypothesis-driven experimentation, iterative product releases, systematically testing and validated learning. At its core, every product is treated as an experiment, which is tested systematically by using a steady loop cycle of build, measure and learn until the product-market-fit is achieved. This course introduces the students to the Lean Start Up methodology, its definition and core features. The course is designed to teach the students to understand and apply the different principles of Lean Start Up. The objective is that the students are empowered to use Lean Start Up as an entrepreneurial process for future product and business model developments.

Course Outcomes

On successful completion, students will be able to

- define the Lean Start Up methodology, its emergence and describe its predecessors – lean management and customer development.
- analyze and describe the concept of Lean Start Up as a new entrepreneurial management method, especially the experimental design and the Build-Measure-Learn-Loop and their relevance for building a start-up in an insecure market environment.
- explain the experimental framework and role of using hypotheses and assumptions for validating a new business idea as well as the building of a Minimum Viable Product.
- explain and apply the systematically measure procedures for testing the underlying assumptions to achieve a problem-solution- and at a later stage a solution-market-fit.
- explain and apply the learning principles based on the systematically measured outcomes to pivot business models, to establish growth and design the start-up organization as an adaptive institution.
- derive typical use cases out of the start-up environment and as well as apply it as an innovation framework for already established companies.

Contents

1. Fundamentals of Lean Start Up
   - 1.1 The Emergence and Definition of Lean Start Up
   - 1.2 Lean Management
   - 1.3 Customer Development

2. Lean Start Up: The Core Concept
   - 2.1 Entrepreneurial Management
   - 2.2 Validated Learning
   - 2.3 The Build-Measure-Learn-Loop

3. The Build-Principles
   - 3.1 An Experiment is a Product
   - 3.2 Business Hypotheses and the “Leap and Faith Assumptions”
   - 3.3 The Minimum Viable Product (MVP)

4. The Measure-Principles
   - 4.1 Understand the Problem
   - 4.2 Define the Solution
   - 4.3 Validate Qualitatively and Quantitatively

5. The Learn-Principles
   - 5.1 Pivot (or perservere)
   - 5.2 Engine of Growth
   - 5.3 An Adaptive Organization

6. Lean Start Up: Use Cases
   - 6.1 Lean Start Up Use Case 1: The Problem, Solution and MVP interviews
   - 6.2 Lean Start Up Use Case 2: Lean Analytics for Two-Sided Marketplaces
   - 6.3 Lean Start Up Use Case 3: Innovation Framework in Established Companies

Literature
Compulsory Reading
Further Reading ▪ Blank, S. G. (2007): The Four Steps to the Epiphany. Successful Strategies for Products that Win. 3rd Edition, Quad/Graphics. ▪ Ries, E. (2011): The Lean Startup. How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses. 1st Edition, Currency, New York. ▪ Maurya, A. (2012): Running Lean. Iterate from Plan A to a Plan That Works. 2nd Edition, O´Reilly, Sebastopol. ▪ Croll, A./Yoskovitz (2013): Lean Analytics. Use Data to Build a Better Startup Faster. 1st Edition, O´Reilly, Sebastopol.

Study Format Distance Learning

Study Format	**Course Type**
Distance Learning	Online Lecture

Information about the examination	
Examination Admission Requirements	**BOLK:** yes **Course Evaluation:** no
Type of Exam	Exam, 90 Minutes

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
90 h	0 h	30 h	30 h	0 h	150 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☑ Course Book	☐ Creative Lab
☐ Vodcast	☐ Guideline
☑ Shortcast	☐ Live Tutorium/Course Feed
☑ Audio	☐ Reader
☑ Exam Template	☑ Slides

Master Thesis

Module Code: DLMMTHES

Module Type	Admission Requirements	Study Level	CP	Student Workload
see curriculum	See current study and exam regulations (SPO)	MA	15	450 h

Semester / Term	Duration	Regularly offered in	Language of Instruction and Examination
2. Semester	Minimum 1 semester	WiSe/SoSe	English

Module Coordinator

Degree Program Advisor (SGL) (Master Thesis) / Degree Program Advisor (SGL) (Colloquium)

Contributing Courses to Module

- Master Thesis (DLMMTHES01)
- Colloquium (DLMMTHES02)

Module Exam Type

Module Exam	Split Exam
	Master Thesis • Study Format "Distance Learning": Written Assessment: Master Thesis (90) • Study Format "myStudies": Written Assessment: Master Thesis (90) Colloquium • Study Format "myStudies": Presentation: Colloquium (10) • Study Format "Distance Learning": Presentation: Colloquium (10)

Weight of Module

see curriculum

Module Contents

Master Thesis

- Written Master Thesis

Colloquium

- Thesis Defense

Learning Outcomes

Master Thesis

On successful completion, students will be able to

- work on a problem from their major field of study by applying the specialist and methodological skills they have acquired during their studies.
- analyse selected tasks with scientific methods, critically evaluate them and develop appropriate solutions under the guidance of an academic supervisor.
- record and analyse existing (research) literature appropriate to the topic of the Master's thesis.
- prepare a detailed written elaboration in compliance with scientific methods.

Colloquium

On successful completion, students will be able to

- present a problem from their field of study under consideration of academic presentation and communication techniques.
- reflect on the scientific and methodological approach chosen in the Master's thesis.
- actively answer subject-related questions from subject experts (experts of the Master's thesis).

