Student Handbook
2020/2021
Faculty of Medicine and Surgery
Master’s Degree Programme in
Medicine and Surgery
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**Master’s Degree Programme in Medicine and Surgery**

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Dear Students,

In presenting this Guide, I want to send you my best wishes for the 2020/2021 academic year. May it be peaceful and productive and may all your goals be achieved!

In this Guide you will find the educational offer of the Degree Courses of the Departmental Faculty 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, 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 maintain the highest educational standards despite the practical and logistical difficulties caused by the ongoing COVID-19 pandemic. We are living in a period of uncertainty in which the pandemic is affecting all aspects of our daily lives. But with a sense of responsibility and cohesion, we can adapt and even flourish despite the demanding circumstances.

To this end, the Governing Bodies of our University have initiated a number of changes to the learning environment to guarantee the safety of students and teachers. An active surveillance system has been introduced to identify early infections. Use of internal space has been rationalized and new classrooms have been created to allow in-person teaching to occur with necessary social distancing. Teaching timetables have been revised to distribute classes over 6 days and reduce daily contact hours by 50%; teaching sessions and restaurant opening will have staggered start/end timings to facilitate social distancing. Personal protective equipment has been distributed free of charge since the start of the academic year, and a campaign for free serological tests has been initiated.

A priority is to ensure continuity of professional traineeships in the departments of the Polyclinic. Careful scheduling and rotation of student’s shifts has already begun and these will be supplemented with other measures that may become necessary due to the pandemic. Strategies are in place to allow in-person teaching, with a small number of distance learning sessions. Should critical conditions arise that impose more restrictive measures, distance learning may have to be increased.

Our experience in the last semester of the previous academic year has given us great confidence in the experience offered by online teaching, which has been reflected both in the teachers’ exam assessments, and, above all, by the high level of satisfaction expressed by students.

The use of telemedicine is expected to grow significantly in the coming years and has been accelerated in recent months by the current pandemic. These approaches have proved particularly useful for patients at higher risk, such as the elderly and those with
chronic disease, who have been treated successfully at a distance even in the lockdown period, with no risk of infection. Our teaching courses recognize the implications of these developments as demonstrated by the large number of degree thesis submitted on telemedicine in the previous year. The high level of these theses, some of which have been published, is a measure of how well our graduates are ready to use their global skills to find new solutions to apply their professional expertise, and address health issues that have placed so many lives at risk.

Now, more than ever, has been a time for deep reflection on the high social value of the Health Professions. The founding values of our University are as current as ever: they emphasize the centrality of the Person. Our goal is to provide the student not only with a professional education but also to develop deep personal growth.

Our present circumstances have placed burdens and hope on health professionals. They are expected to provide best available care as well as innovative therapies developed through research. These expectations should fuel your thirst for knowledge and your enthusiasm to learn and achieve excellence at the end of your training.

We are here with you to share this goal and to give you all our support!

The Dean
Prof. Vincenzo Di Lazzaro
University structure and student services
TEACHING METHOD

ACADEMIC INNOVATION

Campus Bio-Medico University of Rome’s teaching project, managed by the Departmental Faculty 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 enables 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.

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 enrollees, 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 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 Departmental Faculty of Medicine and Surgery Courses, the Courses of the Departmental Faculty of Science and Technology for Mankind and the Environment and of the Departmental Faculty 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
Paolo Sormani  University Hospital Director General
Lorenzo Sommella  Chief Medical Officer
Andrea Rossi  University Director General
Marta Risari  Deputy Director General and Director of Patient Care Management
Daniela Tartaglini  Medical Professions Welfare Manager
Rossana Alloni  Clinical Manager
Vincenzo Di Lazzaro  Dean of the Departmental Faculty of Medicine and Surgery
ACADEMIC BODIES

RECTOR
Raffaele Calabrò

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

DEPARTMENTAL FACULTY OF MEDICINE AND SURGERY EXECUTIVE BOARD
Vincenzo Di Lazzaro  Dean
Sergio Morini  Deputy Dean
Umile Giuseppe Longo  Research Coordinator
Bruno Vincenzi  President of the single cycle Master’s Degree Programme in Medicina e Chirurgia
Maria Grazia De Marinis  President of the Bachelor’s Degree Course in Nursing
Sara Ramella  President of the Bachelor’s Degree Course in Medical Imaging Radiology and Radiotherapy Techniques
Silvia Sterzi  President of the Bachelor’s Degree Course in Physiotherapy
Paolo Pozzilli  President of the Master’s Degree Programme in Medicine and Surgery
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

PRESIDENT OF THE MASTER’S DEGREE PROGRAMME IN MEDICINE AND SURGERY
Paolo Pozzilli
Office: PRABB, Campus Bio-Medico University of Rome
☎ 06.22541.9160 Email: p.pozzilli@unicampus.it
Office hours: by appointment, via email
ACADEMIC SERVICES ORGANISATION

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

OFFICES

DEAN'S SECRETARY OFFICE OF THE DEPARTMENTAL FACULTY OF MEDICINE AND SURGERY
Location: PRABB – Campus Bio-Medico University of Rome, 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 – Campus Bio-Medico University of Rome, floor 0
Contact person: Flavia Daniele
Tel.: 06.22541.9281
Email: f.daniele@unicampus.it
Office hours: Mondays to Fridays, 10:00am-12:30pm
STUDENT SERVICES OFFICE
Checks the curricular process of the enrolled students, providing forms, certificates and documents relating to enrolments, exams, transfers, and student withdrawals.

**Location**
PRABB – Campus Bio-Medico University of Rome, floor 0

**Contact persons**
- Enrica Amadio Zennaro tel. 06.22541.9044
- Veronique Buyckx tel. 06.22541.9047
- Fabio Capecchi tel. 06.22541.9043
- Antonio Di Bartolomeis tel. 06.22541.9042
- Elena Varasi Cornell tel. 06.22541.9074

**Email**
segreteriastudenti@unicampus.it

Office hours are published on the 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 – Campus Bio-Medico University of Rome, floor 0

**Contact persons**
- Carmine Piscopo tel. 06.22541.9048
- Emiliano Cassiani tel. 06 22541.9049

**Email**
segreteriaspecializzazioni@unicampus.it
RIGHT TO STUDY AND UNIVERSITY LIFE

The “Right to Study” 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);
- sports activities and concessions.

