Description of the educational programme (Study Units)

Data Driven Decision Making in Business

2024-2025

Version July 2024

Module Descriptions

DATRDRD05 - Project M3DMiB

1. General information	
Long English name of course	Minor DDDM: Project
Short English name of course	Project M3DMiB
Course code	DATDRD05 – Project M3DMiB
Degree programme and cluster	Minor Data Driven Decision Making (M3DM) Minor Data Driven Decision Making
Teaching period	P1 and P2 and P3 and P4
Method of enrolment for educational activities	Via Osiris
ECTS credits, study load and contact hours	Study load: 10 EC Scheduled contact time: 48.75 hours Expected self-study time: 231.25 hours Total assigned study load: 280 hours
Course entry requirements	Approval from bachelor programme the student is enrolled in. Basic knowledge on data management courses (e.g. Modelling, Statistics, Big Data) and research courses.
Prior knowledge	

2. Content and organisation	
Professional task	Students will write a management report to the project commissioner. The report must include the solutions' script that can be run to simulate or prove that the solution is workable. The project is based on an actual assignment by a commissioner, who is either a company, research institute, or public sector institute. The management report must also include an executive summary. The students will present their findings and defend the decisions made.
Exit qualifications / Programme Learning Outcomes (PLO)	WT01: Use the process of thoughtful evaluation to deliberately formulate a reasonable conclusion WT02: Create innovative ideas in a changing business environment in a systematic fashion WW04: Communicate (business) messages effectively and persuasively using advanced English to an (un)informed audience WW06: Collaborate effectively with different kinds of stakeholders in different cultural, organisational and political landscapes to contribute to achieving agreed goals WW07: Produce management information from various data sources in an international business environment LW10: Formulate one's own position concerning ethical and social responsibility in a professional environment TWM24: Analyse a complex business problem in an international business setting with use of adequate research design, resulting in an evidence-based, feasible solution
General description	Project M3DMiB is the final project of students to apply their knowledge and skills obtained during the foundation and the various e - learning material that is available for them. The e-learning material contains various tools, and techniques, used in data science.

	The e-learning material is helpful is understanding or solving the problem within the project. Classes will be scheduled for the students to ask and get expert instruction on which tools are useful for which situations. Students questions will also be answered during those scheduled moments.
	During the project the students are expected to work independently with some supervision, both from the company as well as from the academic coach.
	The real - life company problem that the students must deal with involve any of the following business - related fields:
	· Logistics/Supply chain,
	· Marketing & Sales,
	· Finance, and
	· Human Resources.
	Each team will be assigned an academic coach. The project commissioner will also guide the students when information and/or data from the commissioner are required. The coach will guide the teams in the process of acquiring skills necessary for the project assignment. He will also answer students' questions related to the tools, skills and technique necessary for the project activities.
	The project teams will be as diverse as possible, both on culture, study programme, knowledge, and skills in data science.
Cohesion	The SU Data Driven Decisions Making in Business - Project is part of the minor Data Driven Decision Making in Business. The total programme consists of 6 Foundation courses to build the basis for the basic knowledge and understanding on Data Science. There are also 4 Electives courses the students choose depending on own interest and the project being executed as the knowledge from those subjects are necessary to execute the project.
Mandatory participation	It is mandatory to meet the academic advisor and the commissioner at the beginning and end of the project.
Maximum number of participants	28
Compensation options	N.A.
Activities and/or instructional formats	Seminar / Tutorial / Working lecture
Required literature / description of learning material	Course Manual on Brightspace Powerpoint slide on Brightspace Topic - specific articles/reports/etc (hand - outs to be found on Brightspace)
Required software / required materials	Software is dependent on the requirement of the project.
Extra contributions	N.A.

