MDMC
Master in Data Management and Curation

Advanced Course "Master in Data Management and Curation" (MDMC)

Call for Applications – Academic Year 2026/2027

The Interdisciplinary Laboratory for Natural Sciences and Humanities (hereinafter "ILAS") of the International School for Advanced Studies (hereinafter "SISSA") and the Area di Ricerca Scientifica e Tecnologica – Area Science Park (hereinafter "Area") jointly promote, for the Academic Year 2026/2027, the second edition of the advanced training course entitled Master in Data Management and Curation (MDMC).

Objectives and Description

The Master in Data Management and Curation (MDMC) is a one-year advanced training programme designed to train professionals capable of designing and implementing integrated components within complex scientific data ecosystems, following a FAIR-by-design approach (i.e. applying the principles of Findability, Accessibility, Interoperability and Reusability from the early stages of research design and planning).

In the current research landscape, data management and curation can no longer be considered ancillary activities, but rather fundamental components of the research process itself. Data must be collected, documented, structured, preserved and published in such a way as to ensure quality, interoperability, long-term reusability and the integrity of research outcomes.

MDMC provides students with:

- a systemic understanding of the entire data ecosystem in research and development contexts;
- technical skills to implement data collection, processing and publication pipelines;
- tools and methodologies for integrating structured metadata and interoperable models;
- basic knowledge of Artificial Intelligence and Machine Learning techniques to support data quality, classification and enrichment;
- awareness of European policies and Open Science principles.

In a context where Artificial Intelligence systems are increasingly used to analyse, integrate and generate knowledge from scientific data, data management and curation play a strategic role. Data quality, traceability, documentation and structuring are not merely best practices, but essential conditions for ensuring that AI tools produce reliable, reproducible and scientifically sound results.

MDMC therefore places particular emphasis on the early stages of the data lifecycle (data collection, validation, documentation, modelling and preservation), recognising them as enabling factors for the responsible and effective use of Artificial Intelligence in research contexts.

Compared to other training programmes, MDMC specifically focuses on data generated in scientific and technological research environments, where the complexity of tools, experimental processes and digital infrastructures requires targeted technical solutions and continuous collaboration between researchers, data engineers and data stewards.

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The programme is aligned with European Open Science policies and with the European Open Science Cloud (EOSC), an initiative promoted by the European Commission to create a federated European ecosystem for sharing, accessing and reusing research data.

The learning objectives of MDMC are fully aligned with this vision: the ability to design and implement interoperable components, adopt FAIR standards and understand distributed digital infrastructures is essential for actively contributing to such a federated ecosystem. In this context, the competencies developed in MDMC enable institutions and researchers to participate effectively and consciously in European data infrastructures.

The programme combines classroom teaching with a traineeship period in research laboratories and partner companies, during which participants develop an applied project aimed at designing and implementing FAIR-compliant data components or pipelines.

Although strongly oriented towards data management in scientific research, the competencies acquired through MDMC are also highly applicable in industry. The growing importance of **data governance**, **data quality and traceability** makes these competencies increasingly valuable beyond academia. **From corporate data management to information flow optimisation**, the methodologies taught offer career opportunities in fields such as **business intelligence**, **data management and data analytics**, thereby broadening participants' professional prospects.

Entry Requirements and Minimum Qualifications (as of the start date of the course)

Higher Technical Institute diploma, Bachelor's degree, Master's degree or equivalent (including pre-reform Italian degrees).

In addition, the following are required:

- good command of English (the official language of the course is English; lectures and materials are in English);
- basic Python programming skills (see Annex 1);
- basic mathematical knowledge (equivalent to a university-level course in Mathematical Analysis);
- basic statistical knowledge (elements of probability theory, hypothesis testing, Bayes' theorem, model comparison);
- a personal computer with a Linux environment.

Application Procedure and Deadline

Applications must be submitted exclusively through the PICA portal at the following link: **Application Call 2026-2027**.

The online application procedure must be completed no later **than 1:00 p.m. (Italian time) on Tuesday, 30 June 2026.**

No other forms of submission of applications or supporting documentation will be accepted.

Course Structure

The MDMC course, delivered in English, lasts approximately 10 months.

Lectures will begin on 22 September 2026, followed by a 6-month traineeship period, concluding with the final thesis defence at the end of June 2027.

The programme includes a total of 1,500 hours of training activities, corresponding to 60 ECTS credits, structured as follows:

- 250 hours of teaching activities (10 ECTS), of which approximately 240 hours consist of in-person lectures in Trieste and approximately 10 hours are delivered remotely during the traineeship. The in-person lectures are organised from mid-September 2026 to December 2026 in Trieste (Area and SISSA), considering approximately 30 hours of teaching per week over eight weeks;
- approximately 500 hours of laboratory traineeship (20 ECTS) [6 months of traineeship correspond to approximately 124 working days; considering 4 hours per day, this amounts to 496 hours];
- approx. 125 hours for the project work (thesis) (5 ECTS);
- approx. 625 hours of individual study (25 ECTS).

