

## Degree in Radiology diagnosing imaging and radiotherapy techniques

### Integrated Teaching: MEDICAL AND CLINICAL SCIENCES I

SSD: MED/06, MED/33, MED/28

CFU: 7

Coordinator name: PROF. SILVIA RIONDINO

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MODULE: Diseases of the locomotive system

SSD: MED 33

Numero di CFU: 2

Professor: Roberto Padua

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MODULE: Medical Oncology

SSD: MED/06

Numero di CFU: 3

Professor: Silvia Riondino

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MODULE: Elements of stomatological diseases

SSD: MED/28

Numero CFU: 2

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### PREREQUISITES

The student must have notions of anatomy and basic concepts of physiology. For the application in the specific field, the student must also know the basics of radiological techniques including the radiological projections of the main osteoarticular districts and the basics of advanced radiology (MRI, CT, etc.). Knowledge of the principles of biology and immunobiology of tumors, of cellular and molecular pathogenetic mechanisms that lead from transformation and neoplastic growth to invasion and metastasis.

### LEARNING OBJECTIVES

The educational purposes of the teaching are oriented to provide students with the necessary knowledge of orthopedic and traumatological pathology in adulthood and developmental age with particular attention to degenerative and traumatic injuries of the joints (shoulder, elbow, hip, knee, ankle). For each pathological condition, the classification criteria, the main clinical signs, the necessary radiographic projections as well as the most appropriate radiological techniques for the definition of the pathology will be described. The student will have to know the predisposing conditions and the clinical characteristics of the different solid neoplastic pathologies for the definition of a diagnostic procedure. The knowledge of prognostic and predictive factors according to the characteristics linked to the neoplasm and the patient, will allow to understand the management strategy of the different tumors, taking into account the therapeutic options applicable in the various stages of the disease and their side effects in order to integrate the



knowledge of the professional profile with a view to multidisciplinary collaboration. Furthermore, the student, possessing the basic notions relating to Diagnostic Imaging and Interventional Radiology, will be able to further enrich his / her skills with those of other professional healthcare professionals. The student must acquire theoretical knowledge relating to real and radiographic anatomy and to the main pathologies of the jaw bones and the stomatognathic system. He must also identify the main diagnostic questions posed by the dental specialist and know the radiographic examinations relevant to this district.

## **LEARNING OUTCOMES**

### **Knowledge and understanding**

At the end of this course the student will have to demonstrate knowledge and understanding in this field of study which represents a post secondary level and a level of autonomy of deepening not only of advanced textbooks, but also of research protocols and avant-garde in its field of studies treated during the entire educational path.

### **Applying knowledge and understanding**

At the end of the course, the student will be able to apply their knowledge and understanding skills in order to demonstrate a professional approach to their work, and have adequate skills both to devise and support arguments and to solve problems in their field of study and , in particular, in the study of oncological pathologies through the correct conduct of work procedures and experimental protocols in full autonomy and in collaboration with the medical body. Use the acquired anatomical knowledge to be able to relate to the dental specialist in performing the necessary radiographic examinations. Use the knowledge of acquired stomatological pathologies to be able to relate to the Odontologist specialist in performing the necessary radiographic examinations. Recognize radiographic artifacts to be able to discern whether the examination has been correctly performed

### **Communication skills**

At the end of the course, the student must be able to apply their knowledge and understanding skills in order to demonstrate a professional approach to work and have adequate skills both to devise and support arguments and to solve problems in their field of study and, in particular, in the study of oncological pathologies through the correct execution of work procedures and experimental protocols in full autonomy and in collaboration with the medical body.

### **Making judgements**

At the end of the course, the student must have the ability to collect and interpret the data deemed useful to integrate and apply knowledge to a clinical reasoning related to the approach to the patient with diagnosis of cancer and its complications, making an independent judgment. This will also make it independent from the point of view of the critical judgment on social, scientific or ethical issues connected to them.

