MEDICINE AND SURGERY Department of Medicine and Surgery Master’s Degree Programme in MEDICINE AND SURGERY

www.unicampus.it
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## Master’s Degree Programme in Medicine and Surgery

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Dear Students,

In presenting this Guide for the 2021/2022 academic year let me begin by welcoming first-year students and send you my best wishes for a peaceful and productive year during which may all your goals be achieved!

In this Guide you will find the educational offers of the Degree Courses of the Department of Medicine and Surgery: the Master’s Degree in Medicine and Surgery – in Italian, the Master’s Degree in Medicine and Surgery – in English, the Degree in Nursing, the Degree in Medical Radiology Techniques for Imaging and Radiotherapy, and the Degree in Physiotherapy. You will find the detailed program of the individual courses, and the names of the Teachers and Tutors who will support you in your studies.

Our commitment is to provide the highest educational standard based on a strong and continuing interaction between students and teachers with the aim of growing together. The hope is that this will be the year of rebirth that will let us abandon the onerous restrictions related to COVID-19 pandemic and return to normal life. However, I am well aware that nothing can be guaranteed, and that we must be prepared also for the possibility that the end of this year and the beginning of the next may be affected by a resurgence of the pandemic.

For this reason, the Governing Bodies of our University have re-organized the learning environment to guarantee normal didactic activity while guarding safety of students and teachers. Lessons for each year will be distributed over 3 weekdays to halve the daily numbers of students on Campus. We have planned in-person teaching, with only a small number of distance learning sessions. To the same end, we have widened the network of teaching hospitals in order to arrange clinical practice in small groups with more effective interaction between students and teachers.

Should conditions arise that impose more restrictive measures, teaching activity will be promptly re-organized to provide a comprehensive education. The flexibility we adopted during the previous year has been extremely successful; indeed, over 90% of the students in the last year of the Medical degree course graduated in the shortest possible time. We are proud of this achievement and view it as a highly positive outcome of our interactive learning environment.

During the COVID pandemic we have witnessed an extraordinary advance in medical research, with COVID-19 vaccine and monoclonal-based therapies being developed at unprecedented speed. This substantial advance in knowledge, together with the great efforts of medical professionals against the devastating COVID infection, have raised public awareness of the value and significance of jobs in the health sector. Even though it has become clearer than ever how demanding they are, the desire of younger people to become health workers has substantially increased. Indeed, the university has seen an increase of about 50% in the number of applicants for medical degrees.
It is our belief, that to face such an arduous task as that of providing a prompt response in conditions that pose a risk to human health while at the same time providing relief even for those conditions that are untreatable, it is mandatory to provide not only medical education but also to promote a deep ethical understanding of the professional-patient relationship. To this end, our University identifies as a founding principle and central tenet of all our courses, the fundamental value of the human being independent of his/her role (patient, student, or health worker). This encourages development of not only the professional-patient relationship but also an understanding that collaboration between health workers is of equal importance as professional skill. Our students receive a wealth of knowledge but also become better listeners. Listening to the patient’s concerns is integral to good medical care and underlies effective care for suffering human beings.

The path ahead is hard and demanding, however, you can fully rely on the support of your teachers and of the University administrative staff. Your goal to achieve excellence at the end of your University career is our goal.

The Dean
Prof. Vincenzo Di Lazzaro
TEACHING METHOD

ACADEMIC INNOVATION

Campus Bio-Medico University of Rome’s teaching project, managed by the Department of Medicine and Surgery, is characterised by the following features:

• Full and constant involvement of students in the learning and training process.
• Our tutorial teaching stimulates critical and organisational abilities that enable students to deal with any issues and to consistently make the most effective decisions while, at the same time, not disregarding any ethical considerations.
• Student Clinical training, starting from the third year, with an emphasis on the integration of theoretical content and practical experiences: the clinical tutor is this project’s defining point, as he or she represents the common thread between the students’ learning needs and the patients’ diagnostic and healing ones.
• The responsibilisation of students in the definition of their own training objectives, not only through the use of elective credits, but also through an open and constant dialogue with their tutors in relation to the choice of some of the contexts in which to carry out their internships.
• Care for the humanistic aspects of medical training, to be nurtured through both the History of Medicine, Anthropology, Ethics, and Bioethics classes, and a teaching style that places a high degree of attention to issues related to communicating with patients and involving them in the healing process.
• Collegial teaching programming, taking into account each lecturer’s own cultural and methodological choices. The constant discussion of training offerings ensures that students can avail themselves of structured, consistent, and coherent training classes.
• The use of IT tools and of a Wi-Fi network to transfer teaching materials between lecturers and students, explore Course topics in-depth, and check the students’ degree of readiness for exams. The acquisition of distance learning techniques suited to fully exploit the IT network’s resources by evaluating new sources of information also falls within this context.
• The definition of a graduate profile armed with the methodological and cultural tools necessary for lifelong learning and to effectively respond to the constant evolution of health needs.
• A systematic approach to multiprofessionalism; i.e., a team working space in which various competencies and perspectives are specifically coordinated in order to provide more adequate responses to patient needs and for the solution of the issues under consideration.

“CAMPUS INSPIRE” EDUCATIONAL PROGRAMME

The educational activities envisaged by “Campus Inspire” are an extension of the humanistic courses (anthropology, ethics and bioethics) included in each single-cycle degree course at Campus Bio-Medico University of Rome and have the aim to strengthen and enhance the development of cross-cutting skills.

This programme is aimed at first-year students and is organised in two modules: the first module takes place in the first semester and the second module takes place in the second semester. Students who enrol after mid-November due to developments in the Italian ranking list and wish to participate in the programme should send an email to campusinspire@unicampus.it. The course tutors will send the recording of the first Campus Inspire meeting and the study material necessary to do the project work. The second module can be carried out regularly with the other colleagues in the second semester.

The two training modules are designed to align basic knowledge and support first-year students in the study of humanistic topics. The themes explored in the two modules, love of truth (module I) and love of freedom and the consequent personal responsibility (module II), have been chosen with the aim of supporting the student’s growth as a person rather than as a professional.
Each module includes seminar activities and group work. They are held in Italian, accompanied by simultaneous translation into English for international students. Students may request to be included in “international” groups where interaction in English is required.

The final evaluation of the “Campus Inspire” course takes into consideration the projects submitted by each workgroup (video, Power Point presentation or poster for the first module; written text for the second module). The evaluation is in thirtieths and is eligible for the recognition of other credits.

For students of the Department of Medicine, the course is acknowledged for 2 university credits among the elective teaching activities (ADE).

Programme

Module 1 - “Inspired to think”

The aim of this first module is to re-evaluate “thinking” beyond instinctive action. Like any human ability, it can be experienced with greater or lesser sensitivity, and requires specific training to introduce the corresponding virtues. The topic will be introduced by presenting a specific theme and its correlation with the concept of virtue, and then, in a subsequent phase, by encouraging its application to a real context through specific group activities.

The module consists of

a) one presentation and one conclusion meeting;

b) personal thinking and studying of the material provided;

c) elaboration of a project work in small groups;

d) presentation of the project works.

The students’ projects will be displayed on the Campus Inspire webpage and collected in a digital publication. The three best works will be presented in full during the second meeting and placed on the UCBM website.

Module 2 - ‘Critical Thinking’

Critical thinking’ is the intellectual tool that every human being possesses and can further develop in order to live their freedom in accordance with the truth and, therefore, with full responsibility.

The module will consist of:

a) 4 hours of lectures;

b) personal reflections and studying of the material provided;

c) elaboration of a project work in small groups;

d) presentation of the project works.

Study Material

The study material of the first module (individual study and project work) shall be available on the UCBM e-learning platform. Among the suggested textbooks: J. Baehr, Cultivating Good Minds. A Philosophical and Practical Guide to Educating Intellectual Virtues, 2015.

The second module materials include written texts and videos that will be studied individually and used as the basis for group projects, culminating in a written paper.

Final assessment

The assessment will be based on the written papers; in case of insufficiency, the students will be assessed through an interview.

In both modules the students will have to elaborate, in groups and according to the video shown during the presentation meeting, a written text in which they will highlight the key elements and the difficulties of exercising critical thinking both in the situations they have impersonated and in real life. For each paper it will be necessary to highlight the contribution of each student.
The evaluation of the work will take into account the following parameters:

a) topic consistency (8 points);
b) underlying reasoning (8 points);
c) individual contribution of each group member (8 points);
d) originality of the work (6 points).

Lecturers:
V. Tambone, G. Ghilardi, L. Campanozzi, F. De Micco, F. De Lucia Lumenò, M. Daverio.

FRESHMAN DAYS
The principle of the centrality of students, which is expressed in the support provided to their professional and personal development, is applied from the very beginning of the study course during the Freshman Days. Aimed at new enroleees, freshman days involve a packed schedule of meetings with the lecturers and service heads who make the Campus Bio-Medico University of Rome academic project a reality.

The syllabuses and the operation of the tutoring system, the principles that inspire the University, and the services that support the academic path are illustrated. Meetings on the teaching methodology are also offered.
University structure and student services
UNIVERSITY PREMISES

UNIVERSITY CAMPUS
Via Álvaro del Portillo, 21 00128 Rome

The University Campus hosts the Master’s Degree Programmes in Medicine and Surgery, the Bachelor’s Degree Courses in Nursing, Medical Imaging Radiology and Radiotherapy Techniques, and Physiotherapy. Besides the Department of Medicine and Surgery Courses, the Courses of the Department of Science and Technology for Mankind and the Environment and of the Department of Engineering are also held at the Campus.

The Campus hosts the University Hospital and Multi-specialty Healthcare Centre, The Advanced Biomedicine and Bioengineering Research Centre (Polo di Ricerca Avanzata in Biomedicina e Bioingegneria – PRABB), the Elderly Healthcare Centre, and the academic and administrative offices.
# UNIVERSITY GOVERNING BODIES

## PRESIDENT
Felice Barela

## EXECUTIVE COMMITTEE
Felice Barela, Davide Lottieri, Raffaele Calabrò, Paolo Sormani, Andrea Rossi, Marta Risari.

## UNIVERSITY DIRECTOR GENERAL
Andrea Rossi

## UNIVERSITY HOSPITAL MANAGEMENT

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
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<tbody>
<tr>
<td>Paolo Sormani</td>
<td>University Hospital Director General</td>
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<tr>
<td>Lorenzo Sommella</td>
<td>Chief Medical Officer</td>
</tr>
<tr>
<td>Andrea Rossi</td>
<td>University Director General</td>
</tr>
<tr>
<td>Marta Risari</td>
<td>Deputy Director General and Director of Patient Care Management</td>
</tr>
<tr>
<td>Daniela Tartaglini</td>
<td>Medical Professions Welfare Manager</td>
</tr>
<tr>
<td>Rossana Alloni</td>
<td>Clinical Manager</td>
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<tr>
<td>Giorgio Minotti</td>
<td>Dean of the Department of Medicine and Surgery</td>
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ACADEMIC BODIES

RECTOR
Raffaele Calabrò

ACADEMIC SENATE
Raffaele Calabrò  Rector
Eugenio Guglielmelli  Research Prorector
Giorgio Minotti  Training Prorector
Vincenzo di Lazzaro  Dean of the Department of Medicine and Surgery
Giulio Iannello  Dean of the Department of Engineering
Laura De Gara  Dean of the Department of Science and Technology for Mankind and the Environment
Andrea Rossi  University Director General

DEPARTMENT OF MEDICINE AND SURGERY EXECUTIVE BOARD
Vincenzo Di Lazzaro  Dean
Sergio Morini  Deputy Dean
Umile Giuseppe Longo  Research Coordinator
Bruno Vincenzi  Chairman of the Master's Degree Programme in Medicina e Chirurgia
Claudio Pedone  Chairman of the Master's Degree Programme Medicine and Surgery
Maria Grazia De Marinis  Chairman of the Bachelor's Degree Course in Nursing
Sara Ramella  Chairman of the Bachelor's Degree Course in Medical Imaging Radiology and Radiotherapy Techniques
Silvia Sterzi  Chairman of the Bachelor’s Degree Course in Physiotherapy
DEAN
Vincenzo Di Lazzaro
Office: PRABB – Campus Bio-Medico University of Rome
☎ 06.22541.9601 Email: v.dilazzaro@unicampus.it
Office hours: by appointment, via email

DEPUTY DEAN
Sergio Morini
Office: PRABB – Campus Bio-Medico University of Rome
☎ 06.22541.9170 Email: s.morini@unicampus.it
Office hours: Mondays, 03:00pm-06:00 pm

CHAIRMAN OF THE MASTER’S DEGREE PROGRAMME IN MEDICINE AND SURGERY
Claudio Pedone
Office: Policlinico, Campus Bio-Medico University of Rome
Email: c.pedone@unicampus.it
Office hours: by appointment, via email

DELEGATES OF THE RECTOR

<table>
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<tbody>
<tr>
<td>Tutoring</td>
<td>Sergio Morini</td>
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<tr>
<td>Campus Life</td>
<td>Luca Borghi</td>
</tr>
<tr>
<td>Learning and Mobility disabilities</td>
<td>Federica Bressi</td>
</tr>
<tr>
<td>Academic Quality</td>
<td>Claudio Pedone</td>
</tr>
<tr>
<td>Alumni and Families</td>
<td>Umberto Vespasiani Gentilucci</td>
</tr>
<tr>
<td>International Relations</td>
<td>Francesco Grigioni</td>
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<tr>
<td>Relations with Companies and the Job Market</td>
<td>Roberto Setola</td>
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<td>Third Mission</td>
<td>Emiliano Schena</td>
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<tr>
<td>“Innovative Education” project</td>
<td>Giuseppe Perrone</td>
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<tr>
<td>“Campus Inspire” project</td>
<td>Vittoradolfo Tambone</td>
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<tr>
<td>“Simulation Centre” project</td>
<td>Rossana Alloni</td>
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ACADEMIC SERVICES ORGANISATION

Head of Academic Services
Donatella Marsiglia
☎ 06.22541.9139 Email: d.marsiglia@unicampus.it

OFFICES

DEAN'S SECRETARY OFFICE OF THE DEPARTMENT OF MEDICINE AND SURGERY
Location       PRABB – floor 0
Contact person Barbara Fabbri
Tel.           06.22541.1060
Email          b.fabbri@unicampus.it
Office hours   Mondays to Fridays, 10:00am-12:30pm

EDUCATIONAL SERVICES OFFICE – MASTER’S DEGREE PROGRAMME IN MEDICINE AND SURGERY
Location       PRABB – floor 0
Contact person Flavia Daniele
Tel.           06.2541.9281
Email          f.daniele@unicampus.it
Office hours   Mondays to Fridays, 10:30am-12:30pm
STUDENT SERVICES OFFICE
This office manages the administrative part of the student’s career, from pre-enrolment to the degree paperwork.

Location
PRABB – floor 0

Contact persons
Enrica Amadio Zennaro  tel. 06.22541.9044
(Head)
Veronique Buyckx  tel. 06 22541.9047
Antonio Di Bartolomeis  tel. 06 22541.9042
Donika Lafratta  tel. 06 22541.9197
Gianluigi Ramogida  tel. 06 22541.9043
Elena Varasi Cornell  tel. 06 22541.9074

E-mail
secreteriastudenti@unicampus.it

Office hours are published on the [https://www.unicampus.it/risorse-e-uffici/segreteria-studenti](https://www.unicampus.it/risorse-e-uffici/segreteria-studenti) website

SPECIALTY TRAINING OFFICE
This office manages the careers of the trainees from enrolment to the obtainment of the title and provides administrative support to the activities of the Specialty Training with regard to the accreditation procedures.

Location
PRABB – floor 0

Contact persons
Carmine Piscopo  tel. 06 22541.9048
(Head)
Emiliano Cassiani  tel. 06 22541.9049
Nadia Zagami  tel. 06 22541.9094

E-mail
secreteriaspecializzazioni@unicampus.it
SCHOLARSHIPS, ACCOMMODATION AND UNIVERSITY LIFE

The “Diritto allo Studio” Office provides students with information pertaining to:
- grants, financial contributions, student loans;
- part time collaborations;
- accommodation;
- cafeteria and refreshments;
- disabilities and SLDs (Specific Learning Disabilities)

Location
PRABB – floor 0

Contact persons
Anna Maria Tarquilio  tel. 06 22541.9040
(VHead)
Viviana D’Alaimo  tel. 06 22541.1630

Email
diritto.studio@unicampus.it

Office hours
Mondays and Wednesdays, 10:00am-01:00pm
Tuesdays and Thursdays, 02:00pm-04:00pm
(Si riceve su appuntamento)


SCHOLARSHIPS AND FINANCIAL CONTRIBUTIONS

The “Diritto allo Studio” Office dispenses grants and other types of financial benefits to deserving and/or financially deprived students. The contributions are granted by the University, by the Lazio region, and by Companies with which the University has set up cooperative relationships.

The majority of scholarships are awarded in the form of an exemption from university fees and are assigned at the time of enrolment; this funding is also confirmed in the years following the first on the basis of an assessment of the merit requirements acquired during the university career.

The notices for the assignation of the Grants available for each year can be consulted on the www.unicampus.it website, in the “Diritto allo Studio” section.

Facilitations for large families
A 20% discount on the tuition fee is applied for students with large families; i.e., those families in which there are at least three more dependent children under 26 years of age. Applications for the discount can be made, on enrolment, by filling out the dedicated form, which can be downloaded online or requested to the Student Services Office.

Student loans
Campus Bio-Medico University of Rome, by agreement with Intesa Sanpaolo bank, provides students with unsecured loans to support their training expenses. Info: www.permerito.it.
ACCOMMODATION AND CATERING

This office helps students who are looking for lodgings to find the best solution based on their needs. The office is available to provide information on:

- availability of housing close to UCBM;
- RUI Foundation university colleges (www.fondazione rui.it)

The RUI Foundation’s university colleges provide logistic services (food, lodging, laundry and ironing services, etc.) that are mainly for the benefit of non-resident students. This option requires students to comply with the rules and conventions that regulate college life (active resident cooperation in the development of the colleges’ family feel, participation in cultural initiatives such as study groups, conferences, and tutoring activities).

Among the university colleges, the following are listed

Female: **Collegio Universitario Porta Nevia**
Via Laurentina, 86/Q - 00142 Rome
Tel. 06 594721
Email: portanevia@fondazionerui.it  Website: www.collegioportanevia.it

Female: **Collegio Universitario Celimontano**
Via Palestro 7, 00185 - Rome
Tel. 06 48905902
Email: celimontano@fondazionerui.it  Website: www.celimontano.it

Male: **Residenza Universitaria Internazionale RUI**
Via Sierra Nevada, 10 - 00144 Rome
Tel. 06 54210796 - 06 5926866
Email: info@collegiorui.it  Website: www.collegiorui.it

**Foresteria del Borgo Primo Centro**
This guesthouse is located within the “Borgo Primo Centro” residential complex. The structure is open to the University’s students and employees and has 21 independent lodgings.

Casale Primo Centro
Via di Trigoria 60 (via Alvaro del Portillo) – 00128 Rome Tel. 06.225411402-404
Email: foresteria@cbm-spa.it

**Domus Italia**
Students have also the possibility of renting properties in the Fonte Laurentina neighbourhood, which is 3.5 km from the Campus Bio-Medico University. A shuttle service is available for students. The rental contracts are stipulated directly between Domus Italia and UCBM students. Domus Italia guarantees that the building has all the necessary requirements to be declared habitable in compliance with the current regulations.

The University is provided with restaurants accessible to all Campus Bio-Medico University of Rome students, personnel, and visitors. Students and personnel can avail themselves of the restaurant services at discounted prices by showing their identification badge at the check-out till. The badge also works as an e-wallet that enables electronic payments at the Advanced Research Centre and University Hospital restaurants.
DISABILITIES AND SLDs

The Campus Bio-Medico University of Rome runs a reception service for students that are disabled or have been diagnosed with Specific Learning Disabilities (SLDs).

Students with a valid certification according to the current regulations who wish to avail themselves of the specific compensatory and dispensatory tools should submit an application (download the form in pdf) along with their DSA/disability certification to the Diritto allo Studio e Vita Universitaria office. The application can be submitted upon enrolment or at any stage of the university career, at least 15 days before the exam session in which you intend to benefit from the tools.

It is possible to ask for an interview by writing to diritto.studio@unicampus.it.
INTERNATIONAL RELATIONS

Students who are willing to experience a study and/or internship study abroad can count on the assistance of the International Relations Office (IRO). IRO provides information on mobility opportunities abroad and supports the students in carrying out the required paperwork.

Location
Trapezio – floor 0

Contact Persons
Sidita Kasemi tel. 06.22541.8124
Paolo Stampatore tel. 06 22541.8887

E-mail
erasmus@unicampus.it
relazioni.internazionali@unicampus.it

Office hours
Mondays and Wednesdays, 10:30 am - 12:30 pm
Tuesdays and Thursdays, 02:30 pm – 04:30 pm

Campus Bio-Medico University of Rome (UCBM) can boast a network of international, scientific and educational relations aimed at promoting the mobility of students, teaching and technical-administrative staff at European and non-European companies and universities.

International mobility
UCBM annually publishes selection notices for the assignment of international mobility grants in European and non-European countries. The economic contributions for mobility are intended to encourage academic education, training, work and research experiences abroad based on a study and/or work plan agreed upon with a reference teacher before departure.

Erasmus+ programme
UCBM participates in the EU Programme in the fields of education, training, youth and sport for the period 2021-2027. The Erasmus+ Programme, in particular, fosters transnational mobility and cooperation in higher education in Europe and worldwide.

The call for applications for study mobility in Programme countries, published every year in February/March, allows students to obtain mobility grants to spend a study period at one of UCBM’s European partner universities. Selected students will be able to access the facilities and services of the host University to carry out study activities and conduct research on site for their degree thesis, obtaining, upon return, recognition of said activities based on a previously agreed plan (Learning Agreement).