**Location**
PRABB – Campus Bio-Medico University of Rome, floor 0

**Contact persons**
Anna Maria Tarquilio  
(Head)  
tel. 06 22541.9040

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

SCHOLARSHIPS AND FINANCIAL CONTRIBUTIONS

The “Right to Study” 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 “Right to Study” 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

The “Right to Study” Office helps those students who are seeking lodgings to find the best solution based on their needs. The office is available to provide information on:

- availability of housing in the vicinity of the campus;
- 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).
An appointment for an interview can be requested by sending an email 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: PRABB – Campus Bio-Medico University of Rome, floor 0  
Contact Persons: Sidita Kasemi tel. 06.22541.8124  
Paolo Stampatore tel. 06 22541.8887

Email: relazioni.internazionali@unicampus.it

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

The Erasmus Plus programme  
UCBM participates in the EU Programme in the fields of education, training, youth and sport for the period 2021-2027. The Erasmus Plus 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 Plus Programme also allows to carry out traineeship activities, thus enriching one's training curriculum through a professional experience abroad. The traineeship can be carried out in either companies or universities.

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 20,000 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 Library services on offer include consultation of texts, volumes and encyclopaedias, and their the loan, bibliographic assistance, document delivery and photocopying facilities for students.

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
- Reading room facilities
- Reference Services
- Bibliometric Service
- Document Delivery Service
- Photocopying facilities
- Institutional database update service

**Location** TRAPEZIO – Campus Bio-Medico University of Rome, floor 0

**Contact persons**
- Maria Dora Morgante (Chief Librarian) tel. 06.22541.9050
- Maria Crapulli tel. 06-22541.9051
- Emiliano Iannotta tel. 06-225418060
- Simona Rossi tel. 06-225419052

**Email** biblioteca@unicampus.it

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

Extended opening hours during exams periods.
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 – Campus Bio-Medico University of Rome, floor 0

**Contact persons**
- Roberto Di Nucci  tel. 06 22541.8715
- Francesco Arca  tel. 06.22541.9056

**Email**
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 the 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.;
- acquiring and processing the proper attitudes and behaviours in relation to the chosen profession (collaboration, cooperation, etc.)
- providing orientation in the choice of the future professional field of application.
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.

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<tr>
<th>Location</th>
<th>PRABB – Campus Bio-Medico University of Rome, ground floor</th>
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<tbody>
<tr>
<td>Contact Person</td>
<td>Daniele Mascolo     tel. 06.22541.9641</td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:tutoratoMED@unicampus.it">tutoratoMED@unicampus.it</a></td>
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<tr>
<td></td>
<td><a href="mailto:tutoratoTRR@unicampus.it">tutoratoTRR@unicampus.it</a></td>
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<td><a href="mailto:tutoratoINF@unicampus.it">tutoratoINF@unicampus.it</a></td>
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<td></td>
<td><a href="mailto:tutoratoFISIO@unicampus.it">tutoratoFISIO@unicampus.it</a></td>
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<tr>
<td>Office hours</td>
<td>Mondays and Wednesdays 10:00 am-01:00pm</td>
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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 processing of the professional plan
- Personalised 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 – Campus Bio-Medico University of Rome, floor 0

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

Email
careerservice@unicampus.it

Office hours
Mondays to Fridays, 09:30am-01:00pm and 03:00pm-05:00pm (by appointment)
STUDENT SERVICES

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.

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 - c/o “Right to Study” Office
Contact person: Viviana D’Alaimo  tel. 06.22541.1630
Email: campusport@unicampus.it

Office hours: Tuesdays and Thursdays, 02:00pm-04:00pm

CULTURAL ACTIVITIES
The cultural activities promoted by Campus Bio-Medico University of Rome complement the technical-scientific training in order to enrich it with artistic-cultural content. Among the initiatives are guided visits to locations of artistic, historic, and cultural interest within Rome and its surroundings and theatrical and musical shows.

Location: PRABB – Campus Bio-Medico University of Rome, floor 1
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) in the Tutoring room, located in the classroom area of the University Hospital.

Requests can be made by phone (+39062254-1084), 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 – Campus Bio-Medico University, floor 1

**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 – Campus Bio-Medico University of Rome, floor 0

Contact persons
Don Robin Weatherill  tel. 06.22541.9035
Don Luca Fantini  tel. 0622541.8110
Don Victor Tambone  tel. 06 22541.9033

Email  
r.weatherill@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.
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)

Contact persons
Valeria Cittadini  Master’s Degree Programme in Medicine and Surgery – tel. 06.22541.1061
Flavia Claudia Daniele  Master’s Degree Programme in Medicine and Surgery – tel. 06.22541.9281
Federica Di Giovanni  Bachelor’s Degree Course in Nursing – tel. 22541.1051
Sonia Recupido  Bachelor’s Degree Course in Medical Imaging Radiology and Radiotherapy Techniques – tel. 06225418181
Sonia Recupido  Bachelor’s Degree Course in Physiotherapy – tel. 06.22541.9145

Health monitoring service

Contact persons  Giuliana Tassone Ilaria Vella  tel. 06.22541.1296
Email  SorveglianzaMedica@unicampus.it
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
M&S
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 Faculty of Medicine and Surgery Board 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.

1) 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.

2) 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.

3) 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.

4) 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.

5) 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.

6) 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.
7) 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).

8) Great care is given to the acquisition of practical abilities (technical skills) through:
   a. 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)
   b. 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.
   c. 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.
   d. 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.

9) 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.

10) 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.

