

FONDAMENTI DEI PROCESSI DIAGNOSTICI E TERAPEUTICI (ITO006)

1. language

Italian.

2. course contents

Coordinator: Prof.ssa Enrica SCAVINO

Year course: II°

Semester: 1°

UFC: 6

Modules and lecturers:

- Farmacologia ITO034 (BIO/14) (2 CFU): Prof. Giuseppe TRINGALI (1CFU) e Prof.ssa Giovanna PETRUCCI (1CFU)
- Diagnostica per Immagini e Radioprotezione ITO033 (MED/36) (1CFU): Prof. Agostino MEDURI (UCSC)
- Infermieristica clinica ITO035 (MED/45) (2CFU): Prof.ssa Enrica SCAVINO
- Psicologia Clinica ITO036 (M-PSI/08) (1CFU): Prof.ssa Giorgia BOCCACCIO

3. bibliography

Farmacologia

Karen Whalen. Le Basi della Farmacologia. Zanichelli – Ultima edizione

Diagnostica per immagini e radioprotezione

DI GUGLIELMO L., CALLIADA F., CORNALBA G., DORE R. Radiologia e diagnostica per immagini ed. Minerva Medica

Marano P. Diagnostica per immagini. Milano: Casa Editrice Ambrosiana, ultima edizione. Vol. I. (consultazione)

Infermieristica clinica

Saiani L, Brugnolli A. Trattato di cure infermieristiche. Napoli: Casa Editrice Idelson-Gnocchi, 2011. Capitolo 28;

Ledonne G, Tolomeo S. Calcoli e dosaggi farmacologici. La responsabilità dell'infermiere. Milano: Casa Editrice Ambrosiana, 2014 (2°edizione). Capitoli 1-2-3-4-5;

Festini F, Sperotto S, Neri S. La sicurezza della terapia: strategie e strumenti per gli infermieri. Assistenza infermieristica e ricerca, 2007, 26, 3;

Raccomandazioni del Ministero della Salute (area governo clinico-sicurezza del paziente): n°1-Marzo2008, n° 5,Quaderno del Ministero della Salute n°6 novembre-dicembre 2010 (p 133-145: anziani e farmaci);

Psicologia clinica

Del Corno F, Lang M. Elementi di Psicologia Clinica. Milano: Franco Angeli, 2016.

Iacoboni M. I neuroni Specchio. Come capiamo ciò che fanno gli altri. Torino: Bollati Boringhieri, 2008. Capitoli I,II,V.

Materiale di studio, ad integrazione della bibliografia (articoli, slide show, sitografie, ecc.) potrà essere fornito agli studenti dal singolo docente *on-line* tramite la piattaforma *Blackboard*.

4. learning objectives

• **Knowledge and understanding (Dublin 1)**

At the end of the course the student will be able to attribute appropriate meanings to the teaching contents related to:

- a) general principles of pharmacokinetics and pharmacodynamics, as well as the peculiarities of the main pharmacological categories (efficacy, mechanisms of action, adverse reactions and toxicity), capable of modifying the state of health of the assisted person for therapeutic, diagnostic and prophylaxis purposes;
- b) diagnostic path of people, who belong to the Diagnostic Imaging service (with reference to some interventional procedures), and specific elements of radiological protectionism;
- c) general and specific principles concerning the course of the drug in the hospital setting and the therapeutic administration process (drugs, high-risk substances and blood), taking into account the repercussions on the state of health and the reactions of the assisted person (therapeutic adherence), the main technical procedures adopted and the strategies aimed at guaranteeing safety (error prevention);
- d) helping relationship and its therapeutic significance, the role of defenses and emotions in the interactive dynamics with the assisted person.

• **Applying knowledge and understanding – Applying knowledge and understanding (Dublin 2)**

At the end of the course the student will be able, on the basis of appropriate knowledge, to interpret data and information, connected to problematic situations, relating to:

- a) efficacy and adverse reactions related to the use of drugs, as well as to the characteristics-reactions of the individual person who must undergo a diagnostic imaging test, ensuring safe management (environment and person);
- b) elements that define the care complexity (clinical stability/instability, responsiveness, dependence/independence and context) of the assisted persons and that affect the intra/inter-individual variability of the response during the diagnostic-therapeutic-assistance process;
- c) results of the values of the haemodynamic monitoring and evaluation systems, index of a therapeutic response (of therapeutic efficacy or therapeutic toxicity) of the person assisted to the administration of the drug (or substance);
- d) type of defenses and emotions in the interactive dynamics between the assisted person and the healthcare professional.

