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COURSES TAUGHT IN ENGLISH

MEDICINE


DISCIPLINARY AREAS:

 ECONOMICS

 EDUCATION

 LAW

 MEDICINE

 PSYCHOLOGY

 SCIENCE

 SOCIOLOGY

WHY BICOCCA

Bicocca is a young university that will connect you with students from all over the world. You will not just be a student here. You will be a member of the global community.

Since its foundation, the University of Milano-Bicocca has reached beyond its borders entering into various agreements with European and non-European universities.

Research is always global. Our teachers are members of international research groups that share numerous projects and initiatives, with a common commitment to increase the quality of teaching. Our focus on innovation offers students competitive and practical training.



STUDY MEDICAL SCIENCES @MILANO-BICOCCA

The field of Medical Sciences at the University of Milano-Bicocca is at the forefront of international education and research and cutting-edge practice in clinical medicine and biomedical science. The Department brings together **12 degree courses** across medicine and allied subjects:

B 7 Bachelor degrees

M 2 Master degrees

SCMD 3 Single Cycle Master Degree

OUR INTERNATIONAL OFFER

In the field of Medical Sciences, our University offers the following 2 degree programs in English:

- * Single Cycle Master Degree in Medicine & Surgery
- * Post Graduate Degree in Biotechnology in Medicine (2 years)

There are a total of 34 individual courses taught entirely in English.

OUR LOCATION

POST GRADUATE DEGREE IN BIOTECHNOLOGY IN MEDICINE is held at our Monza Campus .

SINGLE CYCLE MASTER DEGREE IN MEDICINE & SURGERY is held at the campus of University of Bergamo.

The 2 locations reflect our strong clinical and research partnership with the multi-specialty San Gerardo and Papa Giovanni XXIII hospitals.

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- * CHEMISTRY AND PROPAEDEUTIC BIOCHEMISTRY I (module)
- * CLERKSHIP 1
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- * DERMATOLOGY (module)
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- * DIAGNOSTICS AND RADIATION ONCOLOGY (module)
- * EMERGENCY (module)
- * ETHICS AND LAW (module)
- * FROM BENCH TO BEDSIDE: TRANSLATIONAL APPROACH TO DISEASES
- * FUNDAMENTALS OF CELL BIOLOGY AND GENETICS
- * FUNDAMENTALS OF HUMAN MORPHOLOGY
- * FUNDAMENTALS OF HUMAN PHYSIOLOGY
- * GASTRO-INTESTINAL DISEASES (module)
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- * GENERAL PSYCHOLOGY I (module)
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- * GENERAL SURGERY
- * GENETICS I (module)
- * GENETICS AND REPRODUCTION
- * GLOBAL PEDIATRIC MEDICINE AND COOPERATION
- * HEALTH ECONOMICS (module)

- * HEMATOLOGY (module)
- * HISTOLOGY (module)
- * HUMANITIES
- * IMAGE DIAGNOSTICS
- * IMAGING (module)
- * IMMUNOLOGY I (module)
- * IMMUNOLOGY II (module)
- * INFECTIOUS DISEASES
- * INSTRUMENTATION FOR DIAGNOSTIC IMAGING AND RADIOTHERAPY (module)
- * INTERNAL MEDICINE (module)
- * LIVER DISEASES (module)
- * LOCOMOTOR SYSTEM DISEASES
- * MECHANISMS AND BIOMARKERS OF NEURAL DAMAGE (module)
- * MECHANISMS AND MODELS OF VASCULAR DISEASES (module)
- * MEDICAL PSYCHICS I (module)
- * MEDICAL PSYCHICS II (module)
- * MEDICINE AND SOCIETY
- * MICROBIOLOGY AND VIROLOGY (module)
- * MODELLING (module)
- * MOLECULAR AND ONCOLOGICAL THERAPY (module)
- * MOVEMENT SYSTEM IMPAIRMENT (module)
- * ONCO-HEMATOLOGICAL DISEASES
- * ONCOLOGY (module)
- * PATHOLOGY (module)
- * PATHOLOGY AND MEDICINE (module)
- * PATOLOGY (module)
- * PHARMACOLOGY
- * PHARMACOLOGY (module)
- * PHYSIOLOGY (module)
- * PROSTHESIS AND REHABILITATION (module)
- * PROSTHESIS AND REHABILITATION IN PRACTICE (module)
- * RADIOLOGICAL ANATOMY (module)
- * RHEUMATOLOGY (module)
- * SCIENTIFIC AND MEDICAL LANGUAGE
- * SKIN AND CONNECTIVE TISSUE DISEASES
- * SOCIETY AND HEALTH I (module)
- * SOCIETY AND HEALTH II (module)
- * TRANSLATIONAL APPROACH TO NEUROLOGICAL DISORDERS
- * TRANSLATIONAL APPROACH TO ONCO-HEMATOLOGICAL DISEASES
- * TURNING CLINICAL EXPERIENCE INTO RESEARCH PROJECTS

LEGEND

- M didactic module
- tbd: to be defined
- N/A: information not available

PROGRAM CODE: H4102D046

3D PRINTING FOR MEDICAL APPLICATIONS

LECTURER: RIZZI CATERINA

CONTENTS

The course aims at providing the students with notions about the technological opportunity and challenges about Additive Manufacturing (AM) processes applied to the medical field.

The working principles of the most relevant Additive Manufacturing technologies will be shown for the production of medical devices, prostheses, orthoses and implants. Notable case studies will be shown and discussed.

PREREQUISITES

None.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24538>

SCMD

YEAR: 3

SEM: 1+2

ECTS: 1

DEGREE in Medicine and Surgery

CONTACT: tbd

ALTERATIONS OF IRON METABOLISM (module of “From Bench to Bedside” - F0901D050)

LECTURER: PIPERNO ALBERTO

CONTENTS

The aims of the Course is to provide the student with a critical knowledge of the regulatory mechanisms of iron metabolism and related disorders (iron deficiency, primary and secondary iron overload, local and systemic), and technical instruments and strategies normally employed in studying the pathophysiology of iron metabolism and related disorders, and possible new therapeutic approaches.

Presentation of several emblematic examples of diseases of iron metabolism and their physiopathology, and the role of biotechnology in their diagnosis/ therapeutic approach. A general introduction on the methodologies employed to analyse the molecular mechanisms underlying the pathological processes will be provided.

PREREQUISITES

Advanced knowledge in genetics, biology and molecular biology.

WEBSITE <https://elearning.unimib.it/course/info.php?id=25284>

M

YEAR: 2
SEM: 1
ECTS: Only if the entire course is frequented

DEGREE in Biotechnology in Medicine
CONTACT: alberto.piperno@unimib.it



PROGRAM CODE: F0901D051

ANALYTICAL METHODS FOR NANOBIO TECHNOLOGY

LECTURER: MANTEGAZZA FRANCESCO, SALERNO DOMENICO

CONTENTS

The course aims to provide the students with the knowledge on the general principles enabling to understand which kind of information can be achieved by the most important analysis techniques for nanobiomaterials characterization.

To learn the working principles of the most important analytic techniques and of the most relevant instrumentations used for the characterization of nanoparticles and nanomaterial of biomedical interest.

PREREQUISITES

Basic knowledge in chemistry, biochemistry and molecular biology.

WEBSITE <https://elearning.unimib.it/course/info.php?id=25282>

M

YEAR: 2

SEM: 1

ECTS: 6

DEGREE in Biotechnology in Medicine

CONTACT: francesco.mantegazza@unimib.it

domenico.salerno@unimib.it

ANATOMY OF THE LOCOMOTOR SYSTEM (module of “Locomotor System Diseases” - H4102D018)

LECTURER: GUERRASIO STEFANO

CONTENTS

Gross anatomy and organization of the locomotor system. Description of the structure and function of bones, joints, ligaments and skeletal muscles. Analysis of the movements of individual joints and the body as a whole. Basic anatomical knowledge allowing students to take proper history and perform clinical examination of the musculoskeletal system.

PREREQUISITES

Basic knowledge of histology and anatomy as gained during the 2 term in "Fundamentals of Human Morphology".

WEBSITE <https://elearning.unimib.it/course/info.php?id=24519>

SCMD

YEAR: 3
SEM: 1
ECTS: Only if the entire course is frequented
DEGREE in Medicine and Surgery
CONTACT: tbd



APPLICATION OF BIOSTATISTICS (module of Biostatistics - H4102D009)

LECTURER: ANTOLINI LAURA

CONTENTS

The student will be able to calculate the main descriptive indexes and to appreciate the characteristics of a sample by descriptive statistics and plots. The student will be able to evaluate the accuracy of a diagnostic test by the sensitivity, specificity and predictive value indexes. The student will be able to calculate specific probabilities from Gaussian and Binomial distribution. The student will be able to calculate statistical tests for means and proportions and confidence intervals. The student will know how to critically read the methodology and results paragraphs of a clinical paper.

Methods for data description. Statistical inference: hypothesis testing, sampling and introduction to modelling. Sample size calculation.

PREREQUISITES

None.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24550>

SCMD

YEAR: 2

SEM: 1

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: laura.antolini@unimib.it

PROGRAM CODE: H4102D015

BASIC CLINICAL SKILLS

MODULES: 1.Internal Medicine (ref. H4102D045M)
2.General Surgery (ref. H4102D046M)
3.Emergency (ref. H4102D047M)

LECTURER: INVERNIZZI PIETRO

CONTENTS

The medical Clerkship is designed to allow students to develop an integrated approach to the doctor-patient relationship.

In the Medical Clerkship, the focus is on learning core medical concepts and basic professional skills to prepare students for the Clinical program and beyond.

PREREQUISITES

Internal Medicine: Adequate knowledge of Human anatomy, Biochemistry, Physiology, Fundamentals of Radiology.

