

# Ergebnisbericht zum Verfahren zum Antrag der Modul University Vienna GmbH auf Akkreditierung des Masterstudiengangs „Data Science for Sustainability“, durchgeführt in Wien

## 1 Antragsgegenstand

Die Agentur für Qualitätssicherung und Akkreditierung Austria (AQ Austria) führte ein Akkreditierungsverfahren zu oben genanntem Antrag gemäß § 24 Hochschul-Qualitätssicherungsgesetz (HS-QSG), BGBl. I Nr. 74/2011 idgF, iVm § 2 Privathochschulgesetz (PrivHG), BGBl. I Nr. 74/2011 idgF sowie § 17 Privathochschul-Akkreditierungsverordnung 2021 (PrivH-AkkVO 2021) durch. Gemäß § 21 HS-QSG veröffentlicht die AQ Austria folgenden Ergebnisbericht:

## 2 Verfahrensablauf

Das Akkreditierungsverfahren umfasste folgende Verfahrensschritte:

| Verfahrensschritt                                                            | Zeitpunkt                                                                   |
|------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| Antrag                                                                       | Version vom 12.04.2024 (Datum Begleitschreiben)<br>eingelangt am 16.04.2024 |
| Mitteilung an Antragstellerin: Prüfung des Antrags durch die Geschäftsstelle | 31.07.2024                                                                  |
| Überarbeiteter Antrag                                                        | Version vom 14.08.2024 (Datum Begleitschreiben)<br>eingelangt am 14.08.2024 |

|                                                                                |            |
|--------------------------------------------------------------------------------|------------|
| Mitteilung an Antragstellerin: Abschluss der Antragsprüfung                    | 05.09.2024 |
| Bestellung der Gutachter*innen und Beschluss über Vorgangsweise des Verfahrens | 09.10.2024 |
| Information an Antragstellerin über Gutachter*innen                            | 10.10.2024 |
| Nachreichung eingelangt am                                                     | 05.11.2024 |
| Virtuelles Vorbereitungsgespräch mit Gutachter*innen                           | 07.11.2024 |
| Vorbereitungstreffen mit Gutachter*innen                                       | 25.11.2024 |
| Vor-Ort-Besuch                                                                 | 26.11.2024 |
| Nachreichung eingelangt am                                                     | 04.12.2024 |
| Vorlage des Gutachtens                                                         | 28.01.2025 |
| Übermittlung des Gutachtens an Antragstellerin zur Stellungnahme               | 28.01.2025 |
| Stellungnahme der Antragstellerin zum Gutachten eingelangt am                  | 04.02.2025 |
| Stellungnahme der Antragstellerin zum Gutachten an Gutachter*innen             | 05.02.2025 |
| Übermittlung der Kostenaufstellung an Antragstellerin zur Stellungnahme        | 12.02.2025 |

### 3 Akkreditierungsentscheidung

Das Board der AQ Austria hat beschlossen dem Antrag der Modul University GmbH auf Akkreditierung des Masterstudiengangs „Data Science for Sustainability“, durchgeführt in Wien, gemäß § 24 HS-QSG Abs. 3 iVm § 2 PrivHG iVm § 9 Abs. 1 PrivH-AkkVO 2021 stattzugeben, da die Kriterien gemäß § 17 PrivH-AkkVO 2021, mit Ausnahme § 17 Abs. 2 Z 2 PrivH-AkkVO 2021 erfüllt sind. Das Kriterium § 17 Abs. 2 Z 2 PrivH-AkkVO 2021 ist eingeschränkt erfüllt.

Die Programmakkreditierung erfolgt gemäß § 24 Abs. 9a HS-QSG unter folgender Auflage:

- Gemäß § 17 Abs. 2 Z 2 PrivH-AkkVO 2021 ist binnen 6 Monaten ab Zustellung des Bescheids nachzuweisen, dass die Lernergebnisse des Studiengangs sowie die Lernergebnisse in den Syllabi so überarbeitet wurden, dass sie ein ausgewogenes Verhältnis von Wissensvermehrung, Organisations- und Problemlösungskompetenz sowie klare Bezüge zu den relevanten konzeptionellen Rahmenbedingungen sicherstellen, beinhalten und durchgängig kompetenzorientiert formuliert sind.

Das Board der AQ Austria beschloss die Auflage für den Bescheid zu übersetzen, sprachlich zu präzisieren und einen erläuternden Teil der Auflage als separate Empfehlung zu formulieren. Daher unterscheidet sich die aufgelistete Auflage im Ergebnisbericht von jener, welche im Gutachten vom 28.01.2025, das diesem Ergebnisbericht angeschlossenen ist, dargelegt ist.

Die Entscheidung wurde am 24.03.2025 von der\*vom zuständigen Bundesminister\*in genehmigt. Der Bescheid wurde mit Datum vom 03.04.2025 zugestellt.

