

## **Master's degree in Medicine and Surgery**

### **Integrated Course PEDIATRIC**

SCIENCES SSD Course MED/38 - MED

/20 - MED/39 CFU 9

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### **Module GENERAL AND SPECIALISTIC PEDIATRICS**

SSD MED/38

CFU 2

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### **Module GENERAL AND SPECIALISTIC PEDIATRICS**

SSD MED/38

CFU 2

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### **Module PEDIATRIC AND INFANT SURGERY**

SSD MED/20

CFU 3

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### **Module CHILD NEUROPSYCHIATRY**

SSD MED/39

CFU 2

**Professor's name** [MICHELE SORRENTINO](mailto:michele.sorrentino@unicamillus.org) - [michele.sorrentino@unicamillus.org](mailto:michele.sorrentino@unicamillus.org)

## **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**

The student must acquire knowledge of:

- 1) the general principles of auxology and adolescentology, the nutrition in the first year of life and the vaccinations
- 2) the general principles of neonatology
- 3) the general principles of specialist pediatrics
- 4) the general principles of infantile neuropsychiatry
- 5) the general principles of pediatric and infant surgery.

The student must be able to apply the aforementioned knowledge to the diagnostic, therapeutic and rehabilitative orientation of the various diseases in relation to age, genetic factors and main comorbidities.

## **LEARNING OUTCOMES**

The expected learning outcomes of the integrated course of Pediatric Science are consistent with

the European Qualifications Framework (Dublin descriptors) as follows:

### 1) Knowledge and understanding

At the end of the integrated course the student must:

- Know and understand the problems relating to the state of health and disease in neonatal age, infancy and adolescence in the preventive, diagnostic, therapeutic and rehabilitative aspects
- Know and understand the general principles of neonatology, auxology and adolescence
- Know and understand the general principles of specialist pediatrics
- Know the laboratory and diagnostic tests in developmental age
- Know and understand the general principles of pediatric surgery
- Know the main congenital malformations
- Know the general principles of child neuropsychiatry
- Know the neurodevelopmental disorders and the main neurological and psychiatric pathologies in developmental age
- Know the fundamentals of research in pediatrics, child neuropsychiatry and pediatric surgery
- Know and link general principles, terminology and methods of spreading the disease to the study of systemic pathology

### 2) Applied knowledge and understanding

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

- Know how to apply the knowledge acquired to identify the main problems of the pediatric patient, plan preventive and diagnostic interventions in relation to age, genetic factors and main comorbidities
- Formulate a differential diagnosis based on specific clinical data and supported by consistent reasoning
- Identify therapeutic and rehabilitative interventions in developmental age
- Use assessment tools to evaluate growth, physical and mental development and individual variability in developmental age
- Assess psychomotor development and recognize risk factors and red flags related to pathological development
- Cooperate with other healthcare professionals in multidisciplinary and multiprofessional teams to make decisions regarding diagnosis, treatment and monitoring of the patient's condition in order to improve clinical outcomes and reduce costs

### 3) Making judgements

At the end of the integrated course the student must:

- Recognize the importance of detailed and thorough theoretical and practical knowledge of the topics covered during the lessons for adequate medical education and appropriate clinical practice
- Recognize the importance of using data obtained from scientific research in clinical practice
- Plan individualized preventive, diagnostic and therapeutic interventions in developmental age

### 4) Communication Skills

At the end of the integrated course the student must:

- Be able to communicate orally theoretical and applicative contents of the learning program in a clear, organized and coherent way, using an adequate technical and scientific language

### 5) Learning Ability

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

- Evaluate the importance of the acquired knowledge in the medical education process and their practical applications for the professional future
- Deepen and update one's knowledge and skills through the autonomous consultation of specialized texts, scientific articles, databases and website
- Acquire the ability to actively participate in specialized seminars, conferences and congresses in all areas of pediatric pathology.