3. Examination	
DATDRD05_T01	Project - MDDDM

Exam code: DATDRD05_T01 (Assignment - Project M3DMiB)	
Name (modular) exam	DATDRD05 – Assignment Project M3DMiB
Code (modular) exam	DATDRD05_T01
Assessment criteria	A. The criteria for assessing the relevant (management) report is based on TMW24 (Business research) and WW7 (Management of Information as Digital Citizen). The students must demonstrate the ability to: - Clearly describe the management problem and project objectives using appropriate business terms. - Do proper literature research on the current developments related to the given data driven decision making problem and

on the relevant models that could potentially solve the given problem.
- Collect field data and analyze these data using the appropriate methodology, which will lead to meaningful results and conclusions.
- Derive the proper root causes to the problems using proper data analytic tools and a visual model, determining relevant objectives to be realized.
- Come up with relevant management solutions on how to improve the given data driven problem.
- Come up with a time planning to realise the proposed improvements.

B. The criteria for assessing the oral presentation is based on WW4 (Communication). The student must demonstrate the ability to:
- Present the project in a creative, concise, and convincing way based on the target group.
- Communicate effectively (both presentation and orally) the outcome of the project, which is deemed acceptable by the target stakeholder.
- Defend the results of the project and its consequences in company processes in a logical and convincing way.
- Defend the relevance of the chosen solutions in a convincing way.

C. The criteria for assessing collaboration is based on WW6 (Collaboration). The student must demonstrate the ability to:
- Demonstrates ability to work effectively and respectfully with diverse teams.
  Assumes shared responsibility for collaborative work, and values the individual contributions made by each team member.

Exam format	Assignment/professional product
Exam type, if written	N.A.
Individual / group	Group, Individual
Assessment periods	P2, P4
Duration exam	30 minutes
Permitted resources / aids	N.A.
Minimum result	5.5
Weight factor of modular exam	100%
Method of enrolment for exam	Enrolment
Discussion and review	Via Osiris
Other info	Management report + A3 reporting (code will follow later) Individual Peer Assessment .

Changes compared to last year	N.A.
Date from which the SU will no longer be offered	N.A.

DATDRD05 (MDDF-MST) - Foundation Math & Stats in R, Python

1. General information	
Long English name of course	Minor DDDM: Foundation – Math & Statistics
Short English name of course	Foundation Math & Stats in R, Python
Course code	DATDRD05 - Foundation – Math & Statistics
Degree programme and cluster	Minor Data Driven Decision Making (M3DM) Minor Data Driven Decision Making
Teaching period	P1 and P3
Method of enrolment for educational activities	Via Osiris
ECTS credits, study load and contact hours	Study load: 2.5 EC Scheduled contact time: 15.75 hours Expected self-study time: 54.25 hours Total assigned study load: 70 hours
Course entry requirements	Approval from bachelor programme the student is enrolled in.
Prior knowledge	

2. Content and organisation	
Professional task	A report showing a mastery in the scripting of Python in solving complex statistical problems.
Exit qualifications / Programme Learning Outcomes (PLO)	WT01: Use the process of thoughtful evaluation to deliberately formulate a reasonable conclusion WW07: Produce management information from various data sources in an international business environment
General description	This module is both a refresher course in basic mathematics and statistics, and an introduction to use Python for solving basic mathematical and statistical problems.
Cohesion	Part of the minor MDD
Mandatory participation	N.A.
Maximum number of participants	28
Compensation options	N.A.
Activities and/or instructional formats	Lecture Self-study Seminar / Tutorial / Working lecture
Required literature / description of learning material	Open source online work book available on Brightspace. Nield, T. (2022). Essntial Math for Data Science. O'Reilly Media, Inc.
Required software / required materials	R (available via https: //cran.r - project.org/) RStudio (available via https: //rstudio.com/products/rstudio/download/)
Extra contributions	N.A.