## 4 Anlage/n

- Gutachten vom 28.01.2025
- Stellungnahme vom 04.02.2025

# Expert report on the accreditation procedure for the Data Science of Sustainability master programme , conducted in Vienna by the Modul University Vienna GmbH

pursuant to § 7 of the Accreditation Decree on Private Higher Education 2021 (PrivH-AkkVO 2021)

Vienna, 28.01.2025

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# 1 Overview of the accreditation procedure

| Information on the applicant institution        |                                            |
|-------------------------------------------------|--------------------------------------------|
| Applicant institution                           | Modul University Vienna GmbH, short: MODUL |
| Sites of the higher education institution       | Vienna, Nanjing                            |
| Legal status                                    | GmbH                                       |
| Initial institutional accreditation             | 12.07.2007                                 |
| Latest extension of institutional accreditation | 31.08.2021                                 |
| Number of students                              | 653 in the study year 2023/24              |
| Accredited study programmes                     | 12                                         |

| Information on the accreditation application |                                    |
|----------------------------------------------|------------------------------------|
| Programme title                              | Data Science for Sustainability    |
| Type of study programme                      | Bachelor programme                 |
| ECTS credit points                           | 120                                |
| Standard duration of studies                 | 4 terms                            |
| Planned number of students per academic year | 30                                 |
| Academic degree                              | Master of Science, short form: MSc |
| Organizational form                          | Full time                          |
| Language/s                                   | English                            |
| Sites of the study programme                 | Vienna                             |
| Tuition fee                                  | 5810 Euro / term                   |

The applicant institution submitted the accreditation application on 16.04.2024. According to the decision of AQ Austria's board on 09.10.2024, the following experts were nominated for this procedure:

| Name                                       | Function and Institution                                                                                                               | Area of competence                                                                       |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Prof. Dr. Sebastian Vollmer                | Head of the research group Data Science and its Applications<br><br>Deutsches Forschungszentrum für Künstliche Intelligenz GmbH (DFKI) | scientific qualification in the field of Data Science in combination with Sustainability |
| Assoc.-Prof. Dr. Viktoria Pammer-Schindler | Associate Professor and team leader at the Institute of Interactive Systems and Data Science<br><br>TU Graz                            | scientific qualification in the field of Data Science                                    |
| Tilman Süss                                | CEO, Coach and Advisor<br><br>BerlinerStrategen                                                                                        | scientific qualification and relevant work experience in the field of Data Science       |
| Dipl.-Ing. Clemens Jung, BSc               | Student Data Science<br><br>FH St. Pölten                                                                                              | experience as a student in the field of Data Science                                     |

On 26.11.2024, a site visit on the applicant institution's premises took place, at their Vienna location.

## 2 Assessment and evaluation according to assessment criteria specified in PrivH-AkkVO 2021

### 2.1 § 17 para. 2 subpara. 1–9: Degree programme and degree programme management

Taking into account a heterogeneous student body, the following criteria shall apply. In the case of degree programmes with special profile elements, the descriptions shall address these characteristics defining the profile. Special profile elements are, for example, access to a regulated profession, mandatory vocational practice, study formats alongside professional activity, dual degree programmes, distance-learning degree programmes, joint study programmes or jointly offered study programmes.

1. The degree programme is oriented towards the profile and the strategic objectives of the private university college.

The degree fits well within existing priorities, sustainability and data science separately. Connecting these and leveraging synergies has extrinsic and intrinsic priority. These are elaborated by referring to the development plan of the MODUL (Digitalisation, Sustainability). For instance, the School of Sustainability and Governance was founded in 2005 and was followed International Management School and PhD programme. The proposal and answers have outlined that the course will also strengthen the methods & theory component of other courses. The MODUL claims on the site visit, that this course enables more international reach with an English Data Science Programme.

The programme has a USP compared to neighbouring countries.

The experts consider the criterion **to be fulfilled**.

2. The profile and intended learning outcomes of the degree programme
- a. have been clearly defined;
  - b. comprise discipline-specific-scientific and/or scientific-artistic as well as personal and social skills;
  - c. comply with the requirements of the aspired professional fields of activities and
  - d. comply with the respective qualification level of the National Qualifications Framework.

a. Clarity and Alignment with Bloom's Taxonomy

The intended learning outcomes as currently formulated would benefit from more explicit alignment with established educational frameworks such as Bloom's Taxonomy. While the programme's focus on mastering data science methods and their application to sustainability challenges is noted, the outcomes should more clearly employ action-oriented verbs (e.g., "apply," "analyze," "develop," "synthesize"). For example, descriptors like "mastering knowledge" and "understanding state-of-the-art methods" could be expressed more precisely and measurably.

Additionally, key learning outcomes such as "Identify and develop sustainability use cases" require further clarification. The term "develop" should be defined in actionable terms.

The experts consider the criterion to be **not fulfilled**.

b. Inclusion of Personal and Social Skills

The personal and social skills currently outlined—e.g., communication, writing scientific texts, and independent learning—are valuable but should be expanded to reflect the full spectrum of professional competencies expected at the Master's level. For instance, incorporating teamwork and project management skills would better prepare graduates for collaborative and organizational challenges in professional settings. We encourage the programme to refine these outcomes to include, for example, coordinating interdisciplinary teams, managing projects effectively, and adapting to emerging technological and sustainability trends.

The experts consider the criterion **to be fulfilled**.

c. Alignment with Professional Fields

While the programme's orientation toward sustainability challenges is clear, the intended learning outcomes should also more explicitly address alignment with the professional fields and career contexts that graduates will enter. This may involve specifying the capacities in which students will evaluate regulatory frameworks, ensure compliance with relevant standards, and critically appraise the practical relevance of various data science methodologies.

The experts consider the criterion **to be fulfilled**.

d. Compliance with National Qualifications Framework – Level 7

The overarching structure of the programme does appear consistent with the expectations of a Level 7 qualification. Students engage in advanced methodological training, critical thinking, and comprehensive research activities, culminating in a substantial dissertation. Nevertheless, the committee suggests revisiting each learning outcome to confirm that it clearly demonstrates Level 7 attributes—namely, advanced theoretical knowledge, independent problem-solving capabilities, original application of methodologies, and the capacity for innovation in addressing complex sustainability issues.

The experts consider the criterion **to be fulfilled**.

Overall, the experts consider the criterion to be **partially fulfilled**.