11) 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:

- a) lectures;
- b) tutored learning activities carried out in labs, wards, surgeries, and day hospitals;
- c) seminars;
- d) time dedicated by students to the other learning activities required by the Syllabus;
- e) 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 Board of the Departmental Faculty 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 Board of the Departmental Faculty 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 Board of the Departmental Faculty 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 Departmental Faculty of Medicine and Surgery. Any other activities must be pre-emptively authorised by the Board of the Departmental Faculty 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:

a) 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 MDPIM&S lecturers and researchers are obliged to make themselves available to take on the role of personal Tutor.

b) 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.

c) 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 MDPIM&S 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 Board of the Departmental Faculty 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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## ACADEMIC CALENDAR

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<th>SEMESTER</th>
<th>TEACHING ACTIVITY</th>
<th>EXAM SESSION</th>
<th>TEACHING ACTIVITY BREAKS</th>
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<td>From 8 January 2021 To 5 March 2021</td>
<td><strong>Christmas break</strong> From 21 December 2020 To 7 January 2021</td>
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<td>From 3 June 2021 To 30 July 2021</td>
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Note: opening and closing dates are to be considered as part of the periods.

For the A.Y. 2020-2021, teaching activities are suspended for the following festivities:

- All Saints Day: 1 November 2020
- Immaculate Conception Day: 8 December 2020
- Saint Joseph’s Day: 19 March 2021
- Liberation Day: 25 April 2021
- Labour Day: 1 May 2021
- Republic Day: 2 June 2021
- Saint Josemaría Escrivà de Balaguer’s Day: 26 June 2021
- Saints Peter and Paul’s Day: 29 June 2021
## COORDINATORS OF THE INTEGRATED COURSES: CONTACTS, OFFICE HOURS, AND OFFICE LOCATIONS

**A. Leuti**  
*Location: PRABB, Bio-Medical Campus University*  
*Email: v.churchiù@unicampus.it*  
*Office hours: by email appointment*

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

**Giorgio Vivacqua**  
*Location: PRABB, Bio-Medical Campus University*  
*Email: g.vivacqua@unicampus.it*  
*Office hours: by email appointment*

**Marcello D'Amelio**  
*Location: PRABB, Bio-Medical Campus University*  
*Email: m.damelio@unicampus.it*  
*Office hours: by email appointment*

**Massimo Ciccozzi**  
*Location: PRABB, Bio-Medical Campus University*  
*Email: m.ciccozzi@unicampus.it*  
*Office hours: by email appointment*

**Giovanni Gherardi**  
*Location: POLICLINICO, Bio-Medical Campus University*  
*Email: g.gherardi@unicampus.it*  
*Office hours: by email appointment*

**Silvia Angeletti**  
*Location: POLICLINICO, Bio-Medical Campus University*  
*Email: s.angeletti@unicampus.it*  
*Office hours: by email appointment*
FUNDAMENTALS OF BASIC SCIENCE I
14 CFU

LECTURERS:

<table>
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<tr>
<th>Name</th>
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<tr>
<td>Alessandro Leuti</td>
<td>Chemistry (coordinator)</td>
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<tr>
<td>D. Bini</td>
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<td>A. Loppini</td>
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<td>S. Marini</td>
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<td>Ch. Ciaccio</td>
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<td>M. Fransen</td>
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<td>P. Amaral</td>
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Class Aims

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, and how it 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.

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 class will be closely integrated with the biochemistry and physiology ones to further highlight the interconnection between the structure of the molecules and their role in the metabolism and the functions of organs. Multidisciplinary seminars will also be organized by experts, during which specific topics will be 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 class, the knowledge acquired and the ability to apply it will be verified through both a written and oral exam. The written exam will involve open questions, exercises, and multiple-choice questions. Those students who will pass the written exam 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.

COURSE CONTENTS
PHYSICS

Selected Topics in Modern Physics:
An introduction to Special Relativity: basic principles. An introduction to Quantum Physics: basic principles. The photoelectric and Compton effects. The Wave properties of particles and Schrödinger’s equation. An introduction to the nuclear structure and to the basic properties of nuclei: radioactivity. An introduction to Particle Physics: the fundamental forces in nature.

Suggested textbooks:

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

CHEMISTRY


Suggested textbooks:
• Chemistry by Zumdahl SS and Zumdahl SA, Brooks/Cole eds.

BIOLOGY


Suggested textbooks
• Strachan, T and Read, A. P. Human Molecular Genetics, Garland Science,
FUNDAMENTALS OF MEDICINE I
6 CFU

LECTURERS:  L. Borghi  History of Medicine (coordinator)
R.D.G. Leslie  History of Medicine
G. Ghilardi  Anthropology and Ethics
B. Barcaccia  Communication Skills

Class aims
The integrated course “Fundamentals of Medicine 1” aims to provide students with some essential tools from the humanities (philosophy, history and communication) which are today critical for the education of professionals who cannot rely on the hyper-specialized and reductionist approach to biomedical knowledge anymore. William Osler 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.

Teaching Methodology
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 student will be examined in three short oral talks with the professors of each part of the course. Part of the final grading will be attributed based on the results obtained with the work-group presentations (history of medicine) and other intermediate tests.

COURSE CONTENTS
ANTHROPOLOGY

Suggested textbooks

ETHICS

**Suggested textbooks**

- V. Tambone, G. Ghilardi, *Philosophy and Deontology of Medical Practice, Ethics of the work well done in bio-medical sciences*, SEU, Roma 2020

**HISTORY OF MEDICINE**

**From the origins to the Nineteenth Century**


**Suggested textbooks**


**COMMUNICATION SKILLS**


**Suggested textbooks**

FUNDAMENTALS OF BASIC SCIENCE II
17 CFU

LECTURERS:

- **G. Vivacqua**  *Human Anatomy (coordinator)*
- **S. Morini**  *Human Anatomy I*
- **T. Wilkinson**  *Human Anatomy I*
- **L. Calo**  *Biology*
- **A. Nissim**  *Biology*
- **C. Watson**  *Biology*
- **G. Contino**  *Biology*
- **G. Vivacqua**  *Histology*
- **M. Falchi**  *Histology*
- **D. Romaniello**  *Embryology*

Class aims

Students have to achieve an adequate knowledge of the organization of the cell, being able to connect cell structure with molecular biology and cellular function and highlighting cells’ differentiation and specialization, as fundamental concept to understand the organization of the tissues and the development of the body. Thereafter, they have to start their systematic study of human anatomy, acquiring the bases of anatomical terminology and understanding the general organization and the topographical anatomy of the principal body regions. Finally, they have to know the morphological organization of the locomotor apparatus and the close interconnections with movements and kinematics.