General Surgery: Successfully passed the propaedeutic courses defined by the previous semester, Pre-clinical block (anatomy, biochemistry, physiology...) successfully passed

Emergency: Pre-clinical block (anatomy, biochemistry, physiology...) successfully passed

WEBSITE <https://elearning.unimib.it/course/info.php?id=24539>

SCMD

YEAR: 2

SEM: 2

ECTS: 9

DEGREE in Medicine and Surgery

CONTACT: pietro.invernizzi@unimib.it



PROGRAM CODE: H4102D004

BASIC COMPUTER SCIENCE

MODULES: 1. Basic Computer Science (ref. H4102D010M)
2. Modelling (ref. H4102D011M)
3. Imaging (ref. H4102D012M)

LECTURER: GARGANTINI ANGELO MICHELE

CONTENTS

The course is composed by three modules dealing with:

1. Medical informatics: data, information, and communication; information systems and DBMS; Telemedicine and Internet for healthcare
2. Medical Imaging: generation of digital images and processing, surface models generation and visualization, data analysis and structural quantification.
3. Human modelling: Techniques and tools to create 3D geometric model of human body and anatomical districts at different level of details according to the domain of application

PREREQUISITES

N/A.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24566>

SCMD

YEAR: 1

SEM: 1

ECTS: 9

DEGREE in Medicine and Surgery

CONTACT: angelo.gargantini@unimib.it

BASIC COMPUTER SCIENCE (module of Basic Computer Science - H4102D004)

LECTURER: GARGANTINI ANGELO MICHELE

CONTENTS

Acquire and deepen their knowledge on computer related methodologies and technologies employed in medical informatics and to apply those methods in solving problems arising in different areas of medicine and the health-care system.

Medical informatics: data, information, and communication; information systems and DBMS; Telemedicine and Internet for healthcare.

PREREQUISITES

N/A.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24567>

SCMD

YEAR: 1

SEM: 1

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: angelo.gargantini@unimib.it



PROGRAM CODE: H4102D011

BASIC PATHOLOGY

MODULES: 1. Microbiology and Virology (ref. H4102D032M)
2. Immunology I (ref. H4102D033M)
3. Immunology II (ref. H4102D034M)
4. Pathology and Medicine (ref. H4102D035M)

LECTURER: CLEMENTINA ELVEZIA COCUZZA

CONTENTS

See each module.

PREREQUISITES

See each module.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24543>

SCMD

YEAR: 2

SEM: 1

ECTS: 13

DEGREE in Medicine and Surgery

CONTACT: clementina.cocuzza@unimib.it

PROGRAM CODE: H4102D012

BASIC PHARMACOLOGY

LECTURER: PARENTI MARCO DOMENICO

CONTENTS

The course will examine the general principles underlying the destiny of drugs within the organism and the mechanisms responsible of their therapeutic and toxic effects. In addition, the preclinical and clinical processes of drug research and development, the post-marketing surveillance, drug patenting and access will be discussed. Finally, the drugs acting on the peripheral nervous system will be introduced.

PREREQUISITES

Knowledge of human anatomy, physiology, pathology, chemistry, biochemistry.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24548>

SCMD

YEAR: 2

SEM: 1

ECTS: 4

DEGREE in Medicine and Surgery

CONTACT: marco.parenti@unimib.it



PROGRAM CODE: H4102D001

BASIC SCIENCES

MODULES: 1.Chemistry and Propaedeutic Biochemistry I (ref. H4102D001M)
2.Biochemistry I (ref. H4102D002M)
3.Biochemistry II (ref. H4102D003M)
4.Medical Physics I (ref. H4102D004M)
5.Medical Physics II (ref. H4102D005M)

LECTURER: REMUZZI FRANCESCA

CONTENTS

The primary goal of the course is to provide students with the tools for the understanding of the complex reactions that represent the molecular basis of life, and with the fundamentals to identify the cause-effect relations of the most important biochemical, chemical and physical processes for the curriculum and the work of a physician. This knowledge will form the primary basis for a rationale approach to the knowledge of medical sciences.

PREREQUISITES

Basic knowledges of mathematics, physics, biology.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24570>

SCMD

YEAR: 1
SEM: 1+2
ECTS: 14
DEGREE in Medicine and Surgery
CONTACT: tbd

BEHAVIOYRAL SCIENCES, COMMUNICATION SKILLS I (module of Medicine and Society - H4102D013)

LECTURER: STREPPARAVA MARIA GRAZIA

CONTENTS

Psychological and relational elements in the patient-doctor relationship; therapeutic alliance; communication skills; verbal and non verbal communication; disease-centred medicine and patient-centred medicine; Calgary Cambridge Model.

PREREQUISITES

General knowledge about humanities in medicine acquired in the first year course "Humanities".

WEBSITE <https://elearning.unimib.it/course/info.php?id=24561>

SCMD

YEAR: 2
SEM: 1+2
ECTS: Only if the entire course is frequented
DEGREE in Medicine and Surgery
CONTACT: mariagrazia.strepparava@unimib.it



BEHAVIOYRAL SCIENCES, COMMUNICATION SKILLS II (module of Medicine and Society - H4102D013)

LECTURER: BANI MARCO

CONTENTS

Definitions of placebo and nocebo effect both in relation to treatments and in relational terms; implications in the use of placebo for the relationship with the patient; different mechanisms through which the placebo and nocebo effect act.

The perception of illness.

Basic principles of motivational interview; the five phases of the model of change (precontemplation, contemplation, preparation, action, maintenance).

PREREQUISITES

None.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24562>

SCMD

YEAR: 2

SEM: 1+2

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: marco.bani1@unimib.it

PROGRAM CODE: H4102D041M

M

BEHAVIOYRAL SCIENCES, COMMUNICATION SKILLS III (module of Medicine and Society - H4102D013)

LECTURER: BANI MARCO

CONTENTS

Knowing how to conduct a motivational interview; knowing how to conduct a clinical interview according to the principles of the Calgary Cambridge model; know how to recognize the phases of the motivational interview in a simulated or real interview.
The role play in health care context.

PREREQUISITES

The role of the clinician in the simulated interview; the role of the patient in the simulated interview; the role of the observer in the simulated interview.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24563>

SCMD

YEAR: 2
SEM: 1+2
ECTS: Only if the entire course is frequented
DEGREE in Medicine and Surgery
CONTACT: marco.bani1@unimib.it



BIOCHEMISTRY (module of Locomotor System Diseases - H4102D018)

LECTURER: RE FRANCESCA

CONTENTS

To provide the concepts necessary for understanding biological phenomena and the energetic variation associated with them. The course will focus on the molecular basis for understanding the processes underlying the bone and muscle metabolism.

Biochemistry of the bone remodelling. Biochemical markers of bone deposition and reabsorption. Growth factors and hormones involved in bone remodelling. Biochemistry of the skeletal muscle. Metabolic changes in physical exercise. Nutritional aspects and oxidative stress of the locomotor system.

PREREQUISITES

Basic knowledge of biochemistry, biology and chemistry.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24520>

SCMD

YEAR: 3

SEM: 1

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: francesca.re1@unimib.it

BIOCHEMISTRY I (module of Basic Sciences - H4102D001)

LECTURER: CORBO CLAUDIA

CONTENTS

The Biochemistry I module will illustrate the importance of life-sustaining chemical reactions. Object of study are the structure and the metabolic pathways involved in the transformations of cell components, such as proteins, carbohydrates, lipids, nucleic acids and other biomolecules. Moreover the main hormones and their role in the regulation of metabolism will be described. Finally, the main components of the foods (macro and micronutrients, including vitamins and minerals) will be described in relation to a healthy diet.

PREREQUISITES

Basic knowledge of biology and chemistry.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24571>

SCMD

YEAR: 1
SEM: 1+2
ECTS: Only if the entire course is frequented
DEGREE in Medicine and Surgery
CONTACT: claudia.corbo@unimib.it



BIOCHEMISTRY II (module of Basic Sciences- H4102D001)

LECTURER: RE FRANSCESCA

CONTENTS

The Biochemistry II module will describe in detail the integrated biochemistry of organs and tissues. It will provide useful knowledge for the best understanding of other medical disciplines and clinics. The main mechanisms of biochemical regulation of the metabolism of blood, of the digestive system, cardiovascular, hepatic, of the nervous system, of the bone tissue will be illustrated. The hormonal and metabolic regulation of the metabolism and the conditions that can lead to their alteration will be described.

PREREQUISITES

Basic knowledge of Biology and Chemistry.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24572>

SCMD

YEAR: 1

SEM: 1+2

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: francesca.re1@unimib.it

PROGRAM CODE: H4102D009

BIOSTATISTICS

MODULES: 1.Biostatistics (ref. H4102D028M)
2.Application of Biostatistics (ref. H4102D029M)

LECTURER: ANTOLINI LAURA

CONTENTS

This course aims to provide the basic tools of medical statistics that are at the basis of a proper methodological approach to a research project in medicine. The student will be able to calculate the main descriptive indexes and to appreciate the characteristics of a sample by descriptive statistics and plots. The student will be able to evaluate the accuracy of a diagnostic test by the sensitivity, specificity and predictive value indexes. The student will be able to calculate specific probabilities from Gaussian and Binomial distribution. The student will be able to calculate and interpret statistical tests for means and proportions and confidence intervals. The student will know how to critically read the methodology and results paragraphs of a clinical paper.

PREREQUISITES

None.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24549>

SCMD

YEAR: 2
SEM: 1
ECTS: 4
DEGREE in Medicine and Surgery
CONTACT: laura.antolini@unimib.it



CONTENTS

This course aims to provide the basic tools of medical statistics that are at the basis of a proper methodological approach to a research project in medicine. The student will be able to calculate the main descriptive indexes and to appreciate the characteristics of a sample by descriptive statistics and plots. The student will be able to evaluate the accuracy of a diagnostic test by the sensitivity, specificity and predictive value indexes. The student will be able to calculate specific probabilities from Gaussian and Binomial distribution. The student will be able to calculate and interpret statistical tests for means and proportions and confidence intervals. The student will know how to critically read the methodology and results paragraphs of a clinical paper.

