

BASIC MEDICAL SCIENCES(OPR080)

1. language

Italian

2. course CONTENTs

Coordinator: Prof. SANTONOCITO CONCETTA

Academic Year: 2022/2023

Year Course: 2

Semester: 2

UFC: 9

Modules and lecturers:

- Clinical Biochemistry (OPR131) - 1 cfu - ssd BIO/12

Prof. Concetta Santonocito

- Hygiene (OPR130) - 5 cfu - ssd MED/42

Prof. Gianluigi Quaranta

- Infectious Diseases (OPR129) - 3 cfu - ssd MED/17

Proff. Katleen De Gaetano Donati, Del Giacomo Paola, Raffaelli Francesca

3. bibliography

Clinical Biochemistry : Teaching material provided by the teacher.

-Elementi di Biochimica Clinica e Medicina di laboratorio. M. Ciaccio EDISES 2020

Biochimica clinica essenziale. Elisabetta Albi ZANICHELLI, 2019

Hygiene: Teaching material provided by the teacher.

For those wishing to learn more W. Ricciardi, S. Boccia IGIENE, MEDICINA PREVENTIVA, SANITA' PUBBLICA. IDELSON GNOCCHI Publishing House (Third Edition) [Chapter 1: from pag. 4 to pag. 11, from pag. 18 to pag. 20, from pag. 23 to pag. 29; Chapter 2 from pag. 47 to pag. 55; Chapter 3 from pag. 85 to pag. 90; Chapter 10 from pag. 321 to pag. 351]

Infectious Diseases : Teaching material provided by the teacher.

Core Curriculum Malattie Infettive" (McGraw-Hill 2016)

4. learning objectives

The course aims to provide the student with the acquisition of the fundamental concepts about the clinical significance of the main laboratory investigation of clinical biochemistry.. The course aims to offer to students knowledge and skills relating to general and applied hygiene as well as the the main community and nosomial infectious diseases.

In order to stimulate the student's interest the various topics will be treated by highlighting the interconnections between the various teachings, underlining the clinical aspects and introducing experimental methods,

At the end of the integrated courses the student shall demonstrate that he has acquired the following objectives:

- **Knowledge and understanding** - Demonstrate knowledge and understanding of the principles and possible applications of Clinical Biochemistry tests, the general Principles inherent in Public Health problems, the mechanism underlying infectious diseases
- **Applied Knowledge and understanding** – Demonstrate the capacity to know how to adequately interpret and understand clinical tests and their relationships with the main infectious diseases. Demonstrate how to apply the principle relating to hygiene in the dental practice also in order to avoid risks related to healthcare related infections.
- **Autonomy of judgement** – Being able to show a level of professional, cultural decision making and operational autonomy such to allow a complete approach to the oral health problems of either healthy and sick persons also taking into consideration their surrounding environment.
- **Communication skills** - Being able to communicate clearly using technical and appropriate language to properly interacting with specialist and non specialist interlocutors..
- **Ability to learn** - The student must be able to update and expand their knowledge using texts, scientific articles, platforms and online resources: he shall also be gradually acquire the ability to attend specialized events (i.e seminars, conferences, advanced courses).

5. PREREQUISITES

The students must have attended compulsory courses and have acquired the preparatory notions, Access to the activities is regulated in accordance with the provisions of the Degree Course Council.

6. teaching methods

Clinical Biochemistry : face to face lessons.

Hygiene : face to face lessons together with practical exercises always carried out in the classroom.

Infectious diseases : face to face lessons.

The teaching methods used in this course aims to allow the student to pursue the educational objectives by virtue of the following characteristics:

Knowledge and understanding - the lectures will deal with all the topics listed in the program trying to provide students with the utmost complete picture of the integrated topics and the correct study method.

Applied knowledge and understanding - the display of practical examples and classroom exercises allowed students to understand the possible applications of the topics covered.

Autonomy of judgement – the learning methods used in this course have the targets of

making the student developing the ability to formulate concepts and ideas autonomously and independently..

Communication skills – the teaching methods and the interaction with the teachers are intended to allow the student to gain communication skills aimed at exposing the topics covered using a correct property of scientific language.

Ability to learn – the use of supplementary teaching material will allow the student to access subsequent studies with a high degree of autonomy.

7. other informations

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8. methods for verifying learning and for evaluation

Clinical Biochemistry: the verification will be carried out through an oral interview.

Hygiene : the verification will be carried out through an oral interview.

Infectious diseases: the verification will be carried out through an oral interview.

9. Comprehensive program

Clinical Biochemistry

The role of laboratory medicine in the clinical context.

The laboratory diagnostic process.

Elements of biomedical laboratory organization.

Pre- analytical, analytical, post analytical phases pre-analitica, analitica, post-analitica.
Variability.

Main enzymatic determinations and their clinical use.

Laboratory diagnostics in kidney diseases.

Chemical- physical examination of the urine

Dyslipidemias.

Diabetes mellitus.

Biochemical markers of bone remodeling.

Cardiac biomarkers.

Outline of Clinical Molecular Biology.

Hygiene

Introductory concepts: definitions of Hygiene Prevention, Preventive Medicine, Public Health.

Definition of health. Health according to the World Health Organisation (W.H.O)

Prophylaxis: vaccine prophylaxis, seroprophylaxis, chemo- antibiotic prophylaxis.

Primary, secondary and tertiary prevention.

Screening tests. The quality measures of the screening tests; sensitivity, specificity, positive predictive value and negative predictive value.

Occurrence measures in Epidemiology: prevalence and incidence.

The prospective model in Epidemiology: Cohort Studies and Relative Risk.

The retrospective model in Epidemiology: Case – Control Studies and the Odds Ratio.

Biases in Epidemiology.

Experimental Epidemiology Controlled and Randomised Clinical Trials (RCTs). Levels of evidence. The Helsinki Declaration. Informed Consent. The protocol of the study. Randomisation. Blindness and placebo. The analysis in a RCT: the principle of “Intention to treat”.

How to read and write a scientific article.

Definition of sample and its properties.

Classification of variables.

Central trend indices: average, median, fashion. The main existing averages.

Dispersion indices: variance, standard deviation, range.

The concept of “risk”. The groups at risk.

Differences between etiological agents and risk factors, infectious and multifactorial diseases.

Definition of cleansing, disinfection, sterilization.

The classification of medical devices according to Spaulding.

The infections. The risk factors for infections. Universal precautions for the prevention of HIV, HBV and HCV infections. Measures against the risk of tuberculous infections.

Health care related infections (ICAs): definition, epidemiology, risk factors, prevention.

Hand washing.

Setting up an epidemiological investigation.

Focus on some pathogenic microorganisms responsible for ICAs: methicillin- resistant such as : *Staphylococcus aureus* *Pseudomonas aeruginosa*, *Acinetobacter baumannii*, *Candida*, *Fusarium* e *Aspergillus*.

Focus on *Legionella pneumophila*. Spread of *Legionella* in the environment. Methods for remediation of contaminated water systems.

Infectious Diseases

General notions of epidemiology of infectious diseases.

Sepsis and septic shock.

Infectious endocarditis.

Pneumonia and bronchopneumonia.

Meningitis and other CNS infections.

HIV diseases and acquired immunodeficiency syndrome (AIDS).

Viral hepatitis.

Tuberculosis.

Infectious diarrhea.

Hospital infections.

COVID-19

Flu

Toxoplasmosis

Mononucleosis.

Varicella-zoster

HSV

CMV

Leptospirosis

Infectious rashes.