The Erasmus+ Programme also supports the professional training of students and graduates through traineeship mobility programme. These activities help you enrich your curriculum through a professional experience abroad among one or more of the affiliated institutions (universities, research centres, clinics and companies).

International Cooperation
The UCBM offers its students the opportunity to participate in healthcare and food education activities, inter-university research programmes and projects aimed at building infrastructures of social interest in developing countries through the organisation of Workcamps.

Workcamps are generally organized in the summer months in countries of the African continent and in Latin America. Throughout the year, the University also organises cycles of “Humanitarian Meetings” providing an opportunity to discuss issues related to international cooperation with field experts and to keep abreast of the situation in specific regions.
The University Library holds more than 22,000 books; general library services available to the academic community include reading rooms, with seating for 138 people, direct access to books on shelves, as well as over 4,000 journals and periodicals in digital format.

University’s students, academic and medical staff have free access to the reading room.

The services provided by the Library include: consultation and loan of texts, volumes and encyclopaedias, bibliographic assistance, scientific documentation supply and printing/photocopying services.

Students can also access the digital resources via their personal laptops using the Wi-Fi network.

Links to the library web resources and On-line Public Access Catalogue (OPAC) at http://www.unicampus.it/risorse-e-uffici/biblioteca-di-ateneo

Staff is available for information and training sessions on the use of resources and bibliographic research.

Other Services

- Book loans and Interlibrary Loan Service
- Consultation of books or other documents on site
- Bibliographic information and advice
- Bibliometric service
- Document delivery
- Printing/photocopying/scanning service on payment with recharge service on the student’s badge
- Updating of the institutional databases:
  - Altea (database of Degree Thesis)
  - Ilithia (database of PhD Thesis)

Location

TRAPEZIO - floor 0

Contact persons

<table>
<thead>
<tr>
<th>Name</th>
<th>Tel.</th>
</tr>
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<tbody>
<tr>
<td>Maria Dora Morgante</td>
<td>06.22541.9050</td>
</tr>
<tr>
<td>(Chief Librarian)</td>
<td></td>
</tr>
<tr>
<td>Maria Crapulli</td>
<td>06.22541.9051</td>
</tr>
<tr>
<td>Emiliano Iannotta</td>
<td>06.225418060</td>
</tr>
<tr>
<td>Simona Rossi</td>
<td>06.225419052</td>
</tr>
</tbody>
</table>

E-mail

biblioteca@unicampus.it

Office hours

Mondays to Fridays, 08:30am-09:00pm
Saturdays, 09:00am-02:30pm

Extended opening hours during exams periods

Extended Office hours

Mondays to Fridays, 08:30am-23:00pm
Saturdays, 02:00pm-09:00pm
Sundays, 09:00am-02:00pm
ORIENTATION

The Orientation Office provides students, who are about to complete secondary school, with guidance and support in order to make a more conscious choice concerning higher education.

There are many initiatives that are carried out throughout the year so that students can be well informed on our bachelor’s degrees and master’s degrees, as well as on the educational and cultural activities offered by UCBM. Information regarding our calls for admission is also given as well as the variety of services offered to our students.

Location
TRAPEZIO – floor 0

Contact persons
Roberto Di Nucci tel. 06 22541.8715

E-mail
orientamento@unicampus.it
TUTORING

Campus Bio-Medico University of Rome offers to its students an incoming and outgoing tutoring service. Tutors can be Faculty Teachers, PhD candidates or senior students.

Personal tutors
They help the student to develop his/her learning skills and manage possible difficulties by identifying together the best internal or external tools for him/her and that specific situation. They provide motivational and moral guidance, supporting the student at all stages of the university life:
- integration in the University life;
- time management, work organisation and learning methodologies;
- exam planning and self-evaluation of the results achieved;
- motivation, self-efficacy and the relationship with teachers;
- training and learning objectives
Besides providing practical strategies, the relationship with the personal tutor is also an opportunity for dialogue to gain personal knowledge, define your personality and develop or improve your soft skills

Discipline tutors
They work closely with the respective lecturers, helping them to organize and manage their classes around students’ needs. They thus represent a point of first contact for students, as a part of the constant effort to facilitate a conversation and the learning processes

Clinical tutors
They support the students’ learning process during their traineeship activities, action gas referees for the acquisition of the clinical skills needed to qualify for evaluation of the credits specifically required in the syllabus. They also help students to take their first steps in the professional environment and to make the best choices for their future, by addressing specific facets:
- monitoring the development of the specific competencies pertaining to the profession, also in relation to ward and lab-appropriate knowledge, attitudes, behaviours, etc.;
- acquisition and development of personal skills appropriate to the professional choice (empathy, collaboration, cooperation, etc.);
- orientation towards the choice of future career.
Tutorial conversations are held in a spirit of full respect for the students’ freedom and sense of responsibility. Counselling professionals are also at the students’ disposal to address any issues pertaining to their emotional sphere and personal development.

Location
PRABB – floor -1

Contact Person
Daniele Mascolo

Tel.
06.22541.9641
d.mascolo@unicampus.it

tutoratoMED@unicampus.it tutoratoTRR@unicampus.it tutoratoINF@unicampus.it
tutoratoMAS@unicampus.it

tutoratoFISIO@unicampus.it

E-mail

Office hours
Mondays and Wednesdays, 10:00 am-01:00pm
Tuesdays and Thursdays, 02:00pm-04:00pm
CAREER SERVICE

The Career Services Office is aimed at facilitating students and graduates of Campus Bio-Medico University of Rome in accessing the job market, bringing together work demand and supply through the online publishing of job opportunities and the promotion of numerous initiatives, such as company presentations in collaboration with the Departmental Faculties of the University, thematic seminars and Job Days.

The Career Service offers students and graduates:

INFORMATION
- Welcome
- Job market regulations
- Information on the local production and entrepreneurial system

ORIENTATION CONSULTANCY
- Requirement analysis
- Profile inclusion in a database
- CV and motivational letter revision
- Coaching for job interviews
- Evaluation of one’s own competencies and of those of others
- Definition and development of the professional plan
- Personal support and training sessions on active job seeking techniques
- Workshops on how to prepare a CV and on personal branding

PROFESSIONAL PLACEMENT INTERNSHIPS
- Information on internships’ implementation methods
- Identification of the host structure and definition of the training plan
- Administrative management and tutoring

DEMAND/SUPPLY MATCHING
- Promotion of applications at companies
- Meetings with companies
- Recruiting sessions

Location
TRAPEZIO – floor 0

Contact persons
Andrea Ceccherini  tel. 06.22541.9057
Clio Di Marcello  tel. 06.22541-8705

e-mail
careerservice@unicampus.it

Office hours
Mondays to Fridays, 09:30am-01:00pm and 03:00pm-05:00pm (by appointment)
UNIVERSITY LANGUAGE CENTRE
The University Language Centre (CLA - Centro Linguistico di Ateneo) offers language support to all enrolled students for the entire duration of their university career. Each student is assigned individual learning objectives on the basis of a placement test aimed at assessing the initial level of knowledge of the English language. The CLA also organises curricular courses and free of charge extra-curricular courses of language enhancement, language tutoring activities and recreational activities in English, in order to give each student an international experience. Therefore, all students have their own language training and growth path, regardless of their initial level.

Students with a high level of knowledge of the English language have the opportunity to carry out language tutoring activities that can be certified at a professional level by Trinity School, which also collaborates with the CLA in the organisation of exam preparation courses for the issue of language certifications.

The CLA also offers Italian language courses for international students.

Location
Via Álvaro del Portillo, 28

Contact person
Adam James Martin  tel. 06.22541.9931 a.martin@unicampus.it
Alessandro Croce  tel. 06.22541.9932 a.croce@unicampus.it

E-mail
cla@unicampus.it

CAMPUS LIFE
Campus Bio-Medico University of Rome offers students a wide range of activities, services and extracurricular activities.

SPORT ACTIVITIES
The Associazione Sportiva Dilettantistica Campus Bio-Medico (Bio-Medical Campus Amateur Sport Association), established during the 2011/12 academic year, is a non-profit agency aimed at promoting sport activities among the Campus Bio-Medico University of Rome’s students, employees, and lecturers.

The Association follows the Campus Bio-Medico University of Rome’s guiding principles, Charter of Objectives and Ethical Code, supporting the idea that the practice of sport may also contribute to the overall development of all the facets of an individual’s personality, both from the personal growth perspective (resilience, strength, constancy, and humbleness) and from the relational one (friendship, fairness, collaboration and sharing).

To take part in sport activities, an application to join the association must be made by filling out a form available at the sport counter, attaching a medical certificate of fitness for the practice of non-competitive sports and paying the required fee that is determined yearly by the Association’s Board of Directors.

Sport counter
Location
PRABB – floor 0 - “Diritto allo Studio” Office and University Life

Contact person
Viviana D’Alaimo  tel. 06 22541.1630

e-mail
campusport@unicampus.it

Office hours
Tuesdays and Thursdays, 02:00pm-04:00pm
(Si riceve su appuntamento)

CULTURAL ACTIVITIES
The cultural activities promoted by Campus Bio-Medico University of Rome are complementary to the technical-scientific training and enrich the education experience through artistic and cultural activities. Among these, there are guided visits to artistic, historic, and cultural locations in Rome and its surroundings. Students may also join the polyphonic choir, the Chamber Ensemble and the Theatre Workshop.

Location
PRABB – floor 0

Contact persons
Viviana D’Alaimo  tel. 06.22541.1630

E-mail
campuslife@unicampus.it

COUNSELING
The Counselling service is a listening space aimed at helping students to deal with any crisis situations that are negatively affecting the achievement of their academic goals.

The Counsellor provides professional support aimed at identifying the cause of the distress and to develop possible solutions through the empowerment of the students’ sense of self-efficacy and an increase in their self-awareness.

Goals of the Service
Provide support in the resolution of complex situations within the academic environment (relational, integration, and adaptation problems, difficulties in dealing with transitions and their related changes)

Offer professional support to those students who are experiencing personal issues through the empowerment of their self-efficacy (to learn to manage anxiety attacks related to preparing or failing exams, to graduating, to homesickness, etc.)

Prevent students from falling behind, dropping out, or failing

Beneficiaries
The Service is aimed at all those students who are experiencing:
- Relational and environmental adaptation issues
- Excessive anxiety linked to exam preparation or failure, graduation, homesickness, etc.
- Study difficulties, with the risk of dropping out
- Difficulties in dealing with transitions and their related changes

Procedures
The Service involves a limited number of individual sessions, to be agreed upon with the Counsellor depending on the issue to be resolved.

The Service is open to all and is free of charge.

The sessions are usually conducted by appointment (P. Pellegrino) at CESA.

Requests can be made by phone (+39 06-22541-1084), by email to counseling@unicampus.it, or directly with the service’s contact person.

Contacts
Paolo Pellegrino (Psychotherapist/Service Head) – University extension: 1084; or *11008 – p.pellegrino@unicampus.it
UNIVERSITY COOPERATION FOR DEVELOPMENT AND VOLUNTEER ACTIVITIES

The Committee for University Cooperation for Development and Volunteering (Comitato per la Cooperazione Universitaria allo Sviluppo e il Volontariato - CUSV) offers students the opportunity to enhance the educational path by adding concrete experiences to their curricular studies. The aim is to create opportunities for personal growth and service through the participation in international work camps and volunteer activities.

International workcamps

Workcamps are tools of experiential university learning, coordinated by experts, aimed at the acquisition of professional skills on the field and the development of a social conscience and solidarity of professional action.

Specific trainings, assistance to the native population and research projects are carried out in the developing country where the workcamp is held, in agreement with UCBM’s local partners, on the basis of an analysis of the specific needs of each territory and its beneficiaries.

Among the most significant and challenging development cooperation experiences, UCBM students have the opportunity to put themselves to the test by participating in workcamps in Peru and Tanzania, where the presence of the Campus Bio-Medico University has been consolidated for years and represents an international best practice.

Volunteering

All students, starting from their first year, are invited to promote and engage in one or more volunteer activities, which always take place outside of class hours. The participation in the initiatives and the recognition of the high added value of volunteering in the educational path, allow the student to develop soft skills and increase employability.

Volunteer projects are promoted by UCBM in collaboration with its partners. Some activities take place in the premises of the Campus, such as the University Hospital and the Elderly Healthcare Centre; in other cases, the activities are organised with local businesses, active community associations and institutions that share aims, means and objectives with UCBM.

All the university cooperation projects for development and volunteer activities allow students to put their time and skills at the disposal of the most fragile social groups such as people in poverty, the sick, the elderly, migrants, prisoners and children.

For information and details regarding all opportunities for development cooperation and volunteering, you can write to the CUSV office.

Location
PRABB – Student Services Office

Contact person
Donika Lafratta tel 06. 225419197

E-mail
comitato.cusv@unicampus.it

CHAPLAINCY

The Chaplaincy provides spiritual support to all the members of the University community who wish to receive assistance. The chaplains are available for those who need advice and direction in relation to the human and spiritual aspects of their personal development.
**Activities**

Daily celebration of the Holy Mass  
Eucharistic Adoration  
Administering of the Sacrament of Confession  
Catechesis in preparation for the Sacraments of Confirmation and Marriage  
Personal conversations  
Doctrinal instruction and prayer meetings

**Location**  
PRABB – floor 0

**Contact persons**  
Don Luca Brenna  
Don Robin Weatherill tel. 06 22541.9635  
Don Luca Fantini tel. 0622541.8110  
Don Victor Tambone tel. 06 22541.9033

**E-mail**  
r.weatherill@unicampus.it  
l.brenna@unicampus.it  
l.fantini@unicampus.it  
v.tambone@unicampus.it

**STUDENT HEALTH MONITORING PROGRAMME**

Health checks are scheduled to be carried out when starting the practical traineeships (third year for Medicine students, first years for students of the three-year undergraduate courses).

The health protocol involves a medical check and some blood tests (when subjected to the medical check, students are asked to provide the certificates pertaining to their vaccinations).

At any time, students can ask to be checked by the relevant physician in relation to any symptoms or medical conditions in any way linked to their academic activities. Such requests must be addressed to the Medical Monitoring service, which will take care of fixing an appointment for the student with the relevant physician.

**Contact persons**

<table>
<thead>
<tr>
<th>Name</th>
<th>Program</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alessio Lorusso</td>
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<tr>
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<tr>
<td>Simona Miglietta</td>
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</tr>
<tr>
<td>Simona Miglietta</td>
<td>Bachelor's Degree Course in Physiotherapy</td>
<td>tel. 06.22541.8181</td>
</tr>
</tbody>
</table>

**Health monitoring service**

**Contact persons**  
Giuliana Tassone  
Ilaria Vella

**Tel.**  
06.22541.1296

**E-mail**  
SorveglianzaMedica@unicampus.it

In case of accidents occurring during traineeship, students are required to go to the A&E for a first medical check; then, within the first 48 hours from the occurrence, they must go to the Student Affairs Office to carry out the formalities related to the report to be sent to INAIL (the workplace injury insurance agency).
IT TOOLS FOR LEARNING AND COMMUNICATION

ESSE 3
This is the Student Secretariat’s portal, which can be accessed through the www.unicampus.it website. It includes a public area called “Didactics”, which is accessible by all and contains information related to the training offerings, the list of teaching classes, the types of degrees, and the exam session calendar. Lecturers and students can also access a restricted area that features self-service functionalities including personal details, enrolments, exam sessions, grade transcripts, career analysis, transfers, certificates, and registration.

E-LEARNING PLATFORM
This is an IT platform that provides students and lecturers with innovative learning tools and paths, enabling the exchange of learning materials, the development of in-depth understandings of the topics discussed during the classes, the carrying out of interactive lectures, the sharing of information, and interaction within forums. Students can download class lecture notes and slides, and also utilise advanced features such as quizzes, guided lectures, exercises, wikis, surveys, and much more in order to revise when preparing for exams. The platform can be accessed at https://elearning.unicampus.it by logging in with the same username and password used to access the University’s IT resources. In almost all classes, an additional “enrolment key” is required, which is given out by lecturers in the classrooms. A series of services can be accessed from the platform’s dashboard—such as the multimedia lab, the library, and the Career Services and the Educational Services offices from which the personnel will be able to share materials and information of interest with students.

PERSONAL EMAIL ACCOUNT
Upon registration, the University assigns a personal email account to every student with the following structure: name.surname@alcampus.it

WEBSITE
Accessible at www.unicampus.it.
Master’s Degree Programme in Medicine and Surgery MaS
SYLLABUS AND ORGANISATION

DEGREE COURSE STRUCTURE
The Master’s Degree Programme in Medicine and Surgery is structured over six years for a total of 360 academic credits (crediti formativi universitari – CFU or ECTS) in line with the graduation ministerial requirements.

The educational activity includes lectures, small group interactive teaching sessions, mandatory training and dissertation preparation activities.

Within the six years, the curriculum also foresees that students participate in training activities in the various clinical fields for at least 60 ECTS (corresponding to 1500 hours).

Students must also earn 8 ECTS in areas of their choosing. These elective learning activities (attività didattiche elettive – ADE) are part and parcel of the academic curriculum. ADEs can be seminars, clinical and lab training, volunteering activities or similar activities.

TRAINING GOALS
In order to achieve the training objectives, the Master’s Degree Programme in Medicine and Surgery requires the student to achieve a total of 360 ECTS in six years; at least 60 ECTS are to be earned through training activities aimed at the acquisition of specific professional skills.

The course is organised in 12 semesters; the integrated courses involved correspond to specific ECTS in compliance with the table of mandatory training activities. Each ECTS corresponds to 25 hours of student engagement, 12.5 of which normally involve frontal lectures in the basic, characterising, and linked disciplines, or theoretical-practical learning (seminars, lab time, and exercises), or 12.5 hours of assisted study within the academic setting. Each professionalising CFU corresponds to 25 hours of student engagement, under the guidance of a tutor, in small groups within the reference and/or territorial structure. Each final test elective CFU activity corresponds to 25 hours of student engagement.

The Department of Medicine and Surgery establishes the Study Manifesto (Curriculum) which is then published in the Student Handbook as a description of the integrated course structure for each semester, the related ECTS, the core curriculum, the specific learning objectives (including those related to the professionalising activity ECTS) for each integrated course and the learning assessment methods. The examinations, which can be up to 36, are then scheduled by the designated body within the teaching structure outside of class hours. Passing the examinations entitles the student to be awarded the corresponding ECTS.

The language in which the teaching is administered (English), besides signalling compliance with universally recognised cultural standards, enables interaction with the international scientific community and with a transnational patient audience.

Such openness to international specialist training represents a distinctive added value.

The specific learning project and the teaching method adopted involve the integration of knowledge based on a solid cultural and methodological basis. The study of the pre-clinical disciplines takes place, with a practical imprinting, through lab time and exercises conducted from the first biennium, integrated with morphology and physiology, in order to enable a better understanding of the practical applications of the concepts of genetics, molecular biology, and biochemistry. The teaching method is mainly focused upon the ability to deal with problems (problem-based learning) through an early contact with patients - already from the second year - and a thorough acquisition of the clinical ability to establish a personal relation with them.

Therefore, a highly integrated teaching organisation has been set up with the aim of incentivising the students’ ability to gain knowledge in an inter-disciplinary, as opposed to sectorial, fashion. Students are thus placed at the centre of the training process, both in terms of the lecture design and improvements made to the curriculum, in order to enhance their initiative autonomy. True professional competency is only achieved after
long term contact with patients and interaction with colleagues, which begins from the first years of the course, and involves the integration of basic sciences with clinical ones along the whole training path. Tutored activities are essential in this regard.

From this perspective, particular importance is given to a learning approach that instils the continuity of training, providing students with the necessary tools for critical access to the knowledge base, to the scientific and statistical method, to evidence-based medicine, and developing a tendency to accessing sources directly. The latter is facilitated by the systematic use of the English language and by the use of the most advanced IT technologies. The reading and understanding of scientific papers are part of the students’ training process.

Learning how health care systems are structured and function is a distinctive feature of the Medicine and Surgery training course. The universalist Italian Health Service, which is characterised by a notable experience in terms of methodology and result evaluation, represents a model that many countries aspire to adopt and apply in its more qualifying aspects. An in-depth knowledge of the specificities of the health services of other countries represents an important element in the training of foreign doctors, who will go back to their home countries to practice their profession, but is also an aspect of innovation for young Italian doctors who become open to international professional opportunities.

The main features of the single cycle Master’s Degree Programme in Medicine and Surgery, aimed at the achievement of general, intermediate, and specific goals, can be summarised as follows:

Within the scope of the requirements of the applicable laws, the definition of the objectives, syllabuses, and lectures is of a multidisciplinary nature.

The applied teaching method is interactive and multidisciplinary, involving daily integration of basic sciences and clinical disciplines and the clinical involvement of the students, who are thus led towards a gradual and appropriate approach to patients. The issues pertaining to the basic and clinical sciences are tackled, albeit in varying degrees depending on the various course years, in compliance with a total integration model; this model is based on the constant need to provide students with a unitary and integrated vision, also through the use of multi-voice teaching and of a learning model based on the responsible assessment and resolution of problems.

Doctor-patient relationship is addressed from the very beginning in the teaching activities of the course and continues, with added value, in the integrated teaching of organs and apparatuses. Each lecturer contributes to the students’ learning of a patient-centred relationship model. Specific training is provided for personal relationships and for the consideration of each patient’s specific characteristics during the course of treatment. The contact with the patient must not generate a tendency towards super-specialisation; it must be open to a global view of the doctor-patient relationship.

Training goals addressed during the early classes are defined through a careful analysis or their respective relevance in respect of overall human biology and of the potential outcomes on the current or foreseeable clinical themes, with particular care given to the competencies pertaining to the scientific method.

Specific goals of the characterising classes have been defined in advance based on epidemiological prevalence, clinical relevance, urgency, and potential for intervention. Special attention is given to aspects of treatment prediction, prevention, and personalisation, always from the evidence-based medicine perspective. Great importance is also given to the relationship with the patient, including its psychological aspects.

