Graduate programmes

Faculty of Medicine and Surgery "A. Gemelli"

Rome a.y. 2022/2023





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Faculty of Medicine and Surgery "A. Gemelli"

Enrolling at Università Cattolica means entering a training, study and research project that the University has been offering for over 60 years, to train doctors and operators able to mix professionalism, skills and human sensitivity.

We teach our students to treat starting from 'taking care' of the sick, the basic principle of this project that was born from a passionate relation between science and faith so that, as Pope Francis said, "beign doctors is a priviledged way to show that God, our Father, takes care of everyone".

Strongly wanted by the University founder, father Agostino Gemelli, the Faculty was born in Rome in 1961 and in 1964 the Policlinico Universitario Agostino Gemelli was founded, which then has become one of the biggest provate hospitals in Europe - among the first 40 at a global level - and which in 2018 obtained the title of IRCCS - Istituto di Ricerca e Cura a Carattere Scientifico - one of the most important Research Centres of the Italian healthcare system.

The opporunity to train in a groundbreaking scientific research structure allows our students to live a unique experience, not only by studying medicine, but also by living it daily in a place where teaching, innovative research, healthcare activities interact to help the communicaty and the patient.

The most classical frontal teaching - with professors/lecturers recognised at international scientific level - is met with simulation and internship activities in highly specialised labs and wards and continuous in-depth study through conferences and seminars organised inside the University Campus.

Moreover, thanks to the strong collaboration with the territory and GPs, our students can enrich their training by acquiring knowledge of frontier medicine.

For the a.y. 2022/2023 the "A. Gemelli" Faculty of Medicine and Surgery offers the following graduate programmes:

- **Biotechnology in personalized medicine**, which belongs to the LM/9 class (Medical, Veterinary, and Pharmaceutical Biotechnologies)
- Nursing and midwifery Sciences, belonging to the class LM/SNT1 (Nursing and Midwifery Sciences)
- Health professions of rehabilitation sciences, belonging to the LM/SNT2 class (Rehabilitation Sciences of the Health Professions)



Biotechnology in personalized medicine

Objectives

The aim of this graduate programme is to train professionals in the field of advanced biotechnologies for personalised medicine, otherwise known as Medicine of the 4 Ps (personalised, preventive, predictive and participatory). Graduates in 'Biotechnologies for Personalised Medicine' must have:

- specialist knowledge and multidisciplinary techniques aimed at developing experimental and translational protocols in the diagnostic and therapeutic fields;
- the skills needed for the application of advanced biotechnology in the new areas required by biotech companies, with particular reference to the development of new devices oriented towards precision medicine;
- a thorough and up-to-date knowledge of the regulations and ethical and bioethical issues associated with the development and use of modern biotechnology;
- the basic skills in the areas of marketing management and regulation, for the proper management of companies and start-ups in the field of modern biotechnology;
- I a specialised scientific culture, together with the ability to keep up to date, which are a prerequisite for entry into postgraduate training programmes, such as specialising masters, specialisation schools and doctorates.

Competence

The competences of our graduates include:

- knowledge of the scientific design process in the field of personalised medicine.
- the ability to apply cellular and molecular biotechnological innovations in innovative diagnostic and therapeutic processes.
- knowledge of and ability to use the main methodologies characterising molecular and cellular biotechnologies, also for the design and production of biopharmaceuticals, diagnostics, vaccines and innovative therapies;
- mastery of bioinformatic methodologies for the organisation, construction and access to databases, in particular genomics and proteomics, and the acquisition and distribution of scientific and technological information;
- knowledge and ability to use specific techniques and technologies in areas such as molecular modelling, design and innovative drug design;
- knowledge of the fundamentals of pathological processes of human interest, with reference to their cellular and molecular pathogenetic mechanisms; knowledge of congenital or acquired pathological situations in which it is possible to intervene with a biotechnological approach;
- the ability to design biotechnological protocols to be translated into innovative diagnostic and therapeutic strategies;
- the organisation of development activities in biotechnology companies with a focus on the management, marketing and bioethics aspects in compliance with national and EU regulations in the biotechnology sector.

Programme Structure

The **first year** of the programme is aimed at conveying specialist biotechnological knowledge in the following learning areas.