Links to other Modules within the Study Program	Links to other Study Programs of the University
All modules in the master program	All Master Programmes

Master Thesis

Course Code: DLMMTHES01

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		13.5	See current study and exam regulations (SPO)

Course Description

The aim and purpose of the Master's thesis is to successfully apply the subject-specific and methodological competencies acquired during the course of study in the form of an academic dissertation with a thematic reference to the major field of study. The content of the Master's thesis can be a practical-empirical or theoretical-scientific problem. Students should prove that they can independently analyse a selected problem with scientific methods, critically evaluate it and work out proposed solutions under the subject-methodological guidance of an academic supervisor. The topic to be chosen by the student from the respective field of study should not only prove the acquired scientific competences, but should also deepen and round off the academic knowledge of the student in order to optimally align his professional abilities and skills with the needs of the future field of activity.

Course Outcomes

On successful completion, students will be able to

- work on a problem from their major field of study by applying the specialist and methodological skills they have acquired during their studies.
- analyse selected tasks with scientific methods, critically evaluate them and develop appropriate solutions under the guidance of an academic supervisor.
- record and analyse existing (research) literature appropriate to the topic of the Master's thesis.
- prepare a detailed written elaboration in compliance with scientific methods.

Contents

- Within the framework of the Master's thesis, the problem as well as the scientific research goal must be clearly emphasized. The work must reflect the current state of knowledge of the topic to be examined by means of an appropriate literature analysis. The student must prove his ability to use the acquired knowledge theoretically and/or empirically in the form of an independent and problem-solution-oriented application.

Literature
Compulsory Reading
Further Reading ▪ Bui, Y. N. (2013). How to Write a Master's Thesis (2nd ed.). SAGE Publications, Incorporated. ▪ Turabian, K. L. (2013). A Manual for Writers of Research Papers, theses, and dissertations (8th ed.). University of Chicago Press. ▪ Further subject specific literature

Study Format Distance Learning

Study Format	Course Type
Distance Learning	Thesis

Information about the examination	
Examination Admission Requirements	**BOLK:** no **Course Evaluation:** no
Type of Exam	Written Assessment: Master Thesis

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
405 h	0 h	0 h	0 h	0 h	405 h

Instructional Methods

- ☐ Learning Sprints®
- ☐ Course Book
- ☐ Vodcast
- ☐ Shortcast
- ☐ Audio
- ☐ Exam Template
- ☐ Review Book
- ☐ Creative Lab
- ☑ Guideline
- ☐ Live Tutorium/Course Feed
- ☑ Slides

Study Format myStudies

Study Format	Course Type
myStudies	Thesis

Information about the examination	
Examination Admission Requirements	**BOLK:** no **Course Evaluation:** no
Type of Exam	Written Assessment: Master Thesis

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
405 h	0 h	0 h	0 h	0 h	405 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☐ Course Book	☐ Creative Lab
☐ Vodcast	☑ Guideline
☐ Shortcast	☐ Live Tutorium/Course Feed
☐ Audio	☑ Slides
☐ Exam Template	

Colloquium

Course Code: DLMMTHES02

Study Level	Language of Instruction and Examination	Contact Hours	CP	Admission Requirements
MA	English		1.5	See current study and exam regulations (SPO)

Course Description

The colloquium will take place after submission of the Master's thesis. This is done at the invitation of the experts. During the colloquium, the students must prove that they have fully independently produced the content and results of the written work. The content of the colloquium is a presentation of the most important work contents and research results by the student, and the answering of questions by the experts.

Course Outcomes

On successful completion, students will be able to

- present a problem from their field of study under consideration of academic presentation and communication techniques.
- reflect on the scientific and methodological approach chosen in the Master's thesis.
- actively answer subject-related questions from subject experts (experts of the Master's thesis).

Contents

- The colloquium includes a presentation of the most important results of the Master's thesis, followed by the student answering the reviewers' technical questions.

Literature

Compulsory Reading

Further Reading

- Renz, K.-C. (2016): The 1 x 1 of the presentation. For school, study and work. 2nd edition, Springer Gabler, Wiesbaden.

Study Format myStudies

Study Format	Course Type
myStudies	Thesis Defense

Information about the examination	
Examination Admission Requirements	**BOLK:** no **Course Evaluation:** no
Type of Exam	Presentation: Colloquium

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
45 h	0 h	0 h	0 h	0 h	45 h

Instructional Methods	
☐ Learning Sprints®	☐ Review Book
☐ Course Book	☐ Creative Lab
☐ Vodcast	☑ Guideline
☐ Shortcast	☐ Live Tutorium/Course Feed
☐ Audio	☑ Slides
☐ Exam Template	

Study Format Distance Learning

Study Format	Course Type
Distance Learning	Thesis Defense

Information about the examination	
Examination Admission Requirements	**BOLK:** no **Course Evaluation:** no
Type of Exam	Presentation: Colloquium

Student Workload					
Self Study	**Contact Hours**	**Tutorial**	**Self Test**	**Independent Study**	**Hours Total**
45 h	0 h	0 h	0 h	0 h	45 h

Instructional Methods

- ☐ Learning Sprints®
- ☐ Course Book
- ☐ Vodcast
- ☐ Shortcast
- ☐ Audio
- ☐ Exam Template
- ☐ Review Book
- ☐ Creative Lab
- ☑ Guideline
- ☐ Live Tutorium/Course Feed
- ☑ Slides