



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Biomedicina, Neuroscienze e Diagnostica avanzata		
ACADEMIC YEAR	2023/2024		
BACHELOR'S DEGREE (BSC)	MEDICAL AND IMAGE DIAGNOSTICS AND RADIOTHERAPY TECHNIQUES		
INTEGRATED COURSE	PHARMACOLOGY, CONTRAST MEDIA AND ANAESTHESIOLOGY - INTEGRATED COURSE		
CODE	15287		
MODULES	Yes		
NUMBER OF MODULES	3		
SCIENTIFIC SECTOR(S)	BIO/14, MED/41, MED/36		
HEAD PROFESSOR(S)	GALIA MASSIMO	Professore Ordinario	Univ. di PALERMO
OTHER PROFESSOR(S)	GALIA MASSIMO	Professore Ordinario	Univ. di PALERMO
CREDITS	9		
PROPAEDEUTICAL SUBJECTS			
MUTUALIZATION			
YEAR	2		
TERM (SEMESTER)	1° semester		
ATTENDANCE	Mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	GALIA MASSIMO Monday 9:00 12:00 Sezione di Scienze Radiologiche, stanza n. 93, primo piano. Dipartimento di Biomedicina, Neuroscienze e Diagnostica avanzata.		

PREREQUISITES	Students must have knowledge of the anatomophysiological bases of pathologies and pharmacology.
LEARNING OUTCOMES	<p>Knowledge and ability to understand: the student will demonstrate knowledge and understanding skills regarding the basics of pharmacology, anesthesiology and indications for the use of contrast media with reference to administration, biodistribution, protocols of administration and adverse events.</p> <p>This knowledge will be acquired through lectures and practical sessions. Ability to apply knowledge and understanding: At the end of the course the student will be able to apply knowledge in practice, have understanding abilities and be able to solve problems regarding the main urgent frameworks, causes and therapeutic possibilities as well as have acquired the basic notions of first level resuscitation maneuvers, in order to achieve excellent technical abilities suitable in light of the complexity of the care and the health of the population.</p> <p>Independent reasoning: At the end of the course the student will be able to integrate knowledge and manage complexity, as well as to formulate assessments on the basis of limited or incomplete information, including considerations on the social and ethical responsibilities related to the application of his/her knowledge, and assessments regarding the applications of pharmacology, anesthesiology and indications for the use of contrast media.</p> <p>Communication skills: At the end of the course the student will know how to communicate in a clear and unequivocal way his / her conclusions, as well as the knowledge and underlying reasoning, to specialists and non-specialist interlocutors regarding the applications of pharmacology, anesthesiology and indications for the use of contrast media. These skills will be acquired and verified through meetings by the promotion of active involvement of students.</p> <p>Learning skills: At the end of the course the student will have developed those learning skills that allow to continue to study in an autonomous way. These skills will be developed through the percentage of time dedicated to autonomous learning, encouraging reflection activities and elaboration of issues regarding the applications of pharmacology, anesthesiology and indications for the use of contrast media. Evaluation of learning skills can be carried out through the elaboration of general reports or presentations with the help of the teaching staff.</p>
ASSESSMENT METHODS	<p>Oral exam: the student will be asked some questions on all subjects parts of the program with reference to lessons and recommended texts. The exam is designed to assess whether the student has knowledge and understanding of the topics treated at least in general outline, and have exhibition and argumentative capacity to interact with the examiner. The greater capacity such as more assessment will be positive. The evaluation is carried out of thirty.</p> <p>The sufficiency threshold will be reached if the student shows knowledge and understanding of the issues at least in broad outline, and has application skills sufficient; he must also have presentation and argumentative skills allowing the transmission of his knowledge to the examiner. Below this threshold, the examination will be insufficient. The more the candidate will be able to interact with the examiner with his argumentative and presentation skills, and the more his knowledge and application capabilities will go into detail on the subjects under evaluation, the more the judgement will be positive. The evaluation is expressed using a 30-point scale. ECTS grades: A – A+ Excellent (30-30 cum laude) - Grade descriptors : Excellent knowledge of teaching contents; students should show high analytical and synthetic capabilities and should be able to apply their knowledge to solve highly complex problems. ECTS grade : B Very good (27-29) - Grade descriptors: Good knowledge of the teaching contents and excellent language control; students should show analytical and synthetic skills and be able to apply their knowledge to solve problems of medium and, in some cases, even higher complexity. ECTS grade: C Good (24-26)- Grade descriptors: Good knowledge of teaching contents and good language control; the students should be able to apply their knowledge to solve problems of medium complexity ECTS grade: D Satisfactory (21-23)- Grade descriptors: Average knowledge of the teaching contents, in some cases limited to the main topic; acceptable ability to use the specific discipline language and independently apply the acquired knowledge. ECTS grade: E Sufficient (18-20) - Grade descriptors: Minimum teaching content knowledge, often limited to the main topic; modest ability to use the subject specific language and independently apply the acquired knowledge. ECTS grade: F Fail (1-17) - Grade descriptors: Lack of an acceptable knowledge of the main teaching content knowledge; very little or no ability to use the specific subject language and apply independently the acquired knowledge. Exam failed</p>
TEACHING METHODS	The course includes front lessons and practical exercises during CT and MR sessions and with a simulator.