Cellular and Molecular Biotechnology

- Deepen the specialist knowledge of advanced cellular biotechnologies, ranging from the characterisation and potential application of somatic stem cells in human tissues, the molecular mechanisms underlvina differentiation and morphogenesis, to the study of the characteristics and properties of microbial communities in the human body, with particular attention to the intestinal microbiota.
- Deepen specialist knowledge of topics relating to modern molecular biotechnology in the field of high-process analytical biochemistry, genetic engineering and molecular biology methods for the production of recombinant proteins and gene therapy applications.
- Provide students with practical laboratory skills in the different areas of the programme, through the implementation of a set of exercises focused on learning how to use the different instruments and the associated experimental protocols.

Morphological and Functional Sciences

- Deepen the knowledge of the morphofunctional aspects of the various organs and systems of the human organism, integrating their structural, macroscopic, microscopic and ultrastructural aspects with their functional ones.
- The ability to deepen the specialist knowledge of topics related to different disciplines in the biological and medical field, for the adequate understanding of the molecular mechanisms involved in the onset and development of human diseases.

The **second year** of the programme is structured in two parts: a first common training part and a second part divided into two parallel and alternative curricular paths.

The first part covers the following areas of learning:

Regulatory, Economic and Patent aspects

- Deepen specialist knowledge of the methodological, procedural, legislative and management aspects underlying the industrial development of modern biotechnology and its application in the clinical field.
- Deepen specialist knowledge of integrated methodological aspects for the analysis and validation of experimental results produced by the application of innovative biotechnologies, supported by knowledge of information algorithms and adequate consideration of bioethical issues.

The second part is divided into a therapeutic profile and a diagnostic profile, with activities carried out both in the research laboratories of Università Cattolica del Sacro Cuore and at A. Gemelli University Polyclinic Foundation - IRCCS, as well as with internships at companies in the sector. The training activities will be divided, respectively, into the following learning areas:

Innovative Therapies, Regenerative Medicine and Nanomedicine (Therapeutic profile)

 Deepen specialist and multidisciplinary of different biotechnologies and nanotechnologies aimed at the development of modern innovative therapies

Advanced and high-processivity diagnostics (Diagnostic curriculum)

 Deepen the specialist knowledge necessary for the understanding, development and implementation of new technologies for advanced diagnostics in the fields of genomics, pathology, biochemistry, microbiology and forensics.

After Graduation

The main employment opportunities envisaged by the graduate programmes in this class include the following areas:

- diagnostics, through the application of molecular analysis and applied biomedical technologies;
- bioengineering, with particular reference to the use of nano-biomaterials or engineered organs and tissues;
- experimental biomedicine, with particular reference to the use of in vivo and in vitro models for understanding the pathogenesis of human and animal diseases;
- therapeutics, with a focus on the development and testing of innovative pharmacological products (including gene therapy, cell therapy and regenerative medicine) for use in human disease;

Credits

The training programme takes place over two years, divided into semesters, and is divided into two profile: one diagnostic and the other therapeutic. Over the two years of the programme the student obtains a total of 120 ECTS. One university credit (ECTS) corresponds to 25 hours of total effort per student. The distribution of the total hourly commitment for each ECTS between teaching and individual study is determined as follows:

- 1 ECTS for lectures: 8 hours of frontal teaching + 17 hours of individual study
- 1 ECTS for laboratory activities: 8 hours of frontal teaching + 17 hours of individual study
- 1 ECTS for curricular training: 25 hours of training activities (at the organisation/ institution where the internship/ apprenticeship is carried out)
- 1 ECTS for final examination: 25 hours of individual study

The student acquires the ECTS foreseen for each training activity following the passing of an examination or other forms of verification of learning.

Attendance

All training activities, both classroom lessons and laboratory experiments, require compulsory attendance. In order to sit the exams, at least 65% of the face-to-face classroom lessons and at least 80% of the laboratory activities must be attended. It is left to each professor/lecture responsible for the course to decide how to check attendance.

Study plan

The study plans published here may be subject to change; the official reference study plans will be presented in the specific Faculty Guide and relevant SUA-CdS..