• **Making judgments – Making judgements (Dublin 3)**

At the end of the course the student will be able to analyze and evaluate, following an appropriate reasoning, problematic topics and situations with particular reference to:

- a) situations that characterize the professional exercise of a nurse in terms of clinical-deontological responsibility in the diagnostic and pharmacological fields;
- b) application of diagnostic reasoning in planning a standard care pathway or planning a personalized care pathway for a person undergoing a diagnostic procedure or pharmacological treatment (and blood transfusion), making reference to the latest scientific evidence, the Recommendations of the Ministry of Health and the needs of the assisted person;
- c) situations arising in the assisted person-health professional interactive dynamics and related effects on the helping relationship process.

• **Communication skills – Communication skills (Dublin 4)**

At the end of the course the student will be able to answer specific questions and discuss emblematic topics:

- a) using the correct terminology and syntax both in written and oral form;
- b) expressing himself in a clear, understandable way adapted to the type of interlocutor and his receptive and interpretative abilities.

• **Ability to learn – Learning skills (Dublin 5)**

At the end of the course the student will be able to self-assess his/her own learning abilities in relation to the teaching topics:

- a) identifying, on the basis of his intellectual performance and the feedback provided by the teachers, any need for cognitive or methodological compensation/integration;
- b) autonomously using the information sources available to address these needs.

5. PREREQUISITES

They are defined in the Student Guide and refer to the study plan.

6. teaching methods

- a) interactive frontal lessons through the use of slide shows, images and videos;
- b) discussion and analysis of emblematic clinical-assistance cases, group work (which favors the development of critical thinking, decision-making, self-learning skills and group cooperation). For these activities, remote consultancy from the teacher is provided (if requested by the student).
- c) exercises on the subject of "calculations and dosages and applied clinical reasoning", through self-assessment cases and tests scheduled on the Blackboard platform.

Teaching is conducted through the use of an institutional platform.

7. other informations

Teachers are available to meet students by appointment.

In relation to the objectives and contents of the "Clinical Nursing" module, the gestural skills related to "therapy" are exercised in the **"Professional Laboratories"** course (ITOLB2 discipline -1 CFU/12 hours/year), in particular in the laboratory **"Preparation and administration techniques of parenteral therapy"** (6 hours/student) (2nd year-1st semester).

8. methods for verifying learning and for evaluation

The exam will take place with a final test at the end of the course, proposed in the form of a written paper with multiple choice closed questions (Pharmacology, Diagnostic Imaging and Radioprotection and Clinical Nursing) and/or open questions (Clinical Psychology), which will be followed by (at the discretion of the teachers) an oral exam that includes the programs of all teaching modules. Passing the written exam requires a minimum grade of 18/30 for all modules.

Students with one or two slight failings (16 or 17/30) may be admitted to the sub condicione oral exam (the student must demonstrate proven mastery of the topics that form the basis of the failed courses).

Students with one or more serious failings (15/30) will not be admitted to the oral exam.

The final evaluation of the exam will be expressed out of thirty and the mark will be the one resulting from the arithmetic average of the marks achieved in each course, after the written and oral exam. Passing the exam requires a minimum grade of 18/30. Honors can be attributed, on the unanimous opinion of the Examination Commission, to those who have achieved a final mark of 30/30.

The exam will be conducted in presence and through the use of an institutional platform.

9. program

Diagnostic imaging and radiation protection

- Electromagnetic radiation: characteristics, spectrum, ionizing and non-ionizing radiation, types of ionizing radiation, applications to medicine (Radiology, Nuclear Medicine and Radiotherapy). Definition of ionizing radiation. Radioactivity. Historical notes on the discovery of X-rays. X-ray generator tube and its functioning. Composition of an X-ray beam and absorption. Scattered radiation damage and reduction systems. Interaction of X-rays with matter. Internal and external radiation.
- General aspects of radiation protection: quantities used in radiation protection. The concept of radiation dose; absorbed, equivalent, effective dose. Effects of radiation on humans (deterministic and stochastic). Fundamental principles of radiation protection. Radiological protection tools. Classification of areas. Classification of workers and individual dosimetry. dose limits. Legislation: Legislative Decree 101/2020, principles of justification and optimization.
- Role of the nurse in Radiology: foundations and use in clinical practice of traditional Radiology, Ultrasound, CT, MRI, Angiography and Interventional Radiology, PET-CT. Anesthesia in Radiology. Coordination between nurse and radiology technician.
- General information on contrast media used in Radiology. The mdc: traditional radiology, ultrasound, MRI, uro-angiography. Toxic and allergic effects of contrast media. Patient preparation, allergies, management of renal insufficiency in CT and MRI.

