UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Biomedicina, Neuroscienze e Diagnostica avanzata
ACADEMIC YEAR	2019/2020
MASTER'S DEGREE (MSC)	MEDICINE AND SURGERY
INTEGRATED COURSE	GENERAL PATHOLOGY - INTEGRATED COURSE
CODE	05548
MODULES	Yes
NUMBER OF MODULES	2
SCIENTIFIC SECTOR(S)	MED/04
HEAD PROFESSOR(S)	MERAVIGLIA SERENA — Professore Associato — Univ. di PALERMO MISIANO GABRIELLA — Ricercatore — Univ. di PALERMO CANDORE GIUSEPPINA — Professore Ordinario — Univ. di PALERMO
OTHER PROFESSOR(S)	MERAVIGLIA SERENA — Professore Associato — Univ. di PALERMO LA MANNA MARCO PIO — Ricercatore a tempo determinato — Univ. di PALERMO MISIANO GABRIELLA — Ricercatore — Univ. di PALERMO ACCARDI GIULIA — Ricercatore a tempo determinato — Univ. di PALERMO CANDORE GIUSEPPINA — Professore Ordinario — Univ. di PALERMO
CREDITS	8
PROPAEDEUTICAL SUBJECTS	03839 - IMMUNOLOGY
MUTUALIZATION	
YEAR	3
TERM (SEMESTER)	1° semester
ATTENDANCE	Mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	**ACCARDI GIULIA** Tuesday 15:00 16:00 Sezione di patologia generale, Corso Tukory 211, 90134, Palermo Friday 12:00 14:00 Sezione di patologia generale, Corso Tukory 211, 90134, Palermo **CANDORE GIUSEPPINA** Monday 12:00 14:00 Patologia generale - Corso Tukory 211 Wednesday 12:00 14:00 Patologia generale- Corso Tukory 211 **LA MANNA MARCO PIO** Wednesday 14:30 16:00 DIP. BIND presso Istituto Pat. Generale corso Tukory 211 PA, **MERAVIGLIA SERENA** Monday 12:00 14:00 Cladibior AOUP Wednesday 12:00 14:00 Cladibior AOUP **MISIANO GABRIELLA** Monday 14:00 16:00 Dipartimento di Biomedicina, Neuroscienze e Diagnostica avanzata Bi.N.D - Sezione di Patologia Generale - Corso Tukory, 211 - 90134 Palermo Tuesday 14:00 16:00 Dipartimento di Biomedicina, Neuroscienze e Diagnostica avanzata Bi.N.D - Sezione di Patologia Generale - Corso Tukory, 211 - 90134 Palermo Wednesday 14:00 16:00 Dipartimento di Biomedicina, Neuroscienze e Diagnostica avanzata Bi.N.D - Sezione di Patologia Generale - Corso Tukory, 211 - 90134 Palermo

DOCENTE: Prof.ssa GABRIELLA MISIANO- *Sede HYPATIA*

PREREQUISITES	Knowledge concerning anatomy, microbiology, immunology, biology and genetics with particular focus on neoplastic diseases and scientific innovations in the field of interest.
LEARNING OUTCOMES	Knowledge and understanding Acquisition of the tools to understand the etiopathogenetic and pathological processes of the disease. Ability to use the techical language. Ability to apply knowledge and understanding Ability to recognize and use the cognitive tools and the methodological rigor of the general pathology for the rational exercise of any activity directly and indirectly connected to the protection of health. Autonomy of judgment Being able to study and critically evaluate results of scientific research about etiopathogenetic and pathological mechanisms of diseases. Communicative skills Ability to explain, in a simple, immediate and comprehensive way, the acquired knowledge of pathological processes. Learning skills Ability to update through the consultation of scientific litterature related to the field of interest. Ability to take part to professional updating initiatives, using the skills acquired during the course.
ASSESSMENT METHODS	Oral exam. The candidate will have to answer at least four questions posed orally, at least two for each of the two modules, covering the different parts of the program, with reference to the recommended texts. Final assessment aims to evaluate whether the student has knowledge and understanding of the topics, has acquired the skills to interpret the notions and judge independently. The evaluation is expressed using a 30-point scale. ECTS grades: A – A+ Excellent (30-30 cum laude) - Grade descriptors: Excellent knowledge of teaching contents; students should show high analytical and synthetic capabilities and should be able to apply their knowledge to solve highly complex problems. ECTS grade : B Very good (27-29) - Grade descriptors: Good knowledge of the teaching contents and excellent language control; students should show analytical and synthetic skills and be able to apply their knowledge to solve problems of medium and, in some cases, even higher complexity. ECTS grade: C Good (24-26)- Grade descriptors: Good knowledge of teaching contents and good language control; the students should be able to apply their knowledge to solve problems of medium complexity. ECTS grade: D Satisfactory (21-23)- Grade descriptors: Average knowledge of the teaching contents, in some cases limited to the main topic; acceptable ability to use the specific discipline language and independently apply the acquired knowledge. ECTS grade: E Sufficient (18-20) - Grade descriptors: Minimum teaching content knowledge, often limited to the main topic; modest ability to use the subject specific language and independently apply the acquired knowledge. ECTS grade: F Fail (1-17) - Grade descriptors: Lack of an acceptable knowledge of the main teaching content knowledge; very little or no ability to use the specific subject language and apply independently the acquired knowledge. Exam failed.
TEACHING METHODS	Lectures.

