

Degree Programme in Medicine and Surgery

Academic Year 2026 /2027

INTEGRATED COURSE (I.C.): Systematic Pathology III

NUMBER OF CFU (ECTS credits): 10 CFU

SSD (Academic Discipline Code): MEDS-09/B, MEDS-05/A, MEDS-09/C, MEDS-10/B

Note: for single-subject (non-integrated) courses, delete the sections relating to modules and complete only the general fields; for integrated courses, adjust the number of "Module" sections to match those actually planned. If one or more modules are organized into multiple parallel tracks (e.g., A-L, M-Z), indicate for each track the name of the lecturer responsible for the course and the corresponding share of CFU.

COORDINATOR OF THE I.C.: Raffaella Pisapia

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MODULE 1: Blood disease

NUMBER OF CFU (ECTS credits): 3 CFU

SSD (Academic Discipline Code): MEDS-09/B

LECTURER:

Prof. Giuseppe Sconocchia

e-mail: giuseppe.sconocchia@unicamillus.org

Prof. Alessandro Natoni

e-mail: alessandro.natoni@unicamillus.org

MODULE 2: Allergy and Immunology

NUMBER OF CFU (ECTS credits): 1 CFU

SSD (Academic Discipline Code): MEDS-05/A

LECTURER:

Prof. Filomena Pietrantonio

e-mail: filomena.pietrantonio@unicamillus.org

MODULE 3: Rheumatology

NUMBER OF CFU (ECTS credits): 2 CFU

SSD (Academic Discipline Code): MEDS-09/C

LECTURER:

Prof. Chiara Scirocco

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MODULE 4: Infectious Diseases

NUMBER OF CFU (ECTS credits): 4 CFU

SSD (Academic Discipline Code): MEDS-10/B

LECTURER:

PREREQUISITE COURSES

None required

PREREQUISITES

Although there are no mandatory prerequisites, it is necessary to have knowledge of microbiology, pharmacology, as well as basic immunology and public health. Moreover, basic concepts of cell biology, biochemistry, physiology, and anatomy of the main organs and systems and of the musculoskeletal system are required. In addition, it is better to have rudiments of laboratory methods used for diagnostic and prognostic purposes in the context of hematological disorders and inflammatory disorders.

LEARNING OBJECTIVES

Among the aims of the course, there is the understanding of hematopoietic and lymphoid systems and its physiopathological disorders. Knowledge of the main hematological disorders is also required, such as anemia and clonal hematopoiesis (ARCH, CHIP, ICUS CCUS and IDUS), as well as, oncohematological disorders such as myelodysplastic syndromes, acute and chronic myeloid leukemias, myeloproliferative disorders, lymphoblastic leukemia and lymphoma.

With regard to the Allergy and Clinical Immunology course, it includes the study of the main allergic and immunological diseases and clinical methodology.

Moreover, the aim of the lessons is to give the students the ability to recognize the clinical presentation, epidemiology, course and prognosis of main rheumatic diseases, among which autoimmune and autoinflammatory conditions.

A further aim of the course is to provide students the knowledge of microorganism-host interactions including infections, infectious diseases, as well as colonization, deriving from this interaction. This course will also explain the fundamentals for applying appropriate diagnostic procedures to identify the presence of microorganisms and their impact on the host and will enable students to recognize the clinical presentation, epidemiology, clinical presentation and course, and prognosis of the main infectious diseases. Moreover, the course will introduce the pharmacological properties of the main anti-infective substances, and the proper treatment of the main infectious diseases. The teachers will introduce the main diseases with an infective etiology, giving the students elements of epidemiology, pathophysiology, differential and laboratory diagnosis and clinical-therapeutic management. A particular overview of emerging and re-emerging infections will be treated. At the end of the course, the student will also know the principles of the control and prevention of infections in the community and healthcare settings, in a "One Health" approach.