First year	ECTS
Cellular Biotechnology	8
Molecular Biotechnology	11
Morphological and Functional Sciences	8
Disease Molecular Basis	9
Advanced Medical Therapies	8
Biotechnology in Surgery	7
English Language	2
Laboratory of Experimental Biotechnology	12

Second year (common to both curricula)	ECTS
Methodology and Ethics in Biotechnology	7
Regulatory, Patent and Economic Aspects in Biotechnology	8
English Language	4
Traineeships and Internships	8
Experimental Thesis	10





Profile in **Diagnostic**

Second year	ECTS
Advanced Diagnostic Methodologies	10
 Two electives among: Pathological Anatomy Laboratory Clinical Biochemistry and Molecular Biology Laboratory Electrophysiology Laboratory Genetics Laboratory Histology Laboratory Microbiology Laboratory Clinical Pathology Laboratory General Pathology Laboratory Protection of Laboratory Animals on Scientific Research and Alternative Methods 	8

Profile in **Therapeutics**

Second year	ECTS
Innovative Therapies and Nanomedicine	10
 Two electives among: Preclinical Studies and Animal Models Laboratory Organ and Organoid Transcriptomics Laboratory Microbiota Manipulation Techniques Protein Biochemistry and Nanotechnology Laboratory Applied Cell Biology Laboratory Nanobiotechnology Physics Laboratory Inmunohaematology Laboratory Infectious Diseases Laboratory Protection of Laboratory Animals in Scientific Research and Alternative Methods CAR T CELLS: new frontiers of advanced cellular immunotherapy 	8

Nursing and midwifery Sciences

Objectives

This pathway enables the acquisition of an advanced cultural and professional education to intervene with high capacities in the care, management, training and research processes in one of the fields relevant to the different health professions involved (nurse, midwife or paediatric nurse). Students thus acquire care, educational and preventive competences in response to the primary and health problems of the population and to the quality problems of the services; they are able to take into account, in the planning and management of the personnel in the health area, the needs of the community and the development of new methods of work organisation. Furthermore, they consciously apply technological and IT innovation, also with reference to forms of teleassistance or tele-education, and the planning and organisation of pedagogical training events according to European operational standards.

Competence

Competence development is pursued through a training project whose main tensors are the concept of complexity, innovation and research. These competences include:

- detecting and critically evaluating the evolution of the care needs relevant to the specific professional figure, also in the connotations related to gender, where required;
- planning and operational intervention in complex care and organisational problems;
- planning, management and evaluation of care services with a view to quality improvement (planning, organisation, management, control);

- supervising assistance relevant to the specific professional figure and carry out professional counselling actions;
- applying and evaluate the impact of different theoretical models in the operation of the service;
- designing, implementing and evaluating training interventions;
- developing teaching skills for the specific professional figure in the context of tutoring and co-ordination of apprenticeships in basic, further and continuing education;
- using research methods and tools, relevant to the profession, in clinical care, organisation and training;
- critically analysing ethical aspects related to care and to multi-professional and multicultural issues.

Programme Structure

The first year is designed to provide the conceptual and methodological models of the four areas of competence of the graduate programme:

- Research and innovation area: methods of medical and social statistics, critical analysis of literature, research methodology and evidence-based healthcare practice;
- Area of nursing and obstetrics theory and philosophy of ursing and midwifery science and bioethical and anthropological insights;
- Organisation and management area: principles and methods of health economics and planning, in-depth study of administrative and labour law;
- Area of training and education: theoretical

models of social psychology, group psychology, theories of adult learning and tutoring methods.

Internships/traineeships are foreseen for the development of projects in line with the educational objectives of the study programme.

The **second year** is aimed at applying and contextualising the theoretical models and methods learned in the four areas of competence of the graduate in Nursing and Obstetrics Sciences and with specific reference to future work contexts:

- Research and innovation area: analysis of organisational, pedagogical and clinicalprofessional research studies and training in deducing implications for practice;
- Area of nursing and midwifery: in-depth study of relevant nursing and midwifery processes in order to design innovative models with a strong impact on the quality of care for users;
- Organisation and management area: in-depth study of strategies for the direction and management of professional and health services on the basis of criteria of efficiency and effectiveness, the management of human resources, the design of organisational integration tools and the evaluation of the quality of services;
- Training and education area: in-depth study of the design and management of basic and advanced training systems specific to the nursing and midwifery professions and of continuing education activities.

Internships/traineeships are foreseen for the development of projects, consistent with the educational objectives of the study programme.

The study programme includes activities to further develop the English language.