PREREQUISITES

None.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24551>

SCMD

YEAR: 2

SEM: 1

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: laura.antolini@unimib.it

paola.rebora@unimib.it

PROGRAM CODE: H4102D016

CASE BASED LEARNING AND GENERAL CLINICAL PRACTICE

LECTURER: MANTOVANI LORENZO GIOVANNI

CONTENTS

The objectives of the course are to involve students in an early clinical activity designed to understand how to interact professionally with patients, starting from the most common clinical cases, experiencing a holistic approach to the patient and the diseases. Furthermore, to learn the principles of clinical reasoning and to acquire the basics of the professionalism, of patient-centred medicine and of clinical responsibility.

PREREQUISITES

Basic knowledge of anatomy, physiology, pharmacology.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24552>

SCMD

YEAR: 2

SEM: 2

ECTS: 9

DEGREE in Medicine and Surgery

CONTACT: lorenzo.mantovani@unimib.it



CELL AND MOLECULAR BIOLOGY I (module of Fundamentals of Cell Biology and Genetics - H4102D002)

LECTURER: INTRONA MARTINO

CONTENTS

The course will provide the essential theoretical knowledge of biology, also focusing on the possible future application in the medical field. The subjects of the course will provide the necessary knowledge to understand the vital processes, both on the cellular and molecular level.

Structure and function of the most important cellular macromolecules; DNA duplication and repair mechanisms; transcription and RNA processing; translation and protein sorting; transcriptional and post-transcriptional regulation; signal transduction pathways; molecular and cellular mechanisms which control the cell cycle, cellular growth and differentiation as well as cell-to-cell interactions.

PREREQUISITES

Basic sciences (chemistry, physics).

WEBSITE <https://elearning.unimib.it/course/info.php?id=24577>

SCMD

YEAR: 1
SEM: 1+2
ECTS: Only if the entire course is frequented
DEGREE in Medicine and Surgery
CONTACT: martino.introna@unimib.it

CELLULAR AND GENE THERAPY (module of Translational Approach To Onco-hematological Diseases- F0901D048)

LECTURER: BIONDI ANDREA, SERAFINI MARTA

CONTENTS

The aims of the Course is to provide an overview of the current and most relevant applications of biotech in the development of new treatment strategies. The two tracks of the course include the targeting treatment and the development of cellular and gene therapy. The first part will cover the process of identification of new potential targets for treatment by using high-throughout technologies , the screening of active molecules and the preclinical and clinical development. Diseases in the field of cancer will be taken as cases in point. The second part will present the pre clinical and clinical development of a product for cellular and gene therapy in the field of cancer, treatment of infections in immuno-compromised hosts, and tissue regeneration. Emphasis will be given to the knowledge of the process of production under “GMP” conditions.

PREREQUISITES

Basic knowledge on pathology and immunology. Advanced knowledge in biochemistry, molecular biology and genetics.

WEBSITE <https://elearning.unimib.it/course/info.php?id=25292>

M

YEAR: 2
SEM: 1
ECTS: Only if the entire course is frequented
DEGREE in Biotechnology in Medicine
CONTACT: andrea.biondi@unimib.it



CHEMISTRY AND PROPEDEUTIC BIOCHEMISTRY I (module of Basic Sciences - H4102D001)

LECTURER: SMITH ANDREW JAMES

CONTENTS

In the first part of the course the principles of chemical kinetics and chemical equilibrium, redox reactions and related energy will be presented within the general frame of thermodynamics and electrochemistry, and finally the water self-ionization and the properties of acid/base and buffer solutions will be illustrated.

In the second part, the reactivity of the main classes of organic compounds, including isomerism and the stereo chemical concepts related to organic molecules containing asymmetric carbon atoms of the course will describe. The properties of the mains class of macromolecules of biological interest (proteins, lipids, carbohydrates and nucleic acids) will be illustrated. Basic knowledge of proteomics and of Imaging by MS focused on clinical applications will be provided.

PREREQUISITES

Basic mathematical knowledges
Basic chemistry knowledges
Basic Biology and chemistry knowledge
Basic knowledge of analytical science.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24573>

SCMD

YEAR: 1

SEM: 1+2

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: andrew.smith@unimib.it

CLERKSHIP I

LABORATORIES: 1.Chemistry and Propaedeutic Biochemistry II (ref. H4102D017M)
2.Cell and Molecular Biology (ref. H4102D018M)
3.Basic Computer Science (ref. H4102D019M)

LECTURER: MAGNI FULVIO

CONTENTS

Chemistry and Propaedeutic Biochemistry II: To learn basic practical laboratory activities useful for medical students, including basic knowledge and practical aspects of clinical proteomics.

Basic computer science: Practise the knowledge on computer related methodologies and technologies employed in medical informatics and to apply those methods in solving problems arising in different areas of medicine and the health-care system (starting from personal use).

Cell and Molecular Biology: To learn the new advances in cell and molecular biology techniques, and critically evaluate their use in a clinical setting.

PREREQUISITES

The attended Chemistry, cell biology and propedeutical biochemistry courses. Basic knowledge in the use of computers. Attendance of the basic computer science course.

WEBSITE <https://elearning.unimib.it/course/info.php?id=26461>

SCMD

YEAR: 1
SEM: 1
ECTS: 4
DEGREE in Medicine and Surgery
CONTACT: fulvio.magni@unimib.it



PROGRAM CODE: H4102D008

CLERKSHIP II

LABORATORIES: 1. Biochemistry (ref. H4102D023M)
2. Medical Physics (ref. H4102D024M)
3. Histology (ref. H4102D025M)
4. Regional Anatomy (ref. H4102D026M)

LECTURER: CAVALETTI GUIDO ANGELO

CONTENTS

The students are introduced to the main biochemical techniques and to the instruments, reagents and materials needed for biochemistry assay (to analyse protein, lipid and sugar).

The students are introduced to the main histological techniques and to the instruments, reagents and materials needed for histological analysis.

Students will be introduced to the principles of regional anatomy and general principles of systematic anatomy, with specific reference to clinical anatomy.

PREREQUISITES

College-level scientific knowledge and basic knowledge of mathematics and analysis and IT.

WEBSITE <https://elearning.unimib.it/course/info.php?id=26465>

SCMD

YEAR: 1

SEM: 2

ECTS: 5

DEGREE in Medicine and Surgery

CONTACT: guido.cavaletti@unimib.it

CLERKSHIP III

CLERKSHIP: Microbiology and Virology (ref. H4102D049M)

LECTURER: COCUZZA CLEMENTINA ELVEZIA

CONTENTS

The course aims to provide the student with the fundamental principles and knowledge for the interpretation of the laboratory results in the diagnosis of infectious diseases.

- * Laboratory methods for the diagnosis of infectious diseases.
- * Laboratory methods for evaluating bacterial susceptibility to antimicrobial agents.
- * Phenotypic and genotypic methods for microbial characterization and typing.
- * Interpretation of Clinical Microbiology laboratory results.

PREREQUISITES

Knowledge on the content of the Microbiology and Virology module of the course on Basic Pathology.

WEBSITE <https://elearning.unimib.it/course/info.php?id=26460>

SCMD

YEAR: 2

SEM: 2

ECTS: 2

DEGREE in Medicine and Surgery

CONTACT: clementina.cocuzza@unimib.it



PROGRAM CODE: H4102D019

CLERKSHIP IV

LABORATORIES: 1.Locomotor I	(ref. H4102D059M)
2.Locomotor II	(ref. H4102D060M)
3.Prosthesis and Rehabilitation	(ref. H4102D061M)
4.Rheumatology	(ref. H4102D062M)
5.Clinical Biochemistry	(ref. H4102D063M)
6.Microbiology	(ref. H4102D064M)

LECTURER: BIGONI MARCO

CONTENTS

The goal of clerkship is the acquisition of practical skills related to diagnostics and to the clinic and to the treatment of the musculoskeletal system.

Clerkship program, with rotation in small groups (about max 10 students) in surgical specialties, general practitioner and in the emergency department:

- * PBL / CBL
- * Practice sessions with puppets or among students/teachers
- * Attending clinical wards.

PREREQUISITES

Vertical track Locomotor attendance.

WEBSITE <https://elearning.unimib.it/course/info.php?id=26447>

SCMD

YEAR: 3

SEM: 1

ECTS: 12

DEGREE in Medicine and Surgery

CONTACT: marco.bigoni@unimib.it

CLERKSHIP V

LABORATORIES: 1.Oncology I	(ref. H4102D073M)
2.Oncology II	(ref. H4102D074M)
3.Hematology	(ref. H4102D075M)
4.Infectious Diseases	(ref. H4102D076M)
5.Dermatology	(ref. H4102D063M)
6.Microbiology	(ref. H4102D077M)

LECTURER: RAMBALDI ALESSANDRO

CONTENTS

Oncology I: Understanding the basis of immunological treatments in the context of solid tumours and the biology and clinical behavior of skin, gastrointestinal and lung tumours.

Oncology II: Understanding the basis of targeted therapies in the context of solid tumours and the biology and clinical behavior of breast, head and neck and gynaecological cancers.

Hematology: (I) Understanding the biology and normal physiology of blood coagulation; Understanding the biology and clinical behaviour of hemorrhagic and thromboembolic diseases, and microangiopathy anemias; Principles and clinical practice of Blood transfusions. (II) Understanding the basis of hematopoietic stem cell transplantation; Understanding the biology and clinical behavior of Aplastic anemias, Paroxysmal Nocturnal Hemoglobinuria, hemolytic anemia and megaloblastic anemias.

Infectious Diseases: Bacterial infections in onco-hematologic malignancies; Fungal infections in hematologic malignancies; Viral complications of bone marrow transplantation
Vaccinations policies in onco-hematologic patients.

Dermatology: Understanding the clinical features and pathophysiology of cutaneous lymphomas, the clinical and histological features of basal cell and squamous cell carcinomas, drug-related dermatoses during the treatment of onco-haematologic malignancies, Understanding the importance of clinicopathological correlations in the diagnosis of skin neoplasms.

PREREQUISITES

See course modules.

WEBSITE <https://elearning.unimib.it/course/info.php?id=26454>

SCMD

YEAR:	3
SEM:	2
ECTS:	8
DEGREE in	Medicine and Surgery
CONTACT:	tbd



CLINICAL DECISION SUPPORT SYSTEMS

LECTURER: REMUZZI ANDREA

CONTENTS

Use and development of tools at the basis of decision support systems for medical decision making.