3. Examination	
DATDRD05_T02	Assignment -Mathematics & Statistics in R or Python

Exam code: DATDRD05_T02 (Assignment - Mathematics & Statistics in R or Python - MDDDM)	
Name (modular) exam	DATDRD05 – Assignment Mathematics & Statistics in R or Python
Code (modular) exam	DATDRD05_T02

Assessment criteria	After studying this module, you should be able to understand and apply: - The basics of math and calculus - The principles of Probability Theory - The basic principles of descriptive and inferential statistics - Python or other data science script languages
Exam format	Assignment/professional product
Exam type, if written	N.A.
Individual / group	Individual
Assessment periods	P1, P3
Duration exam	4 hours
Permitted resources / aids	All resources permitted. Students can write the script/report from home.
Minimum result	5.5
Weight factor of modular exam	100%
Method of enrolment for exam	Via Osiris
Discussion and review	N.A.
Other info	

Changes compared to last year	N.A.
Date from which the SU will no longer be offered	N.A.

DATDRD05 (MDDF-DS) - Data science for business

1. General information	
Long English name of course	Minor DDDM: Foundation – Data Science
Short English name of course	Data science for business
Course code	DATDRD05 – Data science for business
Degree programme and cluster	Minor Data Driven Decision Making (M3DM) Minor Data Driven Decision Making
Teaching period	P1 and P3
Method of enrolment for educational activities	Via Osiris
ECTS credits, study load and contact hours	Study load: 2.5 EC Scheduled contact time: 15.75 hours Expected self-study time: 54.25 hours Total assigned study load: 70 hours
Course entry requirements	Approval from bachelor programme the student is enrolled in.
Prior knowledge	

2. Content and organisation	
Professional task	Report and Presentation on describing data science challenges workflow for data driven decision making.
Exit qualifications / Programme Learning Outcomes (PLO)	WW04: Communicate (business) messages effectively and persuasively using advanced English to an (un)informed audience. WW06: Collaborate effectively with different kinds of stakeholders in different cultural, organisational and political landscapes to contribute to achieving agreed goals. WW07: Produce management information from various data sources in an international business environment. TWM24: Analyse a complex business problem in an international business setting with use of adequate research design, resulting in an evidence-based, feasible solution.
General description	The course will provide the student with a non - technical overview of data science, and types of data science techniques. The focus lies on critical thinking and the full DS process (based on CRISP).
Cohesion	This module provides relevant knowledge and skills in Data Science. The knowledge and skills are necessary for the execution of the project in this minor.
Mandatory participation	N.A.
Maximum number of participants	28
Compensation options	N.A.
Activities and/or instructional formats	Seminar / Tutorial / Working lecture / Self-study
Required literature / description of learning material	Provost, F., & Fawcett, T. (2013). Data Science for Business: What you need to know about data mining and data - analytic thinking. O'Reilly Media, Inc. All material, except for the book stated above (Provost, F., & Fawcett), will be open source or freely available via the LMS (Brightspace).
Required software / required materials	R and RStudio / Python / Visual Studio Code.
Extra contributions	N.A.

3. Examination	
DATDRD05_T03	Presentation - Data science for business - the CRISP model for data mining

Exam code: DATDRD05_T03 (Presentation - Data science for business - the CRISP model for data mining)	
Name (modular) exam	DATDRD05 – Presentation Data science for business - the CRISP model for data mining
Code (modular) exam	DATDRD05_T03
Assessment criteria	- The student can perform a well-defined task independently in a relatively clearly arranged situation. - The student can perform in a complex and unpredictable situation under supervision. - The student can translate a business problem into an appropriate setup of the data mining process - The student can list commonly applied data mining methods The students can determine the drivers of success for creating a data driven business.
Exam format	Presentation
Exam type, if written	N.A.
Individual / group	Group, Individual
Assessment periods	P1, P3
Duration exam	N.A.
Permitted resources / aids	N.A.
Minimum result	5.5
Weight factor of modular exam	100%
Method of enrolment for exam	Via Osiris
Discussion and review	Yes
Other info	N.A.

Changes compared to last year	N.A.
Date from which the SU will no longer be offered	N.A.