At the end of the course, students should be able to describe the structural and functional organization of the cell, the tissues, the body regions and the locomotor apparatus.

In detail, they should be able to:

- 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).
- describe molecular and cellular bases of gametogenesis and fertilization as well as early embryological development. describe the functional organization of different body tissue, understanding their integration in the constitution of the different organs and being able to perform the diagnosis and the analysis of different tissues under the microscope.
- recognize anatomical specimens and being able to describe the different body regions and the morphology of bones, joints and muscles, understanding the morphi-functional basis of movements and kinematic.

Finally, they have to apply their biological, histological and anatomical knowledge to clinical problem solving and biomedical innovation, building a scientific and critical approach to their future medical practice.

Knowledge and understanding

Students have to achieve an adequate knowledge of the organization of the cell, being able to connect cell structure with molecular biology and cellular function and highlighting cells’ differentiation and specialization, as fundamental concept to understand the organization of the tissues and the development of the body. They have to know the molecular mechanism of life from genome organization, to gene expression and
biosynthesis of functional proteins. They have to understand the functional and the structural organization of the different cellular subtypes, as well as the functional organization of the principal body tissues and the molecular and cellular mechanisms underlying gametogenesis, fertilization and embryological development. Thereafter, they have to start their systematic study of human anatomy, acquiring the bases of anatomical terminology and understanding the general organization and the topographical anatomy of the principal body regions. Finally, they have to know the morphological organization of the locomotor apparatus and the close interconnections with movements and kinematics. The principal aims of the course will be highlight the close relation between molecular biology and the importance of histological and anatomical knowledge to critically resolve clinical problems and to interpret the wide array of diagnostic imaging and laboratory tests.

**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. 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 propaedeutic basis for evidence-based medicine.

Starting from cell’s differentiation and specialization, students should be able to describe molecular and cellular bases of gametogenesis and fertilization as well as early embryological development. They should be able to describe the functional organization of different body tissue, understanding their integration 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 kinematic.

Consequently, they must start to apply their biological, histological and anatomical knowledge to clinical problem solving and biomedical innovation, starting to have a scientific and critical approach to their future medical practice.

**Making Judgements**

Judgment skills will be stimulated through the individual and guided sorting of problems of molecular biology 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, anatomy, histology and embryology. 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 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 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 teamwork 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 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.

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 case-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 biological 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 experiments. Sessions of PBL or CBL in small groups, where students will discuss the biological 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 field of molecular biology, histology, anatomy and development will be proposed to the students, trough interactive seminars, where they will be also stimulated to search and critically review medical literature of the fields.

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 an written task for each subfield of the course.

For molecular biology it will consists in a combined written task containing multiple choice questions, data analysis question and short essays.

For histology and embryology, it will consist in open questions and short essays concerning selected topics of histology and embryology and a practical task to verify the ability of the student in performing the tissue diagnosis under the microscope.

For anatomy it will consists in a written which will require the description of anatomical specimens and the answer to open questions, including focused clinical cases related to the topic.

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 of problem and basic clinical discussion.
COURSE CONTENTS

MOLECULAR AND CELL BIOLOGY

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

DNA replication and its regulation: semiconservative and progressive replication, replicons, DNA polymerases. The basic mechanisms of DNA repair.

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.

Genes’ translation into functional proteins and their regulation. The importance of genome translation and regulation for cells’ differentiation and specialization.

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


CYTOLOGY

General organization, shapes and sizes of different cell subtypes. The concept of cells specialization and differentiation. Stem cells and pluripotent cells.


The nucleus and the nucleolus: different shape and size of nucleus in different cells’ subtypes. Chromatin and methodologies for chromatin visualization. Nuclear receptors.


HISTOLOGY

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


Nervous tissue: white matter and grey matter. The Neuron: size, shape and morphology of different neuronal subtypes. The neuronal cytoskeleton: axons, dendrites and axonal transport. Neuronal membrane and

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

EMBRYOLOGY


ANATOMY I


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


Suggested textbooks

MOLECULAR BIOLOGY


CYTOLOGY AND HISTOLOGY


EMBRYOLOGY


ANATOMY I

• Friedrich Paulsen et al. Sobotta Atlas of Human Anatomy. 15th edition. Urban & Fisher (Elsevier);
FUNDAMENTALS OF MEDICINE II
5 CFU

LECTURERS:  M. D’Amelio  Physiology and Biophysics (coordinator)
             L. Borghi  History of Medicine
             S. Mangione  History of Medicine

CLASS AIMS
Physiology is the study of how the human body works and is a core discipline area in medical sciences. It plays a central role in the biomedical sciences, integrating from the molecular and cellular levels through to the whole tissue and organs to understand whole body function.

The bringing together of History of Medicine and Physiology in an integrated course aims at offering medical students a historical viewpoint of how the physiological approach has dramatically contributed to the unprecedented progress that clinical medicine has undergone during the last hundred years.

The progressive knowledge of the physiology of the human body has 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.

Knowledge and understanding
The Physiology class, spread out over three terms, is aimed at providing students with knowledge of the functional organization of the human body.

Medical students must 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 Physiology class is aimed at providing students with the bases necessary to understand pathophysiology and predict the responses of the body to pharmacological therapies or drugs. To fully benefit from the physiology of a given system, it is necessary to first understand its anatomy; therefore, much coordination work has gone into ensuring that each topic is presented sequentially, first in the Anatomy class and then in the Physiology one.

At the end of the first term, medical students will gain a good knowledge of:

- the mechanisms by which the human organism obtains and maintains the homeostasis at the cell and tissue levels, the mechanisms of transportation and communication, and the basal metabolism;
- nerve and muscle cells, which are capable of generating rapidly changing electrochemical impulses at their membranes, which are used to transmit signals along the nerve or muscle membranes;
- the basic physics of membrane potentials.