The teaching process benefits from a tutorial system, clinical triggers, problem-based learning, experiential learning, problem solving, decision making, seminars and conferences. During the early stages of the patients’ approach, students are offered a Basic Life Support (BLS) class.

To achieve a greater degree of integration within the context of systematic medical pathology, lectures pertaining to pathological anatomy, pharmacology, and diagnostic imaging are delivered during the 3rd, 4th, and 5th years. The aim is to frame in an integrated fashion each organ or disease condition from the perspective of the aforementioned subjects with the pertinent diagnostic, pathological, and therapeutic knowledge.
The use of tutors capable of aiding the students’ learning process is crucial; tutors act as facilitators of the learning process (area tutors) and provide personal support to the students (personal tutors).

Great care is given to the acquisition of practical abilities (technical skills) through:

the ever-increasing use of simulation methods, including attendance to University’s simulation facility (both to learn the basic manoeuvres of clinical practice and to undergo training on invasive procedures, which are preparatory to patient applications)

attendance at the University Hospital’s wards and surgeries, which takes place through clinical traineeships starting from the 3rd course year. During the 6th year, clinical activities are predominant in the curriculum.

attendance at territorial health structures, including General Practice surgeries, starting from the 3rd course year, which completes the professionalising training. The aim is to ensure that, when graduating, students will already possess an adequate clinical training that will enable them to begin their specialist training and to practice with suitable competency in the health environment. Thus, on beginning their post-graduate training and in carrying out the professional activities that are accessible right after graduation, the young doctor will already have acquired the basic professionalising competencies.

traineeships, which are finalised to preparing dissertations and/or to a full immersion aimed at completing, in an oriented and finalised fashion, the learning of notions and skills.

The use of IT tools/methodologies to access bibliographical items and, more generally, international literature, which is explored in depth and completed with the aid of specific tutorials.

A qualifying aspect within the context of the whole course is the great attention paid to the principles of Clinical Methodology and of Human Sciences (anthropology, ethics, bioethics), as well as their applications in the field of medical and scientific activities. Specifically, students gradually learn medical methodology and its rules, based on the principles of evidence-based medicine applied either to individual patients or to populations. This is also effected through the use of guidelines, conceptual maps, and diagnostic-therapeutical algorithms, without prejudice for the personalisation of treatments, wherever this is possible, and even less for the careful consideration of the uniqueness of each individual patient and of his/her needs. Within the context of such integrated courses, students gradually familiarise with the main concepts of interdisciplinarity, inter-professionalism, health economics, and medical professionalism and social responsibility, and with the main prevention and education measures aimed at patients in their overall humanity.

Specific care is given to Elective Learning Activities (Attività Didattiche Elettive – ADEs), to enable students to personalise their curriculum in specific training fields.

The structuring of the training path over the six course years represents the application of all the above. Specifically, the training path involves, during the first two years and the first part of the third, the unfolding of the two major integrated courses pertaining to the fundamentals of the basic disciplines with a teaching process highly integrated with lab exercises and notions of communication methodology.

The 3rd year sees the beginning of clinical practice, which is characterised by the incorporation of special pharmacology, diagnostic imaging, and pathological anatomy, which are thus integrated with their respective clinical subjects, and are administered along the various course years

During the 4th, 5th, and 6th years, the course continues with the clinical practice pertaining to the more specifically clinical subjects.

Having completed almost all the required lectures by the end of the 5th year, students can exploit the 6th year to engage in mainly clinical-professionalising subjects, with particular reference to emergencies and surgery, and to the role played by heath economics in the management of each country’s care resources.

The single cycle Master’s Degree Programme in Medicine and Surgery is preparatory for the profession of Doctor/ Surgeon.
Doctors exercise their profession within the National Health Service, and within partner or private structures, in accordance to EU, national and regional regulations. They work with the aim of ensuring that individuals and society at large can maintain, or achieve, the best possible health condition (psycho-physical and social well-being). To carry out their professional activities, doctors collaborate with their colleagues (intraprofessional collaboration) and other professional profiles who have been trained in healthcare (interprofessional collaboration).

Higher degrees of responsibility and coordination in the interprofessional and intraprofessional groups within which doctors work may, in any case, be achieved through the acquisition of further competencies by means of later training courses, such as Specialisation Schools, Regional General Practitioner Training Schools, Research Doctorates and second level Master courses.

**Competencies associated to the function:**

In order to carry out the functions described above, specific technical-scientific and cross-disciplinary competencies are required; students acquire these competencies during their study cycle.

Specifically, the competencies that graduates are intended to develop and acquire at the end of their training are:

- Understanding the effects of a disease not only on individual patients, but also on their family or social group;
- Ability to autonomously analyse and solve the issues linked to medical practice, whether related to evidence-based best clinical practices or involving cultural and ethical aspects;
- Self-learning and self-assessment abilities (continuing skills);
- Ability to correctly evaluate a health care service, its outcomes and its value in terms of its cost/expected benefit ratio (evaluation skills);
- In-depth understanding of the methodological foundations of medical scientific research and of the IT technologies essential for a good clinical practice;
- Time management skills;
- Understanding the relationship between health and society, the environment, politics, and professional employment (social skills);
- Inclination towards constantly updating one’s knowledge and skills (continuing professional development);
- Tendency towards interdisciplinarity, interprofessionalism and interculturality (interprofessional education);
- Understanding and recognising the role played by doctors in a constantly evolving multi-ethnic society;
- Good human contact predisposition (communication and judgement skills).

**Occupational opportunities:**

The course is a preparatory course in order to become a general practitioner. However, it should be pointed out, that the LM-41 class Master's graduates usually continue their training path in specialty postgraduate schools or in the three-year general medicine regional training course.

The Decree Law no. 18 of March 17, 2020, converted into Law no. 27 of April 24, 2020, has reformed the qualification to practice the profession of Doctor-Surgeon by providing in Article 102, paragraph 1, that the achievement of the single cycle Master's Degree in Medicine and Surgery - Class LM/41 qualifies for the practice of the profession of doctor-surgeon, subject to the acquisition of the judgment of suitability for the pre lauream traineeship (referred to in Article 3 of MIUR Decree no. 58 of May 9, 2018).

**ADMISSION TO THE DEGREE COURSE**

The admission requirements to enrol in the Master’s Degree Programme in Medicine and Surgery include: good predisposition towards human contact, good teamwork skills, analysis and problem solving abilities, and the ability to autonomously acquire and critically assess new knowledge and information (Maastricht, 1999). Besides the scientific knowledge useful to attend the first course year, students must also possess a good attitude and be suitably motivated, which is important for the training of “good doctors” who correctly meet the Institutional requirements in terms of social responsibilities.
In order to be admitted to the Master’s Degree Programme in Medicine and Surgery, the student must have a High-School Diploma or an equivalent acceptable title earned abroad. A general level of knowledge is also required, in compliance with the national regulations pertaining to the access to limited admittance courses and in relation to the availability of lecturers, educational facilities (classrooms and labs) and care facilities used for the carrying out of the practical ward activities, in line with the recommendations of the EU’s Advisory Committee on Medical Training, applying the parameters and directives set out by the University and the Departmental Faculty.

The planned number of admissions to the first course year is defined in compliance with the applicable regulations pertaining to access to university courses.

**ACADEMIC CREDITS**

The unit of measurement of the work students are required to carry out in relation to their training activities, as prescribed by the Academic Syllabus, is the Academic Credit (Credito Formativo Universitario – CFU or ECTS).

Each ECTS corresponds to 25 hours of student engagement, 12.5 of which normally involve frontal lectures in the basic, characterising, and linked disciplines, or theoretical-practical learning (seminars, lab time, and exercises), or 25 hours of assisted study within the academic setting. Each professionalising ECTS corresponds to 25 hours of student engagement, under the guidance of the lecturer, in small groups within the reference and/or territorial structure. Each final test elective ECTS activity corresponds to 25 hours of student engagement.

The 25 hours of student engagement that correspond to each ECTS are subdivided in:
- lectures;
- tutored learning activities carried out in labs, wards, surgeries, and day hospitals;
- seminars;
- time dedicated by students to the other learning activities required by the Syllabus;
- autonomous study hours dedicated by students to complete their training.

**TYPES OF TEACHING**

Within each class, the subdivision of the ECTS and of the time allocated to the various types of teaching is defined as follows:

**Ex-cathedra lectures**

An “Ex-cathedra lecture” (henceforth called “Lecture”) involves the discussion in person of a specific subject identified by a title and included in the training curriculum required for the Study Course, administered by a University Lecturer or Researcher, in accordance with a predefined calendar, and attended by the students enrolled in a specific course year, who can also be split up in small groups.

**Remote teaching**

Remote teaching is defined as the treatment of a specific topic identified by a title and forming part of the training curriculum provided for the course of study (hereinafter referred to as CdS), carried out by a Professor or University Researcher, taught through the use of appropriate computer systems and e-learning platforms. Delivery in this mode is activated only in special circumstances. Especially for Professors who reside abroad and who for reasons of force majeure cannot carry out the ex-cathedra lecture.

**Seminars**

“Seminars” are teaching activities that share some of the features of Lectures but are administered simultaneously by multiple lecturers, even from different disciplines (and with different competencies). They are marked down as such in the registry of lectures.

Any clinical-pathological conferences organised within the context of clinical teaching are also recognised as seminars.

Seminars can be conducted between multiple universities and take the shape of video conferences.
Tutorial teaching

Tutorial teaching activities (conducted in teaching and/or research labs, wards, surgeries, day hospitals, etc.) represent a form of interactive teaching addressed to small groups of students; such teaching activities are coordinated by tutors with the aim of facilitating the acquisition, by the students, of knowledge, abilities, and behavioural models; i.e., professionally useful competencies. Tutorial learning is mainly triggered by the stimulus linked to the analysis of problems, by the mobilisation of the methodological competencies required for their solution and for decision-making, and by the direct and personal carrying out of (physical and relational) actions within the context of practical exercises and/or of internships in clinical environments, labs, etc.

The Department of Medicine and Surgery, based on the indications provided by the Study Course Delegate, appoints the tutors among lecturers and researchers, in compliance with the applicable regulations.

Elective Teaching Activities (Attività Didattiche Elettive – ADEs) (chosen by the students)

The ADEs are chosen by students and are an integral part of the training curriculum. Their specificity makes them a cultural expansion needed for the personalisation of each student’s curriculum.

The ADEs are aimed at deepening the specific knowledge and training aspects that enhance the training of the Medicine and Surgery graduates by:

- being tailored to the students’ personal propensities;
- expanding those topics that are not part of the Core Curriculum.

Topics that are mere repetitions of those relative to the Core Curriculum or are comparable to subjects that are typically covered in the Specialisation Schools are not included.

The Department of Medicine and Surgery, based on the indications provided by the President and lecturers of the Study Course, determines which ADEs will be made available—to be either conducted through lectures, seminars, small group interactive classes, and non-coordinated activities or to be linked to “homogeneous teaching paths”—among which students will choose to earn up to 8 ECTS.

Among the ADEs are also considered the elective traineeships carried out in research labs or in clinical departments to the value of at least 1 ECTS, for a total of no fewer than 25 hours. The simultaneous attendance of two lab or clinical elective traineeships is not allowed.

The ADE calendar is published before the beginning of the academic year or, in any case, together with the calendar of the mandatory teaching activities.

TYPES OF ADEs

ADEs can be structured in:

- seminars, tutorials, monographic classes, certified attendance of conferences and/or congresses (pre-emptively authorised by the Integrated Class Coordinator or by the Study Course Delegate and by the Department of Medicine and Surgery), as well as the discussion of clinical cases, also through IT media (i.e., interactive learning classes conducted in small groups with the aim of facilitating a better lecturer-student integration);

- clinical and lab traineeships, in Italy or abroad, at university or accredited structures (which must represent high training content activities, such as, for example, attendance of an operating theatre, delivery room, A&E, or research lab for the attainment of a specific goal); attendance of General Practice surgeries in accordance with the agreements concluded with the Department of Medicine and Surgery. Any other activities must be pre-emptively authorised by the Department of Medicine and Surgery, based on proposals submitted by the pertinent teaching structure; the award of ECTLS will be evaluated on a case by case basis.

Choice of ADEs by students

Each student independently chooses ADEs among those on offer. The ADEs must be carried out at times that do not interfere with the other teaching activities.
Certification and evaluation of ADEs
The awarding of the ECTS earned through ADEs only takes place following a 100% attendance rate. The ADEs can be organised during the entire academic year, even outside of the teaching activity periods.

PROFESSIONALISING TRAINING ACTIVITIES
During the clinical training students are obliged to acquire specific professional skills in the fields of internal medicine, general surgery, paediatrics, and obstetrics and gynaecology, and in the medical-surgical specialities. To this end, students must carry out professionalising training activities by attending the wards identified and within the periods defined by the Study Course Delegate, for a total of at least 71 CFUs.

The compulsory traineeship is a form of teaching activity that involves students carrying out practical activities with high degrees of autonomy and the simulation of professional activities. During each stage of the training, students are obliged to work under the direct supervision of a clinical tutor. The teaching functions of such clinical tutors are the same as those required by the tutorial teaching conducted within the classes. The clinical competency acquired through the professionalising training activities is assessed within the framework of the attribution of the final exam vote of the class that organised them.

The Study Course President can identify non-university wards in which the training can be carried out, either in part or as a whole.

TUTORING
Three distinct tutor figures are defined:
- The personal Tutor - to whom individual students can turn to get suggestions and advice pertaining to their academic career or, in general, related to their training. The personal Tutor that is assigned to a student by the Tutoring Coordinator, in agreement with the Study Course Delegate, usually remains the same for the whole duration of the study course or for part of it. This figure is not related to teaching, but to support. Personal Tutors are particularly involved in cases of learning difficulties, loss of motivation, and need for orientation in regard to the study path to follow. All the MaS lecturers and researchers are obliged to make themselves available to take on the role of personal Tutor.
- The Discipline Tutor - to whom a small number of students are entrusted for the carrying out of tutorial teaching activities. These activities are true teaching assignments. All subject Tutors are required to coordinate their functions with the teaching activities of the classes with the same training objectives and can also be involved in the preparation of the materials to be used for their tutoring activities.
- The clinical Tutor - who represents a central figure in the students’ professionalising training. Clinical Tutors act as Contact persons for the acquisition of the clinical skills that are essential to qualify for the evaluation of the 60 CFUs specifically envisaged by the Syllabus.

COMPULSORY ATTENDANCE
Students are obliged to attend the MaS formal, informal, and professionalising teaching activities, up to a maximum of 5,500 hours.

Attendance is checked by lecturers through the means established by the Department of Medicine and Surgery.

In order to take an exam, students are required to have their attendance of the compulsory activities of the related teaching class certified.

Those students who did not obtain attendance certification for at least 75% of the hours required for each class of a specific course year, are enrolled, even in a supernumerary capacity, to repeat the same course year, with the obligation to attend those classes for which they had not obtained attendance certification.
### STUDY MANIFESTO - CURRICULUM

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## TEACHING ORGANISATION:
### Integrated Courses and Coordinators

### FIRST YEAR

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## TEACHING ORGANISATION:
Integrated Courses and Coordinators

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### TEACHING ORGANISATION:
Integrated Courses and Coordinators

#### THIRD YEAR

<table>
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<tr>
<th>ECTS</th>
<th>Integrated Course</th>
<th>Subject</th>
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<th>Term</th>
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## ACADEMIC CALENDAR

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<tr>
<th>SEMESTER</th>
<th>TEACHING ACTIVITY</th>
<th>EXAM SESSION</th>
<th>TEACHING ACTIVITY BREAKS</th>
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| I semester  | From 27 September 2021 To 24 January 2022 | From 10 January 2022 To 4 March 2022 | Christmas break  
From 23 December 2021 To 8 January 2022 |
| II semester | From 7 March 2022 To 3 June 2022    | From 6 June 2022 To 29 July 2022       | Easter break  
From 14 April 2022 To 19 April 2022 |
                                                                 | Catch-up session: Autumn  
From 1 September 2022 To 1 October 2022 |

Please note: opening and closing dates indicated in the table above are regular teaching days.

**Teaching activities are suspended during the following holidays:**

- All Saints Day: 1 November 2021
- Immaculate Conception Day: 8 December 2021
- Saint Joseph’s Day: 19 March 2022
- Liberation Day: 25 April 2022
- Labour Day: 1 May 2022
- Republic Day: 2 June 2022
- Saint Josemaría Escrivà de Balaguer’s Day: 26 June 2022
- Saints Peter and Paul’s Day: 29 June 2022
COORDINATORS OF THE INTEGRATED COURSES: CONTACTS, OFFICE HOURS AND OFFICE LOCATIONS

A. Leuti  
Location: PRABB, Campus Bio-Medico University  
Email: a.leuti@unicampus.it  
Office hours: by email appointment

L. Borghi  
Location: PRABB, Campus Bio-Medico University  
Email: l.borghi@unicampus.it  
Office hours: by email appointment

Giorgio Vivacqua  
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Office hours: by email appointment

Marcello D’Amelio  
Location: PRABB, Campus Bio-Medico University  
Email: m.damelio@unicampus.it  
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Massimo Ciccozzi  
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Giovanni Gherardi  
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Silvia Angeletti  
Location: POLICLINICO, Campus Bio-Medico University  
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Fiorella Gurrieri  
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Email: f.gurrieri@unicampus.it  
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Vittoradolfo Tambone  
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Gian Paolo Ussia  
Location: POLICLINICO, Bio-Medical Campus University  
Email: g.ussia@unicampus.it  
Office hours: by email appointment

Paolo Pozzilli  
Location: PRABB, Bio-Medical Campus University  
Email: p.pozzilli@unicampus.it  
Office hours: by email appointment
FUNDAMENTALS OF BASIC SCIENCE I

Scientific Disciplinary Area
- FIS/07
- BIO/10
- BIO/13

Course year and teaching semester
First year, first semester

Academic credits for teaching hours
14 ECTS

Teaching hours
175 hours

LECTURERS
- A. Leuti (coordinator)
- D. Bini
- A. Loppini
- M. Maccarrone
- S. Marini
- Ch. Ciaccio
- Ch. Watson
- G. Contino
- P. Kreuzaler
- I. Barbieri
- P. Amaral
- J. Brelstaff

Integrated Course Aims
FBSI is an important, heterogeneous course in medical instruction, in that it represents the first approach to biological sciences with which the student is going to confront. This integrated course is intended to establish basic knowledge concerning the main processes occurring in cells, which will be required for all the subsequent basic science-related advanced teachings. In particular, during FBSI, the student will learn the biological basis of evolution, the structure of both eukaryotic and prokaryotic cells and of their organelles, as well as the main mechanisms that regulate their most important functions, from its DNA to the final protein products. The course includes an important section in which the student will learn the basis of mendelian and complex inheritance, as well as the pathologies that originate from DNA mutation or chromosome alteration, and how they are passed to the following generations. These notions will be integrated by the chemistry and physics courses that will describe, in detail, the role that the main inorganic and organic molecules play in cellular processes, the way they react to control them, how they compose cell structure and the basic laws that govern these mechanisms as a whole. These notions will be used by the students in all following integrated FBS courses, for which FBSI is preparatory.

Learning Outcomes
Knowledge and understanding
Students must achieve an adequate comprehension and knowledge of the physical laws that govern life and are at the base of vital processes. They must learn and understand how atoms and molecules interact with each other, how they behave in solutions, and the reactions in which they engage and that are at the base of vital processes. Knowledge of the main chemical macromolecules involved in biological processes, in human metabolism, and in the composition of cells must also be acquired. These integrated notions will serve as the basis to understand the structure and organization of human cells and how genetic material is organized and transmitted, with the basic mechanisms of human genetic diseases.
Applying knowledge and understanding
At the end of the course, students should be able to correctly explain physical and chemical laws and to recognize the different molecules and macromolecules. They should also be able to describe the properties of such molecules and how they are used to build up complex structures in order to understand structure-function relationships. Furthermore, students should be able to describe the structure and organization of cells, the functions of DNA, RNA and how they govern cellular processes, as well as how genetic information is transmitted or mutated in genetic diseases.

Making judgments
Students will be prompted to develop their judgment skills by attending interactive lectures and by being constantly stimulated to reason and to always hold a comprehensive and critical view of the topics. To this end, not only will the students themselves actively participate in the lectures, but the topics to be covered will also be introduced by pushing the students with challenging questions and through periodic interactive seminars.

Communication skills
During the class, the students must develop a specific and precise scientific terminology, which is critical for an adequate understanding of the complex biophysical and chemical processes. To achieve this, the class is aimed at making communication skills learned, rather than taught.

Learning skills
The students will learn to critically understand the basics and the underlying principles of physics, chemistry, and biology occurring at molecular level. They will also learn to solve quantitative problems and find relationships between physical-chemical factors and between structures and functions, and to analyse and interpret the different strategies in which cells engage. Finally, students will learn how to take a scientific approach to problems and how to adequately communicate scientific knowledge.

Course Contents

PHYSICS
Selected Topics in Modern Physics:

CHEMISTRY

50
Chemical equilibrium: acidic and basic solutions. The fundamentals of thermochemistry and thermodynamics. Chemical reactions and energy exchanges.


BIOLOGY


Teaching methodology

The aims of the class will be achieved by a combined approach involving a traditional inductive teaching method, video projections, and interactive learning. These different teaching approaches will be combined in the same weeks and also within the same lectures. The students will always be stimulated and will not be treated as passive learners but will be called to actively participate in the lectures. The biology class will be closely integrated with the chemistry and physics ones to further highlight the interconnection between the structure of the molecules and their role in cellular functions.

Learning Assessment Methodology and Grading Criteria

The final exam will take place on completion of the class, in accordance with the sessions scheduled in the academic calendar. For this class, the knowledge acquired and the ability to apply it will be verified through both a written and an oral exam.

All three exams (Biology, Chemistry and Physics) will consist of a written test, which include open questions, exercises, and multiple-choice questions. Those students who will pass the written exam with a grade of at least 18 will then undergo an oral interview in which they will need to demonstrate adequate levels of understanding of all the topics covered and suitable language skills; the final grade for each of the three subjects is evaluated based on the written test and the interview grades. The final integrated grade is evaluated based on the weighted average of the single exam grades.