DATDRD05 (MDDF-STO) - Storytelling with Data

1. General information	
Long English name of course	Minor DDDM: Foundation – Storytelling with Data
Short English name of course	Storytelling with Data
Course code	DATDRD05 – Storytelling with data
Degree programme and cluster	Minor Data Driven Decision Making (M3DM) Minor Data Driven Decision Making
Teaching period	P1 and P3
Method of enrolment for educational activities	Via Osiris
ECTS credits, study load and contact hours	Study load: 2.5 EC Scheduled contact time: 15.75 hours Expected self-study time: 54.25 hours Total assigned study load: 70 hours
Course entry requirements	Approval from bachelor programme the student is enrolled in.
Prior knowledge	

2. Content and organisation	
Professional task	Report transforming data sets into visual.
Exit qualifications / Programme Learning Outcomes (PLO)	WT02: Create innovative ideas in a changing business environment in a systematic fashion WW04: Communicate (business) messages effectively and persuasively using advanced English to an (un)informed audience WW07: Produce management information from various data sources in an international business environment TWM24: Analyse a complex business problem in an international business setting with use of adequate research design, resulting in an evidence-based, feasible solution
General description	This course is for students who are interested to extend their data analytics skills through visualization and compelling storytelling. The main focus of this course is not on hard-core analytics but on the translation of the analytical results in a simple and meaningful visual for storytelling in a business setting. Data visualization is a storytelling of data using graphical forms. In this course, the student will be exposed to data analysis and basic visualization techniques (e.g. principal component analysis and other clustering techniques) and to choosing the right graphical forms for data story telling. Workshops will also be given to level up the data storytelling skills of students.
Cohesion	This module provides relevant knowledge and skills in Data Science. The knowledge and skills are necessary for the execution of the project in this minor.
Mandatory participation	80% of the class must be attended by the students because of the nature of the teaching strategy (group work) and mutual dependence on group members. Mandatory participation and active participation curb piggybacking as well.
Maximum number of participants	28
Compensation options	N.A.

Activities and/or instructional formats	Lecture Seminar / Tutorial / Working lecture
Required literature / description of learning material	Book: Cole Nussbaumer Knaflic. 2015. Storytelling with data: A data visualization guide for Business Professionals. All other materials will be open source or freely available via the LMS (Brightspace).
Required software / required materials	Excel and R - Studio
Extra contributions	N.A.

3. Examination	
DATDRD05_T04	Storytelling with Data - the art of data visualization

Exam code: DATDRD05_T04 (Presentation - Storytelling with Data - the art of data visualization)	
Name (modular) exam	DATDRD 05 – Presentation Storytelling with Data - the art of data visualization
Code (modular) exam	DATDRD05_T04
Assessment criteria	Students should be able to: - justify the methodology (and/or used data analytics techniques) and analyze large data set based on the chosen methodology. - explain clearly the outcome of the visuals based on large data set and derive meaningful conclusions. - transform and present large data sets in simple and effective visuals. - communicate visuals based on large data in an effective and convincing ways using storytelling. defend the outcome of his presentation during oral examination.
Exam format	Presentation
Exam type, if written	N.A.
Individual / group	Pairs
Assessment periods	P1, P3
Duration exam	30 minutes
Permitted resources / aids	N.A.
Minimum result	5.5
Weight factor of modular exam	100%
Method of enrolment for exam	Via Osiris
Discussion and review	With examiners
Other info	Oral presentation (Visual and oral presentations).

Changes compared to last year	N.A.
Date from which the SU will no longer be offered	N.A.

DATDRD05 (MDDF-BI) - Business Intelligence (BI)

1. General information	
Long English name of course	Minor DDDM: Foundation – Business Intelligence
Short English name of course	Business Intelligence (BI)
Course code	DATDRD05 – Business Intelligence
Degree programme and cluster	Minor Data Driven Decision Making (M3DM) Minor Data Driven Decision Making
Teaching period	S1 and S2
Method of enrolment for educational activities	Via Osiris
ECTS credits, study load and contact hours	Study load: 2.5 EC Scheduled contact time: 15.75 hours Expected self-study time: 54.25 hours Total assigned study load: 70 hours
Course entry requirements	Approval from bachelor programme the student is enrolled in.
Prior knowledge	