As per History of Medicine and Healthcare, during this second part the class will focus on the dramatic developments occurring in the second half of the 19th and the first half of the 20th centuries, especially regarding therapeutics, medical specialties, healthcare organization, and medical education. The “human factor” of such changes will remain a central issue, along with the scientific and technical breakthroughs.

Applying knowledge and understanding
The students should gain the skills and expertise aimed at being able to transfer the theoretical information acquired as part of human physiology to the medical context. In particular, they should be able to: a) solve simple applied physiology problems; b) identify the most common pathological processes, and the alteration
of a physiological function; c) predict what type of intervention (pharmacological or surgical) will counter some diseases.

Students should be able to understand how the biochemical mechanisms—i.e., neurotransmitter synthesis, metabolic pathways and their control—are closely connected to physiological conditions and how their alterations may be clinically relevant.

Lastly, students should be able to functionally correlate the structure of cells (cytology), tissues (histology), and organs (anatomy) to their function in an integrated system.

Thus, upon completion of the physiology class, medical students should have acquired knowledge of the organization, structure, and normal function of the human body, with a view to maintaining good health and understanding any pathological changes.

For the History of Medicine module, by the end of the class, the students will be expected to be able to use the acquired knowledge as to properly evaluate the context of today’s medical practice with autonomous and proactive judgment, to identify, face, and prevent the critical elements that characterize the relationship of medicine with society at large, especially from the inter-professional and technological points of view.

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.

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 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 relationships between structure and function of the human body. Finally, students will learn how to take a scientific approach to problems and how to adequately communicate scientific knowledge.

Teaching Methodology

**Physiology and Biophysics:** The aims of the class will be achieved by a combined approach involving frontal lectures, practical activities, group works and case-based learning (CBL). The class will be closely integrated with that of Anatomy to further highlight the interconnection between morphology and function. Multidisciplinary seminars for selected topics will be also administered. The innovative aspects of selected topics in the field of physiology will be conveyed to the students through interactive seminars, during which they will be also encouraged to research and critically review the medical literature of the field.

**History of Medicine:** The teaching methods are intended to promote classroom engagement and cooperation. Both the interactive lectures and group activities imply the active involvement of students. At the end of each of the six sessions (lecture + reflection) guided by Professor Mangione (topics 3-12), each student will be asked to prepare a short essay of about 500 words with her/his personal reflections on the topic. A significant part of the class will be dedicated to group work. The students will be organised in small groups three/four strong. Each group will have to choose a topic in the history of medicine or other health-related subject and agree upon it with Professor Borghi. Then, each group will prepare an oral presentation of about 15’ (+5’ of discussion) and present it to the class according to an agenda. Each group presentation will be evaluated in relation to a list of pre-defined subjects by the other students (35% of the final score) and by the professor (65% of the final score).
Learning Assessment Methodology
At the end of the course, students will be evaluated through a written exam including:
a) a multiple-choice test pertaining to all the subjects presented during the physiology lectures
b) problems of applied physiology, including focused clinical cases related to the topic
c) oral talk related to the History of Medicine

COURSE CONTENTS

PHYSIOLOGY AND BIOPHYSICS
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 electrophysiology of the cell membrane (biophysics)
The ionic basis of membrane potentials; the electrical model of the cell membrane; the molecular physiology of ion channels.
Electrical excitability and action potentials (biophysics)
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.
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.

Suggested textbooks
• Guyton and Hall Textbook of Medical Physiology 13st Edition. Elsevier;
• Boron and Boulpaep Medical Physiology 3th Edition. Elsevier;
• Bear et al., Neuroscience, Exploring the brain 3th Edition. Lippincott Williams & Wilkins;
HISTORY OF MEDICINE

Prof. Borghi: Charles West and the invention of paediatrics; William Osler and the take-off of American Medicine; The history of malaria; The history of cardiac surgery; Brain and Mind: the history of a troublesome relationship (I); Brain and Mind: the history of a troublesome relationship (II); The birth of modern therapeutics (Ehrlich, Domagk, and Fleming); “Medical material memories”. The Himetop project, and how you can collaborate with it; Group work.

Prof. Mangione: Lecture: The (Lost) Archetypes of Medicine; Reflection: what kind of Doctor do you want to become? Lecture: Hemingway in Italy and Osler in Flanders. Lessons from WWI; Reflection: why is war such a catalyst for medical discoveries? Lecture: Taussig, Thomas, and Blalock. How a Dyslexic and Legally Deaf Jewish Woman, a Black Technician, and a White Southern Gentleman Defeated Fallot but Only One Person Got the Credit; Reflection: does medicine still discriminate?; Lecture: knowledge vs. certainty - Lessons from the Holocaust and Nazi Medicine; Reflection: why is tolerance for ambiguity important? What can you do to prevent future evils? Lecture: turning points in history: when disease hits leaders; Reflection: what are the physician’s responsibilities?

Suggested textbooks

- Sherwin B. Nuland, Doctors. The Illustrated History of Medical Pioneers, Black Dog & Leventhal, New York 2008
- Luca Borghi, “Sense of Humors. The Human Factor in the History of Medicine” (Rome 2021: first draft)
EPIDEMIOLOGY & BIOSTATISTICS AND MEDICAL HUMANITIES
11 CFU

LECTURERS:  M. Ciccozzi  Medical Statistics (coordinator)
            V. Tambone  Medical Humanities
            A. Agazzi  Medical Humanities
            D. Boudreau  Medical Humanities
            N. Di Stefano  Medical Humanities
            L. Campanozzi  Medical Humanities
            D. Black  Tools of evidence-based medicine
            A. Schwartz  Computational biology and computer science
            D. Black  Medical Statistics
            A. Schwartz  Medical Statistics

CLASS AIMS
The Epidemiology and Biostatistics course has three broad aims:

• To introduce students to key principles and methods of biostatistics and epidemiology (Basic and Molecular) that are important for the interpretation and assessment of published studies. While students consult the literature, they should be able to interpret graphs or tables describing patient outcomes or characteristics and make judgments about the associated probabilities.

• To understand how biological and random variability are measured; to promote an understanding of the principles underlying the application of the standard statistical 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 phylogenetics and molecular evolution.