Decision support systems based on mathematical models for medical decision making. General theory and examples (e.g., hemodialysis, cardiovascular system, bioimaging, artificial pancreas).

PREREQUISITES

None.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24515>

SCMD

YEAR: 3

SEM: 1

ECTS: 1

DEGREE in Medicine and Surgery

CONTACT: andrea.remuzzi@unibg.it

CONTENTS

At the end of the course/activity block, the student will be able to:

- * Approach an orthopaedics and traumatology patient
- * Harvest an orthopaedic and traumatological medical history
- * Use the appropriate terminology to communicate with patients and medical staff
- * Identify, examine and describe the main pathological symptoms and signs in relation to orthopaedic and traumatological pathology. Highlight on a multidisciplinary approach, exploiting the PBL Method.

Theory and practical skills to perform the basic clinical examination tests in general orthopaedics and traumatology.

PREREQUISITES

Basic knowledge of anatomy, physiology and biochemistry.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24521>

SCMD

YEAR: 3
SEM: 1
ECTS: Only if the entire course is frequented
DEGREE in Medicine and Surgery
CONTACT: marco.bigoni@unimib.it



CONTRAST MEDIA AND RADIOPHARMACEUTICAL (module of Image Diagnostics - H4102D014)

LECTURER: MORESCO ROSA MARIA

CONTENTS

The fundamental concepts of the principles of pharmacokinetics (fate of drugs in the body) and of pharmacodynamics (molecular targets of drugs); signs of drug-receptor interaction and pharmacological response variability; classification of adverse drug reactions.

The aim of the course is also to provide students with the basic principles of drugs used in diagnostic medicine and the basic principles of Anesthesiology and of resuscitation and first aid techniques.

PREREQUISITES

Biomedical Sciences.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24557>

SCMD

YEAR: 2

SEM: 2

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: rosa.moresco@unimib.it

DERMATOLOGY (module of Skin and Connective Tissue Diseases - H4102D022)

LECTURER: SENA PAOLO

CONTENTS

The performance of a dermatologic examination; the collection of anamnestic and physical data of a dermatological patient; understanding epidemiology and pathogenesis, clinical features, diagnosis, differential diagnosis, therapy and psico-social implications of the main dermatological diseases.

PREREQUISITES

Knowledge related to the preparatory courses as indicated in the regulations of the degree course.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24535>

SCMD

YEAR: 3
SEM: 2
ECTS: Only if the entire course is frequented
DEGREE in Medicine and Surgery
CONTACT: tbd



DIAGNOSTICS (module of “Locomotor System Diseases” - H4102D018)

LECTURER: SIRONI SANDRO

CONTENTS

To provide the basic knowledge concerning the most important imaging modalities and their clinical use in the context of muscle-skeletal radiology. The role of conventional radiology in emergency clinical trials, and the role of cross-sectional imaging modalities will be assessed as well. The main aim of the course is to clarify how specific imaging techniques have to be employed in relation to the clinical issue.

Conventional X rays examinations of the skeletal structures in different clinical settings. Computed tomography (CT) and Magnetic Resonance Imaging (MRI) in the most common and relevant clinical circumstances, in traumatology, and orthopedic settings. Ultrasound examination as a possible diagnostic alternative in specific conditions.

PREREQUISITES

Basic knowledge of human anatomy, physiology, and general pathology.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24522>

SCMD

YEAR: 3

SEM: 1

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: tbd

DIAGNOSTICS AND RADIATION ONCOLOGY (module of ONCO-HEMATOLOGICAL DISEASES - H4102D020)

LECTURER: SIRONI SANDRO

CONTENTS

- * Imaging technique of choice for detection of the most common solid tumors in the central nervous system, thorax, and abdomen: the rationale.
- * Staging of the most common solid tumor as above: the key point of diagnostic imaging. Strength, and weakness of cross sectional imaging techniques. How to properly assess actual tumor spread in the view of optimal treatment planning.
- * Imaging follow up, and patient tailored therapy.

PREREQUISITES

Preparatory courses for Vertical Tracks .

WEBSITE <https://elearning.unimib.it/course/info.php?id=24529>

SCMD

YEAR: 3
SEM: 2
ECTS: Only if the entire course is frequented
DEGREE in Medicine and Surgery
CONTACT: sandro.sironi@unimib.it



EMERGENCY (module of Basic Clinical Skills - H4102D015)

LECTURER: LORINI FERDINANDO LUCA

CONTENTS

The medical Clerkship is designed to allow students to develop an integrated approach to the doctor-patient relationship.

In the Medical Clerkship, the focus is on learning core medical concepts and basic professional skills to prepare students for the Clinical program and beyond.

PREREQUISITES

Internal Medicine: Adequate knowledge of Human anatomy, Biochemistry, Physiology, Fundamentals of Radiology.

General Surgery: Successfully passed the propaedeutic courses defined by the previous semester. Pre-clinical block (anatomy, biochemistry, physiology...) successfully passed.

Emergency: Pre-clinical block (anatomy, biochemistry, physiology...) successfully passed.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24540>

SCMD

YEAR: 2

SEM: 2

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: llorini@asst-pg23.it

CONTENTS

The purpose of this class is to develop an understanding of the relationship between law and ethics in the health care field. The course aims at giving students skills to tackle ethically sensitive issues, which can occur during their future profession, with an interdisciplinary approach, that takes into account medical, ethical and legal aspects.

Outline of how law, regulation and governance mechanisms deal with the organization and development of health care systems, medical practice and the guarantee and implementation of health related rights, with particular regard to bioethical issues.

PREREQUISITES

There are no special pre-requisites to be fulfilled before sitting the examination.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24586>

SCMD

YEAR: 1
SEM: 1+2
ECTS: Only if the entire course is frequented
DEGREE in Medicine and Surgery
CONTACT: viviana.molaschi@unimib.it



PROGRAM CODE: F0901D050

FROM BENCH TO BEDSIDE: TRANSLATIONAL APPROACH TO DISEASES

MODULES: 1.Liver Diseases (ref. F0901D095M)
2.Alterations of Iron Metabolism (ref. F0901D096M)
3.Gastro-intestinal Diseases (ref. F0901D097M)

LECTURER: BARISANI DONATELLA

CONTENTS

The aim of the Course is to provide the student with a critical knowledge of the technical instruments and strategies normally employed in defining the pathophysiology of the various disorders and possible new therapeutic approaches.

The aim of this course is to present several examples of diseases and their physiopathology, and the role of biotechnology in their diagnosis/ therapeutic approach. A general introduction on the methodologies employed to analyse the molecular mechanisms underlying the pathological processes will be provided.

PREREQUISITES

Advanced knowledge in genetics, biology and molecular biology.

WEBSITE <https://elearning.unimib.it/course/info.php?id=25283>

M

YEAR: 2

SEM: 1

ECTS: 6

DEGREE in Biotechnology in Medicine

CONTACT: donatella.barisani@unimib.it

FUNDAMENTALS OF CELL BIOLOGY AND GENETICS

MODULES: 1.Cell and Molecular Biology I (ref. H4102D006M)

2.Genetics I (ref. H4102D008M)

LABORATORIES: 1.Cell and Molecular Biology II (ref. H4102D007M)

2.Genetics II (ref. H4102D009M)

LECTURER: BARISANI DONATELLA

CONTENTS

The course will provide the essential theoretical knowledge of biology and genetics, also focusing on the possible future application in the medical field. The subjects of the course will provide the necessary knowledge to understand the vital processes, both on the cellular and molecular level, as well as the laws of heredity and the processes involved in the generation of phenotypic diversity. The acquired knowledge will contribute to better understand the processes involved in normal and pathological situations.

PREREQUISITES

Basic sciences (chemistry, physics).

WEBSITE <https://elearning.unimib.it/course/info.php?id=24576>

SCMD

YEAR:

1

SEM:

1+2

ECTS:

11

DEGREE in Medicine and Surgery

CONTACT: donatella.barisani@unimib.it



FUNDAMENTALS OF HUMAN MORPHOLOGY

MODULES: 1.General Anatomy (ref. H4102D020M)

2.Histology (ref. H4102D021M)

LABORATORY: 1.Microscopic Anatomy (ref. H4102D022M)

LECTURER: CAVALETTI GUIDO

CONTENTS

The student will be able to communicate effectively with colleagues and to use and understand anatomical language appropriately. Knowledge of accepted general anatomical terminology will be achieved.

The general features of the systems further described in detail in “Cardiovascular and Respiratory diseases” and “Neuroscience I and II” will be addressed. Specific reference to clinical anatomy features will also be performed.

Students will be able to describe the structure and ultrastructure of the eukaryotic cell and the morphology correlate with the function of each organelle; then they will be able to describe the structure and morpho-functional characteristics of human tissues (epithelial, connective, muscle and nervous tissues) as well as to describe the main events of gametogenesis and early embryogenesis.

The student will be able to indicate the normal microscopic organization of the main organs of the human organism. The microscopic and functional structure of the organs of the digestive, respiratory, urinary, genital, lymphatic, nervous, endocrine and integumentary organs will be addressed in preparation to histopathological assessment.

PREREQUISITES

College-level scientific knowledge.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24581>

SCMD

YEAR: 1

SEM: 2

ECTS: 5

DEGREE in Medicine and Surgery

CONTACT: guido.cavaletti@unimib.it

PROGRAM CODE: H4102D010

FUNDAMENTALS OF HUMAN PHYSIOLOGY

MODULES: 1.General Physiology I (ref. H4102D030M)
2.General Physiology II (ref. H4102D031M)

LECTURER: RIVOLTA ILARIA

CONTENTS

See each module.

PREREQUISITES

Anatomy, biology, genetics and physics.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24553>

SCMD

YEAR: 2

SEM: 1

ECTS: 4

DEGREE in Medicine and Surgery

CONTACT: ilaria.rivolta@unimib.it



GASTRO-INTESTINAL DISEASES (module of “From Bench To Bed-side: Translational Approach To Diseases” - F0901D050)

LECTURER: BARISANI DONATELLA

CONTENTS

The aims of the Course is to provide the student with a critical knowledge of the technical instruments and strategies normally employed in defining the pathophysiology of the various disorders and possible new therapeutic approaches.