2. Content and organisation	
Professional task	A report on Business Intelligence application or implementation in a business environment.
Exit qualifications / Programme Learning Outcomes (PLO)	WW04: Communicate (business) messages effectively and persuasively using advanced English to an (un)informed audience WW06: Collaborate effectively with different kinds of stakeholders in different cultural, organisational and political landscapes to contribute to achieving agreed goals WW07: Produce management information from various data sources in an international business environment TWM24: Analyse a complex business problem in an international business setting with use of adequate research design, resulting in an evidence-based, feasible solution
General description	Business Intelligence is playing an increasingly important role in informing employees in an organization. The role of Business Intelligence is crucial in managing processes and organizations. Business Intelligence is important for the future of many organizations. In this course you will learn to recognize the processes that can be improved by use of Business Intelligence. The organization of a BI environment (roles, processes and system) is also discussed. Also is considered the quality aspects of information. In addition, much attention is paid to the organization of Business Intelligence in one organization.
Cohesion	Students will spend 25% of the time on the application of business intelligence through software. This is in line with the lessons of Data visualization. (MDDFSDV1A.6, Storytelling with Data - the art of data visualization).
Mandatory participation	80% of the class must be attended by the students because of the nature of the teaching strategy (group work) and mutual dependence on group members. Mandatory participation and active participation curb piggybacking as well.
Maximum number of participants	28

Compensation options	N.A.
Activities and/or instructional formats	Lecture Seminar / Tutorial / Working lecture
Required literature / description of learning material	All required materials will be open source or freely available via LMS (Brightspace).
Required software / required materials	Tableau
Extra contributions	N.A.

3. Examination	
DATDRD05_T05	Written report - Business intelligence

Exam code: DATDRD05_T05 (Written report - Business intelligence)	
Name (modular) exam	DATDRD05 – Written report Business intelligence
Code (modular) exam	DATDRD05_T05
Assessment criteria	- Student must be able to analyze a complex business problem through the use of appropriate research methodology that will result in an appropriate business solution in their assigned project. - The student provides an advice on how to improve Business Intelligence (BI) in an organization of student's choice. - Alternatively, if an organization does not yet use BI, the student writes an advice on the set - up of BI for the organization. - Student must be able to collaborate effectively with different stakeholders (students, commissioner, academic coach) and achieve a desirable output while considering individual stakeholder goals. - Students must be able to communicate effectively (visually and orally) the results of their finding and solution to their target stakeholder. - Student must be able to produce actionable management information as part of their data driven project.
Exam format	Assignment/professional product
Exam type, if written	N.A.
Individual / group	Pairs
Assessment periods	P1, P3
Duration exam	N.A.
Permitted resources / aids	N.A.
Minimum result	5.5
Weight factor of modular exam	100%
Method of enrolment for exam	Via Osiris.
Discussion and review	Yes. Contact the responsible lecturers once the grades are communicated.
Other info	Written Report

Changes compared to last year	N.A.
Date from which the SU will no longer be offered	N.A.

DATDRD05 (MDDF-DM) - Introduction to Data Mining

1. General information	
Long English name of course	Minor DDDM: Foundation – Data Mining
Short English name of course	Introduction to Data Mining
Course code	DATDR05 – Introduction to Data Mining
Degree programme and cluster	Minor Data Driven Decision Making (M3DM) Minor Data Driven Decision Making
Teaching period	P1 and P3
Method of enrolment for educational activities	Via Osiris
ECTS credits, study load and contact hours	Study load: 2.5 EC Scheduled contact time: 15.75 hours Expected self-study time: 54.25 hours Total assigned study load: 70 hours
Course entry requirements	Approval from bachelor programme the student is enrolled in.
Prior knowledge	