Teaching within the different scientificdisciplinary areas is carried out as required with:

a) face-to-face lessons to deepen subject-

specific knowledge;

- b) theoretical and practical exercises to provide the graduate with a solid operational training and the ability to apply the different knowledge;
- c) laboratory and internship activities (carried out with at least 30 ECTS under the supervision and guidance of specially assigned professional tutors, coordinated by a lecturer belonging to the highest level of training provided for the profile to provide the graduate with considerable practical preparation that will enable him/her to enter the world of work easily. Internships may be carried out at Faculty facilities, public and private health care companies, as well as stays at other Italian or foreign universities, also within the framework of national and international agreements;
- d) seminars on particular topics in the various disciplines.

After Graduation

Graduates in Nursing and Obstetrics Sciences can be employed in health care and social welfare institutions in the function of management or coordination of services in which nurses and midwives and support staff work; in the field of nursing, in the function of a professional leader for innovative projects, reorganisation of care processes and implementation of organisational models; in company or academic training centres with functions of management and co-ordination of training facilities, for teaching, tutoring, educational planning; in research centres for projects in the field of nursing and midwifery.

Credits

The graduate programme in Nursing and Obstetrics Sciences has a two-year duration and is divided into four semesters with a total of 120 ECTS.

A total of 25 hours of work per student is included in one university credit (ECTS). The distribution of the total hourly commitment for each ECTS between teaching and individual study is determined as follows:

- 1 ECTS for lectures: 8 hours of frontal teaching + 17 hours of individual study
- 1 ECTS for electives: 8 hours of frontal teaching + 17 hours of individual study
- 1 ECTS for internship: 12 hours of practical work + 13 hours of individual study
- 1 ECTS for final examination: 25 hours of individual study

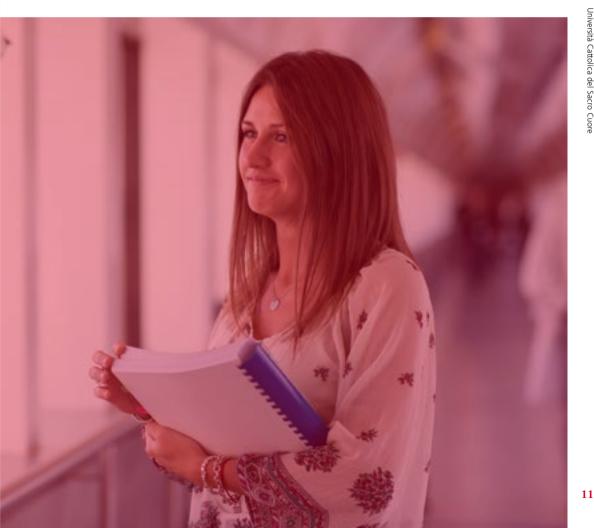
The student acquires the ECTS foreseen for each training activity following the passing of an examination or other forms of verification of learning.

Attendance

The total number of examinations planned and spread over the two academic years is 12. The graduate programme develops its teaching in presence. Attendance at lessons and internships/laboratories is compulsory. The student must have attended 100% of the total number of hours set aside for the internship in the specific year of the programme and must have attended at least 80% of the scheduled teaching activities for each course.

Study plan

The study plans published here may be subject to change; the official reference study plans will be presented in the specific Faculty Guide and relevant SUA-CdS.



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First year	ECTS
Development of Philosophical-scientific Thinking and Theories in Nursing and Midwifery Sciences	8
Research Methodology in Obstetrics and Nursing	10
Methodology and Analysis of Organisation Processes	9
Methodology for Education and Health Promotion within the Community	8
Electives	4
Seminar in English	2
Other Activities	4
Internship	15

Second year	ECTS
Advanced Clinical Nursing and Obstetric Methodology	8
Applied Methodology of Nursing and Obstetric Research	9
Obstetrics and Nursing Management and Planning Processes	10
Planning and Management of Educational Processes for the HR Development	8
Electives	2
Other Activities	1
Internship	15
Final Examination	7

Note:

The Nursing and Obstetrics Sciences programme is offered at of Università Cattolica del Sacro Cuore, Fondazione Policlinico Universitario 'A. Gemelli'. IRCCS in Rome and at the Piccola Casa della Divina Provvidenza, Presidio Sanitario Ospedale Cottolengo, in Turin.