Condition:

The expert group recommends the Board of AQ Austria to issue the following condition: to revise the learning outcomes within 6 months in such a way, that they ensure and include a balance of knowledge reproduction, reorganization, and problem-solving skills, as well as clear references to the relevant conceptual frameworks. For instance, currently well-formulated sustainability-oriented outcomes—such as “Analyze and evaluate data from complex economic and social systems with respect to current sustainability challenges” and “Interpret results from data-informed sustainability studies by applying social, psychological, and economic theories”—could serve as models. Similar clarity and rigor should be applied to outcomes related to data science methods, causality investigations, and the creation of sustainability solutions.

3. The name of the degree programme and the academic degree correspond to the degree programme's profile and intended learning outcomes.

The name of the degree programme “Data Science for Sustainability” reflects the emphasis on Data Science well. From the written proposal there might be a mismatch between of the aspiration of candidates, the learning outcomes and some target job profiles (especially the more accounting focused ones “Quantitative ESG analyst”, “Quantitative ESG expert”, “Sustainability analyst”, “Sustainability expert”). The emphasis on Data Science and state-of-the-art Data Science is only possible if there are more prerequisites and acceleration provided to students with little knowledge of Data Science. Nevertheless, during the site visit, the MODUL was able to credibly explain how they intend to equalise the level of students and the impression of imbalance left by the application was effectively resolved.

The experts consider the criterion to **be fulfilled**.

4. The degree programme

- a. complies with the scientific and/or scientific-artistic and didactic requirements of the respective subject or subjects;
- b. comprises defined core subject areas which represent the most important subjects of the degree programme and thus the main competences to be acquired;
- c. ensures by its content and structure the achievement of the intended learning outcomes;
- d. comprises modules and/or courses with learning and teaching as well as examination methods suitable for the achievement of the intended learning outcomes and build on the overall concept of the degree programme;
- e. takes into account the connection of research and teaching and/or research and the appreciation of the arts and
- f. encourages the active involvement of students in the learning process.

a. The degree programme integrates content from other Master's programmes, building on the strengths of related degrees in the field, particularly the existing Bachelor's in Data Science. It meets the established standards for data science education. While some emerging topics—such as the latest developments in Large Language Models (LLMs) and evolving regulations—are not yet fully reflected, the programme's design allows for future updates to ensure currency with the field.

b. The core subjects are well aligned with the intended competencies. The programmes structure focuses on Data Science (42 ECTS), Sustainability (24 ECTS), Research Design and Methods (6 ECTS), and Enrichment Courses (18 ECTS). The learning outcomes emphasize mastery of data science methods, an understanding of sustainability challenges, and the ability to develop interdisciplinary solutions.

c. The curriculum starts with foundational statistical models and classical machine learning methods, providing a solid theoretical base. Approximately 20–25 ECTS are allocated for instructors to introduce new and advanced models, foster critical comparisons, and guide students in model selection tailored to specific use cases. This includes striking a balance between predictive accuracy and interpretability. Practical skills are strengthened through project work in sustainability, hands-on training, hackathons, and competitions—all of which will be included in the master programme in Data Science for Sustainability. Although the current curriculum does not explicitly incorporate the newest developments in LLMs, the EU AI Act, or recent sustainability regulations, the programme team has committed to integrating such topics as the programme matures. This continuous improvement will be facilitated through the Degree Study programme Conference (as stipulated in Art. VII of the Constitution), which convenes each semester. The conference, composed of the Dean, the Programme Manager, and two student representatives, ensures a responsive and dynamic curriculum that remains aligned with academic and industry standards.

d. The proposed modules appear well suited to achieving the intended competencies. Notably, the Research Design and Methods component is taught by a seasoned industry expert, strengthening the link between theory and practice. One stated learning outcome—"Based on causality investigation, devise guidelines and design solutions to address sustainability challenges"—is currently addressed through econometrics lectures, although one examiner suggested further deepening this aspect. The examination framework accommodates a variety of assessment methods—graded assignments, midterm exams, and final projects or group

work—allowing instructors to choose the most appropriate evaluation formats. These formats are approved by the Dean within the Degree Study programme Conference, ensuring ongoing alignment with programme goals.

e. The connection between research and teaching is comparable to other successful interdisciplinary Master's programmes and appears sufficient. Throughout the on-site visit and interviews, a wide range of datasets, sustainability project ideas, and potential thesis topics were discussed, including mediation analysis of weather data, IPCC-related research, remote sensing for energy management, linked open data, mobility data analysis, and text analysis of sustainability reports. Further thesis directions involve life cycle management and data collection methodologies. Many student projects and theses will connect with ongoing interdisciplinary research projects, providing exposure to cutting-edge work. The master thesis seminar supports students in selecting a thesis topic, ensures alignment with learning outcomes (e.g., "Acquire further knowledge and skills independently"), and guides them toward a thesis supervision agreement with a suitable academic mentor.

f. The active involvement of students in the learning process is possible through choosing enrichment courses and seminar topics. Additionally, internship opportunities allow students to engage with external organizations, gaining practical experience and contributing to the continual enrichment of the programme. They are also representation in the Degree Study programme Conference, where they can influence curricular updates.

The experts consider the criterion to **be fulfilled**.

5. The European Credit Transfer and Accumulation System (ECTS) is applied correctly to the degree programme. The workload related to the individual modules and/or courses, expressed in ECTS credits, makes it possible that the intended learning outcomes are achieved within the stipulated duration of studies. In the case of degree programmes for working professionals, the professional activity is taken into account.

The consideration of ECTS is clearly articulated and for individual modules, the ECTS assignment is plausible.

The experts consider the criterion to **be fulfilled**.