The modalities of the written tests for each subject is described below:

Biology: The written test will consist of 30 multiple choice questions (5 possibilities; 1 point each; 0 points for answers that are wrong or left empty). The test is performed on the e-learning platform.
Chemistry: the written test will consist of 15 multiple choice exercises (5 possibilities; 2 point each; 0 points for answers that are wrong or left empty).
Students will have 60 minutes to finish the test. They need a calculator and a paper sheet to sort out the exercises (there are both stoichiometry and theory questions). The test is done on the e-learning platform.

Physics: the written test will consist of 15 multiple choice problems to be solved in 90 minutes. Each problem requires mathematical calculations. Students can use pens, blank papers, and basic calculators during the test. Students must respond correctly to at least 60% of the questions (mark 18/30) to be admitted to the oral interview. The final mark will be the average of the written and oral test marks.

Preparatory examinations or preliminary knowledge required
The student must have a basic knowledge of mathematics.

Suggested textbooks

PHYSICS
Lecture notes on specific topics will be made available during the class

CHEMISTRY
Chemistry by Zumdahl SS and Zumdahl SA, Brooks/Cole eds.
Organic chemistry, a brief course by Atkins R.C. and Carey F.A.,
Lecture notes on specific topics will be made available during the class.

BIOLOGY
Strachan, T. and Read, A.P. Human Molecular Genetics, Garland Science
FUNDAMENTALS OF MEDICINE I

Scientific Disciplinary Area
MED/43
M-FIL/03

Course year and teaching semester
First year, first semester

Academic credits
6 ECTS

Teaching hours
75 hours

LECTURERS
G. Ghilardi (coordinator)
N. Di Stefano
L. Campanozzi

Integrated Course Aims
According to E. Pellegrino, one of the most famous bio-ethicists, fundamentally medicine is moral. It is neither a natural nor a science although it often depends upon both for its technical and communal progress. Medicine especially as clinical practise is moral because the defining element of its practise is the patient-physician relationship, and that relationship is profoundly principled and often based upon ethical rules and duties. The integrated course “Fundamentals of Medicine 1” aims to provide students with some essential tools from the humanities (Anthropology, Ethics, and Humanities) necessary to understand the nature of the patient-physician relationship, keeping in mind what William Osler, a pioneer of modern Medicine said: “The good physician treats the disease; the great physician treats the patient who has the disease.” In order to be able to reach this goal in their profession, medical students need to know themselves, as well as their future patients, as human beings, in the context of histories, cultures and values.

The course therefore aims to provide a clear understanding of the rich and large set of values, virtues, and moral characteristics which are connected with medical practice.

Learning Outcomes

Knowledge and understanding
Knowledge and understanding of what it means to be a human being, what are human values and virtues.

Applying knowledge and understanding
The student will be able to develop ethical reasoning in biomedical sciences.

Making judgments
The student will be able to evaluate the ethical issues connected with the practice of Medicine.

Communication skills
The student will develop the ability not just to convey messages to the patient and/or her families, but also to communicate the commitment to her condition.
Course Contents

MEDICAL HUMANITIES

In the Medical Humanities course, we will focus both on philosophical aesthetics and moral philosophy, analysing several classical readings from Western and non-Western cultures. Moreover, we will face a number of issues arising from current multidisciplinary research in philosophy of beauty and the idea of good. Topics of the course will be: defining medical humanities; philosophy, aesthetics and medicine; the arts and medicine; the perception of beauty; the evolutionary origins of the appreciation of beauty and art; neuro-aesthetics of music and music therapy.

ANTHROPOLOGY


ETHICS


Teaching Methodology

The aims of the class will be achieved by a combined approach involving a traditional inductive teaching method, video projections, and interactive learning. These different teaching approaches will be combined in the same weeks and also within the same lectures. The students will always be stimulated and will not be treated as passive learners but will be called to actively participate in the lectures. The teaching methods promote classroom engagement and cooperation. Both the interactive lectures and group activities will entail the active involvement of students.

Learning Assessment Methodology

The final exam will take place at the end of the course, in the sessions scheduled by the academic calendar. The exam will be written, involving a combination of multiple choice and short answer questions. The questions will test the knowledge related to the Aims and Objectives of the course, described above, and ability to apply it.

Grading criteria

The final mark will be in the range of 18-30/30 it will be a weighted average of the final grades in Anthropology (1/6), Ethics (2/3), Medical Humanities (3/6).

Preparatory examinations or preliminary knowledge required

No preliminary knowledge required
Suggested textbooks

MEDICAL HUMANITIES

ANTHROPOLOGY
James. A. Marcum, The virtuous physician, the role of virtue in Medicine, Springer, 2012

ETHICS
J. Seifert, The philosophical diseases of medicine and their cure, philosophy and ethics of medicine, Springer, 2004
G. Ghilardi, “Epistemological remarks on Libet’s experiments on free will”, Rivista Internazionale di Filosofia e Psicologia, 6 (1), 2015, pp. 110-119
V. Tambone, G. Ghilardi, Philosophy and Deontology of Medical Practice, Ethics of the work well done in biomedical sciences, SEU, Roma 2020
FUNDAMENTALS OF MEDICINE II

Scientific Disciplinary Area

MED/02
M-PSI/01

Course year and teaching semester

First year, first and second semester

Academic credits

5 ECTS

Teaching hours

62.5 hours

LECTURERS
L. Borghi (coordinator)
R. D. G. Leslie
S. Mangione
B. Barcaccia

Integrated Course Aims
The integrated course “Fundamentals of Medicine 2” aims to provide students with notions and essential tools from some medical humanities (history of medicine and communication skills) which are, today, critical for the education of professionals who cannot rely simply on a hyper-specialized and reductionist approach to biomedical knowledge.

Learning Outcomes

Knowledge and understanding
Knowledge and understanding of the fundamental stages in the evolution of medical and healthcare theory and practice, with special reference to the last two centuries.

Making judgments
Ability of making judgments through the choice of some in-depth paths, both as individuals and in small groups: reading and analysis of a book of personal choice (first term), creation or expansion of a new page of English Wikipedia (second term). Further, students will be invited to peer-evaluate each other individually and as groups.

Communication skills
In addition to the lectures specifically dedicated to communication skills, the history of medicine course will allow students to further improve their communication skills both through a short video presentation of their personal reading, and through group work aimed at writing and publishing a new page on English Wikipedia.
Course Contents

HISTORY OF MEDICINE - I and II semester (Where not otherwise stated the lectures will be given by Luca Borghi)

Introduction; Ancient medicine; Medieval medicine; Modern medicine (Vesalius, Harvey and Morgagni); Edward Jenner and smallpox; René Laennec and tuberculosis; John Snow and cholera; Ignac Semmelweis and puerperal fever; Luis Pasteur and Robert Koch: the birth of Microbiology – Part 1; Luis Pasteur and Robert Koch: the birth of Microbiology – Part 2; What is the point of a Physician? – Part 1 (David Leslie); What is the point of a Physician? – Part 2 (David Leslie); The golden age of Surgery - Part 1; The golden age of Surgery - Part 2; On Normality - Part 1 (David Leslie); On Normality - Part 2 (David Leslie); A Brief History of Death – Part 1 (David Leslie); A Brief History of Death – Part 2 (David Leslie); Women in medicine. Elizabeth Blackwell; Rome’s physician. Guido Baccelli and his legacy in the new Italian Capital; William Osler and the take-off of American Medicine; Charles West and the invention of paediatrics; Brain and Mind: the history of a troublesome relationship (I); Brain and Mind: the history of a troublesome relationship (II); History of cardiac surgery; History of malaria; The birth of therapeutics (Ehrlich, Domagk and Fleming); “Medical material memories”. The Himetop project, and how you can collaborate with it; When Disease Changes History by Striking People (Sal Mangione); When Disease Changes History by Striking Leaders (Sal Mangione); Groupthink, Collective Evil and the Holocaust: Implications for Health Care – Part I (Sal Mangione); Groupthink, Collective Evil and the Holocaust: Implications for Health Care – Part II (Sal Mangione); Virchow at 200 and Lown at 100: Physicians as Activists (Sal Mangione); The (Lost) Archetypes of Medicine (Sal Mangione); Leonardo at 500: The Anatomist and the Creator – Part I (Sal Mangione); Leonardo at 500: The Anatomist and the Creator – Part II (Sal Mangione); The Shroud of Turin and the Scientific Evidence – Part I (Sal Mangione); The Shroud of Turin and the Scientific Evidence – Part II (Sal Mangione).

COMMUNICATION SKILLS

Preparation: Putting aside the last task and focussing attention; Establishing an initial rapport. Introducing yourself. Clarifying your role and the nature of the interview; Demonstrating interest and respect; Verbal and non-verbal communication; The opening question. Active and empathic listening. Information gathering; Questioning techniques. Open and closed questions. Facilitative response; Understanding the patient’s perspective; ideas, concerns and expectations; The interviewer’s emotions. The cognitive ingredients of emotions; The ABC cognitive model: the relationship between events, beliefs, emotions, and behaviours; Cognitive biases and psychological suffering; Fostering emotional self-regulation. How to deal with an angry patient; Enhancing the physician’s well-being: acceptance, compassion, and mindfulness.

Teaching Methodology

Lectures with discussion, and supervised group work. The supervised group works will allow students to benefit from blended learning methodologies such as “flipped classroom” (presentation to their colleagues of the results from personal readings) and “learning-by-doing” (knowledges and abilities connected with the writing and publishing of a Wikipedia page).

Learning Assessment Methodology

The learning assessment of the course will take place through successive steps and the evaluation of both oral talks and practical assignments. CS: a final oral exam of about 10’ can be taken starting from the winter session (mid-January to end of February). HoM: the video presentation (5’) of the personal reading is due by the end of Christmas Holidays. The final publication of the Wikipedia page (group work) is due by mid-May. The written reflective essay (about 500 words) about professor Mangione’s lectures is due by the end of May. The final oral exam (about 15’) about the general program (textbook plus lectures by Professors Leslie and Borghi) can be taken starting from the summer session.
Grading criteria
CS: final oral talk will be evaluated as a mark out of 30.
HoM: evaluation of the video presentation of personal reading (up to 5 points); evaluation of the group work (up to 8); evaluation of the reflective essay on Professor Mangione’s lectures (up to 8); final oral talk about lectures by Professors Leslie and Borghi (up to 14). Final grade calculated out of 30. When more than 30 points are obtained by the student, final grade will be “30 with honors”.
Final grade of FoM2 will be a weighted average of the final grades in CS (1/5) and HoM (4/5).

Preparatory examinations or preliminary knowledge required
No preliminary knowledge required.

Suggested textbooks
HISTORY OF MEDICINE
Luca Borghi, Sense of Humors. The Human Factor in the History of Medicine (Rome 2021)
Luca Borghi, “Rome’s physician: Guido Baccelli and his legacy in the new Italian Capital”. Medicina nei secoli, (2013) 25/2, pp. 395-414
Luca Borghi, “Editorial. To the intangible through the tangible: world cultural heritage and the history of medicine and health”, MEDIC, 2017, 25(2), pp. 7-10

COMMUNICATION SKILLS
Jonathan Silverman, Suzanne Kurtz and Juliet Draper, Skills for communicating with patients, CRC Press, Boca Raton 2016, pp. 305
FUNDAMENTALS OF BASIC SCIENCE II

Scientific Disciplinary Area
- BIO/09
- BIO/13
- BIO/16
- BIO/17

Course year and teaching semester
First year, second semester

Academic credits
20 ECTS

Teaching hours
250 hours

LECTURERS
- G. Vivacqua (coordinator)
- S. Morini
- T. Wilkinson
- A. Nissim
- Ch. Watson
- G. Contino
- L. Calò
- G. Leanza
- M. Falchi
- A. Migliaccio
- D. Romaniello
- M. D’Amelio
- P. Krashia

Integrated Course Aims
Students will have to achieve an adequate knowledge of cell structure, correlating the morphological organization of the cell with the fundamental mechanisms of molecular biology and cell physiology and understanding the importance of cell differentiation and specialization in the morpho-functional organization of tissues, in development of the organism and in the physiological interactions between cells. Subsequently, students will have to begin the systematic study of human anatomy, acquiring precise anatomical terminology and understanding the morphological and topographical organization of the main body regions and the morpho-functional organization of the locomotor system.

The main purpose of the course will be to highlight the close interconnection between morphology, function and clinical application of basic science knowledge, starting from the relationship between cell organization, molecular biology and cell physiology, up to the application of histological and anatomical knowledge, in solving problems and in the interpretation of radiological and laboratory investigations.

Learning Outcomes

Knowledge and understanding
Students will have to achieve an adequate knowledge of cellular structure, correlating the morphological organization of the cell with the fundamental mechanisms of molecular biology and with the bases of cellular biophysics and physiology and understanding the importance of cell differentiation and specialization in the morpho-functional organization of the tissues and in the development of the organism. They will have to know the biological basis of life: from the organization of the genome to the gene expression and the biosynthesis
of functional proteins. They will have to know the morpho-functional organization of the different cell subtypes and their interaction in the constitution of different body tissues. They will have to know the biophysical basis of cell physiology and the physiological aspects of interactions between cells in the different tissues. They will acquire knowledge about the molecular mechanisms underlying gametogenesis, fertilization and embryological development of the organism. Subsequently, students will have to begin the systematic study of human anatomy, acquiring precise anatomical terminology and understanding the morphological and topographical organization of the main body regions. Finally, students will have to know the morpho-functional organization of the locomotor system and its close interconnection with the biomechanics of movements and kinematics. The main purpose of the course will be to highlight the close interconnection between morphology, function and clinical application of knowledge, starting from the relationship between cell organization, molecular and biophysical biology, up to the application of histological and anatomical knowledge, in the resolution of clinical problems and in the interpretation of radiological and laboratory investigations.

**Application of knowledge and understanding**

At the end of the course, students should be able to describe the structural and functional organization of the cell and the interconnection existing between gene expression and regulation, functional protein synthesis and cell’s differentiation and specialization. They have to be able to interconnect cell biology and cell morphology with the physiology and the biophysics of the cell, understanding the basic physiological aspects involved in tissue organization.

Considering the increasing importance of genomics and molecular biology in the understanding of disease pathogenesis and diagnostic procedures, students should also acquire appropriate skills for laboratory and multimedia tools used in bioscience and applicable to medical practice, planning and carry out basic laboratory experiments and obtain reproducible data, analyse and interpret data and report results. Furthermore, they should be able to use experimental biological approach as preparatory basis for evidence based medicine. Starting from cell’s differentiation and specialization, students should be able to describe molecular and cellular bases of life and physiological aspects underlying cell’s function and cells’ relations. They should be able to describe gametogenesis and fertilization as well as early embryological development, highlighting the molecular pathways involved in the early stages of development and morphogenesis. They should be able to describe the functional organization of different body tissue, understanding their integration and in the constitution of the different organs and being able to perform the diagnosis and the analysis of different tissues under the microscope. Thereafter, they should start to interconnect morphological knowledge of the body at different levels: topographic, macroscopic, microscopic, and ultrastructural, starting to recognize anatomical specimens and being able to describe the different body regions and the morphology of bones, joints and muscles, understanding the morpho-functional basis of movements and kinematics. Consequently, they must start to apply their biological, histological biophysical and anatomical knowledge to clinical problem solving and biomedical innovation, starting to have a scientific and critical approach.

**Making Judgements**

Judgment skills will be stimulated through the individual and guided sorting of problems of molecular biology and biophysics as well as basic clinical cases. Moreover, students will be stimulated to the critical review of scientific papers, focused on the innovations in the fields of molecular biology, cellular physiology, anatomy, histology and embryology. For this propose, different interpretative theses will be analysed for each scientific case, stimulating the students to a critical discussion. The independence of judgment will be verified through periodic interactive seminars in small groups, where both scientific problems and innovative aspects of the fields will be discussed with the students.

**Communication skills**

Communications skills will be developed at two different levels: first of all, students must be able to use a precise histological and anatomical terminology, which is crucial for an adequate communication in their future clinical practice. On the other hand, they will be stimulated to develop general communication skills by organizing individual presentation and discussion of the biological and biophysical problems, at the presence
of the faculty. In this way, they will start to integrate multimedia and communicative skills with the specific knowledge of the field and will learn to apply an integrated logic and technical approach to achieve the effectiveness of communication, acquiring also good interpersonal skills to manage team working activities.

**Learning skills**

The student must acquire, not only sufficient knowledge to pass the exam, but above all stimuli, skills and learning methods to pursue the continuous updating of their knowledge in the field of biological, biophysical and morphological bases of medicine and their critical application to clinical practice. Particular attention will be devoted to the comprehension of the interconnections between morphology and function at different levels (from cells’ differentiation and specialization to gross anatomy of organs and systems). Students, will be motivated and will be given them the methods and the technical fundamentals (multimedia methods, use of the optic microscope, dissection abilities, problem solving and basic clinical discussion), to progress towards increasingly advanced levels in the field of the biological bases of medicine, pursuing an independent, self-directed and critical learning.

**Course Contents**

**BIOLOGY**

Molecular mechanisms of cell survival, cell proliferation and cell death: mitosis, meiosis, apoptosis, necrosis and autophagy. Growth factors. Molecular mechanisms of cell differentiation.


Chromatin structure and remodelling Epigenetic control of gene expression. Exons and intron sequences. DNA methylation and acetylation. MicroRNA.

RNA processing and editing. DNA transcriptase. Messenger RNA and transfer RNA. RNA polymorphisms and their importance in cell biology and pathology.


Different classes of proteins and their function in cell biology: structural proteins, receptors, enzymes.


**ANATOMY**


Topographic and superficial Anatomy of the body regions: the head and the neck, the thorax, the abdomen and the pelvis. Clinical importance of superficial anatomy.


**HISTOLOGY**


Origin of the tissues. Cells’ interaction and cell’s differentiation as the bases for functional tissue constitution.


Basic concepts of histochemistry, immunohistochemistry/immunofluorescency, RNA in situ hybridization, optic and electron microscopy.

EMBRYOLOGY


PHYSIOLOGY

The Functional Organization of the Human Body and Control of the “Internal Environment”.

Transport of solutes and water: Solute transport across cell membranes; Regulation of Intracellular ion concentrations; Water transport and the regulation of cell volume.

The structural and functional organisation of synapses: The types of synapses; Electrical synapses; Chemical synapses; The principles of chemical synaptic transmission; The neurotransmitter systems of the brain; Neurotransmitter synthesis and storage; Neurotransmitter release; Neurotransmitter receptors and effectors; Neurotransmitter recovery and degradation; The principles of synaptic integration; Synaptic integration;
Synaptic modulation
The cellular physiology of skeletal and smooth muscle: The contraction of skeletal muscle; The physiological anatomy of skeletal muscle; The general mechanism of muscle contraction; The molecular mechanism of muscle contraction; The energetics of muscle contraction; The characteristics of whole muscle contraction; The excitation of skeletal muscle: neuromuscular transmission and excitation-contraction coupling; The transmission of Impulses from nerve endings to skeletal muscle fibres; The molecular biology of acetylcholine formation and release; Drugs that enhance or block transmission at the neuromuscular junction; Myasthenia gravis causes muscle paralysis; Muscle action potential; Excitation-contraction coupling; The excitation and contraction of smooth muscle; The nervous and hormonal control of smooth muscle contraction.

BIOPHYSICS
The electrophysiology of the cell membrane: The ionic basis of membrane potentials; the electrical model of the cell membrane; the molecular physiology of ion channels.
Electrical excitability and action potentials: The mechanism of nerve and muscle action potentials; The physiology of voltage-gated channels and their relatives; Congenital and drug-induced cardiac arrhythmias linked to K+ channels; The propagation of action potentials.

Teaching Methodology
The aims of the course will be achieved through a combined approach between: traditional inductive teaching method (lectures), practical activities, problem-based learning (PBL) or clinical-based learning (CBL). Several didactic activities will be combined in the same week. Each week will be oriented to a specific theme and will begin with an introduction to the topic, through a plenary session of frontal teaching during which biological problems or targeted clinical cases will be proposed to the students. Practical sessions will follow during which students will be guided and stimulated to independently conduct analyses and descriptions of macroscopic anatomical samples or microscopic preparations, or to plan and carry out basic laboratory experiments of biophysics and molecular biology. In the same week, small group sessions of PBL or CBL will take place, during which students will discuss the biological problems and clinical cases proposed. At the end of the week, a plenary session will be resumed to summarize the activity carried out. Teachers and tutors will always be available to students, to guide the PBL/CBL and practical activities, and for tutorials and clarifications. Multidisciplinary seminars will also be offered on selected topics concerning innovative aspects of molecular biology, cellular physiology, histology, anatomy and embryology. On such occasions, students will also be stimulated to research and to critically review the scientific literature.

Learning Assessment Methodology
The final exam will take place at the end of the course, in the sessions foreseen by the academic calendar. The acquisition of knowledge and skills will be verified through a single test for each subject covered during the course.
For molecular biology, the test will consist of a written test that will include multiple choice questions and a short essays.
For histology and embryology, the test will consist of a written test with multiple choice questions and a short essay, and a practical test aimed at verifying the ability of students to recognize and describe histological preparations under the microscope.
For anatomy, the test will consist of an oral midterm test and a written test with short essays and figure labelling, aimed at describing muscle groups, bone segments or joints or at discussing clinical cases related to the topic.
For physiology and biophysics the test will consist of a written exam including multiple choice questions and problem-solving of biophysics and cell physiology.
After the written tests, students will undergo a final oral interview, to verify the acquisition of the integrated aspects of the course and their communication and problem-solving skills.
The final evaluation will be expressed with a numerical grade and will take into account the arithmetic average obtained in the single tests concerning the individual subjects and the integrated oral which will affect the final grade by a maximum of 4-5 points.

**Grading Criteria**

Each single test will be evaluated separately. For each single test the exam will be considered passed with a minimum mark of 18/30. The maximum mark will be 30/30.