Health professions of rehabilitation sciences

Objectives

The graduate programme in Rehabilitation Sciences of the Health Professions aims to provide a training path that enables the graduate to:

- coordinate and/or manage simple and complex organisations using tools and measures for planning, human resource management, accounting in business economy; manage work groups and apply appropriate strategies to foster multiprofessional and organisational integration processes;
- learn research methodologies collaborate in projects aimed at the continuous improvement of rehabilitation activities; collaborate with the care team to implement and develop protocols and guidelines;
- participate in the planning and management of educational activities in the context of lifelong learning for rehabilitation professionals; plan and implement, in cooperation with other professionals, educational and support interventions for the individual and the community for the self-management and control of risk factors and health problems.

Competence

The competences of graduates in the class include:

 applying the basic knowledge of the sciences relevant to the specific professional figure needed to make decisions relating to the organisation and management of health services provided by personnel with rehabilitation functions in the medical area, within health facilities of low, medium or high complexity;

- using the skills of health economics and business organisation necessary for the organisation of health services, for the management of available human and technological resources, evaluating the cost/benefit ratio;
- Using the methods and tools of research in the area of the organisation of health services relevant to the professions of the class, in the areas of clinical care, organisation and training;
- applying and evaluate the impact of different theoretical models in the operation of the organisation and management of health services;
- design and implement training measures for refresher and continuing education for the relevant health structures;
- developing disciplinary teaching, relevant to the specific professional figure, in basic and supplementary training, and the mentoring and coordination activities of the traineeship;
- communicating clearly on organisational and health issues with staff and users;
- critically analysing the ethical and deontological aspects of the professions in the health area, also in a perspective of multi-professional integration.

Take part in internships in accredited services (Service Directorates, Training Services, Research Centres). Teaching within the different scientific-professions areas will be a.y. 2022/2023

Graduate Programmes "A. Gemelli" Faculty of Medicine and Surgery

carried out with:

- face-to-face lectures
- theoretical and practical exercises;
- LAB Activities
- Internship: the internship can be carried out at Faculty facilities, public and Private enterprises with National Health Service credentials, health agencies. Internships may be organised at other Italian or foreign universities, in accordance with the agreements stipulated in Italy and international exchange projects;
- seminars on the various disciplines.

Programme Structure

The **first year** of the programme is aimed at introducing the basic criteria in the areas of Organisation and Management, Training and Education and Research and Innovation.

Organisation and management area

- Knowledge of the general basics of law, the principles of local self-government and the rules of health organisation within public and private bodies;
- Knowledge of the theoretical and methodological elements of design;
- Planning and carrying out measures to implement and optimise human resources within the rehabilitation team;
- Evaluation and enhancement of the roles of different professionals in multidisciplinary projects.

Training and education area

- Models of evaluation and assessment of educational projects, particularly in adulthood;
- Organisation of basic Training Processes;
- Planning of Corporate Training and Design of Training Events;
- Knolwledge of the different populations from a socio-cultural point of view.

Research and Innovation Area

 Know the fundamentals of the different scientific disciplines including the care, rehabilitation and technical fields of the health professions in the rehabilitation area;

- Qualitative/quantitative research methodology;
- Learning about cultural, organisational and research references in medicine

rehabilitation;

Guidelines.

The **second year** of the programme is geared towards contextualising the training path in the various professional settings in order to apply management, training and research skills to the reality of the world of work.

Organisation and management area

- Acquiring and be able to use skills aimed at promoting and supporting innovation, creativity and organisational change;
- Learning about the psychological aspects of both individual and group work behaviour;
- Learning the basic concepts of business economic analysis as applied to health systems: public health, private health and accredited private health.

Training and education area

- Study of the different training and assistance models;
- Design and organisation of undergraduate and graduate programmes, specialising Masters programmes in the second class professions;
- Methodological and didactical aspects of training, tutorial teaching;
- Conflict analysis of professional relationships, problem management in the professional field and between teachers and learners.

Research and innovation area

- Train learners in the theoretical aspects of statistical analysis, clinical and epidemiological studies;
- Deepen the knowledge of research aspects in rehabilitation with regard to all professions in the rehabilitation area.