2. Content and organisation	
Professional task	Describing and demonstrating the data science challenges and workflow for data driven decision making.
Exit qualifications / Programme Learning Outcomes (PLO)	WT01: Use the process of thoughtful evaluation to deliberately formulate a reasonable conclusion WT02: Create innovative ideas in a changing business environment in a systematic fashion WW04: Communicate (business) messages effectively and persuasively using advanced English to an (un)informed audience TWM24: Analyse a complex business problem in an international business setting with use of adequate research design, resulting in an evidence-based, feasible solution
General description	Introduction to specific data science algorithms (quality of data and the logic of using a specific model are assumed). Students learn about the intuitive appeal of the various algorithms, and gain a better understanding of when, why and how to use these techniques. The focus will be on models for classification and prediction (supervised learning).
Cohesion	This module provides relevant knowledge and skills in Data Science. The knowledge and skills are necessary for the execution of the project in this minor.
Mandatory participation	N.A.
Maximum number of participants	28
Compensation options	N.A.
Activities and/or instructional formats	Lecture Seminar / Tutorial / Working lecture
Required literature / description of learning material	Provost, F., & Fawcett, T. (2013). Data Science for Business: What you need to know about data mining and data - analytic thinking. O'Reilly Media, Inc. "All material, except for the book stated above (Provost, F., & Fawcett), will be open source or freely available via the LMS (Brightspace)"
Required software / required materials	R and RStudio / Python / Visual Studio Code.
Extra contributions	N.A.

3. Examination	
DATDRD05_T06	Report - Introduction to data mining

Exam code: DATDRD05_T06 (Report - Introduction to data mining)	
Name (modular) exam	DATDRD05 – Report Introduction to data mining
Code (modular) exam	DATDRD05_T06
Assessment criteria	The student is able to: - prepare data for a given non - linear model. - train and test a non - linear model. - evaluate the quality of a trained model
Exam format	Assignment/professional product
Exam type, if written	N.A.
Individual / group	Group, Individual
Assessment periods	P1, P3
Duration exam	N.A.
Permitted resources / aids	N.A.
Minimum result	5.5
Weight factor of modular exam	100%
Method of enrolment for exam	Via Osiris
Discussion and review	Yes
Other info	Report

Changes compared to last year	N.A.
Date from which the SU will no longer be offered	N.A.

DATDRD05 (MDDF-MOD) - Introduction to Modelling

1. General information	
Long English name of course	Minor DDDM: Foundation – Introduction to Modelling
Short English name of course	Introduction to Modelling
Course code	DATDR05 - Introduction to Modelling
Degree programme and cluster	Minor Data Driven Decision Making (M3DM) Minor Data Driven Decision Making
Teaching period	P1 and P3
Method of enrolment for educational activities	Via Osiris
ECTS credits, study load and contact hours	Study load: 2.5 EC Scheduled contact time: 15.75 hours Expected self-study time: 54.25 hours Total assigned study load: 70 hours
Course entry requirements	Approval from bachelor programme the student is enrolled in.
Prior knowledge	

2. Content and organisation	
Professional task	Building statistical models.
Exit qualifications / Programme Learning Outcomes (PLO)	WT01: Use the process of thoughtful evaluation to deliberately formulate a reasonable conclusion WW07: Produce management information from various data sources in an international business environment
General description	Introduction to regression analysis and some extensions. Focus is on understanding how they work and how they can be applied in R.
Cohesion	This module provides relevant knowledge and skills in Data Science. The knowledge and skills are necessary for the execution of the project in this minor.
Mandatory participation	N.A.
Maximum number of participants	28
Compensation options	N.A.
Activities and/or instructional formats	Lecture Self-study Seminar / Tutorial / Working lecture
Required literature / description of learning material	All material will be open source or made available on Brightspace
Required software / required materials	R and Rstudio, MS Excel
Extra contributions	N.A.

3. Examination	
DATDRD05_T07	Report - Introduction to modelling

Exam code: DATDRD05_T07 (Report - Introduction to modelling)	
Name (modular) exam	DATDR05 – Report Introduction to modelling
Code (modular) exam	DATDRD05_T07
Assessment criteria	- The student can independently build a regression model with the aim of testing hypotheses. - The student is able to report the results of a regression built.