For the written tests, the Multiple Choice Questions will be marked with 1 whether correct, 0 whether not answered and -0.25 whether answered incorrectly. As for open questions, short essays and problem solving questions the maximum mark will range between 3 and 6 for each question.

The oral anatomy midterm will be evaluated with a not numeric marking that will include three possible grades: sufficient, good and excellent.

The final mark of FBSII will be calculated by the arithmetic average of the marks obtained at the single tests plus the mark of the final integrated oral which will account of up to 5 marks on the final grade. The maximum grade obtainable will be 30 with honour.

**Preparatory examinations or preliminary knowledge required**

Knowledge of the chemical and physical bases necessary for understanding biological systems, cell physiology and biophysics and the morpho-functional organization of the body.

Preparatory examination: Fundamentals of Basic Science II

**Suggested textbooks**

**BIOLOGY**


**ANATOMY**


**HISTOLOGY**


**EMBRYOLOGY**

Larsen’s HUMAN EMBRYOLOGY Elsevier.
Keith L.Moore, T.V.N Persaud et al. BEFORE WE ARE BORN Elsevier.

**PHYSIOLOGY AND BIOPHYSICS**

Boron and Boulpaep, Medical Physiology 3th Edition. Elsevier;
Bear et al., Neuroscience, Exploring the brain 3th Edition. Lippincott Williams & Wilkins;
**Epidemiology and Biostatistics**

**Scientific Disciplinary Area**  
INF-01  
MED/01

**Course year and teaching semester**  
First year, second semester

**Academic credits**  
5 ECTS

**Teaching hours**  
62.5 hours

**LECTURERS**  
M. Ciccozzi (coordinator)  
D. Black  
A. Schwartz

**Integrated Course Aims**

The Epidemiology and Biostatistics course has three broad aims:

To prepare students to critically assess new developments in the knowledge base for clinical practice by introducing students to key principles and methods of biostatistics and epidemiology that are important for the interpretation of published randomized trials and epidemiologic studies.

To promote an understanding of the principles underlying standard diagnostic and screening tests that serve as tools in clinical decision-making and in the interpretation of laboratory results.

To introduce students to key principles and methods of Molecular Epidemiology that are important for the interpretation and assessment of published studies on this issue. Students should be able to understand the principles of molecular epidemiology phylogenetic and molecular evolution.

**Learning Outcomes**

**Knowledge and understanding**

Regarding the Biostatistics and Epidemiology curriculum, students must gain an adequate knowledge of the following topics:  
- Introduction to Biostatistics; Sampling and descriptive statistics; Hypothesis testing and p-values; Confidence intervals; The interpretation of survival analysis, including Kaplan-Meier; An introduction to linear, logistic, and proportional hazard models; An introduction to Clinical Research; Study design overview – observational vs. clinical trials; Measures of disease occurrence: prevalence vs. incidence, risks, rates; Measures of disease association: risk ratio, rate ratio, hazard ratio, odds ratio; risk difference, number needed to treat, population attributable risk; Study designs: cross-sectional, cohort, case-control; Sources of bias in studies: selection, measurement error, confounding; Screening and diagnostic tests, including cancer screening; Interaction and generalizability; Randomized clinical trials; Meta-analysis. An introduction to molecular epidemiology; A brief historic perspective on phylogenetic and molecular epidemiology; How to build a database and phylogenetic tree; How to read and interpret a phylogenetic tree in an epidemic Statistics and bias.

**Application of knowledge and understanding**

At the end of Biostatistics and Epidemiology curriculum, students must be able to describe the following topics: use of basic statistics to resolve epidemiological problems, interpret and assess published clinical research results and molecular epidemiology to face epidemic by the microorganism point of view using mathematical and static models.
Making judgments
Students will be encouraged to develop their judgment skills through interactive lectures and by constant stimulation to reason and to always keep a comprehensive and critical view of the topics. For this purpose, the students will not only actively participate in the lectures but the topics to be covered will also be introduced by pushing the students with engaging questions and through periodic interactive seminars. Students will have opportunities to interact with the material in small group discussion sessions.

Communication skills
During the class, the students must develop a specific and precise scientific terminology.

Learning skills
The students will learn to critically understand both the basics and the underlying principles of Biostatistics, Epidemiology and of Medical Humanities. They will also learn to how to take a scientific approach to problems and how to adequately communicate scientific knowledge.

Course Contents
BIOSTATISTICS AND EPIDEMIOLOGY
The following topics will be covered in lectures and/or small group discussion sessions (DG):
Introduction to Biostatistics
Descriptive epidemiology. Part II. Incidence. Risk and rate. Potential sources of bias in description
Descriptive statistics: Spread and variation in data; precision of estimates
Cohort design and measures of association (risk and rate ratios, survival analysis, risk difference)
Chance: hypothesis testing, p-value, Confidence intervals
Cross-sectional and case-control designs (odds ratio).
Binary variables, 2x2 tables, Chi-squared test
Bias in analytic research (selection, measurement, confounding). Management of confounding.
Multivariate models: Part I. Linear and logistic regression.
Prediction I: Diagnostic tests and prognostic scores. Screening.
Multivariate models: Part II. Proportional hazards regression; Randomized controlled trials #1
Prediction II: Continuous tests and Screening
Randomized controlled trials #2
Interaction, Mediation, and Attribution
Putting it all together: How clinical guidelines are based on research evidence.

Teaching Methodology
The aims of the class are achieved by a combination of lectures and small group discussions. The lectures will usually focus on one or two examples of published studies and/or cases as a vehicle to present general principles. In the small group sessions, students will work through specific problems or scenarios in small groups and then discuss the answers in a large group with faculty. Class time will be approximately evenly divided between lectures and small group sessions. There will be also a short practical PC session with software for molecular epidemiology freely available on the internet.
Learning Assessment Methodology
The final exam will take place at the end of the course, in the sessions scheduled by the academic calendar. The exam will be written, involving a combination of multiple choice and short answer questions. The questions will test the knowledge related to the Aims and Objectives of the course, described above, and ability to apply it.

Preparatory examinations or preliminary knowledge required
No preliminary knowledge required.

Suggested Textbooks
The required class reading will consist of short articles or excerpts that will be made available at the start of the class.

EPIDEMIOLOGY AND BIOSTATISTICS
Douglas G Altman Practical Statistics for Medical Research;
Leon Gordis; Epidemiology 5th edition. Saunders

Suggestions for recommended reading will be also provided.
ENGLISH LANGUAGE

Scientific Disciplinary Area
L-LIN/12

Course year and teaching semester
First and second year, year-long

Academic credits
6 ECTS

Teaching hours
75 hours

LECTURERS
R. Aronica
A. J. Martin

Integrated Course Aims
Il Corso è articolato sul primo biennio del Master’s Degree Programme in Medicine & Surgery. Il primo anno di corso è finalizzato all’acquisizione della terminologia tecnico scientifica atta a poter sostenere dialoghi in ambiti medici, nonché all’insegnamento delle Communication Skills specifiche per una corretta comunicazione con il paziente. Si approfondisce inoltre l’insegnamento della terminologia scientifica e si affrontano argomenti medici coprendo lo studio di tutti gli apparati del corpo umano sia da un punto di vista fisiologico, che da quello di alcune importanti patologie. Nel secondo anno si riprendono gli argomenti medici studiati e si insegna anche agli studenti la tecnica per la stesura di abstract di carattere medico scientifico.

Learning Outcomes
Al termine del primo anno lo studente sosterrà un esame di idoneità scritto basato sull’ascolto ed il commento di alcune situazioni medico sanitarie: lo studente dovrà dimostrare di avere un vocabolario tecnico e competenze comunicative mediche specifiche. Alla fine del secondo anno gli studenti saranno in grado di scrivere relazioni a carattere scientifico o abstract e presentare oralmente argomenti medici con appropriato linguaggio tecnico scientifico.

Course Contents
Il corso curricolare di 6 CFU si articola in due parti. Il primo anno di corso, in cui si ha il maggior carico di studio (4 CFU), è dedicato all’apprendimento di termini specifici tecnico scientifici focalizzati al dialogo con il paziente e di Communication Skills specifiche per una corretta comunicazione in particolare di: anamnesi, diagnosi, piano di cura, temi delicati ed eventuale prognosi negativa. Inoltre, si comincia ad affrontare lo studio degli apparati e di alcune delle principali patologie ad essi associate. Al secondo anno si erogano i restanti 2 CFU, concentrando l’attenzione sulla tecnica di scrittura dell’abstract e sulla capacità di presentare oralmente argomenti di carattere medico.

Teaching Methodology
L’intero corso viene erogato attraverso lezioni frontali ed esercitazioni in aula. Inoltre gli studenti lavoreranno in gruppo alla preparazione di progetti e presentazioni.
Learning Assessment Methodology
Alla fine del primo anno gli studenti sosterranno un esame di idoneità scritto basato sull’ascolto ed il commento di alcune situazioni medico-sanitarie e su un quiz relativo alle patologie studiate durante l’anno. L’esame del secondo anno sarà composto da una parte scritta (relazione a carattere scientifico o abstract di articolo) e una orale sugli argomenti medici trattati in classe durante i due anni. Il voto finale sarà in trentesimi.

Grading Criteria
Il giudizio di idoneità del primo anno viene assegnato valutando l’abilità linguistica degli studenti, l’uso del vocabolario tecnico appropriato e le skills mediche specifiche.
La valutazione finale è espressa in trentesimi, sarà attribuita valutando la fluency linguistica e la pronuncia, le capacità tecnico-scientifiche e il contenuto medico studiato.
Ogni studente è tenuto ad ottenere il giudizio di idoneità al primo anno per poter accedere all’esame finale.

Preparatory examinations or preliminary knowledge required
No preliminary knowledge required.

Suggested Textbooks
Per il primo anno, si utilizza il testo “Good Practice. Communication Skills in English for the Medical Practitioner”, oltre a materiale fornito dai docenti.
Nel secondo anno i docenti provvederanno a fornire il materiale didattico all’inizio del corso.
ITALIAN LANGUAGE

Scientific Disciplinary Area L-FIL-LET/12

Course year and teaching semester First and second year, year-long

Academic credits 6 ECTS

Teaching hours 75 hours

LECTURERS Centro Linguistico d’Ateneo

Integrated Course Aims
The Italian course takes place during the 1st year and its aim is to teach students to communicate in Italian, covering different topics. During the second year, students will improve all their language skills: speaking, listening, reading and writing.

Learning outcomes
By the end of the first year, students need to achieve the following skills:

Knowledge and understanding: Understand written and oral Italian by using simple structures. Students will practice different situations by interacting with each other.

Application of knowledge and understanding: Students improve their skills and talk about past experiences and future projects.

Making judgements: During the course students examine a real situation and they express their personal opinion.

Communication skills: Students will learn how to interact clearly and appropriately with other speakers and in different situations, taking into consideration grammar rules.

Learning skills: They will learn how to think in Italian following important grammar rules.

By the end of the second year, students need to achieve the following skills:

Knowledge and understanding: Students are able to talk about specific personal and not personal topics.

Application of knowledge and understanding: By the end of the course, students are able to express their opinion on different aspects of their lives and the reality they live in.

Making judgements: During the course students examine a real situation and they express their personal opinion.

Communication skills: Understand written and oral Italian at an intermediate level. Take part in discussions on different topics. Ask and get information. Express opinions, feelings, needs, approval and disapproval. Understand general meaning and details about intermediate level texts.

Learning skills: Correct grammar use of the language for practical, social and cultural purposes.
Course Contents
During the first year, the Italian Language course focuses on the following contents:


During the second year, the Italian Language course focuses on the following contents:

**Language skills:** Making analogies, motivating, describing, making suppositions, discussing, and speculating. Expressing hopes, desires, surprise, disapproval, preferences.

**Grammar:** present and past tenses, conditional, future forms, imperative and subjunctive.

Teaching Methodology
Lectures will be held in presence both in the 1st and 2nd year. They will be focused on the application of authentic input, guided discussions to facilitate the interaction among students. Finally, students will practice the use of the language in order improve their communicative skills.

Learning Assessment Methodology
There will be a written and oral examination.

During the 1st year, students take a written and oral test based on listening exercises and a dialogue in which students show the language skills they have achieved throughout the course. Each student can do, at the end of each semester, a similar mid-term test, to verify the achievement of a first learning objective. During the 2nd year, students are assessed following the same procedure as the first year, with an evaluation in thirtieths.

Grading Criteria
At the end of the first year, students will take a written and oral test based on listening and speaking exercises, as well as the use of grammar tenses and sentence structure. To pass the exam students need to achieve a 60% final score.

At the end of the second year, students take a written and oral test based on listening and speaking exercises, as well as the use of grammar tenses and sentence structure.

Both tests are assessed in thirtieths. Students pass only if they achieve a sufficient score (18/30 or more) in each test. Students pass the full exam if they achieve a final score of 18/30 or more (up to 30/30), which is the average of both scores.

Preparatory examinations or preliminary knowledge required
No preliminary knowledge required.

Suggested textbooks
For both years: Maria Balì e Giovanna Rizzo. Nuovo Espresso 2 (A2). Alma Edizioni
FUNDAMENTALS OF BASIC SCIENCE III

Scientific Disciplinary Area
- BIO/09
- BIO/10
- BIO/11
- BIO/16
- MED/04
- MED/07

Course year and teaching semester
- Second year, first semester

Academic credits
- 29 ECTS

Teaching hours
- 362.5 hours

LECTURERS
- G. Gherardi (coordinator)
- G. Vivacqua
- A. Leuti
- G. Cingolani
- A. Nissim
- A. McKnight
- L. Facchinelli
- F. D’Acquisto
- A. Iqbal
- M. D’Amelio
- G. Di Pino
- L. Di Biase

Integrated Course Aims
FBSIII is an integrated heterogeneous course, encompassing a wide range of subjects. The course includes two main integrated blocks. The aim of the first block (including Anatomy, Biochemistry and Physiology) will be of connecting anatomo-physiological knowledge with molecular and biochemical processes underlying the structure and the function of organs and tissues. As for the second block (including microbiology, virology, parasitology and basic immunology) the aim will be studying systematic, molecular, and clinical microbiology and parasitology together with the molecular bases of immunology, acquiring a complete overview of microbial pathogenesis, host-pathogen interactions, and laboratory-based management of infectious diseases.

The two main integrated aims of the course will be: 1) highlight the close relationship between anatomical organization of the nervous and circulatory system, physiology and biochemical and molecular aspects related to these organs 2) highlight the interconnections between biological and molecular bases of infectious diseases and immune response.

The importance of anatomo-physiological and molecular knowledge about the body, as well as the pathogens and the molecular bases of immune responses will be deeply discussed in order to allow students to be able to critically resolve clinical situations and to interpret the wide array of radiological images and laboratory tests.

Learning Outcomes

Knowledge and understanding
FBSIII is a complex and heterogeneous course, encompassing a wide range of knowledge from the anatomical and physiological organization of the Nervous System, the cardiovascular and the Lymphatic Systems to
the molecular and biochemical bases the tissues. It will move then forward to the study of systematic and molecular microbiology and parasitology and to the molecular bases of immunology. Integrated approach will be strongly engaged, although the heterogeneous range of knowledge. The course will be divided in two parts: Anatomy, Physiology and Biochemistry on one side and Microbiology, Parasitology and Basic Immunology on the other side. Students have to achieve an adequate knowledge of the organization of the Nervous, Cardiovascular and Lymphatic systems, being able to connect and integrate the morphology with the physiology, highlighting the clinical and radiological aspects, and finally connecting anatomo-physiological knowledge with biochemical process underlying the structure and the function of organs and tissues. Thereafter, they have to start their systematic study of microbiology and parasitology, acquiring the molecular bases of virus biology and pathogenesis, the organization and genetics of prokaryotic cells, the biochemical and molecular aspects underlying the pathogenesis of bacterial and mycotic infections along with their antimicrobial treatments and antimicrobial resistance mechanisms, the taxonomy, life cycle, epidemiology and pathogenesis of different classes of parasites (protozoa, nematodes, helminths, arthropods), as well as general concepts of laboratory procedures of clinical specimens for the diagnosis of infectious diseases. Finally, they have to learn the molecular and cellular bases of immune response, connecting them with the structure of lymphoid organs and the biological and pathogenic aspects of different infections. The principal aims of the course will be highlight the close relation between morphology, molecular organization and function on one side and between molecular and cellular bases of infective diseases and immune response on the other side. Moreover, the importance of anatomo-physiological and molecular knowledge (about cells and tissues, but also about pathogens and immune response), to critically resolve clinical problems and to interpret the wide array of diagnostic imaging and laboratory tests, will be strongly highlighted.

Applying knowledge and understanding

At the end of the course, students should be able to describe the structural and physiological organization of nervous, cardiovascular and lymphatic system and the biochemical bases of cell and tissues. Moreover, they have to be able to describe and explain molecular and cellular mechanisms of infections related to virus, bacteria and parasites, integrating them with the molecular and cellular immunology. Considering the increasing importance of genomics and molecular biology in the understanding the pathogenesis of infections and immune diseases, as well as the diagnostic procedures, students should also acquire appropriate skills for laboratory and multimedia tools used in molecular virology, microbiology and parasitology, applicable to medical practice (planning and carry out diagnostic laboratory activities, analyse and interpret data from diagnostic tests). Furthermore, they should be able to use a rationale and molecular approach as preparatory basis for diagnostic process.

Starting from the different molecules involved in the biochemical organization of cells and tissues, students have to understand the molecular and chemical bases of life and metabolism and the role of different molecules (proteins, carbs, lipids and complex biomolecules) in the physiology of different cells and tissues. They should be also able to understand and use biochemical methods, aimed at the diagnostic and clinical study of the different tissues as molecular bases of laboratory medicine.

Thereafter, students should interconnect anatomical knowledge with physiology, at different levels: topographic, macroscopic, microscopic, and ultrastructural, recognizing anatomical specimens and being able to describe the regions of the nervous system, the neuroanatomical pathways and their function, the organization and the physiology of the cardiovascular and lymphatic systems. Consequently, they should start to apply their integrated theoretical knowledge to clinical problem solving and biomedical innovation, through a scientific and critical approach to the medical practice.

Making judgments

Judgment skills will be stimulated through the individual and guided sorting of basic clinical cases of functional neurology and cardiology, through the interpretation of basic radiological pictures, as well as through problem-based learning about different methodologies of analysis in microbiology, biochemistry and immunology. Moreover, students will be stimulated to the critical review of scientific papers, focused on the innovations in the different fields of course. For this purpose, different interpretative theses will be analysed for each scientific case, stimulating the students to a critical discussion. The independence of judgment will be verified through
periodic interactive seminars in small groups, where both clinical cases and innovative aspects of the fields will be discussed with the students.

**Communication skills.**

Communications skills will be developed at two different levels: first of all, students must be able to use a precise biomedical and anatomical terminology, which is crucial for an adequate communication in their future clinical practice. On the other hand, they will be stimulated to develop general communication skills by organizing individual presentation and discussion of the biological problems and clinical cases proposed, at the presence of the faculty. In this way, they will start to integrate multimedia and communicative skills with the specific knowledge of the field and will learn to apply an integrated logic and technical approach to achieve the effectiveness of communication, acquiring also good interpersonal skills to manage team work and individual laboratory or clinical activities, taking into account the increasing strict interdisciplinarity and frequent interactions between clinicians and clinical laboratory.

**Learning skills**

The student must acquire, not only sufficient knowledge to pass the exam, but above all stimuli, skills and learning methods to pursue the continuous updating of their knowledge in the field of anatomical, physiological and molecular bases of medicine and their critical application to clinical practice. Particular attention will be devoted to the comprehension of the interconnections between morphology and function at different levels (from cells molecular structure and metabolism, to the relation between organs and system morphology and their integrated physiology). Moreover, a great attention will be devoted to the integration of molecular and cellular aspects of pathogens with the activation and the modulation of the immune response as a crucial point for the pathogenesis and the individuation of therapeutic targets. Indeed, students should be able to learn the general concepts to plan and interpret laboratory procedures for the diagnosis of infectious diseases. Students, will be motivated and will be given them the methods and the technical fundamentals (multimedia methods, use of the optic microscope, integrated laboratory abilities, problem solving and basic clinical discussion), to progress towards increasingly advanced levels in the field of the biological bases of medicine, pursuing an independent, self-directed and critical learning.

**Course Contents**

**MICROBIOLOGY**

Bacteriology (G. Gherardi)


Micology (G. Gherardi)


Parasitology (L. Fachinelli)

2b. Life-cycle. 2c. Pathogenesis. 2d. Epidemiology. 2e. Control. 3. Zoonotic parasites (Protozoa and Metazoa).
3a. Classification. 3b. Life-cycle. 3c. Pathogenesis. 3d. Epidemiology. 3e. Control.

Virology (McKnight)

BASIC IMMUNOLOGY
Week 1: Introduction to the module; Why do we need an immune system? What is it for (FDA) Week 2: Overview of the cells of the immune system (FDA); Week 3: Origin and development of the immune system (FDA) ; Week 4: Innate immune response: molecules and signalling (AI) ; Week 5: Innate immune response: cell types (AI); Week 6: Adaptive immune response: molecules and signalling (FDA); Week 7: Adaptive immune response: T cells (FDA), Week 8: Adaptive immune response: B cells (AI); Week 9: MHC/HLA in health and disease (FDA); Week 10: Inflammation: acute and chronic (FDA); Week 11: Autoimmunity: central and peripheral tolerance (FDA); Week 12: Transplantation and immune suppression (AI).

Pre-recorded lectures – tutorial – revisions (12hrs): Immunization and vaccines (FDA); Immunodeficiencies (FDA); Advances in Immunology (FDA); Advances in Immunology (AI); Tutorials and revisions (FDA + AI)

MOLECULAR BIOLOGY
Lessons will be focused on the innovative molecular biology methods that are used in clinical laboratory. The course will be condensed into two full days and will include combinations of lectures and lab practice. Students will be performing basic molecular biology experiments, depending on students’ progress such as SDS PAGE, Plasmid purification, Restriction enzyme digest, agarose gel and PCR.