DOCENTE: Prof.ssa GIUSEPPINA CANDORE- *Sede IPPOCRATE*

PREREQUISITES	Knowledge regarding the fileds of human anatomy, microbiology, immunology, biology and genetics, particularly refered to pathogenetic mechanisms of diseases.
LEARNING OUTCOMES	Knowledge and ability to understand: Acquisition of tools for the understanding of the pathogenetic mechanisms and pathophysiology of the disease. Ability to use the specific language of this specific science. Ability to apply knowledge and understanding: Ability to recognize and apply the cognitive tools and the methodological rigor of General Pathology for scientific and rational exercise of any activity related directly and indirectly to the protection of health. Making judgments: Being able to learn independently evaluate the results of studies to clarify the pathogenetic mechanisms and pathophysiology of the disease for future diagnostic and therapeutic implications Communication skill: Ability to illustrate, in a simple, immediate and exhaustive also to a non-expert audience, the knowledge gained as well as to know how to interface with colleagues, healthcare professionals, the individual patient and its family. Ability to learn: Ability to continuous update through consultation of scientific publications in the field. Ability, using the knowledge acquired in the course, to take up the contents of the following teaching courses of the degree course, and successfully participate in continuous updating initiatives in the professional field.
ASSESSMENT METHODS	Test type: Oral exam. The candidate will have to answer at least four questions posed orally, two for each of the two modules, covering the different parts of the program, with reference to the recommended texts. Final assessment aims to evaluate whether the student has knowledge and understanding of the topics, has acquired the skill to interpret the notions and independent judgment. Evaluation and its criteria The evaluation is expressed using a 30-point scale. ECTS grades: A – A+ Excellent (30-30 cum laude) - Grade descriptors : Excellent knowledge of teaching contents; students should show high analytical and synthetic capabilities and should be able to apply their knowledge to solve highly complex problems. ECTS grade : B Very good (27-29) - Grade descriptors: Good knowledge of the teaching contents and excellent language control; students should show analytical and synthetic skills and be able to apply their knowledge to solve problems of medium and, in some cases, even higher complexity. ECTS grade: C Good (24-26)- Grade descriptors: Good knowledge of teaching contents and good language control; the students should be able to apply their knowledge to solve problems of medium complexity ECTS grade: D Satisfactory (21-23)- Grade descriptors: Average knowledge of the teaching contents, in some cases limited to the main topic; acceptable ability to use the specific discipline language and independently apply the acquired knowledge. ECTS grade: E Sufficient (18-20) - Grade descriptors: Minimum teaching content knowledge, often limited to the main topic; modest ability to use the subject specific language and independently apply the acquired knowledge. ECTS grade: F Fail (1-17) - Grade descriptors: Lack of an acceptable knowledge of the main teaching content knowledge; very little or no ability to use the specific subject language and apply independently the acquired knowledge. Exam failed
TEACHING METHODS	Lectures

DOCENTE: Prof.ssa SERENA MERAVIGLIA- *Sede CHIRONE*

PREREQUISITES	Basic Knowledge of general pathology, biology, genetcs.
LEARNING OUTCOMES	Knwoledge and understanding Acquisition of tools for the understanding of the pathogenesis and pathophysiology of the disease. Ability of using technical language of these disciplines. Knowledge of features of microorganisms and main pathogens. The students will achieve the following objectives: Ability to apply knowledge and understanding Ability to recognize and apply the cognitive tools and the methodological approach of General Pathology for the scientific and rational practise of the profession. To demonstrate the ability to apply their knowledge and understanding to the main themes of microbiology. Making judgments To be able to evaluate independently the results of studies developed with the aim to clarify pathogenesis and pathophysiology of diseases. To acquire enough microbiology knowledge to critically analyze data Communication skills Ability to explain easily and exhaustively the knowledge. Ability to communicate with colleagues, healthcare professionals, patients and their relatives. Ability of learning Ability to update scientific publications about these disciplines .Attendance to meeting, congress and seminars
ASSESSMENT METHODS	Oral exam. The candidate will have to answer at least four questions posed orally, at least two for each of the two modules, covering the different parts of the program, with reference to the recommended texts. Final assessment aims to evaluate whether the student has knowledge and understanding of the topics, has acquired the skills to interpret the notions and judge independently. The evaluation is expressed using a 30-point scale. See at http://www.unipa.it/scuole/dimedicinaechirurgia
TEACHING METHODS	Lectures