The Medical Humanities course has four broad aims, defined below. Several objectives are identified for each of these aims:

• To introduce students to key principles and methods of Medical Humanities that are important for the interpretation and assessment of published studies.

• To introduce students to the concept of rationality in clinical reasoning.

• To introduce students to key principles and methods of Humanities that are important for the development of judgement abilities in the ethical field and in Social Humanities.

• To introduce students to the importance of the arts in medical training

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; Study designs: cross-sectional,
cohort, case-control; Sources of bias in studies: measurement error, confounding; Understanding screening and diagnostic tests, including cancer screening; Randomized clinical trials; Surveillance epidemiology and outbreak investigation; 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.

Regarding Medical Humanities class, students must gain an adequate knowledge of the following topics:
The concept of Medical Humanities: passive and active Humanism; the political role of medicine; the responsibility of truth in medicine; freedom and judgment in medicine; the relation with evidence; happiness and quality of life; falling in love in medicine and patient; the ethics of the work well done; the nature of the medical mandate; the healing in medicine; wisdom and phronesis in medicine; rationality and clinical reasoning; the attentive listening; philosophical aesthetics and evolutionary aesthetics; aesthetics and neuroscience, and the neuroaesthetics; the concept of beauty and medicine; literature, art and medicine.

Application of knowledge and understanding
At the end of Biostatistics and Epidemiology curriculum, students must be able to knowledge and describe the following topics: basic statistic to resolve epidemiological problems, epidemiology to design research studies and molecular epidemiology to face epidemic by the microorganism point of view using mathematical and static models.
At the end of Medical Humanities class, students must be able to knowledge and describe:
1) key principles and methods of Medical Humanities; 2) to understand and be able to apply the concept of rationality in clinical reasoning; 3) to acquire critical judgement abilities in the ethical field and in Social Humanities; 4) to understand the importance of the arts in medical training.

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.

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.

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. Homework will be assigned and reviewed in small group sessions. 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.
COURSE CONTENTS

BIOSTATISTICS AND EPIDEMIOLOGY
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; Study designs: cross-sectional, cohort, case-control; Sources of bias in studies: measurement error, confounding; Understanding screening and diagnostic tests, including cancer screening; Randomized clinical trials; Surveillance epidemiology and outbreak investigation; 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.

MEDICAL HUMANITIES
The concept of Medical Humanities: passive and active Humanism; the political role of medicine; the responsibility of truth in medicine; freedom and judgment in medicine: the relation with evidence; happiness and quality of life; falling in love in medicine and patient; the ethics of the work well done; the nature of the medical mandate; the healing in medicine; wisdom and phronesis in medicine; rationality and clinical reasoning; the attentive listening; philosophical aesthetics and evolutionary aesthetics; aesthetics and neuroscience, and the neuroaesthetics; the concept of beauty and medicine; literature, art and medicine.

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.

MEDICAL HUMANITIES

Suggestions for recommended reading will be also provided.
ENGLISH LANGUAGE I
4 CFU

LECTURERS: A.J. Martin
             English Language
            C.L.A.
             Centro Linguistico di Ateneo

CLASS AIMS
To improve and consolidate students’ vocabulary, grammar and listening skills with the aim of getting each student to move one micro-level up from entry level.

Knowledge and understanding
The teaching from this course aims to enable students to consolidate existing vocabulary, grammar and listening skills and improve upon them in order to cope with demands exerted upon them at advanced level. In turn they will gain knowledge as to how to enhance their active skills such as speaking and writing in English.

Applying knowledge and understanding
The course will give students constant chance to exercise their newly acquired linguistic skills through inter-disciplinary activities like text filling, formal and informal writing, reconstructing texts and making short presentations of their work.

Making judgments
Students will develop the ability to differentiate between varying and appropriate forms of language which will vary greatly depending on the kind of activity they are undertaking. There will be additional problem-solving activities where students will utilize the language of agreement, language of persuasion and language of emphasis to name a few.

Communication skills
In an inter-disciplinary manner, students will improve the four main aspects of language in speaking, listening, reading and writing. They will be able to differentiate and use both informal and formal types of vernacular to suit their purpose, for example when writing a review or conducting a report. Furthermore, they will develop skills of expressing their ideas more succinctly and keeping their interlocutors attentive by their use of applying effective vocal techniques.

Learning skills
This course will expose students to a wide range of audio material to help students expand their vocabulary and grammar range. In turn they will learn to make key notes and acquire skills of listening for gist or detail. In writing they will undertake numerous activities that require a different kind of language transmission and in reading they will adopt methods to be able to skim and scan text and recognize key components in order to complete their activities. In speaking there will be scope for working on pronunciation and fluency with specific exercises to aid students.
Teaching Methodology
Frontal classes in small groups according to level.

Learning Assessment Methodology
At the end of the course, students will be assessed on all four language skills – Reading, Writing, Listening and Speaking. A pass grade will be awarded to those who move up one micro-level from entry level.

Course Contents
Review of grammar and vocabulary from Level B2 upwards.

Suggested Textbooks
LIFE series according to level.
ITALIAN LANGUAGE I
4 CFU

LECTURERS: Ch. Bergamini  Italian Language

CLASS AIMS
This course is designed to give students basic communicative ability in Italian. By presenting the language in a variety of authentic contexts. Students work on all four language skills: speaking, listening comprehension, reading, and writing.

Knowledge and understanding
Understand written and spoken Italian, through the knowledge of simple structures. Situations will be general and such as to require a real exchange between students.

Applying knowledge and understanding
Students deepen their previous knowledge and also begin to talk about past experiences and future plans.

Making judgments
The course aims to enable students to analyze a real situation and express opinions on it.

Communication skills
Students will learn how to express themselves clearly and appropriately according to their interlocutor and context, based on grammar rules.

Learning skills
They will develop the ability to reason on the real use of the language and on the fundamental grammatical rules.

Teaching Methodology
The lessons will focus on the manipulation of authentic inputs, on guided conversations to facilitate the comparison between students, to practice the language for communicative purposes and to achieve knowledge of the real use of the language.

Learning Assessment Methodology
At the end of the course students will take a written and oral exam based on listening material, communicative inputs on which to have a conversation and knowledge of grammar and sentence construction rules.