The aim of this course is to present several examples of diseases and their physiopathology, and the role of biotechnology in their diagnosis/ therapeutic approach. A general introduction on the methodologies employed to analyse the molecular mechanisms underlying the pathological processes will be provided.

PREREQUISITES

Advanced knowledge in genetics, biology and molecular biology.

WEBSITE <https://elearning.unimib.it/course/info.php?id=25285>

M

YEAR:

2

SEM:

1

ECTS:

Only if the entire course is frequented

DEGREE in Biotechnology in Medicine

CONTACT: donatella.barisani@unimib.it

GENERAL ANATOMY (module of Fundamentals of Human Morphology - H4102D007)

LECTURER: CAVALETTI GUIDO ANGELO

CONTENTS

The student will be able to communicate effectively with colleagues and to use and understand anatomical language appropriately. Knowledge of accepted general anatomical terminology will be achieved.

The general features of the systems further described in detail in “Cardiovascular and Respiratory diseases” and “Neuroscience I and II” will be addressed. Specific reference to clinical anatomy features will also be performed.

PREREQUISITES

College-level scientific knowledge.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24582>

SCMD

YEAR: 1

SEM: 2

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: guido.cavaletti@unimib.it



GENERAL PSYCHOLOGY I (module of Humanities - H4102D005)

LECTURER: STREPPARAVA MARIA GRAZIA

CONTENTS

To develop the ability to recognize and distinguish relational elements in doctor-patient interactions.

To become aware of the personal mechanisms of relational functioning.

Knowing how to recognize and describe the features of different attachment styles and the implications for the relationship with the patient;

Knowing how to recognize and describe interpersonal motivational systems (activation, deactivation, objectives and related emotions).

- * Interpersonal motivational systems
- * Attachment in the relationship with patients
- * Human dimension in doctor patient relationship

PREREQUISITES

None.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24587>

SCMD

YEAR: 1

SEM: 1+2

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: mariagrazia.strepparava@unimib.it

GENERAL PHYSIOLOGY I (module of Fundamentals of Human Physiology - H4102D010)

LECTURER: RIVOLTA ILARIA

CONTENTS

The course is based on the systematic presentation of physiological concepts underlying the functions of the human body. The sequence of events leading to an imbalance of a specific function cannot be appreciated without a deep understanding of the basic biophysical and physiological mechanisms. Therefore, these mechanisms that guarantee functions at the cellular and tissue level will be presented. In particular, membrane transports, neuronal, muscular and cardiac cell excitability, the physiology of sensory systems, the motor control and muscle contraction will be analyzed.

- * Transports across the cell membranes
- * Calcium homeostasis
- * Neuromuscular junction. Physiology of the contraction in smooth and striated muscles
- * Electric activity of the heart (introduction to ECG)
- * Control of extracellular volume and osmolarity. Starling hypothesis

PREREQUISITES

Anatomy, biology, genetics and physics.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24554>

SCMD

YEAR: 2
SEM: 1
ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery
CONTACT: ilaria.rivolta@unimib.it



GENERAL PHYSIOLOGY II (module of Fundamentals of Human Physiology - H4102D010)

LECTURER: SANCINI GIULIO ALFREDO

CONTENTS

The course is based on the systematic presentation of physiological concepts underlying the functions of the human body. The sequence of events leading to an imbalance of a specific function cannot be appreciated without a deep understanding of the basic biophysical and physiological mechanisms. Therefore, these mechanisms that guarantee functions at the cellular and tissue level will be presented. In particular, membrane transports, neuronal, muscular and cardiac cell excitability, the physiology of sensory systems, the motor control and muscle contraction will be analyzed.

- * Transports across the cell membranes
- * Physiology of the body barriers
- * Cell excitability and neurotransmission. Integration of synaptic inputs
- * Electric activity of the brain (introduction to EEG)
- * Emodynamics

PREREQUISITES

Anatomy, biology, genetics and phisic.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24555>

SCMD

YEAR: 2

SEM: 1

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: giulio.sancini@unimib.it

CONTENTS

To develop the ability to recognize and distinguish relational elements in doctor-patient interactions.

To become aware of the personal mechanisms of relational functioning.

At the end of the course the student must be able to:

- * provide a definition of emotional regulation;
- * describe the modal model of emotion regulation and its phases; provide professional examples of the use of different strategies;
- * describe the main features of the basic emotions approach and the conceptual act model;
- * knowing how to describe the concept of "difficult patient" in terms of the narrative of the patient.

PREREQUISITES

N/A.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24588>

SCMD

YEAR: 1
SEM: 1+2
ECTS: Only if the entire course is frequented
DEGREE in Medicine and Surgery
CONTACT: marco.bani1@unimib.it



GENERAL SURGERY (module of Basic Clinical Skills - H4102D015)

LECTURER: CASTELLI CLAUDIO CARLO

CONTENTS

The medical Clerkship is designed to allow students to develop an integrated approach to the doctor-patient relationship.

In the Medical Clerkship, the focus is on learning core medical concepts and basic professional skills to prepare students for the Clinical program and beyond.

PREREQUISITES

Internal Medicine: Adequate knowledge of Human anatomy, Biochemistry, Physiology, Fundamentals of Radiology.

General Surgery: Successfully passed the propaedeutic courses defined by the previous semester. Pre-clinical block (anatomy, biochemistry, physiology...) successfully passed.

Emergency: Pre-clinical block (anatomy, biochemistry, physiology...) successfully passed.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24541>

SCMD

YEAR: 2

SEM: 2

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: ccastelli@asst-pg23.it

GENETICS I (module of Fundamentals of Cell Biology and Genetics - H4102D002)

LECTURER: BARISANI DONATELLA

CONTENTS

The course will provide the essential theoretical knowledge of biology and genetics, also focusing on the possible future application in the medical field. The subjects of the course will provide the necessary knowledge to understand the vital processes, both on the cellular and molecular level, as well as the laws of heredity and the processes involved in the generation of phenotypic diversity. The acquired knowledge will contribute to better understand the processes involved in normal and pathological situations.

PREREQUISITES

Basic sciences (chemistry, physics).

WEBSITE <https://elearning.unimib.it/course/info.php?id=24579>

SCMD

YEAR: 1
SEM: 1+2
ECTS: Only if the entire course is frequented
DEGREE in Medicine and Surgery
CONTACT: donatella.barisani@unimib.it



GENETICS AND REPRODUCTION

LECTURER: BENTIVEGNA ANGELA

CONTENTS

The aims of the course is to provide the student with up to date knowledge on 1) the pathogenetic mechanisms underlying different human genetic pathological conditions; 2) genetic markers in the field of prevention, population screening, diagnosis and prognosis of genetic diseases; 3) risk and predisposition to human genetic diseases; 4) genes for the determination of sex; 5) the physiopathology of human reproduction; 6) human gametes and their use for diagnostic-therapeutic purposes in medically assisted procreation.

The course will increase knowledge of Medical Genetics, Genetics of Reproduction; Physiopathology of Reproduction, Gametes and embryology.

PREREQUISITES

Advanced knowledge in Human Genetics and cell biology.

WEBSITE <https://elearning.unimib.it/course/info.php?id=25287>

M

YEAR: 2

SEM: 1

ECTS: 6

DEGREE in Biotechnology in Medicine

CONTACT: angela.bentivegna@unimib.it

GLOBAL PEDIATRIC MEDICINE AND COOPERATION

LECTURER: BIONDI ANDREA

CONTENTS

To provide an overview on medical problems and show initiatives and informations about real experiences.

To Illustrate programs related to the child health promotion in developing Countries.

PREREQUISITES

None.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24516>

SCMD

YEAR: 3

SEM: 1+2

ECTS: 1

DEGREE in Medicine and Surgery

CONTACT: andrea.biondi@unimib.it



CONTENTS

The course provides knowledge on the main economic features of the health care sector, both from the demand and supply side. Health care is one of the most important sector within modern economic systems, since it involves a large amount of public and/or private resources, and for its impact on the quality of life of population, and in turn on economic growth. It is essential to learn how to efficiently utilize the growing resources demanded by the population, and to evaluate the performance of different forms of insurance and of different health care-systems and organizations and regulations.

PREREQUISITES

None.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24589>

SCMD

YEAR: 1

SEM: 1+2

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: gianmaria.martini@unimib.it

HEMATOLOGY (module of ONCO-HEMATOLOGICAL DISEASES - H4102D020)

LECTURER: PIAZZA ROCCO GIOVANNI, RAMBALDI ALESSANDRO

CONTENTS

- * Master genes regulating normal hematopoiesis. Morphology and immunology of hematopoietic progenitor cells. Morphology of mature peripheral blood cells
- * Natural history, diagnosis and treatment of chronic myeloproliferative disorders
- * Natural history, diagnosis and treatment of acute myeloid leukemias disorders
- * Natural history, diagnosis and treatment of myelodysplastic syndromes
- * Natural history, diagnosis and treatment of lymphomas, multiple myeloma and other plasma cell dyscrasias.

PREREQUISITES

Preparatory courses for Vertical Tracks .

WEBSITE <https://elearning.unimib.it/course/info.php?id=24530>

SCMD

YEAR: 3
SEM: 2
ECTS: Only if the entire course is frequented
DEGREE in Medicine and Surgery
CONTACT: rocco.piazza@unimib.it



HISTOLOGY (module of Fundamentals of Human Morphology - H4102D007)

LECTURER: CAROZZI VALENTINA ALDA

CONTENTS

Students will be able to describe the structure and ultrastructure of the eukaryotic cell and the morphology correlate with the function of each organelle; then they will be able to describe the structure and morpho-functional characteristics of human tissues (epithelial, connective, muscle and nervous tissues) as well as to describe the main events of gametogenesis and early embryogenesis.