ANATOMY
- The sensory organs: the eye, the ocular annexes and the lacrimal glands. The retina: cytology and functional anatomy. The ear: external ear, middle ear, internal ear: the cochlea and the Corti's organ: histology and functional anatomy; the vestibular organ. Gustative and olfactory receptors. Sensory receptors of the skin.
- Peripheral nervous system: the cranial nerves. The nervous plexa: cervicalis, brachialis, lumbar and sacral. The functional distribution of the principal peripheral nerves of the upper and lower limb.
- Development of sensory organs and peripheral nervous system
- Cardiovascular System: the heart and the pericardium: topography, gross anatomy and superficial anatomy. Internal features: the cardiac valves. Radiological anatomy of the heart; the coronary system; the myocardial tissue and the conduction system of the heart. Innervation of the heart. Development of the heart and anatomical basis of cardiac malformations. The arteries and the veins: general organization of the arteries and veins systems, angiograms, Angio-TC and radiological anatomy of the vascular system; microscopic structure of arteries, veins and capillaries. The arteries and the veins of the upper and the lower limbs, the arteries and the veins of the head. Parietal arteries of the neck, the thorax and the abdomen.
- Lymphatic system: overview of the lymphatic pathways. Topography and microscopic structure of the thyme, the spleen and the lymph nodes.
- Topographic anatomy of the head and the neck, the upper limb and the lower limb.
BIOCHEMISTRY

- Water: water structure and properties; hydrogen bonds and other electrostatic interactions; interaction between water and other organic compounds. Colligative properties.
- Amino acids and proteins: structure and function of amino acids. Classification and chemical-physical properties.
- Three-dimensional structure of proteins: primary, secondary, tertiary and quaternary structure of proteins; Ramachandran plot; protein folding.
- Protein Function: collagen, keratin and oxygen-transporting molecules: structure of hemoglobin and myoglobin, saturation, Bohr Effect, homotropic and heterotropic allosteric modulators of hemoglobin.
- Thermodynamics: concept of entropy, enthalpy and Gibbs free energy.
- Enzymes: structure and properties of enzymes; catalysis; Michaelis-Menten kinetics; V0, Vmax and Km. Lineweaver-Burk plot. Reversible and irreversible inhibition
- Structure and role of carbohydrates: monosaccharides; oligosaccharides; polysaccharides; O- and N-glycosidic bond; starch; cellulose; glycogen.
- Nucleotides and nucleic acids: structure and functions; DNA and RNA.
- Structure and function of lipids: fatty acids; phospholipids; cholesterol; Eicosanoids and PUFA-derived endogenous signalling lipids.
- Biological membranes and transport.
- Biosignalling:
  - Carbohydrate metabolism: glycolysis; gluconeogenesis; pentose phosphate pathway; regulation of carbohydrate metabolism; glycogenesis; glycogen breakdown.
- Applied Biochemistry: Western blot, CRISPR-Cas9, X-ray crystallography.

PHYSIOLOGY

- The Brain and Behaviour - Chemical Control of the Brain and Behaviour, Motivation, Sex and the Brain, Brain Mechanisms of Emotion, Brain Rhythms and Sleep, Language, Attention
- The Changing Brain - Wiring the Brain, Memory Systems, Molecular Mechanisms of Learning and Memory
- Organization, control and function of the Autonomic Nervous System
- Cellular Physiology of skeletal, cardiac and smooth muscle - Contraction of skeletal muscle, Isometric and isotonic contraction, The motor unit and the motor-neuron pool, Cardiac muscle, Action potentials and slow waves in smooth muscle, Contraction of smooth muscle
- The cardiovascular system - Organization of the Cardiovascular System, Arteries and Veins, The Microcirculation, Cardiac Electrophysiology and the Electrocardiogram, The Heart as a Pump, Regulation of Arterial Pressure and Cardiac Output, Integrated Control of the Cardiovascular System.

Teaching Methodology

The aims of the course will be achieved by a combined approach between traditional inductive teaching methods, practical activities, problem based learning (PBL) and clinical based learning (CBL). Different teaching activities will be combined in the same week. Each week will have specific topics and will start with an overview of each topic, through a plenary frontal teaching section, where also bio-molecular problems or focused clinical cases will be presented. This will be followed by practical sessions where the students will be guided and stimulated to the autonomous analysis and description of anatomical macroscopic specimens or microscopic preparations or to the planning and carrying out of basic laboratory diagnostic processes or the planning and setting-up of research oriented experiments, aimed at the comprehension of physiological and molecular mechanisms of the nervous, cardiovascular and lymphatic system. Sessions of PBL or CBL in small groups, where students will discuss the problems and the clinical cases proposed in the introductive frontal section, will be proposed in the same week. At the end of the week a review plenary teaching section will
be proposed. Teachers and facilitators will be available for the students, to guide the PBL/CBL and practical activities, as well as for tutorial and question-time sections during the week. Multidisciplinary seminars for selected topics will be proposed and the innovative aspects of selected topics in the different field of the course will be proposed to the students, through interactive seminars, where they will be also stimulated to search and critically review medical literature.

**Learning Assessment Methodology**

The final examination will take place at the end of the course, in the sessions and periods indicated in the academic calendar. The acquisition of knowledge and the ability to apply knowledge, will be verified through written tests for each subfield of the course.

For anatomy it will consists of an oral examination about: central nervous system, cranial nerves and sensory organs followed by an integrated written test about cardiovascular system and peripheral nervous system with topographical anatomy of the head, the neck and the upper and lower limbs. The exams will take into account the ability of the students in the description of anatomical specimens, analysis of microscopic preparations and the answer to open questions, including focused clinical cases related to neuroanatomy, morphology and neurochemistry of the nervous system, cardiovascular system and topographic anatomy.

For physiology students will be evaluated through a written test including a) multiple choice-test pertaining to all the subjects presented during physiology lectures; b) problems of applied physiology, including clinical cases related to the topic.

For Biochemistry the exam it will consist in a written test that will require answering to open questions related to the topic.

For Microbiology and Parasitology it will consists in a combined written task containing an overall of 60 multiple choice (MCQ) and 6 open-ended questions (OEQ) (20 MCQs and 2 OEQ for Microbiology, Virology and Parasitology each), pertaining to the topics presented during the course, with a total time to take the text of 1 and half hour.

For basic Immunology learning assessment methodology will consists in an online test made of 40 multiple-choice (MC) and Single Answer (SA) questions.

For Molecular Biology the exam will consist in a multiple choice exam related to the topic and complementary oral exam.

After the written tasks for each subfield of the course, students will be submitted to two final oral interviews, to verify the acquisition of the integrated aspects of the course and the ability in problem solving and basic clinical discussion. The two oral interviews will consist in: a) integrated exam for Anatomy, Physiology and Biochemistry; b) integrated exam for microbiology, parasitology and basic immunology.

**Grading Criteria**

**Block 1:** The Anatomy final mark will be obtained as the average of the marks obtained in the oral midterm and in the written examination. The exam will be considered passed with a minimum mark of 18/30. The Written test will have a numerical evaluation with a maximum mark of 30. The oral midterm will have a not numerical evaluation, in which three grades were considered to pass: Sufficient, Good and Excellent. For Physiology and Biochemistry final mark the MCQs will be marked 1 whether correct, 0 whether not answered and -0.25 whether answered incorrectly. The open questions will be evaluated by a maximum grade ranging from 3 to 6. The final integrated oral will account for up to 5 marks of the final mark of the block.

**Block 2:** For the Microbiology and Parasitology test, an average number of correct answers about 50% (10/20 corrected answers for MCQ and 1/2 corrected answers for OEQ) will be taken as pass with the mark of 18/30. Then, each correct MCQ corresponds of 1.2 point and each correct OEQ corresponds to 5 points to reach the final mark. At the same way, for Basic Immunology and molecular biology courses, an average number of correct about 40% and above will be taken as pass. For both tests, the final mark will range between 18 and 30/30. The final integrated oral will account for up to 3 marks of the final mark of the block.

The final mark of FBSIII will be the weighted average mark obtained in the two integrated exams relative to the two blocks and will take into account the different CFU related to each specific course.
Preparatory examinations or preliminary knowledge required
The proper understanding of the principles of the whole FBSIII course contents requires an appropriate knowledge of basic mathematics, physics, general, inorganic and organic chemistry, and of cellular biology.

Preparatory examination:  Fundamentals of Basic Science II
                        Fundamentals of Medicine II

Suggested Textbooks

**MIRCROBIOLOGY**

**ANATOMY**
Barbara Young et al., Weather: Histology and Microscopic Anatomy. 6th edition. Elsevier
Mancall and Brock. Gray’s Clinical Neuroanatomy: The Anatomic basis for Clinical Neuroscience, Elsevier Editions

**BIOCHEMISTRY**

**PHYSIOLOGY**
Medical Physiology (3rd Edition) by Walter F. Boron and Emile L. Boulpaep (Elsevier)
Textbook of Medical Physiology (13th Edition) by Guyton and Hall (Elsevier)
Neuroscience, Exploring the brain (3rd Edition) by Bear et al., (Lippincott Williams & Wilkins)

**IMMUNOLOGY**
Janeway’s Immunobiology by Kenneth Murphy and Casey Weaver
Basic Immunology: Functions and Disorders of the Immune System Paperback by Abbas MBBS, Abul K. (Author), Lichtman MD PhD, Andrew H. H. (Author), Pillai MBBS PhD, Shiv (Author)
Immunology Made Ridiculously Simple Paperback – 1 May 2009

**MOLECULAR BIOLOGY**
Molecular Biology 3rd Edition -Authors: David Clark Nanette Pazdernik Michelle McGehee
Molecular Cell Biology: (8th Revised edition) - Authors: Harvey Lodish, Arnold Berk, Chris A. Kaiser, Angelika Amon, Hidde Ploegh, Anthony Bretscher, Monty Krieger, Kelsey C. Martin
# FUNDAMENTALS OF BASIC SCIENCE IV

| Scientific Disciplinary Area | BIO/09  
|                             | BIO/10  
|                             | BIO/16  |
| Course year and teaching semester | Second year, second semester |
| Academic credits | 19 ECTS |
| Teaching hours | 237.5 hours |
| LECTURERS | M. D’Amelio (coordinator)  
|           | A. Leuti  
|           | G. Vivacqua  |

## Integrated Course Aims

The Integrated Fundamentals of Basic Science (IV) includes three Modules spread out over the second term of the medical course second year. Physiology is the study of how the human body works and is a core discipline area in medical sciences. It plays the central role in the medical sciences, integrating from the molecular and cellular levels (Biochemistry) through to the whole tissue and organs (Anatomy) to understand whole body function. Progressive knowledge of the physiology of the human body led to a progressive understanding of the mechanisms of disease, and in several cases, to the development of an array of pharmacological strategies aimed at blocking or slowing-down disease progression.

## Learning Outcomes

### Knowledge and understanding

Medical students have to be able to describe how the various organs of the human body work, their dynamic integration into all apparatus and the general mechanisms of control in physiological conditions. The integrated course points to ensure the student the premise necessary for understanding pathophysiology and for predicting the response of the body to pharmacological therapies or drugs. To fully gain advantage from the physiology of a given system it is necessary to first know its biochemistry and anatomy; therefore, much coordination work has gone into ensuring that each topic will be presented sequentially, first in the Anatomy and then in the Physiology and Biochemistry course.

### Apply Knowledge and understanding

The students should gain skills and expertise aimed at knowing how to transfer the theoretical information acquired as part of human anatomy, physiology and biochemistry to the medical context. In particular, They should: a) be able to solve simple problems of applied physiology and biochemistry; b) be able to identify in the most common pathological processes, the alteration of a physiological function; c) being able to predict what type of intervention (pharmacological or surgical) will bring benefit to some diseases. Students should be able to understand how biochemical mechanisms, metabolic pathways and their control, are closely connected to physiological conditions and how their alterations might be clinically relevant. Lastly, students should be able to functionally correlate the structure of organs to their function in an integrated system.

Thus, upon completion of this integrated course, medical students will have acquired knowledge of the organization, structure and normal function of the human body, with a view to maintaining good health and understanding pathological changes.
Making judgments
Students will be encouraged to develop their judgment skills through interactive lectures and by constant stimulation to the medical reasoning and to always keep a comprehensive and critical view of the topics.

Communication skills
During the class, the students have to develop a specific and precise scientific terminology, which is critical for an adequate understanding of the complex physiological processes.

Learning skills
The students will learn to critically understand the basics and the underlying principles of physiology from the molecular level to the whole tissue and organ one. They will also learn to solve quantitative problems and find relationship between structure and function of the human body. Lastly, student will learn how to take a scientific approach to problems and how to adequately communicate scientific knowledge.

Course Contents
ANATOMY
Respiratory System: the nasal cavities; the larynx; the trachea and the lower airways; the lungs and the pleura. Pulmonary circulation. The diaphragm and the mechanics of respiration. Radiological anatomy of the lungs and the thoracic cavity. The microscopic structure of the airways: respiratory epithelium, organization of the alveoli and of the blood/air barrier. Development of the respiratory system.

Topographic anatomy of the thorax and the mediastinum.


Topographic anatomy of the Abdominal cavity and the Pelvis.


Anatomical basis of the Psyco-neuro-endocrine-immune correlations.

BIOCHEMISTRY
Krebs Cycle: the role of pyruvate dehydrogenase, reactions and regulation of Krebs cycle.

Lipid metabolism: lipoproteins;lipogenesis and lipolysis; beta-oxidation of odd- and even-chain, saturated and unsaturated fatty acids; ketogenesis; biosynthesis of fatty acids, phospholipids and cholesterol; regulation of lipid metabolism. Ammino acid metabolism: transamination; oxidative deamination; urea cycle; catabolism

PHYSIOLOGY

The Respiratory System: Organization of the Respiratory System; Mechanics of Ventilation; Acid-Base Physiology; Transport of Oxygen and Carbon Dioxide in the Blood; Gas Exchange in the Lungs; Ventilation and Perfusion of the Lungs; Control of Ventilation

The Urinary System: Organization of the Urinary System; Glomerular Filtration and Renal Blood Flow; Transport of Sodium and Chloride; Transport of Urea, Glucose, Phosphate, Calcium and organic solutes; Urine Concentration and Dilution

The Gastrointestinal System: Organization of the Gastrointestinal System; Gastric Function; Pancreatic and Salivary Glands; Intestinal Fluid and Electrolyte Movement; Nutrient Digestion and Absorption; Hepatobiliary Function

The Endocrine System: Organization of Endocrine Control; Endocrine Regulation of Growth and Body Mass; The Thyroid Gland; The Adrenal Gland; The Endocrine Pancreas; The Parathyroid Glands and Vitamin D; The Reproductive System: Sexual Differentiation; The Male Reproductive System; The Female Reproductive System; Fertilization, Pregnancy and Lactation

Teaching Methodology

The aims of the course will be achieved by a combined approach between traditional inductive teaching method, practical activities, problem-based learning (PBL) and clinical based learning (CBL). Different teaching activities will be combined in the same week. Each week will have specific topics and will start with an overview of each topic, through a plenary frontal teaching section, where also bio-molecular problems or focused clinical cases will be presented. This will be followed by practical sessions where the students will be guided and stimulated to the autonomous analysis and description of anatomical macroscopic specimens or microscopic preparations or to the planning and carrying out of basic laboratory diagnostic processes or the planning and setting-up of research oriented experiments, aimed at the comprehension of physiological and molecular mechanisms of the nervous, cardiovascular and lymphatic system. Sessions of PBL or CBL in small groups, where students will discuss the problems and the clinical cases proposed in the introductive frontal section, will be proposed in the same week. At the end of the week a review plenary teaching section will be proposed. Teachers and facilitators will be available for the students, to guide the PBL/CBL and practical activities, as well as for tutorial and question-time sections during the week. Multidisciplinary seminars for selected topics will be proposed and the innovative aspects of selected topics in the different field of the course will be proposed to the students, through interactive seminars, where they will be also stimulated to search and critically review medical literature.

Learning Assessment Methodology

Final examination will take place at the end of the course, in the sections scheduled by the academic calendar. The acquisition of knowledge and the ability to apply knowledge, will be verified through a written or oral task for each subfield of the course.

For anatomy: the students will be submitted to an oral interview about the different topics of the program. During the oral interview the student will be asked to recognize and analyze a microscopic specimen under the microscope. The total number of questions will be 4: one question about gross anatomy and functional anatomy, one question about microscopic anatomy with the practical test at the microscope, one question about topographic and radiological anatomy and one question about organs development.

For physiology: students will be evaluated through a written test including a) multiple choice-test pertaining to all the subjects presented during physiology lectures (14 questions); b) problems of applied physiology, including clinical cases related to the topic (8 problems).
For Biochemistry: the exam will consist of 10 open questions and problems of biochemistry related to the program.

After the written tasks for each subfield of the course, students will be submitted to a final oral interview, to verify the acquisition of the integrated aspects of the course and the ability in problem solving and basic clinical discussion. The integrated oral exam aims at assessing the student’s ability to explain the same biomedical problem from different angles: from a morphological to functional point of view. The exam will start with a review of a specific topic proposed by the student in which he will integrate anatomy, physiology and biochemistry and will continue with the questions proposed by the exam committee.

**Grading Criteria**

Anatomy: The oral exam will be evaluated as following: each question will be marked with a maximum grade of 8 and a minimum grade of 0. To pass the exam, the final mark should range from 18 to 30/30. In case of very severe mistakes or lack of knowledge about fundamental topics, the exam could be considered not passed, even with a total mark of 18.

Physiology: The written test will be evaluated as following: 1.0 point will be assigned to each correct answer at the MCQs, 2.0 points will be assigned to physiology problems correctly solved. To pass the written exam the student has to correctly answer 8 multiple choice-questions and 5 problems of applied physiology, so that the final mark will be in the range 18-30/30.

Biochemistry: Each question is evaluated 0-3 points. The students are required to obtain a score of at least 18 to pass the exam.

The final mark will take account the results of written exam: the commission might add up to 6.0 points to the average mark of written exam. The student with a final written mark corresponding to 25/30 can get 30/30 with honours.

**Preparatory examinations or preliminary knowledge required**

The proper understanding of the principles of the whole FBSIV course contents requires an appropriate knowledge of basic mathematics, physics, general, inorganic and organic chemistry, and of cellular biology.

Preparatory examination: Fundamentals of Basic Science III

**Suggested Textbooks**

**ANATOMY**


**BIOCHEMISTRY**


Lectures and notes will be made available after each class

**PHYSIOLOGY**

Medical Physiology (3rd Edition) by Walter F. Boron and Emile L. Boulpaep (Elsevier);

Textbook of Medical Physiology (13th Edition) by Guyton and Hall (Elsevier);

Neuroscience, Exploring the brain (3rd Edition) by Bear et al., (Lippincott Williams & Wilkins);

Principles of Neural science (5th Edition) by Kandel et al., (McGraw-Hill Education);
**FUNDAMENTALS OF MEDICINE III**

**Scientific Disciplinary Area**  
BIO/05  
MED/04  
MED/43

**Course year and teaching semester**  
Second year, second semester

**Academic credits**  
16 ECTS

**Teaching hours**  
200 hours

**LECTURERS**  
S. Angeletti (coordinator)  
E. Signori  
M. Cioce  
G. Santulli

**Integrated Course Aims**

The aim of the course is to understand the human body as a complex ecosystem, at both cellular and tissue level: understanding the relevance of homeostatic mechanisms and their perturbation in disease states. He/she will acquire a clear view of the “bench to bedside approach” and its broad potential. The student will learn the physio-pathological bases of blood disease, of coagulation disorders, kidney and liver failure, neoplastic and cardiovascular disease and their laboratory diagnosis. Furthermore, aim of the course is to give the basic knowledge for rapid and correct clinical interpretation of the laboratory reports, and to develop a strong scientific critical sense for a fair evaluation of a wide range of experimental methodologies described into scientific research papers.

**Learning Outcomes**

**Knowledge and understanding**

Identify the biological laws (logic or rationale) that regulate onset, evolution and consequences of pathological processes, within the hierarchical scale that goes from molecules to the organism. Demonstrate the capacity for extensive understanding and integration of knowledge, to manage complex, dynamic scenarios. Develop a unifying view of the general pathology and physiopathology, understand the patient as a complex, unique, and highly connected system.

Comprehend the relationships between basic mechanisms of embryogenesis, lineage commitment and senescence, with endogenous and environmental factors, stochastic factors and ecological pressure, to revisit the general aetio-pathogenic mechanisms.

Understand the usefulness of classical and innovative methodologies carried out in the research laboratories, and in using bioinformatics tools for managing and interpreting complexity. This will include omics, “pathway analysis” and up to patient stratification tools (pharmacogenetics and pharmacogenomics, diagnostic / therapeutic guidelines, etc).

**Applying knowledge and understanding**

Ability to analyse the causes (aetiology) and the mechanisms of onset and progression of fundamental pathological processes demonstrating the ability to understand and to solve problems within broader contexts. Identify the reactive and degenerative processes of the organism with respect to internal and external insults, in the context of inter-individual variation.
Identify with a critical attitude the diagnostic/therapeutic targets in the context of aetio-pathogenic cascades, be able to move such a knowledge to laboratory medicine and clinical therapy. Understand the application of the most relevant techniques in Biochemistry, Molecular Biology, Microbiology, Clinical Pathology, Immunology and Cell Biology. Be able to choose which clinical laboratory analyses are appropriate for the patient diagnosis and evaluation. Develop skills for writing and reviewing scientific papers and correctly interpret the experimental data.

Making judgements
The student will be able to formulate and support his/her opinion in a synthetic and scientifically appropriate way in complex scenarios. He/she will be able to decide which second level laboratory test are appropriate for the patient under evaluation.

Communication skills
He/she will show ability to synthetically express concepts and ideas in a sound, scientifically appropriate way. He/she will be able to communicate with patient and physicians for laboratory critical data communication.