Pharmacology

• General pharmacology (Prof. Giovanna Petrucci):

Pharmacokinetics: drug absorption, distribution, metabolism and elimination; pharmacokinetic parameters and their use. Pharmacodynamics: receptor and non-receptor mechanisms of action; receptors: classification of receptors, signal transduction mechanisms, dose-response curves, potency and efficacy, agonism and antagonism.

• Special Pharmacology (Prof. Giovanna Petrucci; Prof. Giuseppe Tringali):

- [Prof. Giuseppe Tringali]: Drugs of the autonomic nervous system. Drugs acting on the cardiovascular system: antihypertensives; drugs used in heart failure; antianginal drugs; diuretics; lipid-lowering drugs. Endocrine pharmacology: insulin and hypoglycemic drugs.

- [Prof. Giovanna Petrucci]: Drugs that act on the central nervous system: sedative-hypnotics; anxiolytics; antipsychotics, antidepressants, drugs for neurodegenerative diseases, antiepileptics, opioid analgesics.

Steroidal and non-steroidal anti-inflammatory drugs. Drugs for the treatment of asthma. Chemotherapy drugs: antimicrobials (principles of antimicrobial therapy; classifications of antibiotics: mechanisms of action, antimicrobial spectrum, resistance and adverse effects). Disinfectants.

Clinical Nursing

- Pathway of the drug and responsibility of the nurse: normative references (Law 42, Gelli Law and Code of Conduct for Nurses, Professional Profile of Nurses DM 739/94), ministerial recommendations, guidelines.
- The process of managing pharmacological therapy in a hospital setting: phases (and related responsibilities), safety in therapy (drugs with a high level of attention, main strategies to increase safety and prevent errors), error in therapy (types and different approaches), conservation and storage (stocks and expiration dates, departmental pharmaceutical cabinets, management of narcotic drugs and potassium chloride).
- The prescription: constituent elements, responsibilities, forms (written and verbal), complete/incomplete, typical errors.
- The preparation and administration of drugs and substances: safe preparation (errors and strategies), safe administration (errors and strategies; 7 G rule), therapeutic scheme, LASA drugs, drugs with a high level of attention, narcotics and potassium chloride, calculations and dosages, preparation techniques, administration routes (typology, main technical procedures, advantages/disadvantages, prevention of complications, related to injection administration techniques), assessment of care problems (related to clinical stability/instability, levels of autonomy, risks and complications) that arise in a person undergoing

drug treatment.

- The elderly person and pharmacological therapy: the aging process, frailty, the elderly in illness, polytherapy and polypharmacy, problematic polytherapy (and consequences), adverse drug reaction (ADR), therapy in RSA.
- Therapeutic education: concepts of therapeutic compliance and adherence, the biomedical model and the open-systemic model (concept and role of the assisted person and of the operator), the characteristics of the chronic disease (disease, patient, doctor, treatment), predictors of therapeutic non-adherence, strategies.
- Transition of care: lack of therapeutic reconciliation (and concept of recognition).
- Blood transfusion (transfusion of blood and blood products): types (autologous, heterologous), phases of the transfusion process and nursing responsibilities.
- Preparation and assistance for diagnostic imaging procedures.

Clinical psychology

- The individual as mind-body: the dynamic interaction between psyche and soma, illness as a critical event.
- The Self and relational dynamics: characteristics of the nurse-patient relationship.
- The therapeutic significance of the helping relationship: the process of empathy, empathy, sympathy, antipathy, the role of emotions in the nurse-patient relationship, the defenses in the helping relationship and the risks of the profession.
- The emotional involvement of the nurse in relation to the patient in the various working contexts: examination of the characteristics that the nurse-patient relationship assumes in certain working contexts reported by the student.
- Neuroscience and helping relationship: recent research.