6. The Diploma Supplement is specific to the respective degree programme and suitable to support international mobility of students as well as graduates and facilitates academic and professional recognition of the acquired qualifications

Alumni receive a Diploma Supplement in German and English. A version that includes both languages was attached as an appendix to the proposal. The Diploma Supplement present matches the criteria outlined by UNESCO/CEPES by including information about the holder of the qualification, the qualification type, and its originating institution, the qualification level, the function of the qualification, the certification, and details of the national higher education system. The Transcript of Record section of the Diploma Supplement provided contained only a placeholder text. References to the Transcript of Records are present in multiple documents such as the study regulations.

The experts consider the criterion to **be fulfilled**.

7. The requirements for admission to the degree programme
  - a. have been clearly defined and
  - b. contribute to the achievement of the qualification objectives.

Admission requirements are outlined in the written proposal and are published on the website. Compensation courses have been stated to cover the broad spectrum of applicants' backgrounds. The institution stated that applications are reviewed individually and compensation courses for admission to the study programme are decided individually, if necessary. Therefore, the reviewer concludes that the requirements are clearly outlined and the admission process contributes to the achievement of the qualification objectives.

The experts consider the criterion to **be fulfilled**.

8. The admission procedure to the degree programme
  - a. has been clearly defined;
  - b. is transparent for all involved and
  - c. ensures a fair selection of the applicants.

The admission procedure is outlined in the written proposal and is available on the website of MODUL. Compensation courses have been stated to cover the broad spectrum of applicants' backgrounds. The institution stated that applications are reviewed individually and compensation courses for admission to the study programme are decided individually. During the interviews with students of the institution, no complaints regarding the procedure were outlined. Therefore, the reviewer concludes that the procedures are clearly outlined, is transparent and seems fair.

The experts consider the criterion to **be fulfilled**.

9. The procedures for the recognition of formally, non-formally and informally acquired competences in terms of crediting towards examinations or parts of the degree programme
  - a. have been clearly defined
  - b. and are transparent for all involved.

The recognition of prior knowledge is mentioned in multiple sections of the study regulations as transfer of credits. The brief mention of the procedures regarding recognition results in simple clear rules. Since study regulations are publicly available, the procedures are transparent. Also, during interviews no complaints from students regarding recognition of prior learning were voiced.

The experts consider the criterion to **be fulfilled**.

2.2 § 17 para. 3 subpara. 1-2: Research and development and/or the advancement and appreciation of the arts

1. Subject-specific research or development activities, respectively, in compliance with the scientific standards of the respective subject or the respective subjects have been planned for the degree programme.

The students are taught research practice in "research design and methods in practice" and in the "master thesis seminar". They are further expected to demonstrate the ability to apply research methods to problems of practical relevance in the master thesis. They also engage with ongoing research by reading academic articles.

As the teaching faculty in the programme is also engaged in interdisciplinary research and in applied research and industry cooperation projects in Data Science and sustainability, it can be expected that the teaching faculty brings that knowledge of state-of-the-art research into teaching. For example, the newly appointed [Prof. Dr. Barbara Glens](#) is a renowned researcher in "sustainability analytics", i.e. exactly in the field that the new master programme aims to cover; [Prof. Dr. Ingrid Isenhardt](#) is involved in the FFG project SDG-Hub, that investigates "AI-Driven Semantic Search and Visualization to Support the Sustainable Development Goals and Agenda 2030" and has been involved in projects such as EcoMove that aimed to analyse anonymous mobility data to make effective recommendations to citizens and tourists; [Prof. Dr. Gernot Sterner](#) is actively publishing on climate change communication, sustainability applications, etc. Interdisciplinarity is further facilitated by the small size of the MODUL. Moreover, university leadership and faculty acknowledge the value of research-led teaching.

The experts consider the criterion to **be fulfilled**.

2. The permanent research and teaching staff assigned to the degree programme is involved in these research and development activities.

Permanent and well-qualified research staff is assigned in particular to the lectures "Research design and methods in practice", "Master thesis seminar" and master thesis supervision. In particular, the research staff assigned to teaching is also clearly involved in relevant research (see also § 17 para. 3 subpara. 1).

The experts consider the criterion to **be fulfilled**.

2.3 § 17 para. 4 subpara. 1-2, 4-7: Staff

1. At all sites at which studies are offered in accordance with the development plan
  - a. sufficient scientific or scientific-artistic teaching and research staff, respectively, has been planned for the degree programme,
  - b. the staff members are subject-specifically as well as didactically qualified according to the requirements of the respective post.

The private university college makes sure that at least 50 per cent of the volume of teaching is covered by permanent scientific or scientific-artistic teaching and research staff, respectively. Permanent teaching and research staff means employees working at least 50 per cent of their working hours (usually at least 20 hours per week) in permanent employment at the private university college.

There is a suitable number of permanent staff members, with a reasonable balance between full profs, associate profs, assistant profs, lecturers. Three more positions will be opened (one associate prof, two assistant profs) and will be funded by this study programme. The permanently employed staff members are very well qualified in terms of content and didactically, as described in the written application and seen in the site visit.

The experts consider the criterion to **be fulfilled**.

2. The subject-specific core competences representing the most important subjects of the degree programme and thus the main competences to be acquired are covered by  
a. permanent professors corresponding to at least one full-time equivalent as well as  
b. other permanent scientific and/or scientific-artistic teaching and research staff corresponding to at least one full-time equivalent.

The private university college or private university shall attach CVs for existing permanently employed teaching and research staff employed to the application for programme accreditation. Furthermore, proof of this staff's extent of employment and their teaching load shall be provided.