Learning skills
The final objective is the development of an individual, scientific critical sense allowing the student to make use of knowledge of human etiopathology to manage complexity (system biology/pathology), with consciousness of the environment and of the technological innovation. He/She will acquire a clear view of the “bench to bedside approach”. The student will be able to move from a reductionist study of single molecular/cellular events, to the integration of different processes at systemic level. He/She will develop autonomous and wise judgment skills, even when facing limited or incomplete information. He/she will take in great consideration the social and ethical responsibilities associated with the one’s knowledge and judgment.

He/she will be able to make a clinical laboratory report, to provide its interpretation, to discuss scientific documents and papers.

Course Contents
TRAINING LABORATORY MEDICINE 1
Criteria for the selection of research papers; analysis of manuscripts’ organization, methodologies and assays, data interpretation; sources of variability; variability in the pre-analytical, analytical and post-analytical phases; biological variability; clinical use of the experimental data (sensitivity and specificity; positive and negative predictive value.

TRAINING LABORATORY MEDICINE 2
Biological samples collection, transport and storage; blood count cells; iron deficiency anaemia, macrocytic anaemia, haemolytic anemia; lympho-proliferative disorders; coagulation evaluation; diabetes diagnosis and other endocrine disorders; liver and kidney dysfunction; dyslipidaemia evaluation; myocardial infarction diagnosis; fluid and electrolytes imbalance; enzymes and their use in clinical diagnosis; tumour markers; laboratory diagnosis of the major bacterial and viral infectious diseases: hepatitis, pneumonitis, gastroenteritis, urinary tract infections and sepsis. Odds ratio; ROC curve; laboratory errors; quality in the clinical laboratory: quality system introduction; Laboratory certification and accreditation; internal quality control (Levey-Jennings cards) and external (VEQ) quality control.

GENERAL PATHOPHYSIOLOGY
Relevance of altered response in determining disease susceptibility, with focus on single system/organ dysfunction. Topics will be homeostatic control of electrolyte balance in disease, Pathophysiology of acid-base balance; Pathophysiology of respiratory and cardiovascular system; Renal and hepatic diseases; Pathophysiology of the metabolism of calcium and phosphates. Disease of thyroid and parathyroid. Diseases of the pancreas. Diseases of breast, ovary, endometrium, cervix. Diseases of prostate and testicular diseases. Metabolic disorders and metabolic syndrome. Nutritional diseases.
GENERAL PATHOLOGY


Teaching Methodology

The course includes frontal lectures and monographic courses and internships in the laboratory. Students will be given the possibility to join structured practical training sessions, according to the main programme of the course. External speakers may be invited to provide lectures on specific topics. Speakers will be selected and invited based on their expertise and their ability to provide lecture with historical and philosophical perspective.

Learning Assessment Methodology and Grading Criteria

The final examination: there will be a final oral examination including the discussion of a peer reviewed scientific article with JCR IF>6, chosen by the student under the supervision of the tutor during the course. Oral examination will take the start from the article topic and will consist of questions pertaining clinical pathology followed by four core questions regarding inflammation, neoplasia, physiopathology, and one on a more organ-specific topic.

The relative weight (over the final examination=100%) of the exam sessions will be as follow: Training Laboratory Medicine 2: 30%; Training Laboratory Medicine 1: 20%; General Pathology and Physiopathology: 50%.

Preparatory examinations or preliminary knowledge required

An intermediate level knowledge of general chemistry, organic chemistry and biochemistry, together with knowledge of anatomy, histology, physiology, microbiology, cell biology and basic immunology is required.

Preparatory examination: Fundamentals of Basic Science IV

Suggested Textbooks

TRAINING LABORATORY MEDICINE 1
Selected scientific papers. Slides available at the end of each section.

TRAINING LABORATORY MEDICINE 2

Slides will be available at the end of each conceptual section

GENERAL PATHOPHYSIOLOGY and GENERAL PATHOLOGY

Slides will be available at the end of each conceptual section, together with chosen articles and reviews of general interest and utility
FUNDAMENTALS OF BASIC SCIENCE V

Scientific Disciplinary Area

MED/03
BIO/14

Course year and teaching semester

Third year, first semester

Academic credits

3 ECTS

Teaching hours

37.5 hours

LECTURERS

F. Gurrieri (coordinator)
G. Minotti

Integrated Course Aims

The course brings together two main branches: Pharmacology and Medical Genetics, strictly connected within the modern concept of precision medicine. In essence, the main objective is to start from the foundations of the two fields and move towards the knowledge of the genetic load in human diseases, the potential for tailored treatments and the opportunities for cause-related rather than disease-related therapies.

Learning Outcomes

Knowledge and understanding

Medical Genetics: Students must achieve an appropriate perception and knowledge of the genetic background of human diseases. They will know the characteristics of the main genetic conditions. They have to gain knowledge about clinical and molecular methods necessary to reach a correct genetic diagnosis. They will understand the main principles of modern methodologies for gene-hunting and for disease modelling and precision medicine. They will be exposed to the principles of the ‘Omics science’.

Pharmacology: Students will be introduced to the principles and methodologies of drug development, going from identification of druggable diseases to the main characteristic a potential candidate should have in terms of pharmacokinetics, pharmacodynamics, efficacy and safety. Students should therefore be acquainted with genetic drivers and/or perturbers of efficacy and/or safety and the role that such factors may have in defining pharmacological opportunities in investigational and real life settings.

For both Modules students will be exposed to bioethical issues inherent to the preclinical genetic diagnosis, the genetic identity of the patient, the compassionate use of drugs, and the management of off target results in genomic analysis.

Applying knowledge and understanding

By the end of the course, the students should be able to describe the main mechanisms of genetic diseases, the tools used for genetic counselling and disease diagnosis, and should acquire skills in clinical problem solving when facing genetic conditions. As for pharmacology, the students should be able to appreciate the know-how and know why behind the identification, development and clinical use of new drugs for human health.

Making judgments

The students must become able to judge whether in dealing with a patient affected by a common disease they
are also facing with a potential genetic background of that disease. To do so, they will have to be familiar with the basic criteria generally applied in order to suspect a genetic condition. The students should become familiar with concepts and methodologies of drug screening, distribution in the human body, interaction with liable targets, interactions/interferences with genetic factors, and evaluation of risk: benefit in investigational and real life settings.

Communication skills
Students will develop communication skills as they will be required to prepare and present classroom seminars; in addition, they will participate to “genetic counselling simulation” sessions, where they will act as counsellors or patient. They will also learn how to deliver to patients the complex information about the genetic bases of diseases. As for pharmacology, students will be introduced to the dynamics and communicative skills of expert opinion on drugs.

Learning skills
The students will learn how to critically approach a patient with a genetic diseases, how to drive a possible diagnostic pathway, how to apply disease and patient knowledge to disease treatment. They will also learn about disease protection and disease susceptibility, based on the individual genetic constitution. Also, they will learn the way from bedside to benchtop and back. Students will also learn how to recognize opportunities and pitfalls in drug development, how to decipher the efficacy and safety profile of a drugs as it proceeds from its date of birth to post approval studies and reports.

Course Contents
MEDICAL GENETICS:
Genetic Load in medicine (genetic tests – genetic counselling- clinical genetics); Genetics of fetal diseases (including principles of prenatal diagnosis); Congenital defects and neonatal genetic pathology; Genetics of Intellectual disability, Neuropsychiatric disorders, Neurodegenerative diseases; Genetics in oncology; Genetics in endocrinology; Cardiogenetics; Genetics of bone diseases; Genetics in kidney diseases; Rheumatology and genetics; Principles of Medical GenETHICS; Principles of Pharmacogenetics.
GENERAL PHARMACOLOGY:
Clinically oriented principles of pharmacokinetics, pharmacodynamics and drug metabolism; Principles of drug development and clinical trials; Genetically-oriented new methodologies in drug development and clinical trials; Assessing efficacy and safety; Using drugs according to regulatory issues (on label, off label, compassionate).

Teaching Methodology
The teaching methodology will consist of a combination of traditional platform lessons, class seminars, interactive discussion on selected topics or on topics of interest for the students, practical activities both in the clinics and in the laboratory. The students will be stimulated to select an article from the medical literature and to briefly expose its contents to the whole class. Because the two disciplines of this Course share interests in preclinical and clinical fields, multidisciplinary seminars will be organized and relevant topics will be jointly discussed.

Learning Assessment Methodology
At the end of the course the final examination will take place, within the timeframe set by the academic calendar. The knowledge gained and the ability to apply it will be verified through a written test (one for genetics and one for pharmacology). The written test will include multiple choice questions, open questions, clinical cases or problems to be discussed (for genetics); multiple choice questions (for pharmacology). Questions are
formulated in such a way as to assess students’ capability to find their way easily around different topics. If the written test is passed, the final grade will be calculated as a weighted average of the partial grade in genetics and the partial grade in pharmacology.

**Preparatory examinations or preliminary knowledge required**

The students are requested to have acquired key competences in human genetics (monogenic and multifactorial diseases, cytogenetics, population genetics, and methodologies for genetic analysis) according to the program in FBS1, and chemistry, biochemistry, physiology, pathophysiology.

Preparatory examination:  
- Fundamentals of Basic Science IV  
- Fundamentals of Medicine III

**Suggested Textbooks**

**MEDICAL GENETICS**

Medical Genetics - Jorde Carey Bamshad, 6th edition, Elsevier


**GENERAL PHARMACOLOGY**

Bibliography will be suggested ad hoc during the course
FUNDAMENTALS OF MEDICINE IV

Scientific Disciplinary Area  MED/43
M-PSI/05

Course year and teaching semester  Third year, first semester

Academic credits  4 ECTS

Teaching hours  50 hours

LECTURERS  V. Tambone (coordinator)
B. Barcaccia

Integrated Course Aims
The integrated course, in close synergy with the Campus Inspire program (for students who will enroll starting from the academic year 2021-2022), intends to develop in students a human-centered vision of scientific and technological action as a human act.

The course aims to deepen the reflection on the gnoseological, ethical and relational dynamics of the doctor’s actions. It also aims to address some of the most important issues of clinical bioethics: Professional secrecy (clinical internship, partner notification and contact tracing). Therapeutic persistence, patient abandonment and euthanasia (the case of the incurable patient, the case of the patient in a coma). Problems relating to procreatics (contraception, abortion, assisted fertilization, artificial insemination and cloning). The role of human virtues in clinical practice.

Biopolitics: the content regarding Biopolitics aims to consciously found “the third mission of the University” within medical practice, connecting the profession with that political culture that must fertilize society at all levels.

The student will have to acquire skills and competences aimed at knowing how to transfer, in a conscious and responsible way, the theoretical knowledge learned in the first year (Anthropology and Ethics Course) to the contexts of the medical profession.

Knowledge and understanding
The student will be able to frame the professional activity in the field of medical ethics.

Applying knowledge and understanding
At the end of the course, the student will be able to act to protect the health and good of the patient and the community, using the available resources of medical science in the interest and respect of the patient as a person, according to the ethics and regulations in force. Going beyond simple procedures, with a view to the ethics of a job well done.

Making judgments
The student will be able to independently judge situations of clinical practice always according to the ethics of a job well done. The autonomy of judgment will be stimulated and developed during the lessons through the guided development of reasoning on the topics being discussed and by favouring as much as possible the interactions and opportunities for discussion with the teacher and other students.

Communication skills
The student will be stimulated to develop communication skills through the continuous solicitation of questions and queries from the teachers and through the organization of special seminars.
Course Contents

MEDICAL ETHICS
Medical deontology and Bio-law; Ethical evaluation of a Clinical case; Personal freedom and autonomy of patients and Medical doctors; Good job ethics in Evidence Based Medicine: Clinical Reasoning; Procreation and Bioethics; Professional cooperation and best practice; Emergency and bioethics: Covid-19 Cases; Death and dying Bioethics; Ethical aspects of communication in Medicine; Good Clinical Practice and Clinical Trials: the role of Ethical Committee; Ethical aspects of Med-Tech: the UE recommendation.

CLINICAL COMMUNICATION SKILLS II
The course aims at preparing third-year students to develop awareness and skill in one of the most difficult tasks for a physician: to make sense of suffering and death. Topics for this course will include loss and bereavement; values, spirituality and meaning-making; breaking bad news; conflict resolution with angry patients/families. Breaking bad news to patients and their families is a fundamental skill that perspective doctors need to acquire. At the same time, breaking bad news is one of the more challenging tasks that doctors must undertake. However, it is the way in which bad news is broken to patients and their families that can either impair their quality of life and well-being for long or allow them to cope effectively with a very difficult time while maintaining trust in the healthcare professions. The SPIKES program will be illustrated, a six-step strategy for breaking bad news. The course will also train students in communicating effectively with angry and “difficult” patients/families, while taking into account their values and culture.

Teaching Methodology
The aims of the class will be achieved by a combined approach involving a traditional inductive teaching method, video projections, and interactive learning. These different teaching approaches will be combined in the same weeks and also within the same lectures. The students will always be stimulated and will not be treated as passive learners but will be called to actively participate in the lectures. The teaching methods promote classroom engagement and cooperation. Both the interactive lectures and group activities will entail the active involvement of students.

The planned teaching methodology is in continuity with the seminar activities and group work proposed as part of the “Campus Inspire” course dedicated to freshmen for the enhancement of transversal skills (for students enrolled starting from the 2021/2022 academic year).

Learning Assessment Methodology
The final exam will take place at the end of the course, in the sessions scheduled by the academic calendar. The exam will be written, involving a combination of multiple choice and short answer questions. The questions will test the knowledge related to the Aims and Objectives of the course, described above, and ability to apply it.

The assessment of learning is carried out by assigning a final grade out of thirty, determined also taking into account the result achieved on the “Campus Inspire” path (for students enrolled starting from the 2021/2022 academic year).

Grading Criteria
a) Grading criteria: allocation of a grade in thirtieths.
b) Learning assessment criteria: by means of an oral examination, the student will have to demonstrate
1. Consistency of his/her answer in relation to the skills he/she is expected to achieve by the end of the course: 30%;
2. The rationale behind his/her answer: 30%;
3. the relevance of the procedure identified to answer the question: 20%.
4. use of proper language: 20%.
Preparatory examinations or preliminary knowledge required
No preliminary knowledge required.
Preparatory examination: Fundamentals of Medicine III

Suggested Textbooks

MEDICAL ETHICS
V. Tambone, G. Ghilardi, An ethical evaluation methodology for clinical cases, in Persona y Bioética, 20 (1), 2016, pp. 48-61. ISSN 0123-3122

CLINICAL COMMUNICATION SKILLS II

The mandatory textbooks and papers will be indicated at the beginning of the course.
CLINICAL MEDICINE I

Scientific Disciplinary Area
BIO/14
MED/06
MED/08
MED/10
MED/11
MED/21
MED/22
MED/23
MED/36
ING-IND/34

Course year and teaching semester
Third year, first semester

Academic credits
15 ECTS of frontal lectures
6 ECTS of clinical practice

Teaching hours
187.5 hours of frontal lectures
150 hours of clinical practice

LECTURERS
G. Ussia (Coordinator)
F. Mangiacapra
M. Brook
M. Chello
F. Stilo
R. Antonelli Incalzi
S. Scarlata
P. Crucitti
B. Vincenzi
S. Ramella
C. Quattrocchi
E. Faiella
A. Onetti Muda
M. Reyes-Múgica
G. Minotti

Clinical Practice:
R. Melfi
A. Nusca
M. Fabbrocini
N. Montellone
S. Scarlata
F. Longo

Integrated Course Aims
Clinical Medicine 1 (CM1) is an integrated course that includes the teaching of cardiovascular and respiratory diseases, oncology, radiotherapy, radiology, morbid anatomy, and pharmacology. The course aims to address the themes of the individual subjects in a multidisciplinary manner, sharing different views in the approach to diagnosis and therapy, both medical and surgical, to the pathologies under study. CM1 provides knowledge and experience through formal lectures and seminars, problem-based and case-based learning, and practical sessions at the bedside or in the simulation centre.
Learning Outcomes

Knowledge and understanding
Students must achieve an adequate comprehension and knowledge of the different subjects including cardiology, cardiac surgery, respiratory diseases, thoracic surgery, vascular surgery, oncology, radiotherapy, radiology, morbid anatomy, and pharmacology. Students must learn how different diseases may relate to each other and understand the importance of a multidisciplinary approach to patients.

Applying knowledge and understanding
Students must learn how to build a clinical path that starts from the pathophysiological bases of diagnostics and lands at outlining the optimal treatment based on the specific characteristics of the individual patient.

Making judgments
Students must become independent in clinical reasoning. When confronted with clinical challenges, they should be able to correctly process the available data and propose an adequate sequence of diagnostic and therapeutic interventions.

Communication skills
Students are expected to develop accurate and correct scientific language, which is crucial for an adequate understanding of medical subjects. At the same time, they must develop communication skills to interact with colleagues and patients effectively.

Learning skills
Students must become able to develop and constantly update the knowledge of the subjects under study, with particular reference to the consultation of textbooks, bibliographic material, scientific journals, international practice guidelines, and other information on the web.

Course Contents


The Cardiology course is designed to provide a thorough understanding of the scientific basis of the main cardiac diseases and congenital heart diseases and how this relates to diagnosis and treatment. After the conclusion of the course, students will be able to explain the basic nature of cardiac disease processes from the standpoint of causation, epidemiology, natural history, and the clinical manifestations that result. This will allow the students to clinically assess patients with cardiac diseases (symptoms and signs), as well as to interpret invasive and non-invasive instrumental diagnostics (laboratory tests, electrocardiogram, echocardiogram, angiography). During practical sessions, they will develop further skills in history taking, physical exam, clinical reasoning. The course will also provide the scientific basis of established and novel cardiovascular treatments (pharmacological, percutaneous, and surgical) according to the latest guidelines and with a strong translational emphasis. Furthermore, by the end of the course, the students will be able to understand and apply the fundamental methods of scientific research within the field of cardiovascular sciences.

Students will be able to explain the basic nature of cardiovascular diseases from the standpoint of causation, epidemiology, natural history, and the structural and functional abnormalities that result. The course focuses on the most important aspects of these pathologies examining risk factors, pathophysiological and clinical aspects, to provide students with a broad introduction to the specialty and basic knowledge and skills development in history taking, physical exam, clinical reasoning, procedures according to the most recent guidelines, and pharmacology for core diagnoses and presentations of the specialty. By the end of the course, the students will also be able to utilize high-quality peer-reviewed literature to achieve constant updating in the management of pathologic conditions.


Students will be able to explain the basic nature of vascular disease processes from the standpoint of causation, epidemiology, natural history, and the clinical manifestations that result. This will allow the students to recognize signs and symptoms as well as invasive and non-invasive instrumental diagnostics, including vascular lab studies (ultrasound and noninvasive physiologic studies), CT scan, MRI, and angiography, to devise likely diagnosis of principal vascular diseases. Students will improve knowledge and indications for common vascular surgical treatments. Vascular surgery is now characterized by procedures including endovascular treatments and advances in vascular technology and research; students will also know these aspects. By the end of the course, the students will also be able to utilize high-quality peer-reviewed literature to achieve constant updating in the management of vascular conditions.


The objective of the course is to provide students with the understanding of basic physiopathology affecting the respiratory system, the identification of available tools/machines for a correct differential diagnosis and the identification of symptoms and clinical evaluation through diagnostic tools and analyses. After the conclusion of the course, students are required to demonstrate the following: adequate and systematic knowledge of the most relevant diseases affecting different systems (with their nosographic, etiopathogenic,
physiopathologic and clinical aspects) in a global and wholistic vision of human diseases; critical assessment and correlation of clinical symptoms, physical signs and functional alterations detected in a patient, and adequate interpretation of the pathology production mechanisms, and understanding of its clinical meaning; independent clinical judgment, appropriate medical language, and communication skills that can enhance and integrate the knowledge acquired; adequate clinical reasoning skills, medical history data collection skills and skills in detecting objective reports specific to each nosological group; adequate knowledge of examination procedures using functional and laboratory tools/machines to diagnose respiratory diseases; adequate interpretation of the results of such examinations, diagnosis conclusion and proposal of a valid and effective treatment course.


The course aims to provide the pathophysiological basis of the most important pathological conditions that recognize surgery as the treatment of choice for the lung, trachea, pleura, esophagus, gastroesophageal joint, and mediastinum. The student will have the vision of the clinical picture of the patient affected by the aforementioned pathologies as well as a general overview of the tools available to the surgeon for a correct differential diagnosis and treatment. The student must be able to demonstrate adequate knowledge from the nosographic, etiopathogenetic, pathophysiological and clinical point of view of the most relevant diseases of the respiratory system and esophagus that recognize surgery as the treatment of choice. They will also have to demonstrate that they have appropriate clinical reasoning skills through the ability to know how to collect anamnestic data, detect the specific objective findings for each nosological picture. Finally, the course will aim to provide the correct indications for the execution of instrumental, endoscopic and laboratory tests for the diagnosis of diseases commonly managed in the surgical field of the respiratory system, as well as the ability to interpret the results of said instrumental tests in order to reach a definitive diagnosis.

MEDICAL ONCOLOGY AND RADIATION ONCOLOGY: Risks factors that lead to cancer predisposition and genetic factors associated with the development of different types of cancers; semiotic findings (symptoms and medical signs) of the main types of cancer; main Diagnostic procedures and principles of screening for the so called “big killers”; how to interpret radiological, biochemical and pathological findings suspect for cancer; main predictive and prognostic factors for cancer; principles of treatments and main guidelines for daily clinical practice in oncology; principles of integrated approach in cancer management; principles of palliative care in cancer patients; new frontiers in cancer treatment. Target therapy, immunotherapy, and beyond; interpretation of clinical trials in cancer medicine and principles of trial designs; Communication skills for cancer care.

During training, which starts in the second semester of the third year, students will join the Multidisciplinary tumour board, will participate in the hospital meetings, and attend the clinical activities in the ward and in the day hospital service.