PREREQUISITES

College-level scientific knowledge.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24583>

SCMD

YEAR: 1
SEM: 2
ECTS: Only if the entire course is frequented
DEGREE in Medicine and Surgery
CONTACT: valentina.carozzi1@unimib.it

PROGRAM CODE: H4102D005

HUMANITIES

MODULES: 1.Ethics and Law (ref. H4102D013M)
2.Health Economics (ref. H4102D014M)
3.General Psychology I (ref. H4102D015M)
4.General Psychology II (ref. H4102D016M)

LECTURER: MARTINI GIANMARIA

CONTENTS

Outline of how law, regulation and other governance mechanisms deal with the organization and development of health care systems, medical practice and health related rights. Health care institutions and organizations, Demand and Supply in health care, Regulation, public and private organizations, Economic evaluation in health care. Psychological factors in health and illness.

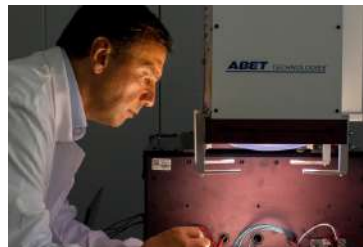
PREREQUISITES

From 1th year of Medical School.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24585>

SCMD

YEAR: 1
SEM: 1+2
ECTS: 8
DEGREE in Medicine and Surgery
CONTACT: tbd



PROGRAM CODE: H4102D014

IMAGE DIAGNOSTIC

MODULES: 1. Instrumentation for Diagnostic Imaging and Radiotherapy (ref. H4102D042M)
2. Contrast Media and Radiopharmaceutical (ref. H4102D043M)
3. Radiological Anatomy (ref. H4102D044M)

LECTURER: SIRONI SANDRO

CONTENTS

Acquisition of knowledge related to:

- * X-ray based, US-based, Magnetic Resonance, Nuclear Medicine and hybrid diagnostic imaging instrumentation
- * Radiotherapy instrumentation
- * Pharmacological aspects of diagnostics medicinal products, including fundamental of pharmacokinetics, pharmacodynamics and regulatory aspects related to their use in Diagnostic imaging.

Basic comprehension of the key anatomic reference structures, as an introduction to clinical interpretation of radiological images.

PREREQUISITES

Basic knowledge on chemistry, physics, human anatomy, physiology and pharmacology.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24556>

SCMD

YEAR: 2

SEM: 2

ECTS: 3

DEGREE in Medicine and Surgery

CONTACT: sandro.sironi@unimib.it

CONTENTS

Knowledge of the technologies of digital image generation and processing; structure quantification and functional analysis of biological structures and medical devices, at macro and microscopic level. This will include image storage, object creation and visualization, computational technique for functional evaluation of three-dimensional structures (vasculature and bones), as well as the use of software dedicated to medical image processing.

Numerical techniques for generation of digital images, storage and processing; Generation of surface models and graphical visualization, Processing of image data and structural quantification.

PREREQUISITES

Basic knowledge in mathematics, algebra and physics.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24568>

SCMD

YEAR: 1
SEM: 1
ECTS: Only if the entire course is frequented
DEGREE in Medicine and Surgery
CONTACT: andrea.remuzzi@unimib.it



IMMUNOLOGY I (module of Basic Pathology - H4102D011)

LECTURER: ALBINI ADRIANA

CONTENTS

The Immunology I course provides students with the fundamentals of modern cellular and molecular immunology.

The course deals with the investigation of pathological mechanisms of immunology common to all pathologies, functional alterations and clinical significance. It focuses on the immunological aspects of various diseases. The course allows students to understand how and why the immune system protects us, its cells, what are the clinical manifestations that appear following the body's immune reaction. At the end of the course the student will be able to understand the immunological basis of alterations in human health and associated clinical manifestations and to clarify the physiopathological principles underlying immunology and therefore of treatment.

PREREQUISITES

Knowledge of the introductory courses indicated in the regulation of the degree course.

WEBSITE <https://elearning.unimib.it/course/info.php?id=20906>

SCMD

YEAR: 2

SEM: 1

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: adriana.albini@unimib.it

PROGRAM CODE: H4102D034M

M

IMMUNOLOGY II (module of Basic Pathology - H4102D011)

LECTURER: ALBINI ADRIANA

CONTENTS

The Immunology II course provides students with the theoretical knowledge of some basic cell and molecular immunology laboratory techniques.

The course will provide skills on the preparation of the sample to be analyzed, as well as immunology techniques. At the end of the course the student will be able to understand how some laboratory techniques work.

PREREQUISITES

Knowledge related to basic immunology.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24545>

SCMD

YEAR: 2

SEM: 1

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: adriana.albini@unimib.it



INFECTIOUS DISEASES

LECTURER: STREPPARAVA MARIA GRAZIA

CONTENTS

Etiology of major infectious diseases (bacterial, viral, fungal) and related clinical and laboratory typical signs for diagnosis and therapy.

- * Sepsis and septic shock
- * Nervous system infections
- * Respiratory system infections
- * Infections of the cardiovascular system
- * Infections of the digestive system
- * Tropical diseases
- * Infections of the tegumentary system and skeletal muscle:
- * HIV infection
- * Urinary tract infections and sexually transmitted diseases
- * Diseases of the reticuloendothelial system

PREREQUISITES

N/A.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24517>

SCMD

YEAR: 3

SEM: 2

ECTS: 5

DEGREE in Medicine and Surgery

CONTACT: mariagrazia.strepparava@unimib.it

INSTRUMENTATION FOR DIAGNOSTIC IMAGING AND RADIOTHERAPY (module of Image Diagnostics - H4102D014)

LECTURER: GILARDI MARIA CARLA

CONTENTS

Diagnostic imaging instrumentation:

- * X-ray imaging: revision of physical principles and image formation; multislice CT, cone beam CT, mammography, angiography
- * Magnetic Resonance Imaging: revision of physical principles and T1/T2 image formation; diffusion weighted and perfusion weighted MRI, fMRI, spectroscopy
- * Echography: physical principles and image formation; echographic probes
- * Nuclear Medicine Imaging: revision of physical principles and image formation; PET/CT and PET/RM hybrid instrumentation

Radiotherapy instrumentation:

- * Linear accelerator and components
- * Intensity Modulated Radiotherapy (IMRT), Image Guided Radiotherapy (IGRT), tomotherapy
- * Cyber knife, gamma knife.

PREREQUISITES

Physics basic knowledge.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24558>

SCMD

YEAR: 2
SEM: 2
ECTS: Only if the entire course is frequented
DEGREE in Medicine and Surgery
CONTACT: maria.gilardi@unimib.it



INTERNAL MEDICINE (module of Basic Clinical Skills - H4102D015)

LECTURER: FAGIUOLI STEFANO

CONTENTS

The medical Clerkship is designed to allow students to develop an integrated approach to the doctor-patient relationship.

In the Medical Clerkship, the focus is on learning core medical concepts and basic professional skills to prepare students for the Clinical program and beyond.

PREREQUISITES

Internal Medicine: Adequate knowledge of Human anatomy, Biochemistry, Physiology, Fundamentals of Radiology

General Surgery: Successfully passed the propaedeutic courses defined by the previous semester. Pre-clinical block (anatomy, biochemistry, physiology...) successfully passed

Emergency: Pre-clinical block (anatomy, biochemistry, physiology...) successfully passed.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24542>

SCMD

YEAR: 2

SEM: 2

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: sfagiuoli@asst-pg23.it

LIVER DISEASES (module of “From Bench To Bedside: Translational Approach To Diseases” - F0901D050)

LECTURER: INVERNIZZI PIETRO

CONTENTS

The aim of this course is to present several examples of diseases and their physiopathology, and the role of biotechnology in their diagnosis/ therapeutic approach. A general introduction on the methodologies employed to analyse the molecular mechanisms underlying the pathological processes will be provided.

PREREQUISITES

Advanced knowledge in genetics, biology and molecular biology.

WEBSITE <https://elearning.unimib.it/course/info.php?id=25286>

M

YEAR: 2
SEM: 1
ECTS: Only if the entire course is frequented
DEGREE in Biotechnology in Medicine
CONTACT: pietro.invernizzi@unimib.it



PROGRAM CODE: H4102D018

LOCOMOTOR SYSTEM DISEASES

MODULES:	1. Anatomy of The Locomotor System	(ref. H4102D050M)
	2. Biochemistry	(ref. H4102D051M)
	3. Physiology	(ref. H4102D052M)
	4. Pathology	(ref. H4102D053M)
	5. Diagnostics	(ref. H4102D054M)
	6. Clinics	(ref. H4102D055M)
	7. Prosthesis and Rehabilitation	(ref. H4102D056M)
	8. Movement System Impairment	(ref. H4102D057M)
	9. Prosthesis and Rehabilitation in Practice	(ref. H4102D058M)

LECTURER: BIGONI MARCO

CONTENTS

See each module.

PREREQUISITES

See each module.

WEBSITE <https://elearning.unimib.it/course/view.php?id=24518>

SCMD

YEAR: 2

SEM: 1

ECTS: 14

DEGREE in Medicine and Surgery

CONTACT: marco.bigoni@unimib.it

MECHANISMS AND BIOMARKERS OF NEURONAL DAMAGE (module of Translational Approach To Neurological Disorders - F0901D047)

LECTURER: FERRARESE CARLO, TREMOLIZZO LUCIO

CONTENTS

This course aims at contributing to the training of a medical biotechnologist able to integrate basic principles of neuroscience in order to understand the biological basis, main pathogenic mechanisms and experimental models regarding nervous system disorders. Models will be analyzed stressing critical aspects and role in the development of novel therapeutic strategies.

PREREQUISITES

Basic knowledge of anatomy and histology, physiology and general pathology and neuropharmacology.

Advanced knowledge of biochemistry, molecular biology and genetics.