## **COURSE SYLLABUS**

### **GENERAL AND SPECIALISTIC PEDIATRICS – PART I**

Pediatric semiotics. Lifestyle and nutrition in developmental age. Disorders of growth and pubertal development. Diseases of the respiratory system (cough, wheezing, dyspnea, upper and lower respiratory infections, cystic fibrosis). Diseases of the gastrointestinal system (vomiting, diarrhea, gastroenteritis, celiac disease, gastroesophageal reflux, digestive hemorrhages, inflammatory bowel diseases, disorders of gut-brain interaction). Pediatric immunology and rheumatology: rheumatic fever, arthritis, vasculitis (Kawasaki disease, Schonlein Henoch disease). Pediatric allergology (atopy, allergic asthma, food allergies and intolerances, urticaria, atopic dermatitis, allergic rhinitis and conjunctivitis, anaphylaxis). Pediatrics nephrology (urinary tract infections, pyelonephritis, glomerulonephritis, hemolytic uremic syndrome, nephrotic syndrome). Pediatric endocrinology (pituitary gland disease, thyroid disease, adrenal diseases, diabetes mellitus and insipidus). Clinical aspects of the most common chromosomal disorders. Pediatric emergency care: head trauma, dehydration and shock, child abuse.

### **GENERAL AND SPECIALISTIC PEDIATRICS – PART II**

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, encephalitis in neonatal and pediatric age. Vertical and horizontal neonatal infections. Bilirubin metabolism; physiologic and pathologic neonatal icterus. Neonatal nutrition: breastfeeding in the term and preterm newborn. Promoting, supporting and protecting breastfeeding in the preterm newborn: the 10 steps by D.Spatz. Complementary feeding. Exanthematous diseases in infancy. The immunization schedule. Fever in childhood. Brief overview on congenital cardiopathies.

### **PEDIATRIC AND INFANT SURGERY**

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.

## **CHILD NEUROPSYCHIATRY**

Childhood neuropsychiatric semeiotics. Risk factors in childhood and adolescent neuropsychiatry. Neurodevelopmental examination of the healthy and at-risk newborn and infant. Psychomotor development. Assessment tools in child neuropsychiatry. Neurodevelopmental disorders (intellectual disability, communication disorders, autism spectrum disorder, ADHD, specific learning disorders, motor disorders). Main genetic syndromes concerning child neuropsychiatry. Brief overview of the main psychiatric disorders in childhood and adolescence (externalizing disorders, mood disorders, anxiety disorders, obsessive-compulsive disorder, trauma- and stressor-related disorders, feeding and eating disorders). Brief overview of the main neurological disorders in childhood (epilepsies, cerebral palsy).

## **COURSE STRUCTURE**

The course is structured in 90 hours of frontal teaching (40 of general and specialist pediatrics, 30 of pediatric and infant surgery and 20 of child neuropsychiatry). Lectures will include theoretical lessons, interactive discussions, critical readings of scientific articles, cooperative learning. Teachers will use teaching tools such as powerpoint presentations with explanatory 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 will consist of 27 questions with multiple choice answers and will last 60 minutes. 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 16 points.

During the oral exam the examining committee will assess the student's ability to apply and correctly present the knowledge acquired during the integrated course. The followings will be also assessed: making judgments, communication skills and learning skills, as indicated in the Dublin descriptors. The score of the oral test will be 0-3 points. The examining committee may assign additional points (1-3) in the case of particularly brilliant oral exams.

The final course grade will be the sum of the scores obtained in written and oral tests and will be expressed out of thirty.

In particular, the exam will be evaluated according to the following criteria:

Failed: important deficiencies and / or inaccuracies in knowledge and understanding of the topics; limited capacity for analysis and synthesis, frequent generalizations.

18-20: knowledge and understanding of the subjects quite sufficient with possible imperfections; ability to analyze, synthesis and sufficient judgment autonomy.

21-23: Knowledge and understanding of routine topics; Correct analysis and synthesis skills with coherent logical argumentation.

24-26: Fair knowledge and understanding of the topics; good analysis and synthesis skills with rigorously expressed arguments.

27-29: Knowledge and understanding of the subjects complete; remarkable analytical skills, synthesis. Good independence of judgment.

30-30L: Excellent level of knowledge and understanding of the topics. Considerable analytical and synthesis skills and autonomy of judgment. Arguments expressed in an original way.

### **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 of general and specialist pediatrics (Prof. Romeo and Prof. Maragliano), 1 office hour every two weeks with the professor of pediatric and infant surgery (Prof. Zampieri) and 1 office hour every two weeks with the professor of child neuropsychiatry (Prof. Sorrentino). Students are received after booking an appointment by email.

### **READING MATERIALS**

- Nelson - Textbook of Pediatrics 22 nd Ed., Kligeman, Geme III, Elsevier, 2024
- Teaching and learning materials provided by the professors during the course