

**V year (1st semester)
A.Y. 2025-26**

Scientific Field	DISEASES OF MUSCULOSKELETAL SYSTEM	TUTOR	ECTS
MEDS-19/A	Diseases of Musculoskeletal System	De Maio Fernando Liuzza Francesco Piccirilli Eleonora	2 1 1
MEDS-09/C	Rheumatology	Chimenti Maria Sole	1
MEDS-19/B	Physical Medicine and Rehabilitation	Foti Calogero	1
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De Maio Fernando
COORDINATOR

SPECIFIC AIMS

Pathophysiology, diagnosis and general therapeutic principles of the most common inflammatory and degenerative musculoskeletal disease, indicating the prognosis.
First aid, diagnosis and treatment of traumatic injuries of musculoskeletal system.

PROGRAM

**ORTHOPAEDICS AND
TRAUMATOLOGY**

- Anatomy and histology of Locomotive System.
- Orthopedic terminology.
- Traumatic musculoskeletal injuries: general, pathophysiology, clinical, instrumental examinations, therapeutic principles, early and late complications: compartment syndrome.
- Bone and joint infections: definition, epidemiology, pathophysiology, acute and chronic, instrumental examinations, laboratory tests and treatment.
- Diseases and traumatic injuries of the shoulder and arm.
- Diseases and traumatic injuries of the elbow and forearm.

- Major diseases and traumatic injuries of the wrist and hand.
- Major diseases and traumatic injuries of the proximal and distal femur.
- Diseases and traumatic injuries of the knee and leg.
- Diseases and traumatic injuries of the ankle and foot.
- Fracture Healing.

- Metabolic Bone Disease.
- Pediatric Orthopedics.
- Musculoskeletal Tumor.
- Sports Traumatology.
- Pathology of The Vertebral Column.
- Pathology of The Hand.
- Pathology of The Foot.
- Osteoarthritis.

TOPICS

METABOLIC BONE DISEASE

- Osteoporosis and fragility fractures: definition, epidemiological factors, eziopathophysiology, physical examination, instrumental and laboratory tests, therapy and future prospects.
- Fragility fractures and appropriateness of therapeutic diagnosis: vertebral, hip, humerus, radius, foot, pelvis.

TOPICS

PEDIATRIC ORTHOPEDICS

- Dysplasia and congenital dislocation of the hip.
- Congenital clubfoot.
- The osteochondrosis: Perthes and Scheuermann diseases.
- Heterometry: epidemiology and clinical, investigations, conservative treatment, surgical treatment with external fixation, outcome.

TOPICS

MUSCULOSKELETAL TUMOR

- Benign and malignant primitive skeletal muscle: osteogenetic, condrogenetic, fibrogenetic, mielogenetic, angiogenic.
- The metastatic musculoskeletal tumors.
- The tumor-like diseases of the skeleton: bone cyst, Langerhans cell histiocytosis, brown tumors of hyperparathyroidism, fibrous dysplasia of the skeleton.

TOPICS

SPORTS TRAUMATOLOGY

- Dislocation of gleno-humeral joint.
- The rotator cuff injury.
- The pathology of the long head of the biceps.
- Frozen shoulder.
- Functional overhead shoulder diseases.
- Meniscal injuries.
- Lesions of the knee ligaments.
- Ankle ligament injury.
- Injuries of the elbow ligaments.
- Morpho - functional foot alterations in athletes.
- General concepts of arthroscopy.
- General principles of chondral injuries.

TOPICS

PATHOLOGY OF THE SPINE

- Deformity of the spine: scoliosis and kyphosis .
- Degenerative disease of the spine: Spondyloepiphyseal hard osteoarthritis, disc herniation, degenerative stenosis, instability.
- Spondilodiscites.
- Traumatic and pathological vertebral fractures.
- Scoliosis: epidemiology and clinical, infantile forms, adolescent idiopathic forms. Indications to conservative treatment, indications for surgical treatment, complications and long-term outcomes.

TOPICS

PATHOLOGY OF THE HAND

- Wrist and hand anatomy (bones, joints, muscles, vessels, nerves).
- Congenital malformations of the hand: central agenesis, longitudinal agenesis, syndactyly, brachydactyly, polydactyly, clinodactyly.
- Carpal tunnel syndrome and Guyon's canal syndrome (conservative and surgical treatment).
- Dupuytren's disease (clinical and surgical treatment).
- Traumatic injury of the carpus , the metacarpal and phalangeal (scaphoid fractures, fractures of the metacarpals and phalanges bones (conservative and surgical treatment).
- Pseudarthrosis and necrosis of scaphoid and lunate bone (clinical and surgical treatment).
- Malconsolidation of metacarpal and falangeal fracure (clinical and surgical treatment).
- Tendon injuries: subcutaneous ruptures and cutting lesions the flexor and extensor tendons (clinical, surgical treatment).
- Neoplastic diseases of the hand (chondroma, giant cell tumor, spinocellular carcinoma).
- Rheumathoid hand.

TOPICS

PATHOLOGY OF THE FOOT

- Ankle and foot anatomy (bones, joints, muscles, vessels and nerves) .
- Malformations and deformities: congenital foot (phocomelia, syndactyly, ectrodactyly, polydactyly, clinodactyly, clubfoot, metatarsal adduction).
- Foot constitutional frame plate and from congenital tarsal coalition.
- Claw foot.
- Osteochondrosis (Kohler disease I and II, Sever- Blenke disease).
- Metatarsalgia (overload, Morton's neuroma).
- Hallux valgus, hallux varus (clinic, conservative and surgical treatment) .
- Stiff big toe (clinic, conservative and surgical treatment) .
- Deformities of the lesser toes (hammer toe, claw, clinic, conservative and surgical treatment) .
- Heel strikes: plantar fasciitis, heel spur syndrome, tarsal syndrome (clinical tunnels , conservative and surgical treatment) .
- Diabetic and rheumatoid foot.
- Traumatology of tarsus, metatarsals and phalanges bones (fractures of the calcaneus, talus fracture, scaphoid fractures, fractures of the metatarsals and phalanges, conservative and surgical treatment).