EXPECTED LEARNING OUTCOMES

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

DD 1: Knowledge and understanding

- Recognize the main components of the hematopoietic system

- Distinguish the main disorders affecting the lymphohematopoietic system
- Identify the main causes of hematological and oncohematological disorders
- Manage the differential diagnosis of the main hematological and oncohematological disorders
- Know the main therapeutic strategies for the management of the hematological patient
- Know and explain the basics of clinical methodology.
- Know and explain the basics of allergic and immunological diseases
- Know and explain the basics of advanced diagnostics in allergology and immunology
- Know and explain the main allergic diseases
- Know and explain the basics of autoimmune diseases
- Know and explain the basics of Digital Healthcare.
- Discuss the pathophysiology of the main rheumatic diseases and their distinctive clinical picture as well as identify the indications for laboratory tests and their interpretation
- Access and evaluate medical information relevant to the topics objects of this course.
- Know the classification of the main bacterial, viral and protozoan infections
- Describe the epidemiological principles of diseases, with special attention to the different geographical contexts, including the epidemiological chain of transmission
- Describe the differences between contaminations, colonization, infection, infectious disease
- Recognize the most common community-acquired and healthcare-associated infections
- Describe the elements for the infection-prevention and control, and the principles of the antimicrobial stewardship
- Understand the most relevant infections in immunocompromised patients (HIV and non-HIV)
- Know the emerging and re-emerging infectious diseases
- Know and explain the basis of clinical methodology, diagnostics and immune responses
- Know and describe the main therapeutic classes for prevention and treatment
- Describe isolation and infection control measures

DD 2: Applying knowledge and understanding

At the end of the course, the student will be able to

- Use the knowledge acquired for the in-depth study of aspects relating to the specific field to which the student will dedicate himself in the professional activities.
- Cooperate with other healthcare providers in making decisions regarding diagnosis, treatment, and monitoring patient's conditions.
- Perform a basic assessment, make decisions regarding the diagnosis, treatment, and monitoring of the patient's condition and use laboratory testings in order to improve clinical outcomes at a greatly reduced costs.
- Understand and explain the risk factors and the pathophysiology of infectious, rheumatic, hematologic and allergic and immune-mediated diseases

DD3: Making judgements

- At the end of the course the student should be able to make general assessments of the topics covered.
- The student will be also able to independently develop the logical procedures that lead to a differential diagnosis and, at the same time, to critically analyze the data supporting a specific diagnosis

DD4: Communication skills

- Know and correctly use proper scientific language aimed to a correct and rigorous scientific communication.
- Have knowledge of the procedures to inform patients, contacts on transmission risks; as well as health authorities for mandatory notifications of infectious diseases.

DD5: Learning skills

Students will develop the ability to independently acquire, critically evaluate, and continuously update their medical knowledge, using scientific literature and reliable sources to support lifelong learning and professional development.

SYLLABUS

Syllabus MODULE 1: Blood disease 3 CFU

- Hematopoiesis
 - The bone marrow niche
 - The hematopoietic stem cell
 - Myeloid and lymphoid differentiation
- Diagnostic techniques in Hematology
 - Blood count
 - Peripheral blood smear
 - Flow cytometric and molecular analysis in Hematology. Introduction to the concept of minimal/measurable residual disease in Hematology.
- Lymphomas
 - Non-Hodgkin Lymphomas
 - Hodgkin Lymphomas.
- Chronic Lymphocytic Leukemia
- Acute Lymphoblastic Leukemia
- Monoclonal gammopathy
 - Monoclonal gammopathy of undetermined significance
 - Smoldering myeloma
 - Multiple Myeloma
- Anemias
- Clonal hematopoiesis (ARCH, CHIP, ICUS, CCUS and IDUS)
- Myelodysplastic syndromes
- Acute myeloid leukemia
- Myeloproliferative disorders
- Therapy-related myeloid neoplasms
- Coagulation
- Microangiopathies

Syllabus MODULE 2: Allergology and Immunology 1 CFU

- Introduction to Allergic Diseases and Clinical Methodology
- Pathophysiology and Immunological Basis
 - Immune System: Defense Mechanisms, Tolerogenicity, and Immunogenicity.

