Teaching Regulations of the Degree Programme (CdS) in Applied Mathematics (LM-40)

(effective from Academic Year 2023/24)

Programme website: **https://applied-mathematics.unisi.it/it**

Article 1 – Purpose

1. These Teaching Regulations specify the organisational aspects of the Master's Degree Programme in **Applied Mathematics (LM-40)**, in accordance with the framework defined in Part "Annex A" of the University Teaching Regulations, with respect for academic freedom of teaching and for the rights and duties of teaching staff and students.
2. The competent collegial body is the Teaching Committee (Comitato per la didattica), which carries out its activity as provided for by the Statute, the University Teaching Regulations and the other applicable rules, to the extent not governed by these Regulations.
3. An integral part of these Regulations is the **Annual Single Degree Programme Form (SUA-CdS)**, an instrument for the design, implementation, self-assessment and redesign of the Degree Programme.
4. The SUA-CdS for each edition of the programme can be found on the Degree Programme website:

   https://www.diism.unisi.it/it/AQ-Didattica

Article 2 – Establishment

1. The Master's Degree Programme in "Applied Mathematics", belonging to the class of Master's Degrees in Mathematics LM-40, pursuant to Ministerial Decree 270/2004 and subsequent implementing decrees, is established at the University of Siena.
2. The Master's Degree Programme in Applied Mathematics is administered by the Department of Information Engineering and Mathematical Sciences.

3. The Programme lasts 2 years, and 120 University Credits (CFU) must be earned in order to obtain the Master's Degree in Applied Mathematics.

Article 3 – Specific learning objectives and reference professional profiles

1. The specific learning objectives of the Master's Degree Programme in Applied Mathematics (LM-40) are set out in the section "Specific objectives of the Programme and description of the study path" of Quality Section A – Training objectives (Section A4.a) of the SUA-CdS.
2. The award of the Master's Degree in Applied Mathematics (LM-40) provides access to the career opportunities detailed in the sections "Knowledge and understanding, and ability to apply knowledge and understanding" and "Making judgements, Communication skills, Learning skills" of Quality Section A – Training objectives (Section A2.a) of the SUA-CdS.
3. With regard to the knowledge, understanding and application skills, as well as the abilities and competences that graduates of the Programme will have acquired by the end of the study path, reference is made to the SUA-CdS Form (Sections A4.b1, A4.c).

Article 4 – Scientific-disciplinary sectors and related courses

1. The official courses of the Master's Degree Programme in Applied Mathematics (LM-40), defined in relation to its learning objectives, within the scientific-disciplinary sectors/disciplinary groups provided for in the Programme's academic framework (Ordinamento didattico), are those listed in Section B1 of the SUA-CdS.
2. Related and supplementary activities are intended to complement the training provided by the basic and characterising activities, by deepening methodologies and technical and applied solutions in areas proper to mathematics, such as algebra, geometry, analysis, mathematics education, computer science and formal systems, and in areas of information engineering, such as, for example, information theory, data analysis and management, artificial intelligence and bioinformatics.

Article 5 – Admission requirements and verification procedures

The procedures for admission to the University's degree programmes are regulated by the Policy Guidelines on the Educational Offer for A.Y. 2023/24 (Atto di indirizzo in materia di Offerta Formativa a.a. 2023/24), available at: https://www.unisi.it/ateneo/statuto-e-regolamenti/atti-di-indirizzo.

To enrol in the Master's Degree Programme in Applied Mathematics, applicants must meet the following curricular requirements and quality requirements.

Curricular requirements

Applicants must hold AT LEAST ONE of the following qualifications, or equivalent qualifications, including those obtained abroad:

a) A degree in class L-35 (Mathematical Sciences) or in class L-32 under Ministerial Decree 509/99.

b) A degree in one of the following classes under Ministerial Decree 270/04 (or in the equivalent classes under Ministerial Decree 509/99, whose number is given in brackets alongside, together with the name where different):

- L-7 Civil and Environmental Engineering (8)
- L-8 Information Engineering (9)
- L-9 Industrial Engineering (10)
- L-18 Economics and Business Management Sciences (17)
- L-27 Chemical Sciences and Technologies (21)
- L-30 Physical Sciences and Technologies (25)
- L-31 Computer Science and Technologies (26)
- L-33 Economic Sciences (28)
- L-41 Statistics (37 Statistical Sciences)

together with having earned a minimum of 36 CFU in MAT/xx sectors.

For students whose qualification was awarded by a foreign university, the assessment of the curricular requirements is entrusted to the Teaching Committee, which verifies in particular:

- that the qualification was awarded at the end of a course of study lasting at least three years;
- that the studies followed are adequate with respect to the requirements of the degree classes indicated above.

The procedures for the admission of international students are described in the Apply/Enroll section of the Degree Programme website. The procedure requires the submission of the application for admission online via the University's Apply online site.

