Degree Programme in Medicine and Surgery

Academic Year 2026/2027

INTEGRATED COURSE (I.C.): PEDIATRIC SCIENCES
NUMBER OF CFU (ECTS credits): 9
SSD (Academic Discipline Code): MEDS-20/A - MEDS-14/B - MEDS-20/B

COORDINATOR OF THE I.C.: Michele Sorrentino
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MODULE 1: GENERAL AND SPECIALISTIC PEDIATRICS
NUMBER OF CFU (ECTS credits): 4
SSD (Academic Discipline Code): MEDS-20/A
LECTURERS:
Pietro Merli (2 CFU)
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Giovanni Battista Dell'isola (1 CFU)
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Giovanna Maragliano (1 CFU)
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MODULE 2: PEDIATRIC AND INFANT SURGERY
NUMBER OF CFU (ECTS credits): 3
SSD (Academic Discipline Code): MEDS-14/B
LECTURER: Nicola Zampieri
e-mail: nicola.zampieri@unicamillus.org

MODULE 3: CHILD NEUROPSYCHIATRY
NUMBER OF CFU (ECTS credits): 2
SSD (Academic Discipline Code): MEDS-20/B
LECTURER: Michele Sorrentino
e-mail: michele.sorrentino@unicamillus.org

PREREQUISITE COURSES

Not required

PREREQUISITES

Previous knowledge and skills in the following subjects: Biology and Genetics, Biochemistry and Molecular Biology, Physiology I and II, Immunology and Immunopathology, Human Anatomy I and II, Laboratory Medicine, General Pathology and Physiopathology, Microbiology, Clinical Semeiotics, Systematic Pathology I and II, Pharmacology.

LEARNING OBJECTIVES

By the end of the course, the student should demonstrate knowledge of:

a) the general principles of physiological and typical development (auxological, motor, cognitive, neuropsychological, emotional-affective-behavioral, relational, and communicative), as well as developmental delays and atypicalities, nutrition, feeding, and vaccinations during infancy, childhood and adolescence
b) the etiology, clinical presentation, clinical history, and pathogenetic mechanisms of disorders related to pediatric subspecialties, neonatology, pediatric surgery, and child neuropsychiatry
c) key aspects regarding medical history, physical examination, prevention, diagnostic pathways, therapy, and habilitative/rehabilitative interventions for disorders occurring during the neonatal period, childhood, and adolescence
d) conditions requiring urgent or emergency intervention and pathologies necessitating referral to a specialist.

EXPECTED LEARNING OUTCOMES

The expected learning outcomes of the integrated course of Pediatric Sciences are consistent with the European Qualifications Framework (Dublin descriptors) as follows.

DD1: Knowledge and understanding

By the end of the integrated course, the student should be able to:

- Know and understand the correct approach to the newborn, child, and adolescent in both physiological and pathological states
- Know and understand the fundamental characteristics of neonatal disorders
- Know and understand the fundamental characteristics of disorders of specialistic pediatrics (infectious, respiratory, gastrointestinal, immunological/rheumatological, allergic, nephrological, endocrinological, cardiac, and onco-hematological)
- Know and understand the fundamental characteristics of the main genetic syndromes in pediatrics
- Know and understand the fundamental characteristics of the main surgical conditions in pediatrics (affecting the abdominal wall, gastrointestinal tract, genitourinary system, and upper limbs) and the associated surgical techniques
- Know and understand the fundamental characteristics of neurodevelopmental disorders and the main neurological and psychiatric conditions during infancy, childhood and adolescence
- Recognize typical development (auxological, motor, cognitive, neuropsychological, emotional-affective-behavioral, relational, and communicative) and distinguish delays and atypical features ("red flags")
- Know the fundamental aspects of nutrition, feeding, and vaccination in pediatrics

- Know the main clinical tests, as well as laboratory and instrumental examinations, used in pediatric care
- Know the fundamentals of research in pediatrics, pediatric surgery, and child neuropsychiatry

DD2: Applying knowledge and understanding

By the end of the integrated course, the student should be able to:

- Apply acquired knowledge to prevention and to diagnostic, therapeutic, and habilitative/rehabilitative approaches for various disorders, taking into account age, clinical presentation, genetic factors, major comorbidities, and the principles of Evidence-Based Medicine (EBM) and Evidence-Based Practice (EBP).
- Formulate a differential diagnosis based on specific clinical data and supported by coherent clinical reasoning
- Select, interpret, and—to some extent—utilize appropriate diagnostic tools (clinical, laboratory, instrumental, etc.) to assess health and disease status, as well as auxological, motor, cognitive, neuropsychological, emotional-affective-behavioral, relational, and communicative development during the pediatric age.
- Promptly identify risk factors and prodromal symptoms of pediatric diseases, as well as "red flags" indicating pathological development in infancy, childhood and adolescence
- Promptly initiate appropriate procedures for managing pediatric emergencies and urgencies
- Cooperate with other healthcare professionals in multidisciplinary and multiprofessional teams to make decisions regarding diagnosis, treatment, and monitoring of the patient's condition, with the aim of improving clinical outcomes and optimizing costs