Attendance of at least 70% of total teaching hours and a positive evaluation from the traineeship supervisor are required to access the final examination.

Financial Support

Depending on the availability of financial resources resulting from agreements with external bodies, such as the Autonomous Region of Friuli Venezia Giulia or other research institutions and private companies, **financial benefits, scholarships and awards** may be offered and will be announced on the MDMC webpage at the link Master in Data Management and Curation (MDMC).

A partial reimbursement of the enrolment fees may also be available in accordance with the Notice to be published by ARDiS (Regional Agency for the Right to University Education) and based on the request submitted directly by candidates through the PICA application form.

Scholarships are not cumulative with other scholarships granted for any reason (Art. 7 of the "Regulations for the awarding of scholarships for research and advanced training activities" of SISSA)

Tuition Fees – Regular Students

The standard enrolment fee for MDMC amounts to € 4,500.00 (four thousand five hundred/00), to be paid in no. 2 instalments of € 2,250.00 (two thousand two hundred and fifty/00) each, the first by 22 September 2026 and the second by 26 November 2026, in addition to taxes and other charges required by regional legislation on the right to education, which will be communicated at

the time of enrolment. Failure to pay, or late payment of the enrolment fee, will result in exclusion from attending the course and from obtaining the qualification of the advanced training course “Master in Data Management and Curation”.

Tuition Fees – Auditors

Participation as auditors is allowed for a **maximum of 5 students**, or more than 5 provided that the total number of participants (regular and auditors) does not exceed 20. The enrolment fee amounts to € 2,500.00 (two thousand five hundred/00), to be paid in no. 2 instalments of € 1,250.00 (one thousand two hundred and fifty/00) each, the first by 22 September 2026 and the second by 26 November 2026, in addition to taxes and other charges required by regional legislation on the right to education, which will be communicated at the time of enrolment.

Exclusively for MDMC participants coming from non-EU countries, the possibility is provided to attend the lessons remotely until the entry visa is obtained. Should the total number of participants (regular and auditors) not exceed 20, auditors will not be subject to selection. Auditor participants will have access exclusively to MDMC in-person lectures during the period mid-September–mid-December 2026. They will not have access to the traineeship phase nor to the development of the thesis project.

Participants who attend at least 70% of the lecture hours will be awarded a certificate of attendance including details of the courses attended.

No financial benefits are available for auditor participants.

Available Places and Selection

The first 15 eligible candidates in the merit ranking will be admitted to MDMC. Applications will be evaluated primarily on the applicant’s CV and motivation letter. A short online interview may be required.

The results of the final selection will be communicated by Friday, 10 July 2026. Successful candidates must confirm their acceptance by notifying the ILAS Secretariat (ilas@sissa.it) by Friday, 17 July 2026.

In the event of withdrawal by selected candidates, replacements with eligible candidates are allowed until 8 October 2026.

Further Information

MASTER DATA MANAGEMENT AND CURATION

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Italian privacy disclaimer:

Pursuant to Legislative Decree no. 196/2003, as amended and supplemented, personal data will be processed for the purposes of the selection procedure. Pursuant to Regulation (EU) 2016/679 “General Data Protection Regulation” (GDPR), the provisions of Legislative Decree no. 196/2003 “Personal Data Protection Code”, and the amendments introduced by Legislative Decree no. 101/2018, it is hereby informed that all data provided to SISSA, for purposes connected with and instrumental to the above-mentioned call, will also be processed by electronic means, adopting appropriate measures to ensure security and confidentiality, in compliance with the above-mentioned legislation. Information regarding data processing is available at the following address: http://www.sissa.it/it/privacy. Pursuant to Article 5 of the GDPR, personal data will be processed in accordance with the principles of lawfulness, fairness and transparency. They shall be adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed. By completing and submitting the application for participation in the call, candidates consent to the processing of their personal data for the purposes and under the conditions set out on this page.

Trieste, March 2026

SISSA Director

Andrea ROMANINO

MDMC Director

Eugenio PIASINI

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ANNEX 1 – MINIMUM PYTHON PROGRAMMING REQUIREMENTS

1) **Installation and configuration of the development environment**: Install Python and use an Integrated Development Environment (IDE) to write and run Python code.
2) **Basic syntax and language structures**:
   - **Variables and data types**: Understand how to declare variables and use data types such as integers, floats, strings and booleans.
   - **Operators:** Use arithmetic, comparison and logical operators.
   - **Control structures**: Implement conditional statements (if, else, elif) and loops (for, while).
3) **Functions**:
   - Define and call functions.
   - Manage parameters and return values.
4) **Data structures**:
   - **Lists**: Create, modify and iterate over lists.
   - **Tuples**: Understand the use of tuples and their differences from lists.
   - **Dictionaries**: Manage key–value pairs.
   - **Sets**: Use sets to handle collections of unique elements.
5) **Introduction to object-oriented programming (OOP)**:
   - Understand basic concepts such as classes and objects.
   - Define classes and create instances.
6) **Use of standard libraries**:
   - Import and use modules from the Python standard library.