COURSE DETAILS

"GENERAL PATHOLOGY"

SSD MED/04

DEGREE PROGRAMME: MEDICINE AND SURGERY

ACADEMIC YEAR 2026-2027

GENERAL INFORMATION–TEACHER REFERENCES

COORDINATOR: ANTONIO FELICIELLO;
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Professor surname and name	**Position**	**Scientific Fields**	**Phone** (081)	**Reception (day/time/building)**	**E-mail** (unina.it)
Chiuso Francesco	RTD	General Pathology	081-7464576	Tue 10.00-13.30 (Ed.19)	francesco.chiuso@unina.it
Feliciello Antonio	Full Professor	General Pathology	081-7463615	Tue 14.30-17(Ed.19)	antonio.feliciello@unina.it
Fiore Danilo	Associate Professor	General Pathology	081-5452921	Wed 10-13.30 (Ed.19)	danilo.fiore@unina.it
Palazzo Luca	Associate Professor	General Pathology	081-7463043	Wed 10-13.30 (Corpo basso Sud)	luca.palazzo@unina.it
Racioppi Luigi	Associate Professor	General Pathology	081-7463311	Mon 15-17 (Ed. 19)	luigi.racioppi@unina.it

GENERAL INFORMATION ABOUT THECOURSE

INTEGRATED COURSE (IF APPLICABLE): GENERAL PATHOLOGY
MODULE (IF APPLICABLE):
SSD OF THE MODULE (IF APPLICABLE):
TEACHINGLANGUAGE: ENGLISH
CHANNEL (IF APPLICABLE):
YEAR OF THE DEGREE PROGRAMME(I, II, III): III
SEMESTER (I, II, ANNUAL): I
CFU: 8

REQUIRED PRELIMINARY COURSES
There are no required preliminary courses

PREREQUISITES (IF APPLICABLE)
Basic concepts of physiology, immunology, microbiology and medical human genetics.

LEARNING GOALS
The course aims at providing students with basic principles and mechanisms responsible for diseases. General Pathology focuses on four components of the disease: 1. cause/etiology ("why a disease occurs"); 2. mechanisms of development and pathogenesis ("how a disease occurs"); 3. structural, molecular and cellular alterations; 4. direct and indirect consequences (clinical manifestations). Based on fundamental concepts (cell molecular structure and function, metabolic pathways, genome, epigenome and mechanisms of hereditary or complex diseases) that students have previously acquired in the courses of Biology, Biochemistry, and Genetics, this course addresses how perturbations of the normal molecular and cellular function(s) cause tissue and organ damage.

EXPECTED LEARNING OUTCOMES (DUBLIN DESCRIPTORS)

Knowledge and understanding
The student will acquire the fundamental knowledge of the basic mechanisms underlying the human diseases. At the end of the course, students will be able to address:
1. The etiology underlying most important human diseases.
2. The molecular pathogenesis underlying most important human diseases.
3. The major clinical presentations of most important human diseases and link the molecular and cellular alterations to morphology (histopathology) and to the clinical phenotype.

Applying knowledge and understanding
The course will provide the appropriate acknowledge and instruments to allow the student to:
1. Understand and analyze the etiology and pathogenesis of complex phenotypes through the systematic use of the relevant basic and clinical scientific literature.
2. Integrate the basic knowledge of anatomy, biochemistry, histology/histopathology, cytogenetics, to human molecular pathology.
3. Analytically approach to clinical problems.

COURSE CONTENT/SYLLABUS
The course deals with the general mechanisms of etiology and pathogenesis of human diseases, with particular emphasis on fundamental pathological processes.
Concepts of general etiology and pathogenesis: intrinsic and extrinsic causes of disease. Genetic and epigenetic basis of diseases.
Acute inflammation. Chemotaxis, diapedesis, phagocytosis. Mediators of inflammation. Complement system. Receptors of the innate immune response. Systemic manifestations of inflammation. Fever and hyperthermia. Septic shock. Diseases of altered innate response. Dysbiosis and human diseases. Healing processes.
Chronic inflammation: fibrosis. Main types of granuloma.

Mechanisms of cell damage and tissue degeneration. Necrosis, apoptosis, necroptosis. Hypoxia, ischemia, heart attack, atherosclerosis and dyslipidemia. Steatosis. Protein misfolding, prions, primary and secondary amyloidosis.
Cellular adaptations. Hyperplasia, hypoplasia, hypertrophy, hypotrophy, metaplasia. Autophagy. Dysplasia, anaplasia. Precancerous lesions.
Neurodegenerative diseases. Alzheimer's disease, vascular and neurodegenerative dementia, frontotemporal dementia (FTD), amyotrophic lateral sclerosis, Parkinson's disease, Huntington's disease.
Connective tissue diseases. Hereditary (Marfan syndrome, Ehlers-Danlos syndrome and osteogenesis imperfecta, homocystinuria) and acquired (rheumatoid arthritis, systemic lupus erythematosus, rheumatic fever and osteoarthritis).
Mitochondrial diseases. Kearns-Sayre syndrome, Pearson's syndrome, MERRF, MELAS, NARP, MILS, dominant optic atrophy, Charcot-Marie-Tooth 2A and 4A.
Molecular pathology of signal transduction. McCune-Albright syndrome, Carney complex disorder, achondroplasia, Laron's syndrome, RASopathies, neurofibromatosis, Noonan's syndrome, Legius syndrome.
Benign and malignant tumors. Classification and staging of tumors. Cancer epidemiology: risk factors. Hereditary tumors. Fundamental characteristics of tumor cells. Cancer stem cells. Alterations in the cell cycle control, senescence, cell survival and metabolism (Warburg effect). Angiogenesis, invasion and metastasis. Chemical and viral carcinogenesis. Genetics of tumors. Driver genes: oncogenes and tumor suppressor genes. Non-coding RNAs and tumors. Mitochondria, oxidative stress and cancer.