The core areas (Data Science, Sustainability, Econometrics and Research Design, Data Science Applications for Business and Sustainable Management and Policy) of the study programme represent the most important subjects of the degree programme and are covered by professors and fulltime employees. The faculty members are qualified and highly engaged both in research and teaching - specifically also the subject of this study programme; and it is understood by the review committee that MODUL as a workplace is appreciated such that recruiting further talented faculty members isn't a concern.

The experts consider the criterion to **be fulfilled**.

4. The composition of the adjunct and permanent teaching and research staff shall ensure a student-teacher ratio appropriate to the profile of the degree programme.

Evaluation of this aspect is done according to provided application documents, resp. provided CVs of the courses staff, interviews with members of the personnel, and statements of the students interviewed.

On the more overview level, the number of teachers in the course as well as the student-teacher ratio has been reviewed and considered sufficient.

En detail, the expertise of the existing staff members in their teaching field and courses has been reviewed and considered appropriate. Nevertheless, there were 3 open teaching positions at the day of the site visit.

For each course, a specific instructor and his/her CV has been provided, all personnel shows sufficient expertise in the field of the course and sufficient teaching/didactic experience. Since this master programme has an interdisciplinary structure of Data Science, Sustainability and Enrichment Courses, interdisciplinary/crossover expertise bridging the two pillars has been checked and is mostly existing. The experts in addition found mostly also extensive industry and sector-specific experience in combination with practical industry experience and industry networks. The planned strong integration of this industry expertise and the industry contacts (e.g. in projects, etc.) is considered as very valuable for the students' practical relevance and students' value for the industry. Nevertheless, the specific quality of teaching can only be evaluated in detail with extensive visiting of actual course sessions, which would go beyond this evaluation.

The intercultural (but mostly European) diversity was well noted.

The conceptual instructor's time allocated per student at university level is sufficient, and students' interviews confirmed that this time is also offered in reality.

To increase the attractiveness of the university from staff perspective and therefore to be able to acquire teachers with above-average qualifications, the university offers a lower teaching workload per teaching staff member. This is welcomed, and the result can be confirmed.

The experts consider the criterion to **be fulfilled**.

5. Adequate measures are planned for the integration of adjunct teaching staff into the organisation of teaching and into programme organisation for the degree programme.

According to the information provided to the evaluators in the on-site meeting and interviews with students and staff, most of the staff is well integrated, not newly employed and part of the university for a longer period. Therefore, their integration is considered and perceived as given.

Measures to integrate and onboard new staff are given and are sufficient.

The experts consider the criterion to **be fulfilled**.

6. The private university college shall allow for an appropriate balance of the teaching, research, and administrative activities of the permanent scientific or scientific-artistic staff to ensure adequate participation in teaching but also leaving sufficient time for research and development and/or the advancement and appreciation of the arts.

At site visit, the reviewers have been assured that academic staff have roughly half the teaching load compared to public universities. Additionally looking at the CVs of the attracted staff they are successful in research and collaborate highly productively with their colleagues. There is a strong provision of administrative staff, which benefits an appropriate balance of teaching / research and administrative activities. Faculty members confirmed this at the site visit, since they were very positive about the teaching and research balance, in the sense that while being actively engaged in teaching, there remains sufficient time for research.

The experts consider the criterion to **be fulfilled**.

7. Sufficient non-academic staff has been planned for the degree programme.

Sufficient non-academic staff has been planned for the degree programme as visible in the financial plan and as described during the site visit. Further, the university administration is plausibly set-up and enables sufficient time for research and teaching for the scientific staff.

The experts consider the criterion to **be fulfilled**.

## 2.4 § 17 para. 5: Funding

The degree programme's funding

1. is secured for a period of six years and
2. makes it possible that students complete their degree programme even in the event of its discontinuation.

The financial plan for the degree programme comprises a realistic and plausible balance of all expected revenues and expenses in connection with the planned degree programme. Financing commitments of all funding bodies listed in the financial plan shall be attached to the application.

Univinvest, as the majority stakeholder, guarantees for an unlimited period the financing of the studies at MODUL. Thus, the programme's funding is secured for a period of six years. This also covers the requirement that students are guaranteed to be able to finish their studies in the event the programme should be discontinued.

Further, the financial plan for the degree programme is realistic and plausible, and the university has clarified how it can cover arising cloud computing costs, which is particularly relevant for Data Science.

The experts consider the criterion to **be fulfilled**.

## 2.5 § 17 para. 6: Infrastructure

Quantitatively and qualitatively adequate facilities and equipment are provided for the degree programme at all sites at which teaching will be offered. In the case that external resources are required for the degree programme, their right of disposal has been secured and the key points thereof shall be described in the application for programme accreditation.

Evaluation of this aspect is done according to provided information, a detailed campus tour, interview with the responsible personnel, the statements of the students interviewed, and the subsequently submitted information/documents.

Study rooms and general technical equipment is sufficiently provided on the campus in quantity aspects and quality aspects. The private university owns an unlimited rental contract for the Campus Kahlenberg which provides sufficient space for studying and learning. Current temporary technical requirements, such as equipment for hybrid teaching and studying are met. Well-equipped teaching rooms, the hybrid library facilities, Wifi, and LMS system are existing and in combination with the well-structured building allow students multiple hybrid study and learning scenarios. Since the university is located outside the city of Vienna, a well-run cafeteria, provides a corresponding offer of drinks and meals. The university relies on a bring-your-own-device policy for students, which meets the requirements of the students target group. Essential Software is provided via a corporate partnership with Microsoft. Self-study and group study rooms and spaces are provided as separated and open space.