WEBSITE <https://elearning.unimib.it/course/info.php?id=25289>

M

YEAR: 2

SEM: 1

ECTS: Only if the entire course is frequented

DEGREE in Biotechnology in Medicine

CONTACT: carlo.ferrarese@unimib.it



MECHANISMS AND MODELS OF VASCULAR DISEASES (module of Translational Approach To Neurological Disorders - F0901D047)

LECTURER: FROIO ALBERTO

CONTENTS

This course aims at contributing to the training of a medical biotechnologist able to integrate basic principles of vascular pathophysiology in order to understand the biological basis, main pathogenic mechanisms and experimental models regarding vascular diseases. Models will be analyzed stressing critical aspects and role in the development of novel therapeutic strategies.

PREREQUISITES

Basic knowledge of anatomy, histology, pathology and physiology.

WEBSITE <https://elearning.unimib.it/course/info.php?id=19601>

M

YEAR: 2

SEM: 1

ECTS: Only if the entire course is frequented

DEGREE in Biotechnology in Medicine

CONTACT: alberto.froio@unimib.it

MEDICAL PHYSICS I (module of Basic Sciences - H4102D001)

LECTURER: MANTEGAZZA FRANCESCO

CONTENTS

The primary goal of the course is to provide students with the tools for the understanding of the complex reactions that represent the molecular basis of life, and with the fundamentals to identify the cause-effect relations of the most important chemical and physical processes for the curriculum and the work of a physician. This knowledge will form the primary basis for a rationale approach to the knowledge of medical sciences.

- * Physics of radiation and biological effects of radiation.
- * Biomechanics: Statics of the rigid body with applications to the human body.
- * Optics: mechanism of the human visual system.

PREREQUISITES

Basic knowledges of mathematics and analysis.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24574>

SCMD

YEAR: 1
SEM: 1+2
ECTS: Only if the entire course is frequented
DEGREE in Medicine and Surgery
CONTACT: francesco.mantegazza@unimib.it



MEDICAL PHYSICS II (module of Basic Sciences - H4102D001)

LECTURER: SALERNO DOMENICO

CONTENTS

The primary goal of the course is to provide students with the tools for the understanding of the complex reactions that represent the molecular basis of life, and with the fundamentals to identify the cause-effect relations of the most important chemical and physical processes for the curriculum and the work of a physician. This knowledge will form the primary basis for a rationale approach to the knowledge of medical sciences.

- * Electrostatics and electrodynamics: Electrical charges and electrical circuits.
- * Fluid mechanics: ideal fluids and real fluids.

PREREQUISITES

Basic knowledges of mathematics and analysis.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24575>

SCMD

YEAR: 1
SEM: 1+2
ECTS: Only if the entire course is frequented
DEGREE in Medicine and Surgery
CONTACT: domenico.salerno@unimib.it

PROGRAM CODE: H4102D013

MEDICINE AND SOCIETY

MODULES: 1.Society and Health I (ref. H4102D037M)
2.Society and Health II (ref. H4102D038M)
3.Behavioural Sciences, Communication Skills I (ref. H4102D039M)
4.Behavioural Sciences, Communication Skills II (ref. H4102D040M)
5.Behavioural Sciences, Communication Skills III (ref. H4102D041M)

LECTURER: STREPPARAVA MARIA GRAZIA

CONTENTS

Understanding the cultural, social and relational aspects of medicine, taking into account its history, evolution, sanitary structure, the main determinants of population health and risk factors of disease and patient-doctor relationship and the psychological variables affecting patient-doctor relationship. This knowledge is the basis for understanding and adequately placing individual medical practice in the contemporary and international social context.

PREREQUISITES

N/A.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24560>

SCMD

YEAR: 2
SEM: 1+2
ECTS: 10
DEGREE in Medicine and Surgery
CONTACT: mariagrazia.strepparava@unimib.it



MICROBIOLOGY AND VIROLOGY (module of Basic Pathology - H4102D011)

LECTURER: COCUZZA CLEMENTINA ELVEZIA

CONTENTS

The course aims to provide the students with knowledge on the fundamental principles of the microbial etiology and pathogenesis of the major human infectious diseases.

- * General characteristics of microbial pathogens.
- * Microbial genetics.
- * Microbial pathogenesis.
- * General characteristics of bacterial pathogens.
- * Virulence factors and mechanisms of bacterial pathogenesis.
- * Bacterial pathogens and associated diseases.
- * Viral pathogens and associated diseases and viral-induced oncogenesis.
- * Major fungal and protozoal human pathogens.
- * Principles of laboratory diagnosis of infectious diseases.
- * Antimicrobial agents and resistance.
- * Strategies for infectious diseases prevention and control.
- * Health Care Associated Infections

PREREQUISITES

NKnowledge on the principles of Cell Biology, Genetics and Anatomy as acquired during the first year of the degree course.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24546>

SCMD

YEAR: 2

SEM: 1

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: clementina.cocuzza@unimib.it

CONTENTS

The objective of the module is to enable students to acquire and deepen their knowledge about human modelling techniques starting from diagnostic images and 3D scanning systems up to 3D printing of body parts and organs.

The module contents concern: 1) techniques and tools to create and use 3D geometric model of human body and anatomical districts at different level of details; 2) simulation techniques; 3) technologies for the 3D printing of anatomical districts and organs.

PREREQUISITES

None.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24569>

SCMD

YEAR: 1

SEM: 1

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: caterina.rizzi@unimib.it



MOLECULAR AND ONCOLOGICAL THERAPY (module of Translational Approach To Onco-hematological Diseases - F0901D048)

LECTURER: GAMBACORTI PASSERINI CARLO

CONTENTS

Students will be trained on the main targeting strategies using small molecules in Hematology and Oncology.

In particular, the students will learn how to critically evaluate targets and the importance of the relationships between targets and mechanisms of neoplastic transformation.

PREREQUISITES

Basic knowledge on pathology and immunology. Advanced knowledge in biochemistry, molecular biology and genetics.

WEBSITE <https://elearning.unimib.it/course/info.php?id=25293>

M

YEAR: 2

SEM: 1

ECTS: Only if the entire course is frequented

DEGREE in Biotechnology in Medicine

CONTACT: carlo.passerini@unimib.it

PROGRAM CODE: H4102D057M

M

MOVEMENT SYSTEM IMPAIRMENT (module of Locomotor System Diseases - H4102D018)

LECTURER: MERONI ROBERTO

CONTENTS

N/A.

PREREQUISITES

N/A.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24523>

SCMD

YEAR: 3

SEM: 1

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: roberto.meroni@unimib.it



PROGRAM CODE: H4102D020

ONCO-HEMATOLOGICAL DISEASES

MODULES: 1.Pharmacology (ref. H4102D065M)
2.Patology (ref. H4102D066M)
3.Diagnostics and Radiation Oncology (ref. H4102D067M)
4.Oncology (ref. H4102D068M)
5.Hematology (ref. H4102D069M)

LECTURER: RAMBALDI ALESSANDRO

CONTENTS

See each module.

PREREQUISITES

See each module.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24528>

SCMD

YEAR: 3
SEM: 1
ECTS: 8
DEGREE in Medicine and Surgery
CONTACT: tbd

ONCOLOGY (module of ONCO-HEMATOLOGICAL DISEASES - H4102D020)

LECTURER: BIDOLI PAOLO

CONTENTS

- * TNM classification and genetic background of solid tumours
- * Natural history, diagnosis and treatment of brain tumours
- * Natural history, diagnosis and treatment of skin tumours (melanoma)
- * Natural history, diagnosis and treatment of head and neck tumours
- * Natural history, diagnosis and treatment of lung tumours
- * Natural history, diagnosis and treatment of breast tumours
- * Natural history, diagnosis and treatment of gastrointestinal tumours
- * Natural history, diagnosis and treatment of urologic tumours
- * Natural history, diagnosis and treatment of gynecologic tumours
- * Natural history, diagnosis and treatment of rare tumours.

PREREQUISITES

Preparatory courses for Vertical Tracks .

WEBSITE <https://elearning.unimib.it/course/info.php?id=24531>

SCMD

YEAR: 3
SEM: 2
ECTS: Only if the entire course is frequented
DEGREE in Medicine and Surgery
CONTACT: paolo.bidoli@unimib.it



CONTENTS

To provide the pathologic basis of locomotor system diseases. The student should be able to integrate macroscopic, histological, and cytological morphology with the clinical assay. The student must know the role and the professional tasks of the pathologist in the management of bone and soft tissue samples.

Morphology of non-neoplastic disease of bone and joints; pathogenesis, classification and morphology of soft tissue and bone tumours.

PREREQUISITES

Basic knowledge of histology and anatomy.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24524>

SCMD

YEAR: 3

SEM: 1

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: biagioeugenio.leone@unimib.it

PATOLOGY (module of ONCO-HEMATOLOGICAL DISEASES - H4102D020)

LECTURER: ALBINI ADRIANA

CONTENTS

- * Cellular biochemical and molecular bases of the carcinogenic process
- * Carcinogens, classification, action, DNA mutations, oncogenes
- * Components of the tumor microenvironment : angiogenesis, stroma, matrix
- * Components of the tumor infiltrate: natural and adaptive immunity cells in the cancer field
- * Growth factors and receptors in major tumors and their microenvironment; molecular bases of targeted therapy and immunotherapy.

PREREQUISITES

Basic pathology course (II yrs) , preparatory courses to the Vertical Tracks according to the regulation.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24532>

SCMD

YEAR: 3
SEM: 2
ECTS: Only if the entire course is frequented
DEGREE in Medicine and Surgery
CONTACT: adriana.albini@unimib.it



PROGRAM CODE: H4102D035M

M

PATHOLOGY AND MEDICINE (module of Basic Pathology - H4102D011)

LECTURER: FOTI MARIA

CONTENTS

The course aims to introduce the student to the knowledge of the causes of human diseases, the students will be able to understand the fundamental pathogenetic and pathophysiological mechanisms. During the course, topics for in-depth knowledge on the molecular mechanisms underlying the disease pathogenesis to identify potential therapeutic targets will be developed.