After Graduation

Graduates in Rehabilitation Sciences can find employment in management roles in health care services in public or private facilities with decision-making possibilities in the management organisation for the achievement of objectives, and with co-ordination and management functions implement innovative projects and to reorganisation of care processes in which the professionals work. Graduates can take up teaching, tutoring, training and coordination activities in undergraduate and graduate programmes of the same class, in company or academic training centres with a focus on training; in research centres he/she can carry out research activities as scientific support for the introduction of organisational models, the monitoring of care activities and the design of multidisciplinary activities.

Credits

The programme in Rehabilitation Sciences of the Health Professions lasts two years and is divided into four semesters with a total of 120 ECTS. One university credit (ECTS) corresponds to 25 hours of total commitment per student. The distribution of the total hourly commitment for each ECTS between teaching and individual study is determined as follows:

- 1 ECTS lecture: 8 hours of frontal teaching
 + 17 hours of individual study
- 1 ECTS elective: 8 hours of frontal teaching
 + 17 hours of individual study
- 1 ECTS internship: 12 hours of frontal activity + 13 hours of individual study
- 1 ECTS final examination: 25 hours of individual study

The student acquires the ECTS foreseen for each training activity following the passing of an examination or other forms of verification of learning.

Attendance

The total number of examinations planned and spread over the two academic years is 12. The programme develops its teaching in presence. Attendance at lectures and internships/laboratories is compulsory. The student must have attended 100% of the total number of hours scheduled for the specific programme year and must have attended at least 75% of the scheduled teaching activity for each integrated course.

Study plan

The study plans published here may be subject to change; the official reference study plans will be presented in the specific Faculty Guide and relevant SUA-CdS.

First year	ECTS
Legal and Economic Sciences	5
Organisational Design and Human Resources Management in the Operational Contexts of Rehabilitation	9
Design of Training and Educational Plans	11
Epistemology, Theories and Research of the Sciences of Rehabilitation Professions	7
Biological, Medical and Surgical Sciences	5
Electives	3
English 1	2
Other Activities	3
Internship	18

Second year	ECTS
Teaching and Tutorial Methods	8
Health Management	6
Economics of Health Companies	7
Methodology of Didactics	7
Statistics and Epidemiology	5
Electives	3
English 2	2
Other Activities	2
Internship	12
Final Examination	5

Nota:

The Rehabilitation Sciences of the Health Professions programme is offered at of Università Cattolica del Sacro Cuore, Fondazione Policlinico Universitario 'A. Gemelli'. IRCCS in **Rome**.

Theology Coruses

The study plan for each course includes attendance of Theology courses in order to offer a motivated, reasoned and organic knowledge of the Catholic faith.

During the two-year period, a semester course of 30 hours in seminar and/or monographic form is planned, on a subject related to the profile attended, which will conclude with a test set by the professor/lecturer.

Costs and benefits

The amount of enrolment is determined on the basis of family income.

Every year, about 3,000 students are exempted from paying university fees on the basis of merit and financial conditions, and 4,000 receive additional financial benefits.

Disabled students with a certified disability equal to or greater than 66% and students with a recognised disability pursuant to Art. 3, paragraph 1 law no. 104 dated 5 February 1992 are entitled to total exemption from the enrolment fee and university contributions (a single payment of \in 100.00 is due upon enrolment, which includes the reimbursement of expenses and stamp duty).

Discounted rates are also available for off-site students living in the colleges of Università Cattolica.



Advice and Guidance at Università Cattolica

All campuses organise a day, virtually or in person, dedicated to those interested in a graduate degree programme : the Open Days are an opportunity to get to know the University and the courses on offer thanks to professors/lecturers' presentations, learn more about admission procedures and discover all the services on offer.

In addition, the Orientation and Guidance staff and students enrolled at Università Cattolica are available to answer any curiosity about the courses and admission procedures, but also to allow you to discover - through individual interviews and direct university experiences - all the opportunities that the University reserves for its students in order to make the most of their studies.

For all the details on degree programmes and for enrolment procedures, visit https://www.unicatt.it/iscrizione-iscrizione-a-laurea-magistrale page or meet us at our desks and at the appointments scheduled throughout the year.



Orientation and tutoring desk

You can book an information interview, remotely or in person, through this link: www.unicatt.it/orientamento-fissiamo-un-incontro

Rome - Largo F. Vito, 1

Call us: 800 954 459 if you are an Italian student +39 02 7234 7234 if you are calling from abroad Monday to Friday from 8 a.m. to 7 p.m., Saturday from 9 a.m. to 1 p.m.

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