## **COURSE SYLLABUS**

### **MODULE: DISEASES OF THE LOCOMOTIVE SYSTEM**

- Introduction to musculoskeletal pathology
  - o Bone injuries



- o Muscle injuries
- o Capsuloligamentous lesions
  - Traumatic pathology
- or fractures
- or Dislocations
- o Distortion
  - Shoulder pathology
  - Knee pathology
  - Hip pathology
- Foot pathology
  - Pathology of the spine
  - Pediatric pathology
  - Elements of oncological pathology

### **MODULE: MEDICAL ONCOLOGY**

- } General principles of epidemiology and cancer prevention.
- } Prognostic and predictive factors.
- } Carcinogenesis, cell growth and proliferation. Immune tolerance
- } Approach to the neoplastic patient, including anamnestic history, physical examination, laboratory and instrumental diagnostic data. Performance Status Assessment (according to Karnofsky and ECOG)
- } Staging of tumors
- } RECIST (Response Evaluation Criteria In Solid Tumours) criteria for the definition of response to therapy
- } Therapy principles: surgical, radiant, medical (neoadjuvant, adjuvant, metastatic and palliative), target therapy and immunotherapy. Resistance to drugs
- } Side effects of cancer therapies and their management

### **MODULE: ELEMENTS OF STOMATOLOGICAL DISEASES**

-Anatomy of the jaws and the stomatognathic system with particular reference to bone and dental structures

Notes on the main pathologies:

-Anomalies of the teeth (of shape, volume, number, structure, position, location) and of the eruption era

Dental trauma

-Cavity

-Parodontopatie

- Apical periodontitis

-Cystic diseases of the jaw bones

-Main odontogenic neoplastic pathologies, tumors of the jaw bones and salivary glands

-Jaw bone fractures

- Diseases of the temporomandibular joint

-X-ray tests used in the diagnosis of previous pathologies:

Intraoral radiography, Orthopantomogram, Skull projections, CT Cone Beam, Spiral CT, Nuclear magnetic resonance.



## **COURSE STRUCTURE**

Frontal and interactive lessons with the aid of slides and continuous verification of knowledge, understanding and learning of the students.

## **COURSE GRADE DETERMINATION**

### **MODULE: DISEASES OF THE LOCOMOTIVE SYSTEM**

The preparation of the students will be verified with a small written exam followed by an oral test. The written test will consist of 10 questions with multiple choice answers, for each correct answer a point will be awarded. The final score of the written test will be given by the sum of the partial scores assigned to each question correctly answered. To access the oral exam, the student must have completed at least a minimum of 6 points. During the oral exam, the examining commission will assess the student's ability to apply knowledge and ensure that the skills are adequate to support and solve radiological problems. The following will also be assessed: making judgments, communication skills and learning skills as indicated in the Dublin descriptors.

### **MODULE: MEDICAL ONCOLOGY**

Ongoing assessments and final evaluation of the integrated course, carried out through a questionnaire with 30 multiple choice and / or open-ended questions on the topics covered during the lessons. The tests will last 20 minutes. The marks will be expressed in thirtieths.

### **MODULE: ELEMENTS OF STOMATOLOGICAL DISEASES**

with 30 multiple choice questions (5 answers), in order to pass the test, the correct answer must be indicated in at least 18 questions.

## **OPTIONAL ACTIVITIES**

Students will have the opportunity to carry out theoretical / practical exercises and participate in seminars. The teachers will provide constant support during and after the lessons

## **READING MATERIALS**

### **MODULE: DISEASES OF THE LOCOMOTIVE SYSTEM**

- Greene Walter. "Netter's Orthopaedics" Elsevier - Health Sciences Division, United States (2006). ISBN 10: 1929007027 ISBN 13: 9781929007028

### **MODULE: MEDICAL ONCOLOGY**

- Chmielowski B., Territo M.C. Manual of Clinical Oncology. Ed: Lippincott Williams and Wilkins. ISBN 9781496349576

### **MODULE: ELEMENTS OF STOMATOLOGICAL DISEASES**

- Oxford Handbook of oral and Maxilofaccial surgery. Cascarini, Shilling, Gurney, Brennan. Oxford University Press 2018
- Oxford Handbook of clinical dentistry. Mitchell, Mitchell, Longridge, Clarke, Aftab. Oxford University Press 2019
- Dental Radiography. Principles and techniques. Iannucci, Howerton. Elsevier 2016