	- The student is able to interpret the results of a regression model built correctly. The student is able to explain the implications of the results originating from a regression model that he has built.
Exam format	Assignment/professional product
Exam type, if written	N.A.
Individual / group	Individual
Assessment periods	P1, P3
Duration exam	N.A.
Permitted resources / aids	N.A.
Minimum result	5.5
Weight factor of modular exam	100%
Method of enrolment for exam	via Osiris
Discussion and review	With lecturer
Other info	Report

Changes compared to last year	N.A.
Date from which the SU will no longer be offered	N.A.

DATDRD05 (MDDS) - Data Science Tools and Techniques

1. General information	
Long English name of course	Minor DDDM: Foundation – Data Science Tools and Techniques
Short English name of course	Data Science Tools and Techniques
Course code	DATDRD05 - Data Science Tools and Techniques
Degree programme and cluster	Minor Data Driven Decision Making in Business Minor Data Driven Decision Making
Teaching period	P2 and P4
Method of enrolment for educational activities	Via Osiris
ECTS credits, study load and contact hours	Study load: 5 EC Scheduled contact time: 37 hours Expected self-study time: 103 hours Total assigned study load: 140 hours
Course entry requirements	Approval from bachelor programme the student is enrolled in
Prior knowledge	N.A.

2. Content and organisation	
Professional task	A Portfolio showcasing Data Science Techniques in a business case using relevant tools and justifying the choices made.
Exit qualifications / Programme Learning Outcomes (PLO)	WW04: Communicate (business) messages effectively and persuasively using advanced English to an (un)informed audience WW07: Produce management information from various data sources in an international business environment LW10: Formulate one's own position concerning ethical and social responsibility in a professional environment TWM24: Analyse a complex business problem in an international business setting with use of adequate research design, resulting in an evidence-based, feasible solution
General description	The course will provide the student the tools, techniques, and trainings which they will use to showcase the skills they have mastered, as an individual using a business case where big data and the CRISP - DM is the basis of their final individual product. By doing so, they are able to individually integrate the knowledge and skills that they have learnt in a business case.
Cohesion	This module provides the student the possibility to individually apply the CRISP model to a data science business problem using the various tools and techniques. The CRISP model was discussed in period and used throughout the minor. Includes its use in the project.
Mandatory participation	N.A.
Maximum number of participants	28
Compensation options	N.A.
Activities and/or instructional formats	Seminar / Tutorial / Working lecture / Self-study
Required literature / description of learning material	Professional training with certificates, other materials will be open source or freely available via the LMS (Brightspace).
Required software / required materials	R and RStudio / Python / Visual Studio Code / Disco / and other relevant Data Science Analytics Tools.
Extra contributions	N.A.

3. Examination	
DATDRD05_T08	Portfolio - Data Science Tools and Techniques

Exam code: DATDRD05_T08 (Portfolio - Data Science Tools and Techniques)	
Name (modular) exam	DATDRD05 - Data Science Tools and Techniques
Code (modular) exam	DATDRD05_T08
Assessment criteria	The student - Can apply the Data Science CRISP model to a data science problem - Can justify the choices made per step of the Data Science CRISP model - Can use appropriate data science analysis tools and techniques to solve a data related business problem - Perform a well - defined task independently in a relatively clearly arranged situation - Can perform in a complex and unpredictable situation under supervision - Can translate a business problem into an appropriate setup of the data mining process - Can list commonly applied data mining methods - Can determine the drivers of success for creating a data driven business solution.
Exam format	Portfolio
Exam type, if written	N.A.
Individual / group	Individual
Assessment periods	P2, P4
Duration exam	N.A.
Permitted resources / aids	N.A.
Minimum result	5.5
Weight factor of modular exam	100%
Method of enrolment for exam	Via Osiris.
Discussion and review	Yes. Contact the responsible lecturers once the grades are communicated. Resit takes place in the same period and not carried over to the next semester or academic year.
Other info	N.A.

Changes compared to last year	N.A.
Date from which the SU will no longer be offered	N.A.