Study Regulations for the Bachelor of Science in Applied Data Science

Decided on April 09, 2024, by the University Senate

Due to the accreditation as a private university (decision of the Austrian Accreditation Council on 12 July 2007 according to the university accreditation law, BGBl. I No. 168/1999 as amended), the University Board of Modul University Vienna decreed the following study regulations on 7 July 2020 based on § 3(1) of the Private University Law.

Preamble

These Study Regulations apply to all versions of curricula in place for the Bachelor of Science in International Management study program. The current curriculum of this program is referred to with the abbreviation 140 BSc.

§ 1 Ambit

These study regulations define the admission criteria, the structure of the study program and the examination requirements.

§ 2 Goal of the Degree

The BSc degree is awarded at the completion of academic studies for applied data science at the basic level with a strong academic orientation. Examinations taken throughout the program and evaluation of a bachelor thesis determine whether the student has acquired the knowledge necessary for a transition to professional practice, a coherent overview of the subject matter, the ability to independently apply scientific knowledge and methods, and the theoretical foundation for a continuation of the studies in a graduate-level program.

§ 3 Degree of Completion

After the successful completion of the study program, the following academic degree will be conferred:

Bachelor of Science in Applied Data Science

The short form of this degree is:

BSc in Applied Data Science

§ 4 Admission to the Study Program

Following requirements qualify candidates for admission to the undergraduate study programs:

(1) Proof of a secondary school leaving certificate equivalent to a general university entrance qualification. In case the applicant is attending the final year of secondary school at the time of submitting their application, the applicant needs to submit a mid-semester transcript or

equivalent documents to show credibly that the general university entrance certificate will be received before the intended study start. Applicants need to present relevant certificates as originals before the commencement of studies otherwise the admission is void.

(2) All applicants whose first language is not English must provide a proof of their English proficiency level B2 according to the Common European Framework of Reference for Languages through one of the following tests taken within the last two years.

a) TOEFL: 79 Internet-based test (IBT); or
b) IELTS: overall band score 6.5 (no sub-score below 6.0); or
c) Cambridge English Certificate (Cambridge English: First (FCE)): B and a minimum of 173 points are required
d) Pearson Academic: 59 points

Exceptions will be considered for students who are English natives or have completed their high school education entirely in English at recognized International Schools following American, British, or IB curricula. However, our admissions committee maintains the authority to request any additional evidence of English proficiency if deemed necessary.

(3) The application must include the following documents:

- Curriculum vitae (personal data sheet)
- Letter of motivation
- Copy of passport
- Passport-size photograph
- One letter of recommendation (from academic sources)

(4) A certified translation needs to accompany all documents, which are not in the German or English language.

(5) The Admissions Committee may conduct an interview with the applicant. The interview may take place either in person, via video conference or telephone. It serves to clarify unanswered questions raised during the application process and to check if the applicant's expectations, personality profile, and their knowledge of English are in line with what the program offers.

(6) The Admissions Committee decides on the final admission to the study program and possible conditions once the candidate has submitted a complete application.

(7) Minors require the approval of a legal guardian.

(8) Conditional Admittance: Applicants who do not fulfill the admissions criteria for direct entry to an undergraduate program but fulfill the criteria for attending the Foundation Program, may be conditionally admitted upon discretion of the Admissions Committee. The Admissions Committee may also decide to set the Foundation Program course 'Mathematics' as a condition. In this case, a positive assessment of the course 'Mathematics' is required before students can enroll into courses of Module I – Fundamentals of Statistics and Calculus, Module II – Fundamentals of Data Science and Engineering, and Module IV – Data Science for Business Applications. Progression to the undergraduate study programs is regulated by the Foundation Program Study Regulations.

§ 5 Structure and Duration of the Study Program

(1) The regular duration of the study program is six semesters.

(2) All lectures, course work, and examinations are held in the English language.

(3) The study program requires the student to complete an internship containing a minimum of 520 hours.

(4) The study program requires the student to complete 180 ECTS comprising 160 ECTS of courses (including an internship), as outlined in § 6 Curriculum Overview, and 20 ECTS for completion of a bachelor thesis.

(5) Upon application and approval by the Dean, a study semester may be completed abroad at an accredited partner university or an international branch campus of Modul University Vienna.

(6) Upon application of the student, the Dean may grant a leave of absence. During this period, the student's tuition fees will be suspended, and they will be unable to attend courses, accrue internship hours, submit a thesis supervision request, receive ongoing supervision, or submit a final thesis. All other effects of the leave of absence are the responsibility of the student. The application for a leave of absence must include the planned duration of the leave and should be submitted at least one month prior to start of the semester in which the leave of absence will take place. Multiple leaves of absence are permitted; however, the total maximum duration of leave allowed is 4 semesters.