Nevertheless, a Data Science master programme with its Machine Learning assignments, the expected data volumes, and level of project complexity requires the provision of sufficient cloud computing services for students. The approach of relying on the students own laptop

performance will only be sufficient for undergraduate programmes, but will not meet the requirements of a master's programme. The university therefore defined and allocated a financial budget for approx. 720 GPU resp. approx. 700 €/year. We consider this to be tight but generally among all students with different projects with different computational requirements as sufficient.

The experts consider the criterion to **be fulfilled**.

#### Recommendation:

The experts encourage the private university to find means to support individual projects with higher demand on GPU-hours. In addition the experts encourage the private university to allocate budgets for selected projects with specific demands for data not being open source and publicly available.

## 2.6 § 17 para. 7: Co-operation

Co-operation projects with other higher education institutions and, if applicable, partnerships with institutions outside the higher education area in Austria and abroad that match the degree programme's profile are provided for. The mobility of students and staff is being promoted.

As shown throughout multiple interview rounds and outlined in the filed documentation the university maintains a vast network of national and international collaborations. The university outlined how collaborations grew organically from operating their study programs in the interviews. Therefore, collaboration fits the university's programme profile.

Although MODUL claims that about 80 % of students are already incoming, MODUL also maintains several partnerships with other universities, allowing student mobility.

The experts consider the criterion to **be fulfilled**.

## 3 Summary and final evaluation

### (2) Degree programme and degree programme management

This master's programme builds on MODUL's strategic objectives, combining academic training with real-world applications in data science and sustainability. The curriculum ensures students gain specialized knowledge alongside critical personal and professional skills. By integrating research and practical approaches, the programme prepares graduates for complex, interdisciplinary challenges in their fields. The faculty's involvement in both teaching and research fosters a stable and dynamic learning environment. There is always a balance in an interdisciplinary MSc between two subjects – here there is a clear focus on Data Science, which allow students benefit from the Domain expertise but also gives sound foundations to work in other areas later.

Learning outcomes emphasize interdisciplinary competencies in sustainability and data science, though improvements in clarity and framework alignment (e.g., Bloom's Taxonomy) were recommended. While there is very relevant content, the formulation of the learning outcomes need to be improved as this forms the basis for later evaluations.

For the fast evolving fields of Data Science and Sustainability a structured approach is used by the MODUL, the Degree Study programme Conference, with the intention to keep the course relevant.

### (3) Research and development and/or the advancement and appreciation of the arts

Research activities are deeply embedded in the programme, with faculty members contributing their expertise in ongoing interdisciplinary projects. This connection between teaching and research provides students with exposure to cutting-edge methodologies and real-world applications, enriching their academic journey and practical experience. Especially the interdisciplinary angle between data science and sustainability has great promise.

### (4) Staff

MODUL's existing team of academics is complemented by plans to hire additional specialists to strengthen the programme's research focus. The interdisciplinary expertise of the current and incoming faculty is expected to enhance the learning experience while driving innovation in teaching and applied data science research. MODUL's support for staff research activities is likely to attract top talent and benefit students. This is supported by the strong CVs of the academic staff.

### (5) Funding

The programme has a strong financial plan, ensuring resources for its operation and growth. MODUL benefits from a funding guarantee by its majority shareholder. This enables students' to complete their studies, even in the unlikely event of programme terminating. The plan is that the fees will cover the costs in the near future.

### (6) Infrastructure

The university provides an infrastructure suited to the programme's technical demands, including modern classrooms, learning environments. More thought should have been given to compute environment which is required in AI and Data science. Specifically, recommendations were made to expand GPU support and allocate budgets for data-intensive projects. This has been addressed in the addendum.

### (7) Co-operation

MODUL has a network of collaborations across academia, industry, and public sectors, both domestically and internationally. These partnerships offer students opportunities for practical engagement, research projects, and professional development. For instance, the strong links in tourist sector is a good source relevant data projects for sustainability aspect of the degree. The students have opportunity for a non-mandatory internship and can do a semester abroad. For many students being at MODUL is already being abroad.

The experts **recommend** to the board of AQ Austria the accreditation of the Data Science for Sustainability master programme, conducted in Vienna by Modul University Vienna GmbH under the following condition:

- Criteria § 17 para. 2 subpara. 2: The expert group recommends the Board of AQ Austria to issue the following condition: to revise the learning outcomes within 6 months in such a way, that they ensure and include a balance of knowledge reproduction, reorganization, and problem-solving skills, as well as clear references to the relevant conceptual frameworks. For instance, currently well-formulated sustainability-oriented outcomes—such as “Analyze and evaluate data from complex economic and social systems with respect to current sustainability challenges” and “Interpret results from data-informed sustainability studies by applying social, psychological, and economic theories”—could serve as models. Similar clarity and rigor should be applied to outcomes related to data science methods, causality investigations, and the creation of sustainability solutions.