- Allergic Response: Pathophysiology, Cytochemical, Chemokine, and Inflammatory Mediator Networks.
- Molecular Immunology: Allergen Characterization and Use of Recombinant Allergens.
- Advanced Diagnostics
 - Allergy: Performing and Reading Skin Prick Tests, Total and Specific IgE Measurements (RAST/PRIST), and Advanced Molecular Diagnostics (e.g., ALEX2).
 - Immunology: Flow Cytometric Typing of Lymphocyte Subpopulations, Protein Analysis, and Inflammatory Markers.
- Allergic Diseases
 - Respiratory Diseases: Bronchial Asthma (including the Management of Severe Asthma) and Allergic Rhinitis.
 - Severe reactions: Clinical management and emergencies related to anaphylaxis.
 - Specific allergies: Food allergies, drug allergies, insect venom allergies (Hymenoptera), and occupational allergic reactions.
 - Treatment: Principles and treatment plans for specific immunotherapy (allergy vaccines).
- Overview of Clinical Immunology and Autoimmune Diseases
- Digital Healthcare

Syllabus MODULE 3: Rheumatology 2 CFU

- Classification of the rheumatic diseases, rheumatological physical examination, synovial fluid
- Autoantibodies and laboratory in Rheumatology
- Definition, pathogenesis, clinical manifestations and treatment of rheumatoid arthritis, osteoarthritis, Polymyalgia Rheumatica, spondyloenteroarthritis, reactive arthritis, septic arthritis, gout and pseudogout, fibromyalgia, rheumatic fever, systemic lupus erythematosus, Sjogren's disease, Systemic Sclerosis, myositis, systemic vasculitis, Behcet's disease, IgG4 related disorders, autoinflammatory diseases, anti-phospholipid syndrome, Adult Onset Still Disease, Osteoporosis.
- Ultrasound and capillaroscopy

Syllabus MODULE 4: Infectious Diseases 4 CFU

- General considerations on Infectious Diseases
- Concepts of colonization, infection, infectious disease
- Modes of transmission.
- Mechanisms of microorganism-host interaction
- The body's defenses against infectious agents
- Diagnostic work up and basics on treatment of infectious diseases
- Guide to infection prevention and control measures in the community and healthcare settings
- Globalization and infectious diseases

Infectious syndromes

- Acute febrile neurological syndrome
- Acute febrile respiratory syndrome
- Fever syndrome returning from the tropics
- Icteric syndrome

- Febrile dermatological syndromes including exanthematous diseases
- Generic febrile syndromes including sepsis, bloodstream infections and endocarditis
- Gastrointestinal (gastroenteritic) syndromes

INTERNSHIP OBJECTIVES

HEMATOLOGY

- Attendance at wards and outpatient clinics in support of clinical mentors;
- Acquisition of practical knowledge aimed at performing a focused clinical examination of the hematology patient;
- Support and observation of clinical mentors during diagnostic and therapeutic procedures practiced in a hematology department: bone marrow aspirate, bone biopsy, and lumbar puncture;
- Acquisition of practical knowledge of the clinical significance of the main laboratory tests of hematological diseases;
- Acquisition of the first rudiments of light microscopy for morphological identification of blood cells;
- Acquisition of practical knowledge on the diagnostic, prognostic and therapeutic course of the hematological patient;
- Acquisition of practical knowledge on the impact of chemotherapy on the patient's clinical course during hematologic reconstitution.

RHEUMATOLOGY

- Perform a rheumatologic internist history and rheumatologic physical examination.