§6 Curriculum Overview

Subject	Type	Format	ECTS	h/w
Module I: Fundamentals of Statistics and Calculus (22 ECTS)				
Math and Statistics I	CC	LX21	6	3
Math and Statistics II	CC	LX21	6	3
Applied Linear Algebra	CC	SE	6	3
Time Series Analysis and Forecasting	CC	SE	4	2
Module II: Fundamentals of Data Science and Engineering (50 ECTS)				
Fundamentals of Computer Science and Programming	CC	LS12	8	3
Algorithms and Data Structures	CC	SE	6	3
Database Management and Design	CC	LX12	6	3
Legal Aspects of Data Science	CC	IL	4	2
Knowledge Extraction, Modelling and Visualization	CC	LX12	6	3
Fundamentals of Web Programming and Application Development	CC	SE	8	4
Foundations of Artificial Intelligence	CC	IL	6	3
Societal and Ethical Impacts of Data Science	CC	IL	6	3
Module III: Fundamentals of Management (18 ECTS)				
Business Administration	CC	IL	6	3
Project Management and Change Management	CC	SE	4	2

Subject	Type	Format	ECTS	h/w
Entrepreneurship, Innovation and Business Planning	CC	LS12	4	2
Critical Thinking and Problem Solving	CC	SE	4	2
Module IV: Data Science for Business Applications (64 ECTS) 2 out of 4 Enrichment Courses (ER) have to be selected.				
Smart Information Systems Engineering	CC	SE	8	4
Text Mining and Media Analytics	CC	IL	6	3
Blockchain Applications	CC	SE	6	3
Latest Trends in Data Science	CC	SE	4	2
Data Science for Services (ER)	ER	SE	4	2
Data Science for Businesses (ER)	ER	SE	4	2
Data Science for Sustainability (ER)	ER	SE	4	2
Data Science for Geographic Information Systems (ER)	ER	SE	4	2
Internship Preparatory Course	CC	PT	1	1
Professional Capstone Project (Internship)	CC	PT	27	560
Accompanying Capstone Project Seminar	SE	SE	4	2
Module V: Bachelor Thesis (26 ECTS)				
Academic Writing	CC	SE	4	2
Research Design	CC	SE	2	1
Bachelor Thesis Tutorial	CC	SE	2	1
Bachelor Thesis	CC	TH	18	n/a

IL – Interactive Lecture

LX – Lecture and Exercise

LS – Lecture and Seminar

SE – Seminar

PT – Practical Training

TH – Thesis

CC – Core Course

ER – Enrichment Course

§ 7 Types of Courses

(1) Core Courses are mandatory for all students and must be completed with a positive assessment.

(2) Enrichment Courses are non-core courses and may vary from semester to semester. In 140 BSc, a minimum of 8 ECTS from enrichment courses must be achieved.

(3) If students register for more than the required enrichment courses, including enrichment courses from another study program, the student will be responsible for any additional costs in accordance with MU's Rules on Additional Fees.

(4) Elective Courses (i.e., language courses, Foundation Program courses) are not mandatory and will not be counted towards the total number of ECTS nor weighted average grade percentage, however, they will appear on the Transcript of Records as non-curricular ECTS.

(5) The Dean has the discretion to determine a minimum number of participants for all courses.

§ 8 Course Prerequisites

Registration in courses will only be permitted following positive assessment in the corresponding prerequisite course(s) or completion of prerequisite requirements.

(1) Mathematics and Statistics I is a prerequisite for Mathematics and Statistics II.

(2) Foundations of Artificial Intelligence is a prerequisite for Knowledge Extraction, Modelling and Visualization and Smart Information Systems Engineering.

(3) Fundamentals of Computer Science and Programming is a prerequisite for Database Management and Design and Algorithms and Data Structures.

(4) Business Administration is a prerequisite for Project and Change Management and Entrepreneurship, Innovation and Business Planning.

(5) Mathematics and Statistics II is a prerequisite for Times Series Analysis and Forecasting.

(6) Internship preparatory class is a prerequisite for the Professional Data Science Capstone Project and the accompanying Professional Data Science Capstone Seminar.

(7) The Professional Data Science Capstone Project and the accompanying Professional Data Science Capstone Seminar have to be attended in the same semester.

(8) Research Design, and Academic Writing are prerequisites for Bachelor Thesis Tutorial.

(9) Bachelor Thesis Tutorial is a prerequisite for the Bachelor Thesis.

(11) Fundamentals of Computer Science and Programming, Applied Linear Algebra, and Legal Aspects of Data Science are prerequisites for Blockchain Applications.

(12) Foundations of Artificial Intelligence, Fundamentals of Computer Science and Programming, Legal Aspects of Data Science are prerequisites for Text Mining and Media Analysis.

§ 9 Professional Data Science Capstone Project (internship)

(1) The study program requires the student to complete a Professional Data Science Capstone Project containing a minimum number of 560 hours (30 ECTS, including the accompanying Professional Capstone Project seminar) in a field relevant to the study program. This internship is designed to provide students with the opportunity to apply their acquired theoretical knowledge and gain practical experience.