## 4 Viewed documents

- Application for accreditation of the Data Science for Sustainability master programme , conducted in Vienna, by the Modul University Vienna GmbH received on 16.04.2024 in the version of 14.08.2024
- Subsequent documents submitted prior to the site visit, received on 05.11.2024
- Subsequent documents submitted after the site visit, received on 04.12.2024

To the Board of AQ Austria  
Agentur für Qualitätssicherung und Akkreditierung Austria  
Franz-Klein-Gasse 5  
1190 Wien

By e-mail: [office@aq.ac.at](mailto:office@aq.ac.at)

Vienna, 4<sup>th</sup> February 2025

**Response to the expert report on the accreditation procedure for the Master Program Data Science for Sustainability conducted in Vienna by Modul University Vienna Private University**

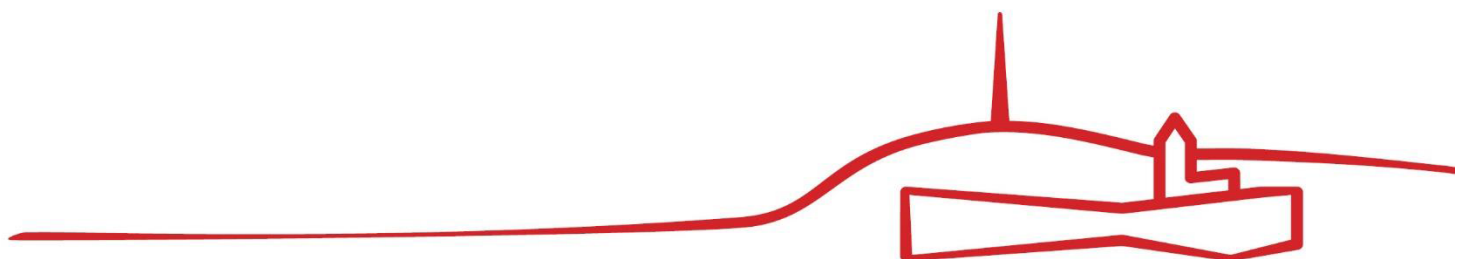
Dear Sir or Madam,

Modul University Vienna Private University would like to relay the following response in reference to the expert report on the accreditation procedure for the Master of Science in Data Science for Sustainability.

Modul University Vienna Private University would first like to extend immense gratitude to the reviewers of the MSc in Data Science for Sustainability as their assessment provided valuable feedback that was both positive and constructive. The different recommendations of the reviewers will be carefully considered in order to further improve the overall quality of the degree program.

We acknowledge the reviewers' recommendations regarding the formulation and learning outcomes of the degree program. Based on their valuable input, we have refined the wording of the intended learning outcomes across all modules (Modules I to V) to ensure greater clarity and precision. Action-oriented verbs have been employed to enhance measurability, replacing broad terms such as "gain" and "understand" with more defined competencies like "analyze," "apply," and "evaluate" (please see Attachment A for details). Additionally, learning outcomes have been further clarified in terms of sustainability to ensure they are both explicit and assessable.

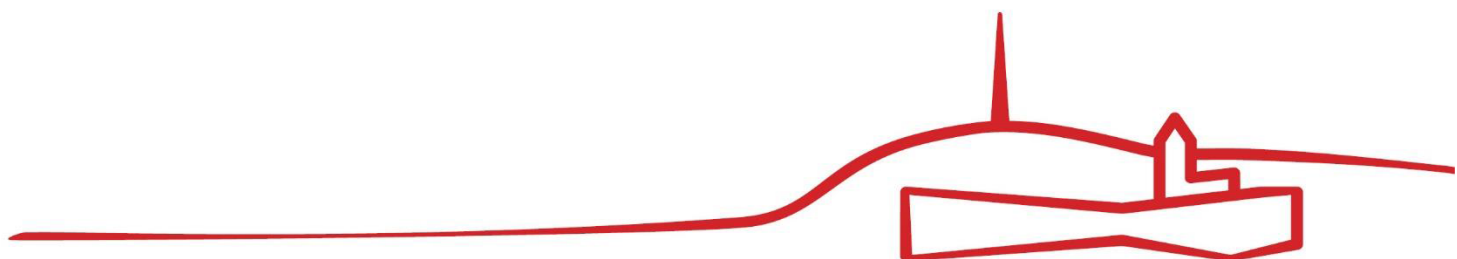
While it was not possible to revise the learning outcomes for the single syllabi due to time constraints, Modul University Vienna Private University will establish a working group chaired by the Dean of the Graduate Degree Programs in spring 2025 so that the learning outcomes for all individual courses will also be adapted according to the requirements of Bloom's Taxonomy before they will be offered for the first time.



We would like to extend our appreciation and thanks once again to the reviewers. We would kindly request a brief acknowledgement of this receipt.

Sincerely,

Karl Wöber  
President



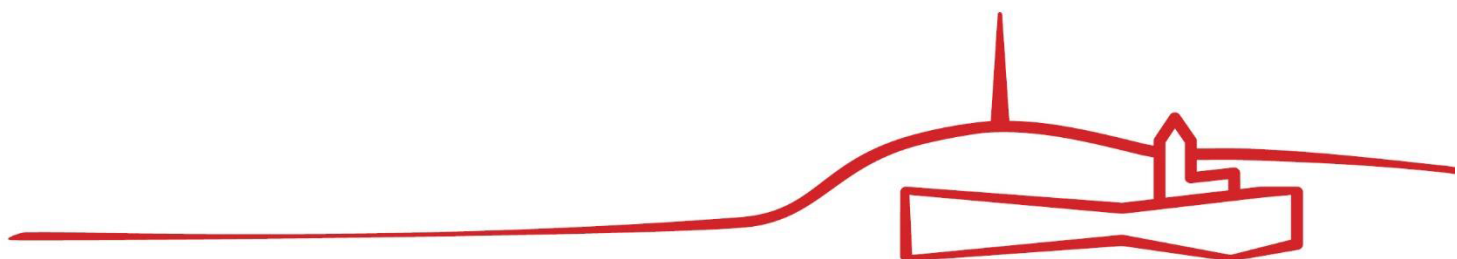
**Attachment A: Learning outcomes of Modules I-IV (revised)**

**\*Page numbers refer to those within the original application document**

**Learning outcomes for Module I (see page 30):**

After completing this module, students are able to:

- **Evaluate** descriptive data analysis of large datasets.
- Visualize different properties of large datasets including histograms, clustering results, relational aspects of the data, and lower dimensional representations of the data.
- **Master** data transformation methods to account for inhomogeneous empirical distributions and prepare data for processing by data mining and machine learning algorithms.
- **Develop** modern data mining algorithms for unsupervised data analysis and implement data-driven applications.
- **Analyze a wide** range of machine learning algorithms for classification, regression, and reinforcement learning.
- **Construct** representational learning algorithms including deep learning Approaches.
- **Create** natural language processing algorithms including large language Models.
- Apply the acquired knowledge in projects related to information systems, analysis of socially relevant datasets, business, managements, and economics.