PREREQUISITES

Knowledge of the introductory courses indicated in the regulation of the degree course.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24547>

SCMD

YEAR: 2

SEM: 1

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: maria.foti@unimib.it

PHARMACOLOGY

LECTURER: PARENTI MARCO DOMENICO

CONTENTS

The students will learn: (1) the biological mechanisms underlying the effects induced by drugs acting on CNS, their abuse and dependence, the genetic determinants that influence their responses; (2) the differences between conventional and biological drugs and what are the biosimilars; (3) the principles that regulate drug patenting and their accessibility. In addition, through the discussion of scientific articles, the students will learn the main experimental methods to study drugs.

PREREQUISITES

Knowledge of chemistry, biochemistry, molecular and cell biology, genetics, anatomy, physiology, pathology.

WEBSITE <https://elearning.unimib.it/course/info.php?id=25304>

M

YEAR: 1
SEM: 2
ECTS: 6
DEGREE in Biotechnology in Medicine
CONTACT: marco.parenti@unimib.it



PHARMACOLOGY (module of ONCO-HEMATOLOGICAL DISEASES

- H4102D020)

LECTURER: TORSELLO ANTONIO BIAGIO

CONTENTS

- * classification of the most used hematological drugs: anti-anemic drugs and hemato-poietic growth factors; anticoagulants and antiplatelet agents; anti-hemorrhagic drugs; lipid-lowering drugs.
- * ADME and mechanisms of actions
- * cellular, biochemical and molecular bases of the action of hematological drugs and their interactions within the human body
- * therapeutic uses
- * advantages and disadvantages of their therapeutic use
- * analysis of some clinical cases.

PREREQUISITES

Basic Pharmacology course.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24533>

SCMD

YEAR: 3

SEM: 2

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: antonio.torsello@unimib.it

CONTENTS

The course will provide the knowledge to understand the physiological concepts underlying locomotor system functions in order to provide bases for pharmacology, pathology, pathophysiology and clinics of the locomotor system. Describe the mechanisms and regulation of muscle function, the neurophysiology of motor function, from spinal reflexes to cerebral cortical control.

The structure of skeletal muscle. Molecular mechanism of contraction. Excitation-contraction coupling. Cross-bridge cycle. Force output and motor unit. The control of skeletal muscle contraction. Neuro-muscular synaptic transmission. Spinal reflexes. The functional organization of movements. Muscle fiber types and properties.

PREREQUISITES

Basic knowledge of anatomy and biochemistry.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24525>

SCMD

YEAR: 3
SEM: 2
ECTS: Only if the entire course is frequented
DEGREE in Medicine and Surgery
CONTACT: giulio.sancini@unimib.it



PROSTHESIS AND REHABILITATION (module of Locomotor System Diseases - H4102D018)

LECTURER: REGAZZONI DANIELE

CONTENTS

The course aims at providing the students with the basic knowledge about major prostheses relevance, functioning, and customization opportunities (e.g. by means of Additive Manufacturing). Recent digital techniques to assess rehabilitation will be explained and real cases will be shown and discussed.

PREREQUISITES

Basic knowledge of anatomy.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24526>

SCMD

YEAR: 3

SEM: 1

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: tbd

PROSTHESIS AND REHABILITATION IN PRACTICE (module of Locomotor System Diseases - H4102D018)

LECTURER: tbd

CONTENTS

The course aims at providing the students with the basic knowledge about standard sensors used to measure motor parameters. The program explores a typical data acquisition and processing system, focusing on wearables-based systems for rehabilitation purposes. By describing and discussing some use cases, the course offers some basic tools to extract relevant information about patient's motor skills.

PREREQUISITES

Basic knowledge of physics and mathematics.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24527>

SCMD

YEAR: 3
SEM: 1
ECTS: Only if the entire course is frequented
DEGREE in Medicine and Surgery
CONTACT: tbd



PROGRAM CODE: H4102D044M

M

RADIOLOGICAL ANATOMY (module of Image Diagnostics - H4102D014)

LECTURER: SIRONI SANDRO

CONTENTS

Basic comprehension of the key anatomic reference structures, as an introduction to clinical interpretation of radiological images.

Normal anatomy as documented by means of conventional radiology, CT, ultrasound, and Magnetic Resonance Imaging.

PREREQUISITES

Basic knowledge on chemistry, physics, human anatomy, physiology and pharmacology.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24559>

SCMD

YEAR: 2

SEM: 2

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: sandro.sironi@unimib.it

PROGRAM CODE: H4102D072M

M

RHEUMATOLOGY (module of Skin and Connective Tissue Diseases - H4102D022)

LECTURER: SINICO RENATO

CONTENTS

Elements of Semiotics (joint physical examination, laboratory tests, imaging);
Epidemiology of rheumatic diseases, systemic connective- spondyloarthritis -vasculitis:
etiology / pathogenesis, diagnostic criteria, laboratory and instrumental investigations,
clinical picture, elements of therapy.

PREREQUISITES

Preparatory exams for the VT.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24536>

SCMD

YEAR: 3
SEM: 2
ECTS: Only if the entire course is frequented
DEGREE in Medicine and Surgery
CONTACT: renato.sinico@unimib.it



PROGRAM CODE: H4102D003

SCIENTIFIC AND MEDICAL LANGUAGE

LECTURER: GIANNONI DAVIDE SIMONE

CONTENTS

This course will focus on the special terminology, grammar and rhetorical features of medical communication, allowing students to engage in guided classroom tasks to practise and consolidate their language competence and metalinguistic awareness.

PREREQUISITES

English B2 level.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24590>

SCMD

YEAR: 1

SEM: 1

ECTS: 4

DEGREE in Medicine and Surgery

CONTACT: davide.giannoni@unimib.it

PROGRAM CODE: H4102D022

SKIN AND CONNECTIVE TISSUE DISEASES

MODULES: 1.Dermatology (ref. H4102D071M)
2.Rheumatology (ref. H4102D072M)

LECTURER: SINICO RENATO

CONTENTS

See each module.

PREREQUISITES

See each module.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24534>

SCMD

YEAR: 3

SEM: 2

ECTS: 6

DEGREE in Medicine and Surgery

CONTACT: renato.sinico@unimib.it



PROGRAM CODE: H4102D037M

M

SOCIETY AND HEALTH I (module of Medicine and Society - H4102D013)

LECTURER: CORTESI PAOLO ANGELO

CONTENTS

This course focus on the principal issues surrounding health and society. The course will focus on the main determinants of population health and risk factors of disease, and explore how epidemiology and public health can more effectively protect and promote the health of populations.

PREREQUISITES

None.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24564>

SCMD

YEAR: 2

SEM: 1+2

ECTS: Only if the entire course is frequented

DEGREE in Medicine and Surgery

CONTACT: paolo.cortesi@unimib.it

SOCIETY AND HEALTH II (module of Medicine and Society- H4102D013)

LECTURER: RIVA AUGUSTO MICHELE

CONTENTS

The aim of the module History of Medicine is to provide students with the tools for understanding the cultural and social aspects of modern medicine, through the analysis of its historical and epistemological evolution. The knowledge provided is the basis for knowing how to properly place the activity of the physician in the current socio-cultural context.

Greco-Roman Medicine, Medieval Medicine, Renaissance, Baroque and Enlightenment, Romanticism and Positivism, Medicine in the Twentieth Century.

PREREQUISITES

Prerequisites requested by the course "Medicine and Society".

WEBSITE <https://elearning.unimib.it/course/info.php?id=24565>

SCMD

YEAR: 2
SEM: 1+2
ECTS: Only if the entire course is frequented
DEGREE in Medicine and Surgery
CONTACT: michele.riva@unimib.it



PROGRAM CODE: F0901D047

TRANSLATIONAL APPROACH TO NEUROLOGICAL DISORDERS

MODULES: 1.Mechanisms and Biomarkers of Neuronal Damage (ref. F0901D092M)
2.Mechanisms and Models of Vascular Diseases (ref. F0901D093M)

LECTURER: FERRARESE CARLO

CONTENTS

This course aims at contributing to the training of a medical biotechnologist able to integrate basic principles of neuroscience in order to understand the biological basis, main pathogenic mechanisms and experimental models regarding nervous system and cardiovascular diseases. Models will be analyzed stressing critical aspects and role in the development of novel therapeutic strategies.

PREREQUISITES

Basic knowledge of anatomy and histology, physiology and general pathology and neuropharmacology.
Advanced knowledge of biochemistry, molecular biology and genetics.

WEBSITE <https://elearning.unimib.it/course/info.php?id=25288>

M

YEAR: 2
SEM: 1
ECTS: 6
DEGREE in Biotechnology in Medicine
CONTACT: carlo.ferrarese@unimib.it

PROGRAM CODE: F0901D048

TRANSLATIONAL APPROACH TO ONCO-HEMATOLOGICAL DISEASES

MODULES: 1.Cellular and Gene Therapy (ref. F0901D081M)
2.Molecular and Oncological Therapy (ref. F0901D082M)

LECTURER: BIONDI ANDREA

CONTENTS

See each module.

PREREQUISITES

See each module.

WEBSITE <https://elearning.unimib.it/course/info.php?id=25291>

M

YEAR: 2
SEM: 1
ECTS: 6
DEGREE in Biotechnology in Medicine
CONTACT: andrea.biondi@unimib.it



TURNING CLINICAL EXPERIENCE INTO RESEARCH PROJECTS

LECTURER: BIONDI ANDREA

CONTENTS

The program of this course intends to introduce the student to the practice of clinical research by following two paths. The first will indicate the basis that led to the generation of scientific evidence on which diagnostic and therapeutic decisions are based in the individual patient; the second will cover the reverse path and will develop the notions that the student must know in order to collect and examine the results of his activity in the real life that could be used to generate hypotheses of new controlled studies.

PREREQUISITES

None.

WEBSITE <https://elearning.unimib.it/course/info.php?id=24537>

SCMD

YEAR: 3

SEM: 1+2

ECTS: 1

DEGREE in Medicine and Surgery

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FOR FURTHER INFORMATION, PLEASE CONSULT OUR WEBSITE: [WWW.UNIMIB.IT](https://www.unimib.it)

IT'S IMPORTANT TO FOLLOW ALL UPDATE ON THE WEBSITE: [HTTPS://ELEARNING.UNIMIB.IT](https://elearning.unimib.it)

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