Quality requirements

Admission to the programme, for students who hold the above curricular requirements, is in any case subject to the fulfilment of further quality requirements, assessed by the Teaching Committee on the basis of the curriculum and, possibly, an interview.

This assessment must verify knowledge of the English language at a level of at least B2 of the Common European Framework of Reference for Languages of the Council of Europe.

All students are required to undergo assessment by interview, except those who satisfy BOTH of the following requirements:

- a degree grade of not less than 95/110;
- at least 6 CFU in total earned in the sectors MAT/01 and/or MAT/02.

For students who obtained their first-level degree at a foreign university, the Teaching Committee determines whether equivalent requirements for exemption from the interview are met.

The assessment by interview normally takes place orally. Students who are about to graduate and who submit a pre-enrolment request for the Master's Degree are also admitted to the admission test.

Further information on the conduct of the admission tests is available on the Degree Programme website: https://applied-mathematics.unisi.it/.

Article 6 – Organisation of the degree programme

a) Credits and attendance

1. Teaching is delivered exclusively in conventional (in-person) mode. Attendance at the courses of the Master's Degree Programme is not normally compulsory. However, in order to achieve the learning objectives, attendance is strongly recommended.
2. A course may require compulsory attendance where practical or laboratory activity predominates. This requirement is stated in the course description on the Degree Programme website, together with the minimum number of hours that must be attended. The course instructor will arrange the

most appropriate method of verifying attendance. Students who do not obtain the attendance certification may not take the final examination.

3. The number of classroom teaching hours per CFU is defined according to the type of course, within a range of 7 to 9 hours, up to a maximum of 10 hours for courses with a stronger laboratory component.

b) Study plan, curricula or tracks

1. The Study Plan, with an indication of any curricula or tracks, is set out in Section B1 of the SUA-CdS Form.
2. Students are required to submit an individual study plan, in which they must specify their freely chosen educational activities, within the deadlines and according to the procedures established by University regulations.
3. The approval of study plans other than those set out in Section B1 of the SUA-CdS is the responsibility of the Teaching Committee.

c) Academic calendar

1. The calendar of teaching activities is approved annually in accordance with the University Teaching Regulations, is published on the Degree Programme website and is reported in Sections B2.a, B2.b and B2.c of the SUA-CdS.
2. For each course, the semester in which it is held, the total number of hours and any prerequisites are indicated in the course descriptions accessible from the Degree Programme website.

d) Assessment of performance

1. The assessment methods for each individual course are described in the course descriptions published on the website of the Master's Degree Programme.
2. The number of examination sessions and the number of exam dates in each session are established on the basis of what is indicated in the section "Calendar of the degree programme, timetable of educational activities and calendar of examinations" (B2) of Section B – Student Experience of the Quality part of the SUA-CdS.

3. Examination boards consist of at least two members and are chaired by the course instructor. The second member is a lecturer of a related course or a subject expert (cultore della materia). The status of subject expert is conferred by the Teaching Committee. In the case of courses made up of several modules, and therefore with several instructors, the examination board consists of all the instructors and is chaired by the lead instructor of the integrated course, appointed by the Director of the Department. In the event that a board member is unable to serve, the Director of the Department, on the proposal of the Teaching Committee, appoints a substitute.

f) Final examination and award of the degree

1. The characteristics of the final examination are described in the section "Characteristics of the final examination" of Quality Section A – Training objectives of the SUA-CdS.
2. The credits assigned to the final examination are indicated in the section "Planned educational offer" of the Administration Section of the SUA-CdS.
3. The procedures for conducting the final examination, the composition of the board, the operational guidelines and those for the assignment of the final grade are specified in the section "Procedures for conducting the final examination" of Quality Section A – Training objectives of the SUA-CdS.

g) Transfers, changes of degree programme and enrolment of students who already hold a degree

1. In compliance with the provisions of the University Teaching Regulations, the recognition of CFU for students transferring from another degree programme and/or from another university is the responsibility of the Teaching Committee. The Teaching Committee carries out the recognition by assessing the consistency of the educational activities completed by the student with the learning objectives of the Master's Degree Programme, and in compliance with the maximum and minimum CFU values provided for the individual disciplinary areas of the characterising and related educational activities, as set out in the academic framework of the Master's Degree Programme, and with the structure of the educational offer of the cohort into which enrolment is sought.
2. With regard to transfers, changes of degree programme and enrolment of students who already hold a degree, reference is made to the annual Study Manifesto (Manifesto degli studi), published at: https://www.unisi.it/didattica/immatricolazioni-e-iscrizioni/immatricolazioni

3. With regard to CFU recognisable for prior professional knowledge and skills, only training activities carried out in collaboration with university institutions are considered. The maximum number of credits recognisable for this type of activity is indicated in the section "Other Information" of the Administration Section of the SUA-CdS.