**Learning outcomes for Module II (see page 31):**

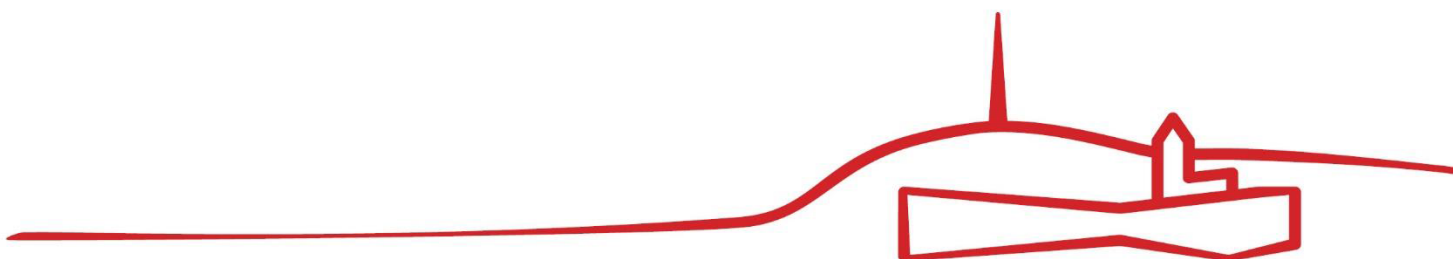
After completing this module, students are able to:

- **Interpret** the rationales for the choice and design of different strategies to achieve the goals of sustainable development
- **Master the** range of spatial analytical techniques and the skills necessary for expert application.
- Design, compile and develop **spatial databased** into a system appropriate to sustainability problems.
- Demonstrate a mastery of spatial analysis and mapping skills.
- **Apply detailed** knowledge about various sustainable metrics.
- Perform assessment for different sustainability applications.
- **Identify** the **most** suitable sustainability metrics for a given use case.

**Learning outcomes for Module III (see page 32):**

After completing this module, students are able to:

- **Acquire** theoretical and practical knowledge regarding various aspects of decision situations and decision making in research.
- Make optimal theoretical **and methodological** choices related to research design.
- Apply their learned knowledge to both theoretical and practical tasks.
- Implement these tasks using statistical software on a computer.



**Learning outcomes for Module IV (see page 33):**

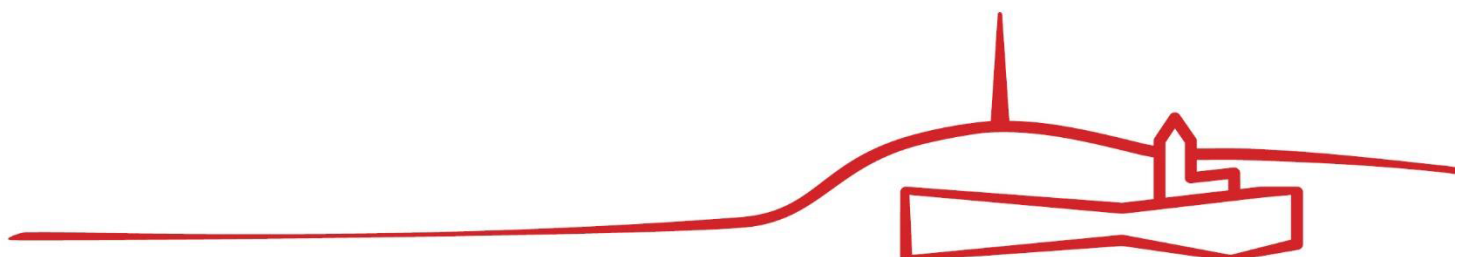
After completing this module, students are able to:

- Create their own academic profile by selecting a specific set of enrichment courses, which combine into a specialization.
- **Acquire** specialized knowledge and skills in the chosen specialization: Digital Marketing; Sustainable Management and **Policy**; Entrepreneurship, Innovation and Leadership.
- Deepen their understanding of further aspects of sustainability (by selecting the specialization Sustainable Management and Policy) or apply their existing fundamental data science and sustainability knowledge in a future-oriented business context (by selecting either the Digital Marketing or the Entrepreneurship, Innovation and Leadership specialization).
- Achieve team competences and gain enhanced critical awareness.
- Develop their professional competencies according to the chosen specialization.

**Learning outcomes for Module V (see page 34):**

After completing this module, students are able to:

- Identify a research topic and formulate a research question that furthers the knowledge within the field of international management.
- Conduct a thorough literature review and present the results of the review in an evaluative manner.
- **Carry out** a comprehensive study in accordance with the scientific practices pertaining to the methods chosen, including collecting, analyzing, and presenting the results in accordance with the ontological and epistemological foundations of the theoretical perspectives employed.



- Make a well-argued empirical, theoretical, and/or methodological contribution to the chosen research field.
- Provide implications for practice as well as for future research.
- Defend the research conducted and evaluate and discuss other's research in a constructive and critical manner.
- Present results of a scientific study to an audience outside of the specific area of expertise.