Course Contents
actions that occurred repeatedly. Talking about one’s childhood. Write a short story. Reporting about health problems. Talk about the future. Comparing Italian social habits and traditions with those of one’s country. Understanding and giving order, recommendations and instructions.


**Suggested Textbooks**
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FUNDAMENTALS OF BASIC SCIENCE III
29 CFU

LECTURERS:  
G. Gherardi  Microbiology (coordinator)  
G. Vivacqua  Anatomy  
M. Maccarrone  Biochemistry  
A. Leuti  Biochemistry  
A. Nissim  Molecular Biology  
E. Riva  Microbiology  
A. Mc Knight  Microbiology  
L. Facchinelli  Microbiology  
F. D’Acquisto  Basic Immunology  
A. Iqbal  Basic Immunology  
M. D’Amelio  Physiology

CLASS AIMS
FBSIII is an integrated heterogeneous course, encompassing a wide range of subjects, from the anatomy and physiology mainly focused on the Nervous, cardiovascular and Lymphatic Systems, connecting anatomo-physiological knowledge with molecular and biochemical processes underlying the structure and the function of organs and tissues, to the study of systematic, molecular, and clinical microbiology and parasitology and to the molecular bases of immunology, acquiring major knowledges of microbial pathogenesis, host-pathogen interactions, and laboratory-based management of infectious diseases. The principal aims of the course will be highlight the close relationship between morphology, molecular organization and physiological and biochemical functions on one side and between biological and molecular bases of infectious diseases and immune response on the other side. Indeed, the importance of anatomo-physiological and molecular knowledge of human cells and tissues, pathogens and immune responses will be deeply presented and 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. 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, appropriate knowledges and skills for laboratory and multimedia tools applicable to medical practice will be acquired.

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 propaedeutic 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.

**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.

**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.

**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, trough 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 task for each subfield of the course.

For Microbiology and Parasitology, it will consists in a combined written task containing multiple choice (MCQ) and True/False questions (50 min), data analysis question (30 min) and a short essay (30 min), pertaining to the topics presented during the course.

For basic Immunology learning assessment methodology will consists in:

1. **Course Work (20%).** An essay (1200 +/- 100-word limit) on the topic: “Using examples, describe how innate and adaptive immune cells contribute to the development of inflammatory or immune diseases”. In the essay, you need to discuss the current knowledge of cellular and molecular mechanisms activated during
the development of inflammatory and immune disorders. The essay should contain the following sections:
Abstract (150 words maximum); Introduction; Discussion; References

2- Class Test I (40%) - MCQ and True/False (50 min) on the topics covered during the lessons 1 to 5.
3- Class Test II (40%) - MCQ and True/False (50 min) on the topics covered during the remaining lessons.

All components of assessment have to be attempted and the average mark of 40% and above will be taken as pass.

If the average mark is less than 40, the student will be asked to resit the part of the assessment that he/she failed i.e. either the coursework or the class test.

For anatomy it will consists in three combined oral and written tests about: 1) central nervous system and sensory organs; 2) peripheral nervous system and topographical anatomy of the head and the neck; 3) cardiovascular and lymphatic systems. The tests will require the description of anatomical specimens, microscopic preparations and the answer to open questions, including focused clinical cases related to neuronal pathways, morphology and neurochemistry of the nervous system, cardiovascular system and lymphatic system.

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 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, Molecular Biology and Basic Immunology. The final mark will be the average mark obtained in the two integrated exams.

COURSE CONTENTS

MICROBIOLOGY

Bacteriology (Prof Gherardi)

Micology (Prof Gherardi)
Parasitology (Dr. L. Facchinelli)


Virology (Proff Riva/McKnight)


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

Topographical Anatomy of the head and the neck

Cardiovascular System - the heart and the pericardium: topography, gross anatomy and superficial anatomy. Radiologic anatomy of the heart; the coronary system; the myocardial tissue. 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.

Lymphatic system: overview of the lymphatic pathways. Topography and microscopic structure of the thyme, the spleen and the lymph nodes.

BIOCHEMISTRY


Practical experiences. Protein purification and characterization by means of chromatography. Assay of concentration and enzymatic activity of purified proteins by means of spectrophotometry. Protein identification by means of Western blotting.
PHYSIOLOGY


The Brain and Behavior - Chemical Control of the Brain and Behavior, 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.

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.

Suggested Textbooks

MIRCROBIOLOGY

ANATOMY
• Susan Standring et al. Grey’s Anatomy: The Anatomical Basis of Clinical Practice. 41st Edition. Elsevier
• Friedrich Paulsen et al. Sobotta Atlas of Human Anatomy. 15th edition. Urban & Fisher (Elsevier);
• 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)
• Principles of Neural science (5th Edition) by Kandel et al., (McGraw-Hill Education)

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
19 CFU

LECTURERS:  M. D’Amelio  Physiology (coordinator)
            M. Maccarrone  Biochemistry
            A. Leuti  Biochemistry
            G. Vivacqua  Anatomy

CLASS 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.

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.
Teaching Methodology
The aims of the course will be achieved by a combined approach between frontal lesson, practical activities and case-based learning (CBL).

The course will be closely integrated to further highlight the interconnection between morphology and function and multidisciplinary seminars for selected topics will be proposed.

The innovative aspects of selected topics in the field of physiology and biochemistry will be proposed to the students, through interactive seminars, where they will be also stimulated to search and critically review medical literature of the field.

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.

Final Exam
The final exam will take place at end of the integrated course, in the session foreseen by the academic calendar.

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 human anatomy: the exam it will consist in a written test that will require describing anatomical specimens and answering open questions, 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.

Those students who will pass the written exam will then undergo an oral interview in which they will need to demonstrate adequate levels of understanding of all topics covered.

COURSE CONTENTS

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

BIOCHEMISTRY

Glycolysis, gluconeogenesis, and the pentose phosphate pathway; Principles of metabolic regulation; The citric acid cycle; Fatty acid catabolism; Amino acid oxidation and the production of urea; Oxidative phosphorylation; Carbohydrate biosynthesis; Lipid biosynthesis; Biosynthesis of aminoacids, nucleotides, and related molecules; Hormonal regulation and integration of mammalian metabolism; Elements of clinical biochemistry; Basic principles of biochemical methodologies.