DD3: Making judgements

By the end of the integrated course, the student should be able to indipendently:

- Process study materials (slides, notes, textbooks) to identify key concepts
- Identify the signs and symptoms of major diseases affecting the developmental age
- Distinguish between physiological conditions and urgent cases or chronic diseases requiring prompt specialist care
- Evaluate key preventive interventions for pediatric diseases
- Integrate medical history and clinical data to formulate an accurate diagnostic assessment, guide initial therapeutic choices, and refer the patient to appropriate subsequent specialist, therapeutic, and habilitative/rehabilitative pathways
- Recognize the importance of the knowledge acquired during medical training and its practical applications for one's professional future.
- Identify and evaluate the results of scientific research
- Develop a critical approach based on scientific evidence

DD4: Communication skills

By the end of the integrated course, the student should be able to:

- Communicate the theoretical and practical content of the integrated course clearly, in an organized and coherent manner, using appropriate technical-scientific language
- Interact clearly, empathetically, and effectively with the parents or caregivers of pediatric patients, gathering medical history and explaining diagnoses or treatments
- Adapt communication to the age and developmental stage of the pediatric patient
- Communicate and share clinical information with other healthcare professionals

DD5: Learning skills

By the end of the integrated course, the student should be able to:

- Independently and effectively consult major biomedical search engines (PubMed, Embase, Scopus, etc.), specialized texts, monographs, scientific journals, and national and international guidelines regarding developmental disorders in order to deepen and update their knowledge and skills
- Approach new diagnostic, therapeutic, rehabilitative, and technological developments emerging from pediatric research with a critical and scientific mindset
- Actively participate in specialized seminars, conferences, and congresses covering all areas of pediatrics
- Understand the importance of continuing education and lifelong learning as applied to clinical practice and pediatric health

SYLLABUS

MODULE 1: GENERAL AND SPECIALISTIC PEDIATRICS - NUMBER OF CFU (ECTS credits): 4

GENERAL AND SPECIALISTIC PEDIATRICS - PART I - NUMBER OF CFU (ECTS credits): 3

Pediatric semiotics. Auxology: normal growth and development of the child, disorders of growth and pubertal development. Lifestyle and nutrition in developmental age. Weaning. Vaccination calendar. Fever in childhood. Infectious diseases of pediatric interest (exanthems, viral infections, zoonoses). Diseases of the respiratory system (upper and lower respiratory infections, cystic fibrosis, asthma). Diseases of the gastrointestinal system (vomiting in infants, diarrhea in infants, gastroenteritis, dehydration and shock, celiac disease, gastroesophageal reflux, digestive hemorrhages, inflammatory bowel diseases). Pediatric immunology and rheumatology (brief overview of primary immunodeficiency, arthritis, vasculitis). Pediatric allergology (atopy, food allergies and intolerances, urticaria, atopic dermatitis, anaphylaxis). Pediatrics nephrology (urinary tract infections, pyelonephritis, glomerulonephritis and nephrotic syndrome). Pediatric endocrinology (pituitary gland disease, thyroid disease, adrenal diseases, diabetes mellitus and insipidus). Brief overview of pediatric neurology (head trauma, infections). Congenital and acquired heart diseases. Brief overview of pediatric oncohematology (anaemia, thrombocytopenia, childhood cancer). General overview of metabolic diseases. Clinical aspects of the most common chromosomal disorders. Pediatric Urgencies and emergencies: head trauma, dehydration and shock, abuse and maltreatment.

GENERAL AND SPECIALISTIC PEDIATRICS - PART II (NEONATOLOGY) - NUMBER OF CFU (ECTS credits): 1

Neonatology: prenatal development and the 3 adaptations to extra-uterine life: respiratory, thermic, cardiocirculatory. Classification of the newborn on the basis of birth weight, gestational age, Lubchenco growth curves (AGA – SGA – LGA). Growth curves in childhood. Stages of child development. Neonatal care in the delivery Room: Apgar score, first care of the newborn.

Neonatal resuscitation: respiratory, cardiocirculatory, metabolic. Prenatal infections. TORCH infectious diseases. Infections from Syphilis, Toxoplasma, Rubella, Cytomegalovirus. Early and late onset neonatal infections: sepsis, meningitis, encefalitis and outcome of neonatal infections in the following ages. Vertical and horizontal neonatal infections. Bilirubin metabolism; physiologic and pathologic neonatal hycterus. Neonatal nutrition: breastfeeding in the term and preterm newborn. Promoting, supporting and protecting breastfeeding in the preterm newborn: the 10 steps by D.Spatz.