Week	Day	N. Hours	Formal Lectures ILA -Interactive Learning Activities)	Professor
05/9 October	Mon. 16:00-17:00	1	Course introduction	Feliciello
	Tue. 14:00-17:00	3	Cell injury and adaptation to environmental stress	Chiuso
	Wed. 14:00-17:00	3	Mechanisms of cell and tissue injury	Chiuso
	Thur. 16:00-17:00	1	Immune recognition of cell and tissue injury	Chiuso
12/16 October	Mon. 16:00-17:00	1	Acute inflammation: local and systemic manifestations; TLR/PRR, and recognition of PAMPs/DAMPs	Racioppi
	Tue. 14:00-17:00	3	Chemotaxis, diapedesis, lipid mediators; systemic manifestations of acute inflammation; septic shock; fever and malignant hyperthermia.	Racioppi
	Wed. 14:00-17:00	3	Chronic inflammation and granulomas	Racioppi
	Thur. 16:00-17:00	1	Phagocytosis and diseases caused by impaired innate immune responses	Racioppi
19/23 October	Mon. 16:00-17:00	1	Wound healing and granulation tissue	Racioppi
	Tue. 14:00-17:00	3	Fibrosis, sclerosis, steatosis, cirrhosis	Racioppi
	Wed. 14:00-17:00	3	Oncology: Epidemiology and classification	Palazzo
	Thur. 16:00-17:00	1	Fundamental features of cancer cells	Palazzo
26/30 October	Mon. 16:00-17:00	1	Cancer genetics	Palazzo
	Tue. 14:00-17:00	3	Oncogenes and Signal Transduction in Cancer	Palazzo
	Wed. 14:00-17:00	3	Other classes of Oncogenes	Palazzo
	Thur. 16:00-17:00	1	Tumor suppressors	Palazzo
03/06 November	Mon. 16:00-17:00	1	Tumor Suppressors: Gatekeepers	Palazzo
	Wed. 14:00-17:00	3	Cell Cycle Control and Cellular Senescence	Palazzo
	Thur. 16:00-17:00	1	Hereditary Tumors	Palazzo
9/13 November	Mon. 16:00-17:00	1	Sources of DNA Damage and Mutagenesis	Palazzo
	Tue. 14:00-17:00	3	Tumor Suppressors: Caretakers	Palazzo
	Wed. 14:00-17:00	3	DNA Repair Syndromes and Cancer	Palazzo
	Thur. 16:00-17:00	1	Cancer risk factors	Fiore
16/20 November	Mon. 16:00-17:00	1	Chemical and viral carcinogenesis	Fiore
	Tue. 14:00-17:00	3	HalLmarks of cancer	Fiore
	Wed. 14:00-17:00	3	Metastasis	Fiore
	Thur. 16:00-17:00	1	Tumor invasion	Fiore

23/27 November	Mon. 16:00-17:00	1	Tumor angiogenesis	Fiore
	Tue. 14:00-17:00	3	miRNA and Cancer	Fiore
	Wed. 14:00-17:00	3	Signal transduction in diseases	Feliciello
	Thur. 16:00-17:00	1	Signal transduction in diseases	Feliciello
30/04 December	Mon. 16:00-17:00	1	Mitochondrial disorders	Feliciello
	Tue. 14:00-17:00	3	Mitochondrial disorders	Feliciello
	Wed. 14:00-17:00	3	Neurodegenerative diseases	Feliciello
	Thur. 16:00-17:00	1	Oxidative stress and cancer	Feliciello
09/11 December	Mon. 15:00-17:00	1	Oxidative stress and cancer	Chiuso
	Tue. 14:00-17:00	3	Ciliopathies	Chiuso
	Wed. 14:00-17:00	1	Connective tissue diseases	Chiuso
14/18 December	Mon. 16:00-17:00	1	Interactive learning activities	Feliciello
	Tue. 14:00-17:00	3	Interactive learning activities	Feliciello
	Wed. 14:00-17:00	3	Interactive learning activities	Feliciello
	Thur. 16:00-17:00	1	Interactive learning activities	Feliciello

READINGS/BIBLIOGRAPHY

Suggested texbooks:

1. Robbins &Cotran Pathologic Basis of Disease, 10e 2020Vinay Kumar, Abul K. Abbas, Jon C. Aster Elsevier Saunders;
2. Rubin's Pathology: Clinico pathologic Foundations of Medicine, 8e 2019 David S. Strayer, Emanuel Rubin WolterSKluver.

TEACHING METHODS

Frontal lessons, interviews on student request for further information and clarifications, training activities. Clerkship activities will focus on practical aspects of what is discussed at lectures.

EXAMINATION/EVALUATION CRITERIA

a) Exam type:

Examtype	
Written and oral	
Only written	
Only oral	**X**
project discussion	
other	

In case of a written exam, questions refer to:	**Multiple choice answers**	
	Open answers	
	Numerical exercises	

b) Evaluation pattern:

Written text and oral exam