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 respiratory mechanics. 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 system
Suggested Textbooks

PHYSIOLOGY

• Medical Physiology (3th 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 (3th Edition) by Bear et al., (Lippincott Williams & Wilkins);
• Principles of Neural science (5th Edition) by Kandel et al., (McGraw-Hill Education);

BIOCHEMISTRY


ANATOMY

• Friedrich Paulsen et al. Sobotta Atlas of Human Anatomy. 15th edition. Urban & Fisher (Elsevier);
FUNDAMENTALS OF MEDICINE III
16 CFU

LECTURERS:
- S. Angeletti  
  Training Laboratory Medicine 2 (coordinator)
- E. Signori  
  Training Laboratory Medicine 1
- M. Cioce  
  General Pathophysiology
- M. Cioce  
  General Pathology

CLASS AIMS
The aim of the course is understanding 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.

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 and 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 etiopathogenetic mechanisms.

Understand the usefulness of 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 etiopathogenetic 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.

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. 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 and to provide its interpretation.

Teaching Methodology

The course includes 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

The final examination is based first on a multiple-choice quiz on the training laboratory medicine course. 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 consist of four core questions regarding inflammation, neoplasia, physiopathology, and one on a more specific argument.

COURSE CONTENTS

TRAINING LABORATORY MEDICINE 1

Laboratory data interpretation; sources of variability; variability in the pre-analytical, analytical and post-analytical phases; biological variability; clinical use of the laboratory data (sensitivity and specificity; positive and negative predictive value; 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

TRAINING LABORATORY MEDICINE 2

Biological samples collection, transport and storage; blood count cells; iron deficiency anaemia, macrocytic anaemia, lymphoproliferative disorders; coagulation evaluation; diabetes diagnosis; 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.
**GENERAL PATHOPHYSIOLOGY**


**GENERAL PATHOLOGY**

Understanding the modalities through which the human body respond to external and internal stimuli and the 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; Pathophysiology of renal and hepatic function; Pathophysiology of thermoregulation; Pathophysiology of glucose metabolism; Pathophysiology of the metabolism of calcium and phosphates.

**Suggested Textbooks**

**TRAINING LABORATORY MEDICINE 1**

**TRAINING LABORATORY MEDICINE 2**

**GENERAL PATHOPHYSIOLOGY** and **GENERAL PATHOLOGY**
  Slides will be available at the end of each conceptual section.
ENGLISH LANGUAGE II
2 CFU

LECTURERS:  A. J. Martin  English Language
            R. Aronica  English Language

CLASS AIMS
The course aims to provide students with an introduction to medical/scientific English.

Knowledge and understanding
The teaching from this course aims to expose students to real-life healthcare situations and the material used will familiarize them with vocabulary used in medical settings and to understand how to interact with both patients and fellow professionals. Furthermore, through these teachings, students will begin to develop a knowledge of common patient signs and symptoms and to appreciate nuances in the English language between technical, scientific terms and everyday use.

Applying knowledge and understanding
Students will have the ability to convert their passive understanding of technical and everyday aspects of medical English into a more active framework, by means of summarizing audio material both orally and in writing. Moreover, they will develop and transmit ideas by paying attention to the subtleties and complexities of speech at advanced level.

Making judgments
Through these teachings, students will also begin to develop the necessary skills to identify probable causes of patient illness and express treatment options. Furthermore, they will have chance to differentiate what needs to be communicated to the patient on a colloquial level whilst at the same time having the technical bank of vocabulary to reach out to fellow professionals. This can be conducted individually or in small groups.

Communication skills
Students will learn how to express ideas clearly and appropriately depending on their interlocutor. They will have chance to develop their ideas and summarize what they have heard carefully, avoiding common linguistic mistakes. In turn they will master their pronunciation and sounds of new words and concepts.

Learning skills
They will develop the capacity to apply new vocabulary in context and be able to listen and understand complex medical interactions for gist and detail. There will be a wide range of exercises to help them practice in addition to their summary writing and role-playing activities.

Teaching Methodology
Classes will focus on listening to some real-life healthcare setting material, with the aim of familiarising the students with medical terms and hospital situations, so as to be able to manage both doctor/patient and doctor/doctor interaction in English.
Learning Assessment Methodology
At the end of the course students will take a written exam based on some medical listening material.

Course Contents
Hospital organisation, patient’s history and patient’s complaints, medical assessment, medical investigations

Suggested Textbooks
Class material will be provided by the teachers.
ITALIAN LANGUAGE II

2 CFU

LECTURERS: Ch. Bergamini  Italian Language

CLASS AIMS
This course is designed to give students basic communicative ability in Italian. By presenting the language in a variety of authentic contexts. Students work on all four language skills: speaking, listening comprehension, reading, and writing.

Knowledge and understanding
Understand written and spoken Italian, through the knowledge of simple structures. Situations will be general and such as to require a real exchange between students.

Applying knowledge and understanding
Students arrive at full use of the language on concrete personal and non-personal topics.

Making judgments
At the conclusion of this course students will be able to express their opinion on many aspects of their life and the reality in which they live.

Communication skills
Understand written and spoken Italian at the intermediate level. Participate in conversations on a variety of topics. Ask for and obtain information. Express opinions, feelings, needs, approval and disapproval. Comprehend the general meaning and details of intermediate level texts.

Learning skills
Use the language for practical, social and cultural purposes, in full respect of the basic grammar.

Teaching Methodology
The lessons will focus on the manipulation of authentic inputs, on guided conversations to facilitate the comparison between students, to practice the language for communicative purposes and to achieve knowledge of the real use of the language.

Learning Assessment Methodology
At the end of the course students will take a written and oral exam based on listening material, communicative inputs on which to have a conversation and knowledge of grammar and sentence construction rules.
Course Contents


Suggested Textbooks
Maria Balì e Luciana Ziglio. *Nuovo Espresso 3 (B1).* Alma Edizioni.