INFECTIOLOGY

- Clinical infectious syndromes: Localized infections, Sepsis and septic shock; Infectious endocarditis; Acute infectious enteritis and food poisoning;
- Infectious hepatitis; Urinary tract infections; Infectious osteomyelitis; Meningitis and meningoencephalitis.
- Diseases from bacteria and viruses.
- Diseases from fungi, protozoa and helminths.
- Principles of therapy: antibacterial, antiviral, antifungal and antiparasitic.

COURSE STRUCTURE

The course consists of a series of lessons. Students will engage in interactive discussions of clinical scenarios and cooperative learning activities. As part of the 'Professor for one day' programme, students can voluntarily commit to preparing a lesson on a specific topic.

Teachers will use didactic tools such as PowerPoint presentations containing explanatory diagrams, illustrations and images.

Additional optional activities: students have the option of attending seminars, undertaking research internships and attending monographic course. The course consists of 100 hours of classroom-based teaching and 2.5 hours of practical exercises for each CFU (ECTS credits).

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Attendance is mandatory.

ASSESSMENT METHODS

The exam consists of a multiple choice written assay (4 or 5 possible answers, only one correct) with the option of oral exam. The evaluation will be expressed in 30/30. The student must obtain the minimum score (18/30) in each module to pass the exam. Hence, the whole examination will be evaluated as it follows:

Example of an evaluation grid for an oral exam:

Fail	Significant gaps and/or inaccuracies in knowledge and understanding of the topics; limited analytical and synthesis skills; argumentation absent or frequently incorrect.
18–20	Barely sufficient knowledge and understanding of the topics, with possible imperfections; sufficient analytical, synthesis, and judgement skills.
21–23	Routine knowledge of the topics; correct analytical and synthesis skills with coherent logical argumentation.
24–26	Fair knowledge and understanding of the topics; good analytical and synthesis skills; rigorously expressed argumentation.
27–29	Complete knowledge of the topics; considerable analytical and synthesis skills; good independent judgement.
30–30L	Excellent level of knowledge and understanding. Considerable analytical, synthesis, and independent judgement skills. Original argumentation expressed with full command of specialized terminology.

OPTIONAL ACTIVITIES

In addition to the above reported teaching activity, the student will have the option to attend seminars, research internships, department internships and monographic courses.

READING MATERIALS

Module 1 Haematology

- Hematology: pathophysiology, diagnosis and treatment. Sante Tura, Michele Cavo e Pier Luigi Zinzani. Casa editrice Esculapio.
- The slides shown during the course will be made available to the students and will constitute the support material to guide the students towards the correct study method.

Module 2 Allergy and Immunology

- Abbas A.K., Lichtman A.H, Pillai S., Henrickson SE. Cellular and Molecular Immunology. Elsevier Science Health Science 11th Edition (2025)
- Kaspi, Haucer, Fauci, Longo, Jameson, Lo Scalzo. Harrison's Manual of Medicine, latest edition Edition (Harrison Manual of Medicine) (English Edition). Available also the PocketManual. McGraw-Hill Education / Medical; latest Edition (2016). ISBN 978-0-07-182852-9
- Fred F. Ferri. Practical Guide to the care of the Medical Patient. Mosby Elsevier (latest Edition) 2014. ISBN: 978-1-4557-4459-6
- Teaching material provided by the teacher during the lessons

Rheumatology

- Harrison's Rheumatology, latest edition
- Harrison's Principle of Internal Medicine, latest edition
- The slides shown during the course will be made available to students and will serve as supporting material to guide them.

Infectious Diseases

- The slides shown during the course will be made available to students and will serve as supporting material to guide them towards the correct study method.
- The recommended book for studying infectious diseases and preparing for the exam is: The Merck Manual. Professional version, section 'Infectious Diseases' (English edition). Sections 1–12 are available at:
<https://www.msdmanuals.com/professional/searchresults?query=infectious%20diseases>
- Scientific papers published by international journals on the topics covered will be made available upon request.