MODULE 2: PEDIATRIC AND INFANT SURGERY - NUMBER OF CFU (ECTS credits): 3

Pediatric surgical semeiotics. Malformations of the abdominal wall (omphalocele, gastroschisis, prune belly syndrome). Malformations of the gastrointestinal apparatus (atresias, stenosis, duplications, anorectal malformations, Hirschsprung's disease). Malformations of the genitourinary apparatus (bladder exstrophy, hydronephrosis, vesicoureteral reflux, genital malformations, varicocele, cryptorchidism, hypospadias). Malformations of the upper limb. Diaphragmatic hernia. Minimally invasive surgery techniques (single port surgery, laparoscopy, thoracoscopy, laparoscopy with percutaneous instruments). Simulation in pediatric surgery. Molecular and biological bases of research in pediatric surgery. Bases on pediatric anesthesiology in different age groups.

MODULE 3: CHILD NEUROPSYCHIATRY - NUMBER OF CFU (ECTS credits): 2

Classification systems (ICD, DSM, ICF) and the biopsychosocial model. Child neuropsychiatric semiotics. Risk factors in child neuropsychiatry. Typical and atypical psychomotor development. Neuro-developmental assessment of healthy and at-risk newborns and infants. Specific assessment and diagnostic tools in child neuropsychiatry (cognitive, neuropsychological, adaptive, motor, emotional-affective-behavioral, and communicative). Neurodevelopmental disorders: intellectual disability; communication disorders (language disorder, speech sound disorder, childhood-onset fluency disorder, social communication disorder); autism spectrum disorder; attention-deficit/hyperactivity disorder; specific learning disorder; movement disorders (tic disorders, developmental coordination disorder). Main genetic syndromes concerning child neuropsychiatry. Brief verview of main externalizing and internalizing disorders in infancy, childhood and adolescence (oppositional defiant disorder, conduct disorder, mood disorders, anxiety disorders, obsessive-compulsive disorder, etc.). Key characteristics of main neurological conditions in childhood and adolescence (motor system: functional organization and related neurological syndromes; cerebral palsy; epilepsy).

COURSE STRUCTURE

The course is structured in 90 hours of classroom-based teaching (40 of general and specialist pediatrics, 30 of pediatric and infant surgery and 20 of child neuropsychiatry). Attendance is mandatory. Lectures will include theoretical presentations, interactive discussions, critical readings of scientific articles, cooperative learning. Teachers will use educational aids such as PowerPoint presentations containing explanatory graphs, diagrams, illustrations, and images.

COURSE GRADE DETERMINATION

The assessment of the student's preparation will take place through a written test followed by an oral exam.

The written test consists of 27 multiple-choice questions, lasts 50 minutes, and aims to assess whether the student has acquired the basic knowledge of pediatric sciences required to proceed to the oral exam. For each correct answer 1 point will be assigned, for each wrong or missing answer 0 points will be awarded. The final score of the written test will be given by the sum of the scores assigned to each question answered correctly. To access the oral exam, the student must obtain a score of at least 15 points. During the oral exam, the examination board will assess the student's knowledge, understanding, making judgment, and ability to correctly apply and communicate the knowledge acquired during the integrated course.

The final grade for the course will be expressed in thirtieths, according to the following evaluation grid:

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 didactic activity, the students will be given the opportunity to have 1 office hour every two weeks with each professor. Students will be received after booking an appointment by email.

READING MATERIALS

MODULE 1: GENERAL AND SPECIALISTIC PEDIATRICS - NUMBER OF CFU (ECTS credits): 4

- Teaching materials provided by the professors during the course
- Kliegman RM, St. Geme JW III, editors. Nelson textbook of pediatrics. 22nd ed. Philadelphia: Elsevier; 2025
- Eichenwald EC, Hansen AR, Martin CR, Stark AR, editors. Cloherty and Stark's Manual of Neonatal Care. 8a ed. Philadelphia: Wolters Kluwer; 2024

MODULE 2: PEDIATRIC AND INFANT SURGERY - NUMBER OF CFU (ECTS credits): 3

- Teaching materials provided by the professors during the course
- Coppola CP, Kennedy AP Jr, Lessin MS, Scorpio RJ, editors. Pediatric surgery: diagnosis and treatment. 2nd ed. Cham: Springer; 2022

MODULE 3: CHILD NEUROPSYCHIATRY - NUMBER OF CFU (ECTS credits): 2

- Teaching materials provided by the professors during the course
- Thapar A, Pine DS, Cortese S, Creswell C, Ford TJ, Leckman JF, Stringaris A, editors. Rutter's Child and Adolescent Psychiatry and Psychology. 7th ed. Chichester: Wiley-Blackwell; 2025.