MEDICAL IMAGING AND INTRODUCTION TO DIGITAL IMAGES: The course of medical imaging is intended to foster reasoning and cognitive skills in the process of differential diagnosis of diseases based on images obtained by means of ultrasound, conventional X-ray, Computed Tomography, Magnetic Resonance, and Nuclear Medicine techniques. Problem identification begins with a complete history and physical examination. From the information thus obtained, it is possible to select appropriate imaging procedures that may assist in establishing a diagnosis. The course will guide the students throughout the challenges of problem-solving with imaging in clinical practice with highlights on image interpretation errors and image artifacts as well as workflow requirements oriented to minimize “finding misses” (false negatives) or “overdiagnosis” (false positives). During the course, discussion on imaging findings will allow an introduction to basic radiologic terminology, anatomy, and physics used in medical imaging. Image-guided diagnostic and therapeutic procedures will be theoretically described along with specific indications and technical challenges. Clinical training in the units of diagnostic imaging and interventional radiology will allow the students to verify the acquired knowledge in “real life” scenarios.

Students will be able to explain the basic nature of disease processes from the standpoint of causation, epidemiology, natural history, and the structural and functional abnormalities that result. They will also be able to classify diseases of various body systems and how they manifest clinically and histopathologically. This will allow the students to devise likely diagnoses from clinical scenarios by recognizing key manifestations of congenital, hemodynamic, inflammatory, infectious, metabolic, environmental, and neoplastic diseases, therefore being able to apply knowledge of pathology’s role in the diagnosis, staging, and management of the disease. By the end of the course, the students will also be able to utilize high-quality peer-reviewed literature to achieve constant updating in the management of pathologic conditions.

PHARMACOLOGY: The course will be structured in entry seminars on drugs or classes of drugs briefly highlighted in parallel courses of Cardiology, Oncology and Respiratory Diseases. Focus seminars will then follow to deepen knowledge of clinically oriented mechanisms of action, main toxicities, overall risk:benefit of each drug or classes of drugs.

Teaching Methodology
The course contents will be delivered by integrating the different topics taught using lectures, problem-based and case-based learning, and interactive sessions. The first part of the course will consist of a three-week intensive period of formal lectures and seminars. Afterward, clinical practice sessions will start and integrate with formal teaching and interactive sessions. Students will be required to participate in discussions actively and join the multidisciplinary examination of clinical cases.

Learning Assessment Methodology
The final exam will take place on completion of the class, in accordance with the sessions scheduled in the academic calendar. For this course, knowledge acquired and the ability to put in practice each of the topics taught will be evaluated with a written test. Only students who pass all final multi-choice written tests will be admitted to the oral exam. The written exam will involve open questions, exercises, and multiple-choice questions. Students who pass the written exam will undergo an oral interview consisting in a clinical case presentation related to diseases covered in CM1. Students need to demonstrate adequate levels of whole-round understanding of all topics covered in the course alongside with suitable communication and judgement skills.

Preparatory examinations or preliminary knowledge required
To follow the course and make a profit from the proposed program, students should have a solid background in basic human anatomy and physiology, general pathology, and semiotics. Furthermore, students wishing to enrol in the course should possess the knowledge and critical understanding of biology, chemistry, physics, and mathematics and the integration of principles across the preclinical sciences.

Preparatory examination: Fundamentals of Basic Science V
Fundamentals of Medicine IV
Suggested Textbooks

CARDIOLOGY:

CARDIAC SURGERY:
Master Techniques in Surgery: Cardiac Surgery by Frederick Grover and Michael J. Mack | 10 Mar 2016 Wolters Kluwer

VASCULAR SURGERY:

RESPIRATORY DISEASES:

THORACIC SURGERY:
National and international guidelines and articles from international literature will be provided during the lectures

ONCOLOGY:
Abeloff’s Clinical Oncology, 6th Edition

RADIATION ONCOLOGY:

MEDICAL IMAGING AND INTRODUCTION TO DIGITAL IMAGES:
Core Radiology: A visual approach to Diagnostic Imaging. 1st Edition - Authors: Jacob Mandell. Publisher: Cambridge University Press – ISBN-13978-1107679689


MORBID ANATOMY:
Robbins, Cotran: Pathologic basis of disease, 10th Ed., Elsevier
Peyton Gupta: BRS Pathology, 6th Ed., Walters Kluver

PHARMACOLOGY:
Bibliography will be suggested ad hoc during the course

Lecturers will recommend original and review articles on specific and interesting topics during the course.
CLINICAL MEDICINE II

Scientific Disciplinary Area  
BIO/14  
MED/06  
MED/08  
MED/12  
MED/13  
MED/14  
MED/15  
MED/18  
MED/24  
MED/36

Course year and teaching semester  
Third year, second semester

Academic credits  
21 ECTS of frontal lectures  
10 ECTS of clinical practice

Teaching hours  
262.5 hours of frontal lectures  
250 hours of clinical practice

LECTURERS  
P. Pozzilli (Coordinator)  
N. Napoli  
S. Feriozzi  
R. M. Scarpa  
M. Cicala  
M. Ribolsi  
D. Sifrim  
M. Caricato  
M. Caricato  
B. Vincenzi  
S. Ramella  
C. Quattrocchi  
A. Onetti Muda  
M. Reyes-Mígica  
G. Minotti

Clinical Practice:  
S. Feriozzi  
R. Papalia  
M. Cicala  
R. D. G. Leslie  
J. Warusavitarne  
F. Pantano  
S. Ramella  
S. Angeletti

Integrated Course Aims
The integrated Clinical Medicine 2 course teaches scientific knowledge alongside clinical training with the aim to learn material by topic rather than by discipline, i.e. by studying the endocrine system the student will learn pathogenesis, diagnostics tools, pharmacology, pathology, oncology, surgery, all relevant topics to that specific system. Problem-based and case-based learning do represent the core of teaching mode. The
course offers clinical exposure while still giving the supportive structure of teaching delivered in the form of lectures and seminars.

Teaching science in the context of clinical examples making connections among concepts through integrated presentation of material represents the means for increasing deeper understanding and long-term retention. By comparing clinical examples students can identify the features of basic science concepts to elaborate on that knowledge when progressing into clinical activities. Multidisciplinary, interdisciplinary and transdisciplinary interactions allow students to learn CM2 in a fully comprehensive fashion.

Learning Outcomes

Knowledge and understanding
Students must achieve an adequate comprehension and knowledge of the disease processes affecting different subjects including Nephrology, Urology, Gastroenterology, Digestive surgery, Endocrinology, Oncology, Haematology, Oncological, digestive, endocrine and metabolic surgery, Medical imaging, Radiotherapy, Morbid anatomy, and Pharmacology.

Students must learn and understand how different disease topics may relate with each other. The relevance of an integrated approach to patients, affected by diseases of organs belonging to the system under study, from disease presentation to diagnostic procedure, medical and or surgical treatment alongside with different histopathological features leads to a broad comprehension favouring a wide overview of the clinical issue.

Applying knowledge and understanding
At the end of the course, students are expected to be able to diagnose diseases under study, to recognize different clinical pictures and to select the most appropriate treatment (medical and/or surgical) according to disease stage and progression.

Making judgments
Students will be prompted to develop their judgment skills by attending both interactive lectures and by being constantly stimulated to reason and to always hold a comprehensive and critical view of the patient’s disease. This can be facilitated by attending both in-patient wards and out-patient clinics. To this end, not only will the students actively participate in the lectures and in the clinical activities, but the topics to be covered will also be introduced by pushing the students with challenging integrated questions and through periodic interactive seminars.

Communication skills
The students are expected to develop a specific and precise scientific terminology, which is critical for an adequate understanding of the complex interaction between different systems. To achieve this, the class is aimed at making communication skills learned, rather than taught. This approach is facilitated by direct contact with patients.

Learning skills
Students will learn to critically understand a disease process by combining knowledge acquired during lectures and direct contact with the patient. They will also learn to solve problems occurring with patients, both when admitted to the wards or when followed-up in out-patient clinics. They will learn different strategies required to treat a patient after diagnosis, how the patient should be followed-up and how to apply evidence-based guidelines to the treatment of the diagnosed disease. They will also learn how to interpret the different strategies which can be considered for patient treatment and to make a personalised therapy according to disease stage and progression. Finally, students will learn how to take a scientific approach to medical problems and how to communicate effectively scientific knowledge in the specific subjects.
Course Contents

NEPHROLOGY: Introduction to nephrology; diagnosis in nephrology; assessment of renal function; nephrotic syndrome; rapidly progressive renal failure; glomerulonephritis; acute kidney injury; vascular diseases; infectious diseases; cystic diseases; hereditary nephritis; nephrolithiasis; tubular disorders; diabetic nephropathy; lupus nephritis; renal involvement in rheumatic diseases, kidney involvement in haematologic pathologies; arterial hypertension and renal disease: non-immunologic mechanisms of the progression of renal diseases, chronic renal failure: laboratory and clinical features, renal replacement therapy: haemodialysis and peritoneal dialysis. Renal transplantation.

Knowledge of the classification, epidemiology and clinical approach to the most relevant renal diseases; nephrotic syndrome; nephritic syndrome; rapidly progressive glomerulonephritis; urinary abnormalities; acute kidney injury; chronic kidney disease; haemodialysis and peritoneal replacement of renal function. Management of renal transplantation.

UROLOGY: Elements of Anatomy of the urogenital system; Urological semeiotics; Laboratory and instrumental diagnostics; Biomarkers as non-invasive diagnostic tools for genito-urinary cancers; Diagnostic and therapeutic manoeuvres; Hydronephrosis; Urinary tract infections (UTI); Urolithiasis; Lower urinary tract symptoms (LUTS) and benign prostatic hyperplasia (BPH); Urinary incontinence; Kidney cancer; Bladder Cancer; Upper urinary tract cancer (renal pelvis and ureter); Prostate cancer; Testicular cancer; Penile cancer; Pathology of the urethra; Genitourinary trauma; Minimally invasive surgery in Urology (Laparoscopy and Robotics).

The Urology program includes teachings of the main pathologies of urological interest. In addition to pathological anatomy, etiopathogenesis and clinical manifestations, the diagnostic process will be presented, and the characteristics and indications of the diagnostic methods will be illustrated, with particular attention to the most modern aspects and minimally invasive surgical treatment.

The course aims to prepare the student to:
- Understand the physio-pathological basis of the main urological diseases;
- Identify the characteristic elements of the various diseases, defining the main anatomical-pathological alterations and understanding the relationship between anatomical damage, functional alteration, symptoms and therapeutic strategies;
- Acquire critical awareness of the significance and limits of clinical, instrumental and laboratory investigations;
- Acquire the knowledge of urological diseases and their best surgical treatment;
- Verify and concretize during internship the theoretical information learnt.

GASTROENTEROLOGY: The course of Gastroenterology and Hepatology allows a science-based study of the physiology, cell biology, pathology and pharmacology of the gastrointestinal tract and liver in health and disease. Gene-environmental interactions, including metabolic, genetic and nutritional disorders, GUT-brain disorders, principles underlying diagnosis and therapy, with the emphasis on the science underlying imaging and neoplasia, and infective, immunological and inflammatory mechanisms as applied to the gastrointestinal tract and liver will be studied. The course aims to give a firm grounding in the scientific basis of gastroenterology and hepatology. Students will acquire a wider, more generally applicable knowledge of inflammation mechanisms, metabolism, infectious disease and pathology. After taking this course students will have a broad knowledge of the physiology of the GI tract and liver in health, and the pathophysiological mechanisms which lead to disease, an appreciation of various genetic and environmental influences on disease including nutritional science and metabolism, knowledge of the scientific principles underlying diagnostic techniques and modern therapies, familiarity with epidemiology, mechanisms and treatment of neoplasia in the GI tract and liver and an understanding of immunological, infective and inflammatory mechanisms in general and in specific GI and liver diseases.
Students will gain a practical knowledge of gastrointestinal investigation. Students will have a more general understanding of scientific method and experience in literature searches, assessment of publications and presentation of scientific reviews will be gained.

DIGESTIVE SURGERY: The course will address, in strict collaboration with the gastroenterology teachers, the surgical aspects of the inflammatory bowel diseases, the neuromuscular diseases of the esophagus and the gastroesophageal reflux disease, with special reference to indications, technique and results of surgical treatment, and to the recent advances in endoscopic treatment. Surgical treatment of Crohn disease will be described, including perianal disease, as well as indications, contraindications, adverse effects of surgery for ulcerative colitis, and quality of life after the different surgical options.

ENDOCRINOLOGY: Epidemiology, pathogenesis, diagnosis, clinical features and therapy of Endocrine and Metabolic diseases including Diabetes, Obesity, Bone diseases with specific focus on Osteoporosis, Dyslipidaemias, Hypothalamus-pituitary diseases, Thyroid diseases, Parathyroid diseases, adrenal diseases, ovary and testis diseases, Multiple Endocrine Neoplasia, Autoimmune polyendocrine diseases.

Particular attention to be given to how abnormal hormonal secretion plays a major role in body homeostasis in different pathological conditions, also as a result of systemic pharmacotherapy.

MEDICAL ONCOLOGY AND RADIATION ONCOLOGY: Risks factors that lead to cancer predisposition and genetic factors associated with the development of different types of cancers; semiotic findings (symptoms and medical signs) of the main types of cancer; main Diagnostic procedures and principles of screening for the so called “big killers”; how to interpret radiological, biochemical and pathological findings suspect for cancer; main predictive and prognostic factors for cancer; principles of treatments and main guidelines for daily clinical practice in oncology; principles of integrated approach in cancer management; principles of palliative care in cancer patients; new frontiers in cancer treatment. Target therapy, immunotherapy, and beyond; interpretation of clinical trials in cancer medicine and principles of trial designs; Communication skills for cancer care.

During training, students will join the Multidisciplinary tumour board, will participate in the hospital meetings, and attend the clinical activities in the ward and in the day hospital service

HAEMATOLOGY: Physiology of blood cells and haematological terminology; Deciding what is normal and interpreting a blood count; Anaemia and polycythaemia; The haemoglobin molecule and thalassaemia; Sickle cell disease; Abnormal white cell count; Haemostosis; Abnormalities of haemostasis; Iron deficiency; Vitamin B12 and folic acid deficiency; Blood transfusion; Haematology of systemic disease; Thrombosis, aetiology and management; Myelodysplastic syndromes/bone marrow failure; Risk factors predisposing to cancer, together with genetic factors associated with the development of haematological malignancies; Clinical presentation of haematological malignancies; Main diagnostic procedures and principles of screening for the “big killers; Main predictive and prognostic factors in haematological diseases; How to interpret radiological, biochemical and anatomopathological findings specific to each haematological neoplasm; Lymphoma and chronic lymphocytic and leukaemia; Chronic myeloid leukaemia and myeloproliferative disorders; Multiple myeloma and related conditions; Bone marrow transplantation.

ONCOLOGICAL, DIGESTIVE, ENDOCRINOLOGY AND METABOLIC SURGERY: The course will address the most frequent oncologic diseases of the bowel and digestive organs, including liver and exocrine pancreas, with special interest on the early detection, diagnosis and surgical treatment. It will focus on the recent advancements of minimally invasive treatments and techniques of organ preservation. Surgical treatment of thyroid diseases, of endocrine pancreas and of adrenal diseases will be taught. The indication, techniques and results of surgical treatment of morbid obesity will be extensively described, paying special attention to the current knowledge on the metabolic effects of most frequents surgical techniques. The recent advancements of the endoscopic techniques will be described, analysing the available results.
MEDICAL IMAGING: The course of medical imaging is intended to foster reasoning and cognitive skills in the process of differential diagnosis of diseases based on images obtained by means of ultrasound, conventional X-ray, Computed Tomography, Magnetic Resonance and Nuclear Medicine techniques.

Problem identification begins with a complete history and physical examination. From the information thus obtained, it is possible to select appropriate imaging procedures that may assist in establishing a diagnosis.

The course will guide the students throughout the challenges of problem-solving with imaging in clinical practice with highlights on image interpretation errors and image artefacts as well as workflow requirements oriented to minimize “finding misses” (false negatives) or “overdiagnosis” (false positives).

During the course, discussion on imaging findings will allow introduction to basic radiologic terminology, anatomy and physics used in medical imaging.

Image-guided diagnostic and therapeutic procedures will be theoretically described along with specific indications and technical challenges. Clinical training in the units of diagnostic imaging and interventional radiology will allow the students to verify the acquired knowledge in “real life” scenarios.


PHARMACOLOGY: The course will be structured in entry seminars on drugs or classes of drugs briefly highlighted in parallel courses of Nephrology, Urology, Endocrinology, Digestive Diseases, Oncology and Hematology. Focus seminars will then follow to deepen knowledge of clinically oriented mechanisms of action, main toxicities, overall risk:benefit of each drug or classes of drugs.

LABORATORY MEDICINE: Pre-analytical, analytical and post-analytical variability. Conditions that may alter the results of laboratory tests; different sampling options. Correct application of techniques for sampling and collection of biological materials (blood, urine, other). Technique of diagnostic venous sampling. Technique of blood culture in different clinical situations (timing, etc.).

Quality control and principles on which it is based. How to improve sources of variability. General principles of the most common techniques in use in laboratories. The concept of normality in biology and risk functions (normal values on a statistical basis, normal values on a biological basis, desirable values and risk functions, decision values that can be used for diagnostic or therapeutic purposes). Critical evaluation of a report (reference intervals, sensitivity and specificity of a test, predictive value, critical difference). Remembering the reference values of common routine analyses: blood tests, urine tests, etc. Interpretation of enzymatic and isoenzymatic measurements as a diagnostic tool in specific and organ diseases. Interpretation of complete urine tests for diagnostic purposes. Investigations for the control of pregnancy. Orientation on the choice and meaning of the main diagnostic tests in the most common endocrine pathologies. Interpretation of the results of the main haematological investigations in the diagnostic address of anaemias, coagulopathies and monitoring of anticoagulant therapies. Interpretation of CSF examination results. Selection, in the presence of pathologies, of the serological and microbiological investigations indicated by the specific circumstances. Interpretation of serological and microbiological test results for subsequent clinical decisions.
Teaching Methodology
The aims of the course will be achieved by an integration of the different topics taught by means of lectures and problem-case based learning approach, video projections, and interactive learning. This teaching methodology will combine clinical observation together with two/three weeks of full day formal lectures. Students will be continuously stimulated and not be treated as passive learners but called to actively interact in the lectures. The class will be closely integrated with the topics described above, highlighting the interconnection between different organs in disease expression. Multidisciplinary seminars will also be organized by experts, during which specific topics are discussed in-depth.

Learning Assessment Methodology
The final exam will take place on completion of the class, in accordance with the sessions scheduled in the academic calendar. For this course, knowledge acquired and the ability to put in practice each of the topics taught will be evaluated with a written test. Only students who pass all 5 multi-choice written tests will be admitted to the oral exam. The written exam will involve open questions, exercises, and multiple-choice questions. Students who pass the written exam will undergo an oral interview consisting in a clinical case presentation related to diseases covered in CM2. Students need to demonstrate adequate levels of whole-round understanding of all topics covered in the course alongside with suitable communication and judgement skills.
Subjects involved in the written tests:
- Nephrology, Urology, Endocrinology
- Gastroenterology, Haematology, Oncology, Oncological, digestive, endocrine and metabolic surgery
- Medical imaging, Radiotherapy
- Morbid anatomy
- Pharmacology

Preparatory examinations or preliminary knowledge required
To follow the course and make a profit from the proposed program, students should have a solid background in basic human anatomy and physiology, general pathology, and semiotics. Furthermore, students wishing to enrol in the course should possess the knowledge and critical understanding of biology, chemistry, physics, and mathematics and the integration of principles across the preclinical sciences.
Preparatory examination: Fundamentals of Basic Science V
Fundamentals of Medicine IV

Suggested Textbooks

NEPHROLOGY:
Floege,Johnson,Feheally: Comprehensive clinical nephrology 6th Edition; 2019

UROLOGY:
Urology, Francesco Porpiglia and Cristian Fiori (Edizioni Minerva Medica);
Campbell-Walsh-Wein Urology;
John Blandy, Amir Kaisary Lecture Notes: Urology;

GASTROENTEROLOGY:
Harrison’s Principles of Internal Medicine, Twentieth Edition (Vol.1 & Vol.2) 20th Edition
DIGESTIVE SURGERY:
Sabiston Textbook of Surgery latest Edition. During the course selected recent literature and international guidelines will be provided to the students.

ENDOCRINOLOGY:
Greenspan’s Basic and Clinical Endocrinology, Tenth Edition (A & L LANGE SERIES) 2017
Williams Textbook of Endocrinology by Shlomo Melmed MBChB MACP, Ronald Koenig, et al. | 2 Jan 2020
Pozzilli P et al, Handbook of Endocrinology & Diabetes, 2022 in press*
*Italian edition:
Paolo Pozzilli, L’Endocrinologia del Campus Bio-Medico, Minerva Medica, 2020

ONCOLOGY:
Abeloff’s Clinical Oncology, 6th Edition – Elsevier, 2019
Publications suggested by the Professors

HAEMATOLOGY:

ONCOLOGICAL, DIGESTIVE, ENDOCRINOLOGY AND METABOLIC SURGERY:
Sabiston Textbook of Surgery latest Edition. During the course selected recent literature and international guidelines will be provided to the students
Schein’s Common Sense Emergency Abdominal Surgery 5th Edition - TFM Publishing; 5th edition (September 1, 2020) by Dr Danny Rosin, Dr Paul N. Rogers, Dr Mark Cheetham, Professor Moshe Schein

MEDICAL IMAGING:
Core Radiology: A visual approach to Diagnostic Imaging. 1st Edition - Authors: Jacob Mandell. Publisher: Cambridge University Press – ISBN-13978-1107679689

MORBID ANATOMY:
Robbins, Cotran: Pathologic basis of disease, 10th Ed., Elsevier
Peyton Gupta: BRS Pathology, 6th Ed., Walters Kluver

PHARMACOLOGY:
Bibliography will be suggested ad hoc during the course

LABORATORY MEDICINE: