⬡

LEUPHANA
UNIVERSITÄT LÜNEBURG

GAZETTE

Official Newsletter of the Corporation and the Foundation

— Third Amendment to Subject-Specific Annex 6.3 Master Management & Data Science to the Framework Examination Regulations for the Master's Programmes at the Graduate School of Leuphana University Lüneburg
— Re-announcement of the Subject-Specific Annex 6.3 Master Management & Data Science to the Framework Examination Regulations for the Master's Programmes at the Graduate School of Leuphana University Lüneburg

Third Amendment to Subject-Specific Annex 6.3 Master Management & Data Science to the Framework Examination Regulations for the Master's Programmes at the Graduate School of Leuphana University Lüneburg

On the basis of § 44 Para. 1 Sentence 2 of the Lower Saxony Higher Education Act (NHG) in the version of 26 February 2007 (Nds. GVBll. p. 69), last amended by Article 7 of the Act of 23 March 2022 (Nds. GVBl. p. 218), the Faculty Council of the Faculty of Management and Technology on 9 November 2022 adopted the following third amendment to the subject-specific Annex 6.3 Master Management & Data Science of 3 December 2014. December 2014 (Leuphana Gazette No. 6/15 of 23 April 2015) in the now applicable version to the Framework Examination Regulations for the Master's Programmes at the Graduate School of Leuphana University of Lüneburg of 18 February 2015 (Leuphana Gazette No. 22/15 of 25 June 2015) in the version of the Third Amendment of 20 November 2019 (Leuphana Gazette No. 20/20 of 31 March 2020). The Presidential Board of Leuphana University Lüneburg approved this amendment pursuant to Section 37 (1) sentence 3 no. 5b) NHG on 30 November 2022.

SECTION I

Subject-specific Annex 6.3 Master Management & Data Science to the Framework Examination Regulations for the Master's programmes at the Graduate School of Leuphana University of Lüneburg is amended as follows:

(1) The module table "Modules of Semester 1 in the Major Management & Data Science" is amended as follows:

    a) The module "Applied Statistical Data Analysis" is amended as follows: In the Contents column, the new text reads "Students will gain an overview of analytical and statistical tools. The module also introduces students to the programming language Python and the basics of analysis with Python, tying this in with several essential concepts of data science. Students acquire an overview of available analytical and statistical tools. The module also introduces students to the programming language Python and the basics of analysis with Python, tying this in with several essential concepts of data science.

(2) The module table "Modules of the 4th semester in the major Management & Data Science" is amended as follows:

    a) The module "Masters dissertation" is amended as follows: In the column Contents, it now reads "Masters dissertation: a dissertation is completed by each student, working on his or her own. The dissertation topic must be related to Data science. Masters dissertation: a dissertation is completed by each student, working on his or her own. The topic of the Master's thesis must be related to Data Science".

(3) The section "Entry into force" is amended as follows: This subject-specific annex shall enter into force after its approval by the Presidential Board of Leuphana University Lüneburg following its publication in the official gazette of Leuphana University Lüneburg as of the winter semester 2023/2024.

SECTION II

This amendment shall enter into force after its approval by the Presidential Board of Leuphana University Lüneburg on the day after its announcement in the Official Gazette for the winter semester 2023/24.

Re-announcement of the Subject-Specific Annex 6.3 Master Management & Data Science to the Framework Examination Regulations for the Master's Programmes at the Graduate School of Leuphana University Lüneburg

The Presidential Board of Leuphana University of Lüneburg hereby publishes the wording of the subject-specific Annex No. 6.3 Master Management & Data Science to the Framework Examination Regulations for the Master's Programmes at the Graduate School of Leuphana University of Lüneburg of 03 December 2014 (Leuphana Gazette No. 6/15 of 23 April 2015).

In the version now in force, taking into account

-    of the first amendment of 12 February 2020 (Leuphana Gazette 74/2020 of 25 June 2020).
-    of the second amendment of 13 April 2022 (Leuphana Gazette 46/2022 of 09 May 2022).
-    of the third amendment of 09 November 2022 (Leuphana Gazette 119/2022 of 21st December 2022).

to the Framework Examination Regulations for the Master's Programmes at the Graduate School of Leuphana University Lüneburg of 18 February 2015 (Leuphana Gazette No. 22/15 of 25 June 2015) in the version of the Third Amendment of 20 November 2020 (Leuphana Gazette No. 20/20 of 31 March 2020).

Section I

The regulations of the framework examination regulations for the Master's programmes at the Graduate School of the Leuphana University of Lüneburg are supplemented as follows:

to § 3 Para. 6, details on the structure and content of the subject-specific area of the Master's degree:

Module overview Master Management & Data Science

(see also the subject-specific appendix 6.1 Management Studies as well as the subject-specific appendix 8 Complementary Studies.)

Semester 4	Master- Forum	Master thesis				
Semester 3	Management Studies	Elective module	Elective module	Research Project	Data Privacy and Ethics	Complementary studies
Semester 2	Management Studies	Deep Learning	Probabilistic Modelling	Analysing Networks	Forecasting and Simulation	Complementary studies
Semester 1	Management Studies	Learning from Data	Mathematical Foundation	Applied Statistical Data Analysis	Data Economy	Complementary studies

The following four compulsory modules must be completed in the 1st semester:
- Learning from Data
- Mathematical Foundation
- Applied Statistical Data Analysis
- Data Statistical Data Economy

The following four compulsory modules must be completed in the 2nd semester:
- Deep Learning
- Probabilistic Modelling
- Analysing Networks
- Forecasting and Simulation.

In the 3rd semester, the following two compulsory modules must be completed:
- Data Privacy and Ethics
- Research Project.

Students have to complete a total of 2 additional elective modules in the 3rd semester. Major-specific modules from the following catalogue are offered:
- Data Science Seminar
- Special Topics in Data Science

Alternatively, a maximum of two elective modules from other Masters of the Master's programme Management can be completed.

Re § 2, Aim of the study programme, purpose of the examination

The Master's programme in Management & Data Science is aimed at students who want to expand their skills in data analysis of real phenomena. Graduates are able to analyse massive and complex data sets, develop and implement statistical models based on modern information technology and derive appropriate measures. In addition, the degree programme offers interdisciplinary teaching and research, which enables students to acquire application-oriented knowledge for practice-oriented management solutions. By integrating management, data analysis and information systems knowledge, graduates can develop the latest innovative solutions for the management of information-driven companies. This prepares graduates to take on roles in analysis, design, consultancy and strategic work.

Re § 5, Determination of the Academic Degree

Master of **Science**

Re § 6 Para. 3, Language of teaching and examination

The Master Management & Data Science is offered in English. The teaching and examination language of the major is English.

on § 7 Para. 1, examination performance in the Master's Forum (colloquium)

The examination to be taken in the Master Forum (colloquium) of the Master Data Science is ungraded and therefore to be assessed as "passed" or "failed".

Regarding § 8 Para. 1, Processing Time of the Master's Thesis

The processing time for the Master's thesis is twenty weeks.

to § 8 Para. 8, Oral Examination

An oral examination shall be conducted in addition to the Master's thesis. The grade for the oral examination is to be included with a share of one fifth in the overall grade of the Master's thesis.

Modules of the 1st semester in the Master Management & Data Science

Module	Content	Types of taught-components (type and number of course, CH)	Module requirements	CP	Comment
Compulsory modules					
Mathematical Foundation (Ma-DS-1)	This module teaches students fundamental mathematics in the following fields: theory of probability and statistics (descriptive statistics, parameter estimation, statistical test procedures, distributions, regression), linear algebra (vector spaces, orthogonality, determinants, eigenvalues and eigenvectors) and stochastic processes (Markov chains).	1 Lecture (2 CH) and 1 Exercise (2 CH)	1 Written examination (90 min)	5	
Learning from Data (Ma-DS-2)	This module teaches basic theory and skills for statistical learning. These include linear models (regression and classification), regularisation and feature selection, model assessment and advanced concepts (e.g. neural networks and support vector machines).	1 Lecture (2 CH) and 1 Exercise (2 CH)	1 Written examination (90 min)	5	

Continuation of the module table of the 1st semester in the Master Management & Data Science

Module	Content	Types of taught-components (type and number of course, CH)	Module requirements	CP	Comment
Applied Statistical Data Analysis (Ma-DS-3)	Students will gain an overview of analytical and statistical tools. The module also introduces students to the programming language Python and the basics of analysis with Python, tying this in with several essential concepts of data science. Students acquire an overview of available analytical and statistical tools.	1 Lecture (2 CH) and 1 Exercise (2 CH)	1 Written examination (90 min) or 1 Combined assessment	5	
Data Economy (Ma-DS-4)	This module explores the following topics: the fundamentals of the data economy, structured versus unstructured data, stakeholder-specific evaluation of data, data quality management, e-business and digital business models, cloud computing, data-centric marketing intelligence, open data initiatives and knowledge co-creation.	1 Lecture (2 CH)	1 Written examination (90 min) or 1 Combined assessment	5	

Modules of the 2nd semester in the Master Management & Data Science

Module	Content	Course forms (number, type and SWS)	Type and number of Audit services (according to § 7 RPO)	CP	Comment
Compulsory modules					
Deep Learning (Ma-DS-5)	This course deals with deep neural networks, perceptrons, multi-layer perceptrons, backpropagation, autoencoder, GANs, LSTMs, deep reinforcement learning, etc.	1 Lecture (2 CH) and 1 Exercise (2 CH)	1 Written examination (90 min) or 1 Combined assessment	5	
Probabilistic Modelling (Ma-DS-6)	This module covers the following topics: graphical models and belief systems, the fundamentals of Bayesian statistics, the Markov chain Monte Carlo approach, regression models, non-linear models and classification, hierarchical models, model selection, specific application packages (e.g. JAGS, Stan) and current trends.			5	

Continuation of the modules of the 2nd semester in the Master Management & Data Science

Module	Content	Course forms (number, type and SWS)	Type and number of Audit services (according to § 7 RPO)	CP	Comment
Analysing Networks (Ma-DS-7)	Students will learn the fundamentals of graph theory and network analysis and explore the following topics in more depth: networking dimensions, random graph models, community detection, hypothesis testing in the context of network data and tools for network analysis (e.g. Pajek, UCInet and Rsiena).	1 Lecture (2 CH)	1 Written examination (90 min) or 1 Combined assessment	5	
Forecasting and Simulation (Ma-DS-8)	The module explores the theory and application of statistical methods and/or methods of machine learning for predicting and simulating data with temporal dependencies.	1 Lecture (2 CH) and 1 Exercise (2 CH)	1 Written examination (90 min) or 1 Combined assessment	5	

Modules of the 3rd semester in the Master Management & Data Science

Module	Content	Course forms (number, type and SWS)	Type and number of Audit services (according to § 7 RPO)	CP	Comment
Mandatory module					
Data Privacy and Ethics (Ma-DS-9)	The module covers the challenges and limits of data as a public good,regulatory approaches to data protection in the context of big data, constructive data protection mechanisms and a possible framework for the institutional control of data protection.	1 Lecture (2 CH)	1 Written examination (90 min) or 1 Combined assessment	5	
Research Project (Ma-DS-10)	With assistance from staff, students will investigate a research question or question from practice.	1 seminar (2 CH)	1 Combined assessment	5	
Elective module					
Data Science Seminar (Ma-DS-11a)	Seminar on the latest methods / applications from the field of data science.	1 seminar (2 CH)	1 Combined assessment	5	

Continuation of the modules of the 3rd semester in the Master Management & Data Science

Module	Content	Course forms (number, type and SWS)	Type and number of Audit services (according to § 7 RPO)	CP	Comment
Special Topics in Data Science (Ma-DS-11b)	This module explores the use of data science methods in a selected application context (e.g. geodata, the Semantic Web, social media platforms, recommender systems or search engine marketing).	1 Lecture (2 CH)	1 Combined assessment	5	

Modules of the 4th semester in the Master Management & Data Science

Module	Content	Course forms (number, type and SWS)	Type and number of Audit services (according to § 7 RPO)	CP	Comment
Compulsory modules					
Masters Forum (Ma-DS-12)	Students will report on the progress of their Masters dissertation and present it for discussion.	1 Colloquium (1CH)	1 Written paper (passed/ not passed)	5	
Masters dissertation (Ma-DS-13)	Masters dissertation: a dissertation is completed by each student, working on his or her own. The dissertation topic must be related to Data science.	none	1 Masters Dissertation and 1 Oral examination	25	

Section II
Entry into force

This subject-specific annex shall enter into force after its approval by the Presidential Board of Leuphana University Lüneburg following its publication in the official gazette of Leuphana University Lüneburg for the winter semester 2023/24.