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| Doctoral PrograminClinical Sciences*Coordinator Prof. Lorenzo Cosmi* |
| **BIOMEDICAL AREA** |
| **ADMINISTRATIVE OFFICE** | Department of Experimental and Clinical Medicine |
| **CURRICULA** | 1. Clinical Pathophysiology and Pathophysiology of Aging, Emergency Medicine, and Nursing Sciences
2. Clinical and Experimental Medicine and Radiology
3. Clinical Pathology, in Musculoskeletal Diseases and Calcified Tissues
4. Anesthesiology, Pain Therapy and Surgical Sciences
5. Psychology
6. Global Health, Occupational Health, and International Cooperation on Mobile Populations
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| **THEMATICS** | **Curriculum Clinical Pathophysiology and Pathophysiology of Aging, Emergency Medicine, and Nursing Sciences****Nursing area** 1. Organ donation in nursing sciences.
2. Clinical risk in nursing sciences.
3. Nursing Management of signs and symptoms.

**Medical Area** 1. Pathogenetic and Therapeutic Mechanisms of immunovascular diseases.
2. Pathogenetic and Therapeutic Mechanisms of pulmonary obstructive diseases
3. Pathophysiology of atherosclerosis.
4. Mechanisms of action, efficacy and safety of antithrombotic therapy.
5. Pathophysiology of acute coronary syndromes.
6. Atherogenic dyslipidemias: from genetic diagnosis to treatment.
7. Venous thromboembolism: new pathogenetic mechanisms.
8. Biomolecular mechanisms of aging and age-related diseases.
9. Pathophysiology and clinical epidemiology of age-related fragility and disability.
10. Aging of cardiovascular system and age-related cardiomyopathies.
11. Pathophysiology and clinical epidemiology of the cognitive decline in the elderly.
12. The management of major traumas in Italy and Europe.
13. Development of new methodologies of advanced simulation for the implementation of the trauma team efficiency.
14. Pathophysiology of, and new rehabilitation approaches to, freezing of gait in Parkinson’s disease.
15. Rehabilitation interventions based on powered exoskeleton in subjects with spinal cord injury.
16. Rehabilitation approaches to rheumatoid arthritis in older subjects
17. Innovative approaches to rehabilitation of subjects with stroke: action observation therapy, motor imagery, mirror therapy.

**Curriculum in Clinical and Experimental Medicine and Radiology**1. Biological basis (cellular, molecular, genetic, metabolic, microbiologic, hormonal) of immune dysregulation (chronic inflammatory diseases, immunodeficiencies, cancer, autoimmunity).
2. Biomarkers, phenotyping, gender and precision therapies in immune dysregulatory diseases.
3. The role of the new MRI (Diffusion, Perfusion) and CT parameters (Perfusion with techniques of reduction of the dose in MultiSlice–CT and ConeBeam–CT) in the pre and post therapy evaluation of the different anatomic areas (neuro and head, heart and chest, abdomen and pelvis)
4. New Imaging techniques in the evaluation of microcirculation of fibrosing autoimmune diseases (skin, lung, musculoskeletal system)
5. Radiomics
6. Genetic basis and clinical/laboratory stratification of common variable immunodeficiency as prototype of immune dysregulation diseases, infections, autoimmunity and tumors.
7. Predisposing factors, physiopathology, organ involvement and therapeutic approaches to autoimmunity.
8. Predisposing factors, physiopathology, and innovative therapeutic approaches in allergic diseases.
9. Predisposing factors, physiopathology, and innovative therapeutic approaches in fibrosing autoimmune diseases.
10. Correlation between the immune system and the microbiota in the genesis of chronic inflammatory diseases and neoplasias.
11. Study of the intratumor and peripheral immune response in solid tumors.
12. Translational aspects of chronic hepatopathies and primitive tumors of the liver.
13. Cancer immunotherapy: strategies of treatment implementation and personalization.
14. Oncogenesis and biomarkers of neoplastic evolution secondary to hepatic viruses.
15. Crioglobulinemic syndromes and lymphoproliferative disorders in hepatic viruses infections.
16. Immunotherapy in autoimmunity and rare immune mediated diseases.
17. New classification and organ involvement in rheumatic diseases.

**Curriculum in Clinical Pathology, in Musculoskeletal diseases and calcified tissues** 1. Computer- and robotic-assisted orthopaedic surgery for joint replacement.
2. New biomaterials for orthopedic surgery and traumatology.
3. Analysis and evaluation of the interaction between biomaterials and bone in orthopaedic surgery and traumatology.
4. Mineral and bone metabolism alterations in clinical models and calcified tissues diseases.

 **Curriculum in Anesthesiology, Pain Therapy and Surgical Sciences****Surgical area** 1. New mini-invasive technology in general, urologic and e vascular surgery.
2. Molecular precision medicine in gastrointestinal oncology.
3. Guided surgery guided by the virtual reality in 3D- D.
4. New technologies in the mini-invasive and conservative surgery in Crohn disease.
5. Optimization of the surgical procedure in the pre–, intra– e postsurgical phase in IBD.
6. Role of simulation in the learning of new surgical techniques.
7. The development of renal trapiantology: from immunotherapy to surgery.
8. Technological innovations in the surgical treatment of benign prostate hypertrophy.
9. Gender dysphoria: from psychological to surgery problems.
10. The role of neuronal and non–neuronal TRP channels in inflammatory neuropatic and oncologic pain.
11. Molecular bases of the GGRP dependent mechanism in the genesis of pain in headache.
12. Advanced surgical treatments for acute and chronic cardiac failure.

**Anesthesiology Area** 1. Advantges and limits of the use of long term central venous catheterism
2. The pathways of perioperatory medicine.
3. Periooperatory acute renal damage perioperatorio in high complexity interventions.

**Curriculum in Psychology:**1. Psychological and psychosocial mechanisms underlying the onset and the maintenance of psychological distress, psychiatric disorders, and organic disease.
2. Research methods in clinical and health psychology.
3. Psychological interventions in psychological distress, psychiatric disorders, and organic disease.

**Curriculum in Global Health, Occupational Health, and International Cooperation on Mobile Populations** 1. Epidemiology and clinics of emergent/re-emergent infections in countries with a medium/low income and in mobile/migrant populations.
2. Diagnostic approach of emergent/re-emergent infections in countries with a medium/low income and in mobile/migrant populations.
3. Parassitoses and allergic diseases in developing countries and in mobile populations.
4. Tubercolosis and host response in countries with a medium/low income and in mobile/migrant populations.
5. Allergic diseases in mobile populations.
6. Emerging and Re-Emerging Occupational Risks: Innovative Strategies for Health and Safety Protection of Workers.
7. Workplace Health Promotion (WHP): from Evidence-Based Medicine to Practice.
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