UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

General Pathology

2627-1-I0104D005-I0104D00503

Aims

The course aims to provide students with knowledge of the causes of diseases in humans, interpreting their fundamental pathogenetic and pathophysiological mechanisms. At the end of the course, students will have achieved the following aims:

Knowledge and understanding:
The course will provide a solid foundation for understanding biological phenomena and the functioning mechanisms of organs and systems, as well as the physiopathological elements applicable to various clinical situations, including in relation to diagnostic parameters.

Ability to apply knowledge and understanding:
The course will develop the ability to independently apply acquired theoretical knowledge to analyze, interpret, and solve clinical and care-related problems.
Making judgements:
The course will develop the ability to independently evaluate the methodological coherence in problem-solving and critically interpret, among multiple possible options, the most appropriate approach for the specific case. The examination method, which includes multiple-choice quizzes and open-ended questions, encourages independent judgment and critical thinking in applying the acquired knowledge.

Communication skills:
The course will provide the necessary preparation to communicate ideas, problems, and solutions clearly and effectively, both to professionals from the same or other disciplines and to non-specialist users, using appropriate methods and tools suited to different professional and cultural contexts.

Learning skills:
The course will provide a solid theoretical foundation and will enable the development of an active and independent study methodology, useful both for future specialized courses and for professional practice.

Contents

Homeostasis and disease. Etiology and pathogenesis: disease-causing agents. Acquired and innate immunity. The immune response. Cell and tissue damage. Inflammation and tissue repair. Oncology. Sex and gender diferences in tumoral and non-tumoral pathogenesis.

Detailed program

- General Pathology. Etiology. Pathogenesis. Concept of homeostasis and disease. Onset and course of disease. Acute and chronic diseases. General etiology. Physiological and pathological predisposing factors.
- Causes of disease. Physical causes, chemical causes, biological causes: bacteria, viruses, protozoa, fungi, metazoans. Virulence. Pathogenicity. Transmission of infections. Spread of infectious agents. Pathogenic action.
- General properties of the immune system. Innate immunity and adaptive immunity. The cells of the immune system. The soluble mediators. Antigens. The immune response
- Acute and chronic inflammation. Phases of the inflammatory process. Chemical mediators. The cells of inflammation.
- Pathophysiology of thermoregulation. Generalities. Thermogenesis: basal metabolism, regulation of thermogenesis. Termodispersion. Alterations in body temperature. Not fever hyperthermia. Fever hyperthermia: pathogenesis, course, types of fever.
- Cellular homeostasis disorders. atrophy, hypertrophy, metaplasia, dysplasia, cellular anaplasia. Cell injury and death. Oncology.
- Impact of sex and gender in the development of acute, chronic and tumor diseases. Study of hormone- and non-hormone-related differential mechanisms in pathogenetic mechanisms.

Prerequisites

None.

Teaching form

The 16 hours of lessons will be delivered in "didattica erogativa" (DE) mode. Students at the Monza campus will attend the lessons in person, while the others will follow them through the Distance Learning mode Teledidattica.

Textbook and teaching resource

Learning material (slides of the lessons) is available at the e-learning platform of the course.
Recommended textbooks:

- Kumar V. et al. Robbins e Cotran: Le Basi Patologiche delle Malattie. Edizioni Elsevier, Milano.
- Pontieri-Russo-Frati: Patologia Generale. Edizioni Piccin, Padova.
- Abbas A.K. Fondamenti di Immunologia. Funzioni e alterazioni del Sistema Immunitario. Edizioni Piccin, Padova.

Semester

I year, II semester

Assessment method

Written test composed by 14 multiple choice quizzes and 1 open-ended question. The exam is passed by obtaining a passing grade in all 4 modules.

Office hours

By appointment (email request).

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION | GENDER EQUALITY