Article 7 – Student-chosen activities

Educational activities freely chosen by the student are assessed by the Teaching Committee with regard to their consistency with the study plan.

Where the Teaching Committee identifies courses or groups of courses within the educational offer of a specific department that are consistent with the study path and the learning objectives of the degree programme, and that are deemed suitable to be recognised in advance as student-chosen educational activities (TAF D), the list of these courses must be available on the degree programme's web pages. The list is reviewed annually.

Article 8 – Procedures for verifying the results of internships, traineeships and study periods abroad, and the related CFU

Internships and traineeships

Assistance with external internships and traineeships is managed at University level through dedicated service structures (Placement Office and Career Service).

At Department level, a database has been created to archive the traineeship activities carried out, together with the contact details of the host organisations or companies (traineeship database).

The procedures and forms relating to internships and traineeships for the Degree Programme are published at the following link: https://applied-mathematics.unisi.it/it/studiare/tirocini.

The same page describes how internships and traineeships are carried out and how their results are verified.

In particular, 1 CFU is awarded for every 25 hours of activity. CFU are awarded on the basis of a final report written by the student and countersigned by the tutors.

The report is forwarded to the Students and Teaching Office (Ufficio Studenti e Didattica) by the university tutor according to the procedure described on the web page mentioned above.

International mobility

With regard to international mobility:

1. Students of the Master's Degree Programme are encouraged to spend study periods abroad at universities with which agreements and conventions for the recognition of CFU have been approved by the University, in particular within the framework of European Union mobility programmes. The section "Assistance and agreements for students' international mobility" of Quality Section B – Student Experience provides references to the support structures available to students.
2. The assessment of the consistency of study programmes abroad proposed by students with the learning objectives of the Master's Degree Programme is the responsibility of the Teaching Committee. In defining the activities to be followed abroad in place of some of those provided for in the official study plan, consistency with the learning objectives of the Master's Degree Programme is evaluated, rather than a perfect correspondence of content between individual courses.
3. The procedures and guidelines for the recognition of periods of study and training abroad carried out within international mobility programmes are defined in the relevant University policy document (atto di indirizzo).
4. Educational activities at European universities are quantified on the basis of the European Credit Transfer System (ECTS).

Article 9 – Orientation and tutoring

Orientation and tutoring activities are organised according to the plan approved annually by the Department Council. Details of the orientation and tutoring activities are given in the section "In-course orientation and tutoring" of Quality Section B – Student Experience of the SUA-CdS.

Article 10 – Organisational arrangements for part-time students and for students enrolled for a period shorter than the normal duration of the programme

Students may request part-time enrolment in the Degree Programme, on the basis of the general University rules set out in the annual Study Manifesto:

https://www.unisi.it/didattica/immatricolazioni-e-iscrizioni/immatricolazioni

No specific organisational arrangements are provided beyond those set out in the annual Study Manifesto.

Article 11 – Organisation of Quality Assurance and evaluation of teaching activity

The Master's Degree Programme in Applied Mathematics (LM-40) considers it of primary importance to organise and maintain an active quality assurance (QA) system. The Programme implements the QA system in line with the guidelines of the University Quality Assurance Board (Presidio della Qualità di Ateneo – PQA) and the University's quality policies. QA activities are overseen by the Teaching Committee (CpD), which is responsible for compiling the SUA-CdS, the annual monitoring form and the cyclical review report of the Degree Programme.

At its periodic meetings held throughout the year, the Teaching Committee critically addresses quality-related issues, on the basis of the available surveys (National Agency for the Evaluation of the University and Research System – ANVUR, AlmaLaurea, etc.), the student opinion questionnaires according to the ANVUR model, and the observations made by the Joint Student-Faculty Committee (Commissione paritetica studenti-docenti).

The main indicators are examined annually, concerning:

- entry, regularity and completion of the Programme's students;
- opinions of students and graduating students on the Programme;
- employment outcomes of graduates.

On the basis of these indicators, improvement measures are launched where appropriate.

The Quality Assurance System of the University of Siena has been structured as a central system and a peripheral system that communicate with each other.

The peripheral QA system is the responsibility of the Department and is described on the Department's Quality Assurance web page:

https://www.diism.unisi.it/it/dipartimento/assicurazione-della-qualita. The page is structured in 3 sections:

- Teaching QA
- Research QA
- Third Mission QA

The Teaching QA page describes the organisation of Quality at Degree Programme level, which can also be consulted from the Degree Programme web page at the link below.

https://applied-mathematics.unisi.it/it/il-corso/aq-didattica

The planned timetable can be consulted at the link below.

https://www.unisi.it/ateneo/assicurazione-della-qualita/scadenze-didattica

Article 13 – Final provisions

For everything not provided for in these Teaching Regulations, reference is made to the law, the Statute, the General University Regulations and the University Teaching Regulations.