(2) The selection of the company requires the written approval of the Dean.

(3) Modul University Vienna reserves the right to supervise the Professional Data Science Capstone Project.

(4) The completion of the internship must be proven through a confirmation letter, reference letter, and/or appraisal on behalf of the company. In addition, the student must attend the Accompanying Data Science Project Seminar, where student's progress will be continuously monitored by several assessments, including a final report of the project. This report must follow the relevant guidelines in the internship manual and will be approved by the seminar lecturer.

(5) Upon successful completion of the Professional Data Science Capstone Project, the student will receive the grade "completed".

(6) The Dean can confer the task in (2) to the internship coordinator or the seminar lecturers.

§ 10 ECTS Points

(1° ECTS points (European Credit Transfer System – ECTS, 87/327/ECC, Official Journal no. L 166 from 25 June 1987, CELEX no. 387D0327) are allocated for each course depending on the student workload. In the schedule of studies, in addition to the numbers of hours, the corresponding ECTS points for each course are allocated.

(2) Each ECTS credit corresponds to 25 working hours for the student.

§ 11 Bachelor Thesis

(1) The thesis must be written according to the principles of academic work. The thesis should address a research question linked to a relevant topic identified in a course of the program or through literature review. The thesis must either contain an empirical component or a practical data science project.

(2) The student must submit an application for supervision to the prospective supervisor, including the topic and a brief outline for the thesis. The prospective supervisor and the Dean must approve the supervision of the thesis and inform the student in writing within one week.

(3) After the approval of the topic, the student has up to 4 weeks to submit the research proposal to the supervisor. If this proposal is not handed in by the set deadline, the supervisor has the right to refuse supervision of a student's thesis.

(4) The bachelor thesis may be written as an individual or group work upon the approval of the supervisor. The bachelor thesis shall be written in the English language.

(5) Eligible supervisors are faculty members or external lecturers who hold a doctoral degree. The supervision of a thesis by external lecturers or by academic staff without a doctoral degree requires approval and assessment by the Dean.

(6) The topic of the bachelor thesis can only be changed once and must be made within the first two months after the approval of the supervision by the Dean of the program.

(7) The deadline for submission of the thesis is to be agreed upon by the supervisor and the student.

(8) If the student misses deadlines and no substantial progress on the thesis has been made, the supervisor may withdraw from the supervision of a thesis.

(9) Bachelor theses are electronically archived in the library and may be published on the Modul University Vienna website. Withholding a thesis can be applied for in written form by the supervisor or thesis author if information worthy of protecting is published in the thesis. The publication will be withheld for a maximum of 5 years and is subject to approval by the University Board.

§ 12 Overall Result of the Study Program

(1) The overall assessment of the bachelor's degree is given by the weighted average grade percentage of all final grades (core courses, enrichment courses and thesis) completed at Modul University Vienna, or any international branch campus of Modul University Vienna. Each course is weighted corresponding to the allocated ECTS credits.

Assessment Scheme

- "With distinction" is awarded for an overall grade percentage average of 90% or higher.
- "With merit" is awarded for an overall grade percentage average between 80% and 89%.
- "Passed" is given for an overall grade percentage average between 60% and 79%.

§ 13 Conferment of Degree

(1) The academic degree of BSc in Applied Data Science is conferred after completion of all components of the curriculum (core courses, enrichment courses and the thesis).

(2) Graduates must complete a total of 180 ECTS as stated in the curriculum overview (§ 6 Curriculum Overview (1) or (2)) in order to obtain the degree BSc in Applied Data Science. Students may transfer course credits from their previous university or other educational institution; however, a minimum of 120 ECTS must be completed at Modul University Vienna. Credits completed in the foundation program will appear on the transcript as non-curricular ECTS and will not be counted towards the total number of ECTS nor weighted average grade.

(3) Graduates will receive the following documents in the English language stating the date on which the degree was awarded.

   a) Bachelor Diploma: The bachelor diploma is signed by the President and the Dean and is certified by the Modul University Vienna seal.
   b) Diploma Supplement: A supplement, which is signed by the Dean, will be provided in addition to the diploma to explain the international allocation of the completed program.
   c) Transcript of Records: The Transcript of Records reflects all courses that have been passed, the respective ECTS credits, and the final course grades as well as the student's weighted average grade.

(4) Where a student does not complete the study program, the student shall receive a Transcript of Records for all course work which has been successfully completed thus far.

§ 14 Semester Conference

In this program, the tasks outlined in § 10 of the MU Examination Regulations and Student Code of Conduct are carried out by a Semester Conference, as specified by the University Constitution (Section IX. §1).

The University Board of Modul University Vienna publicly announces these Study Regulations which take effect on April 09, 2024