MODULE PHARMACOLOGY

SUGGESTED BIBLIOGRAPHY

Goodman&Gilman Le basi farmacologiche della terapia. McGraw-Hill
 Rang, Dale, Ritter, Flower. Farmacologia.
 Elsevier Masson Cannizzaro G principi di Farmacologia Generale.
 Edilson Gnocchi Farmacologia Generale e Clinica di B. G Katzung, Edizioni Piccin Padova

AMBIT	10339-Primo soccorso
INDIVIDUAL STUDY (Hrs)	45
COURSE ACTIVITY (Hrs)	30

EDUCATIONAL OBJECTIVES OF THE MODULE

Know the fundamental principles of pharmacokinetics and pharmacodynamics, the different classes of drugs, the mechanisms molecular and cellular effects of their action, therapeutic uses, response variability in relation to genetic factors, physio pathological, pharmacological interactions and criteria for defining therapeutic schemes, as well as the principles and methods of clinical pharmacology, including drug-surveillance and drug-epidemiology, side effects and toxicity of drugs, and contrast media

SYLLABUS

Hrs	Frontal teaching
3	Introduction. Definition of drug. Origin and retrieval of drugs. The phases of drug testing. Pharmacovigilance. Pharmacokinetics. Stages of pharmacokinetics. Role of pharmacokinetics in the pharmacodynamics of a drug.
3	Absorption: passage of the drugs across biological membranes. Influence of pH on drug absorption, pKa Influence of the route of administration on the absorption and effect of a drug. Routes of administration. Criteria for choosing the route of administration. Bioavailability. Distribution.
3	Study of pharmacokinetic curves "Steady state". Drug-protein binding. Metabolism. Pharmacokinetic tolerance. Elimination.
3	Principles of toxicology. Adverse effects of drugs, teratogenesis. Diagnostic and therapeutic approach to the most common acute intoxications.
3	Pharmacodynamics. Concept and role of receptors in drug activity. Agonist drugs, antagonists and inverse agonists. Study of dose / effect relationships. Tolerance and resistance.
3	Tachyphylaxis
3	Variability in the action of a drug. Therapeutic Index. Drug association: pharmacokinetic and pharmacodynamic interactions. Undesirable effects from drugs.
3	Pharmacology of the Autonomous Nervous System.
3	Pain pharmacology anti-inflammatory drugs, antiallergic drugs and immunosuppressants.
3	pharmacology of contrast media

MODULE ANAESTHESIOLOGY

SUGGESTED BIBLIOGRAPHY

Maurizio Chiaranda - Emergenze ed Urgenze. Istituzioni - Piccin
Ezio Romano - Anestesia Generale e Clinica - UTET

AMBIT	10339-Primo soccorso
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INDIVIDUAL STUDY (Hrs)	45
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COURSE ACTIVITY (Hrs)	30
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EDUCATIONAL OBJECTIVES OF THE MODULE

At the end of the course the students must demonstrate knowledge and capacity of understanding regarding the anesthesia techniques, both general and locoregional, cardiopulmonary resuscitation as well as the use and mechanism of action of emergency drugs.

They should also be able to perform rational choices about drug therapies, anesthesia and intensive care to be applied in various pathological conditions, taking into account the specific characteristics of individual patient and in optics for a proper evaluation of the cost-benefit ratio.

SYLLABUS

Hrs	Frontal teaching
8	General Anesthesia
4	Monitoring of vital sign
4	Locoregional Anesthesia
2	anaphylaxis
4	Cardiac Arrest and Cardio-Pulmonary Resuscitation
2	Out-Of-Hospital Emergencies
2	Crisis Resource Management

Hrs	Workshops
4	Cardiac Arrest and Cardio-Pulmonary Resuscitation

MODULE IMAGE DIAGNOSTICS, CONTRAST RADIOLOGY

Prof. MASSIMO GALIA

SUGGESTED BIBLIOGRAPHY

Passariello Roberto
Radiologia - Elementi di Tecnologia Radiologica
2012 Quinta Edizione - Volume unico
Casa Editrice: Idelson - Gnocchi
ISBN: 978-8879475402

Verranno indicati alcuni argomenti da approfondire mediante lo studio di passi scelti nel testo, da integrare con il materiale didattico fornito dal docente.

AMBIT	10342-Scienze e tecniche di radiologia medica per immagini e radioterapia
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INDIVIDUAL STUDY (Hrs)	45
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COURSE ACTIVITY (Hrs)	30
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EDUCATIONAL OBJECTIVES OF THE MODULE

Aims of the Course are to provide to the students the necessary knowledge on contrast mediums, with reference to their characteristics and indications for clinical use. Protocols of contrast medium administration, contraindications and adverse effects will be showed. The characteristics and appropriateness of the use of iodinated contrast mediums, extracellular and hepatobiliary gadolinium chelates and ultrasound contrast agents will be discussed.

SYLLABUS

Hrs	Frontal teaching
9	Contrast mediums: classification and characteristics.
9	Clinical applications of contrast mediums.
4	How to recognize and to treat adverse reactions after contrast mediums administration.
4	Guidelines for contrast medium administration.
4	Optimization of contrast medium administration in CT and MRI

Hrs	Practice
4	Guidelines for contrast medium administration.