



CLASS FORM

Degree:	Biotechnologies
Name of the class:	General pathology
Number of Credits:	6
Semester:	II
Teacher:	Francesco Maria Pacifico
PhD students/research assistants that support teaching activities:	
Office hours:	By appointment
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OUTLINE OF THE CLASS

General pathology studies morphological and functional modifications of diseases. In particular, General pathology aims to elucidate the molecular mechanisms by which the modifications of cell functions lead to the onset of diseases.

The class is structured in three main topics:

1. Cellular pathology and inflammation
2. Innate and adaptive immunity
3. Cellular and molecular oncology

Since a number of topics fundamental and specific for the training of Biotechnologies students are illustrated and discussed during frontal lessons, in addition to textbooks notions, it is strongly recommended to attend the course.

TEACHING GOALS

The main objectives of the course are represented by the acquisition of information about the molecular and cellular basis of the etiopathogenesis and the understanding of

the mechanisms of alterations of and relationships to the onset of disease. At the end of the course the student should have acquired the ability to:

- analyze and understand the main pathogenetic and physiopathologic mechanisms of diseases;
- understand the consequences of diseases on people health.

PRELIMINARY REQUIREMENTS

Microbiology, Genetics, Biochemistry, Physiology.

ATTENDANCE AT THE CLASS

The attendance at the class is strongly recommended because the teacher is committed to facilitate learning and comprehension of General pathology through the integration of the textbooks with slides and additional explanations.

CLASS PROGRAM

Introduction

- Basics: etiology, pathogenesis, healthy status and disease.

General etiology:

- Chemical, physical and biological causes.

Cellular pathology:

- Mechanisms of cell damage (hypoxia, free radicals, etc.).
- Mechanisms of adaptation.
- Cell death: necrosis and apoptosis.
- Mechanisms of intracellular accumulation.
- Pathology of cell growth.
- Dystrophic and metastatic calcification.

Acute inflammation:

- Signs, symptoms and vascular events.
- Edema, trasudate and exudate.
- Cellular and molecular mediators of inflammation.
- Chemical mediators of inflammation.
- Phagocytosis
- Systemic responses to inflammation.
- Types of acute inflammation.
- Cicatrization, wound healing and fibrosis.

Chronic inflammation:

- Morpho-functional aspects of chronic inflammation.

Immunology:

- Innate and adaptive immunity.
- Central and peripheral lymphatics. Cells of immune system.
- Antigens. Antibodies: structure and function of immunoglobulins. Antigen-antibody reactions. Dynamics of humoral response.
- Major histocompatibility complex (MHC). Cell-mediated response.
- Tolerance.

Oncology:

- Definition of tumor.
- Cell cycle and its regulation. Growth factors.
- Tumor classification, nomenclature, staging.
- Benign and malignant tumors.
- Tumor initiation, promotion and progression.
- Invasion and metastasis.
- Oncogenes and oncosuppressors.

TEACHING TOOLS

Frontal lessons.

TEXTBOOKS

G. Pontieri, Patologia generale, Piccin Editore

AA.VV., Patologia generale, Idelson-Gnocchi Editore

Robbins e Cotran, Le basi patologiche delle malattie, Piccin Editore

F. Celotti, Patologia generale e fisiopatologia, Edises

A. Abbas, Immunologia Cellulare e Molecolare, Piccin Editore

Janeway's, Immunobiologia, Piccin Editore

P. Parham, Il sistema immunitario, Edises

EXAMS

Written exam of 30 minutes. Written test consist of 30 multiple choice questions, with only one correct answer. Each correct answer yields one point, and each wrong or missing answer yields zero points. Students who get 18 or more points pass the test. They could register the exam or ask for take the oral exam to try to improve the score.

Students who get 17 do not pass the exam, but could be admitted to the oral exam if desired. The final score will be the mean of the scores of the written and oral exams. Students who get less than 17 do not pass the exam and could not be admitted to the oral exam.

DATE OF EXAMS

Go to the link

RESERVATIONS OF EXAMS

Go to the link

SYLLABUS

Topics	Hours	Textbooks	Type of lessons
Introduction to the course General concepts	2	Textbooks listed above Slides	Frontal
Cellular pathology Damage Adaptation Necrosis and Apoptosis	8	Textbooks listed above Slides	Frontal
Inflammation Acute inflammation Chronic inflammation Wound healing	8	Textbooks listed above Slides	Frontal
Immune system Central and peripheral lymphatic organs Immune cells	2	Textbooks listed above Slides	Frontal
Immune system Innate immunity	6	Textbooks listed above Slides	Frontal
Immune system Adaptive immunity MHC Tolerance	12	Textbooks listed above Slides	Frontal
Oncology	4	Textbooks listed above	Frontal

Cell cycle Growth factors		Slides	
Oncology Benign and malignant tumors Tumor classification and staging	4	Textbooks listed above Slides	Frontal
Oncology Tumor initiation, promotion and progression Invasion and metastasis	4	Textbooks listed above Slides	Frontal
Oncology Oncogenes Tumor suppressors	4	Textbooks listed above Slides	Frontal