TOPICS

OSTEOARTHRITIS

- General osteoarthritis.
- Pathological and physiological premises.
- The arthritic disease.
- Genesis of arthritic phenomena.
- Coxarthrosis: introduction, definition, etiology, pathogenesis, pathology, radiography, symptoms, medical therapy, physical and surgical.
- Gonarthrosis: introduction, definition, etiology, pathogenesis, pathology, radiography, symptoms, medical therapy, physical and surgical.
- Varus and valgus knee.
- Theoretical and practical exercise on degenerative diseases of the hip and knee.
- Osteoarthritis of the shoulder: epidemiology and clinical, eccentric and concentric osteoarthritis.
- Differential Diagnosis, Treatment and complications.

PROGRAM

PHYSICAL MEDICINE AND REHABILITATION

- Approach to the Physical Medicine & Rehabilitation Patient;
- Functional Anatomy and Kinesiology;
- Electromyography; Gait Analysis; Musculoskeletal Ultrasound;
- Therapeutic Modalities; Therapeutic Exercise; Pharmacotherapy;
- Immobility;
- Neurorehabilitation; Spasticity; Stroke Rehabilitation; Multiple Sclerosis; Neuropathy; Myopathies; Neurogenic Bowel & Bladder
- Cardiac and Vascular Rehabilitation;
- Pulmonary Rehabilitation;
- Rehabilitation of Common Musculoskeletal Conditions; Joint Replacement; Rehabilitation of Rheumatologic Disorders; Sports Rehabilitation; Joint Injections & Procedures; Interventional Pain Management;
- Orthotics, Wheelchairs & Assistive Devices; Lower and Upper Limb Amputation, Rehabilitation, & Prosthetic Restoration ;
- Trauma Rehabilitation; Spinal Cord Injury; Traumatic Brain Injury; Spinal Rehabilitation; Burn Rehabilitation;
- Industrial Medicine;
- Cancer Rehabilitation;
- Rehabilitation of Speech, Language, Cognitive, & Swallowing Disorders;
- Pediatric Rehabilitation;
- Psychological Evaluation & Intervention in Acute Rehabilitation;
- Medical Emergencies in Rehabilitation Medicine.

TEXTBOOKS

- ORTHOPAEDICS AND TRAUMATOLOGY:
Essential Orthopaedics, 1st Edition. Saunders-Elsevier.
- PHYSICAL MEDICINE AND REHABILITATION:
Ian B. Maitin, Ernesto Cruz. Current Diagnosis & Treatment: Physical Medicine & Rehabilitation. Mc Graw-Hill Education. Lyn Weiss, Harry Lenaburg, Jay Weiss. Physical Medicine and Rehabilitation Q&A Review. Demos Medical Publishing.

EXAM METHOD

Written and oral exam.

EXAM COMMISSION

The Coordinator, full Professors of the disciplines, Professors of similar disciplines, Specialists of the subject, compose the exam Commission of the Integrated Course.

De Maio Fernando, President
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PREREQUISITES: Previous knowledge and competence in the following subjects:
Human Anatomy 1, Human Anatomy 2, Physiology and Pathophysiology, General Pathology and Pathophysiology.

The specific learning outcomes of the program are coherent with the general provisions of the Bologna Process and the specific provisions of EC Directive 2005/36/EC. They lie within the European Qualifications Framework (Dublin Descriptors) as follows:

1. **Knowledge and Understanding**

- Assess the physiologic principles, which govern the function of the main body systems and the alterations induced by functional and structural abnormalities.
- Describe the main aspects of general pathology and explain the physiopathologic mechanisms underlying the concept of benign and malignant disorders as well as reversible and irreversible cellular damage.
- Demonstrate knowledge about the mechanism of cell cycle maintenance and regulation, the factors affecting it and their consequences.
- Understand the core principles of acute and chronic inflammation in relation to the molecular, systemic and clinical aspects.
- Relate the general principles, terminology, and modes of spread of disease to the study of Systemic Pathology and the ways in which pathology contributes to the understanding of patient presentation in a clinical setting.
- Focus on each organ and describe the pathogenesis of the main disease.
- Correlate basic disease states studied at a cellular and gross anatomical level with the overt clinical signs and symptoms seen in those disorders.
- Learn to interpret appropriate laboratory and diagnostic studies.

2. **Applying Knowledge and Understanding**

- Apply the diagnostic procedure in pathology, through introduction of the differential diagnostic methods at the clinical level.
- Apply a basic understanding of histopathology and morbid anatomy to the examination of microscopic sections and gross specimens, respectively, displaying pathological processes.
- Provide a differential diagnosis based on specific clinical data, providing a comprehensive explanation of the underlying reasoning.
- Learn the practical aspects of the pathologic diagnostic instruments, when to use them and how to perform them.

3. **Making Judgements**

- Recognize the importance of an in-depth knowledge of the topics consistent with a proper medical education.
- Identify the fundamental role of a proper theoretical knowledge of the subject in the clinical practice.

4. **Communication Skills**

- Present the topics orally in an organized and consistent manner.
- Use of proper scientific language coherent with the topic of discussion.

5. **Learning Skills**

- Identify the possible use of the acknowledged skills in the future career.
- Assess the importance of the acquired knowledge in the overall medical education process.