MODULE
GENERAL PATHOLOGY III

Prof. MARCO PIO LA MANNA - Sede HYPATIA, - Sede HYPATIA

SUGGESTED BIBLIOGRAPHY

F. Mainiero , R. Misasi , M. Sorice , G.M. Pontieri - PATOLOGIA GENERALE – VI Edizione - Piccin, 2018;
Robbins e Cotran - LE BASI PATOLOGICHE DELLE MALATTIE- IX Edizione - Edra Masson, 2015;
C.Caruso, G.Candore - LA MALATTIA: DAGLI SCIAMANI ALLA MEDICINA DI PRECISIONE. Un'introduzione alla Patologia generale - Medical Books, 2016;
Altucci - Berton - Moncharmont - Stivala - PATOLOGIA GENERALE - Edizione - Idelson Gnocchi – 2018.

AMBIT	50401-Patologia generale e molecolare, immunopatologia, fisiopatologia generale, microbiologia e parassitologia
INDIVIDUAL STUDY (Hrs)	60
COURSE ACTIVITY (Hrs)	40

EDUCATIONAL OBJECTIVES OF THE MODULE

Module II of the General Pathology course aims to understand the molecular processes underlying carcinogenesis. At the end of the course, the student will be able to interpret the molecular aspects underlying the etiopathogenetic mechanisms related to the transformation of the cell from stem to cancer. The student will be able to understand the role and mechanisms through which the perturbations of the integrated functions of the organism determine the genesis and maintenance of pathological phenomena, modifying the biochemical, molecular, and structural balance that physiologically coordinates the functions of the various organs and systems.
This represents the fundamental prerequisite for the rational exercise of any activity connected directly or indirectly to the protection of individual health and the population. The student will be able to identify molecular targets whose block or activation can modulate the carcinogenesis process and environmental factors that can favor or prevent the onset of oncological pathologies. In addition, she will acquire the basic knowledge to be able to approach the world of translational medicine which highlights the close connection between basic and applied research.

SYLLABUS

Hrs	Frontal teaching
5	INTRODUCTION TO THE STUDY OF TUMORS: definition of tumor and general characteristics of neoplastic development; stamina cells; benign and malignant tumors; criteria for the nomenclature and classification of tumors; gradation of tumors; clinical and pathological classification of tumors according to the TNM system; tumor staging, cytological diagnosis of tumors; further diagnostic methodologies; tumors of laboratory animals and experimental tumors.
4	TUMOR EPIDEMIOLOGY: epidemiological methodology; morbidity and mortality from cancer; distribution of tumors by geographical area; distribution of tumors by age; distribution of tumors by sex; survival; hereditary oncogenic risk; occupational and environmental cancer risk; food oncogenic risk.
3	MORPHOLOGICAL ASPECTS OF THE NEOPLASTIC CELL: morphological characteristics of tumors under the optical and electron microscope.
4	ONCOGENES: definition of oncogene; families of oncogenes and their products; oncogenes encoding growth factors; oncogenes encoding proteins related to growth factor receptors; oncogenes encoding cytoplasmic protein kinases.
5	TUMOR SUPPRESSOR GENES: definition of tumor suppressor genes; the intuition of the existence of tumor suppressor genes; how did the identification of tumor suppressor genes come about; the rb1 gene e the main functions of its product; the p105rb protein; the tp53 gene involved in a large number of human tumors and the main functions of its product the p53 protein; the brca1 genes and brca2 involved in breast cancer; the fap gene, involved in the adenomatous polyposis family and the main functions of its product.
4	CELL PROLIFERATION, PROGRAMMED CELL DEATH AND DIFFERENTIATION IN CANCER: the cell cycle and its phases; factors favoring cell cycle progression; growth factors favoring the arrest of the cell cycle; apoptosis and tumors.
5	NEOPLASTIC INVASIVITY: the avascular phase of neoplastic growth; cell adhesiveness; modifications of homotypic adhesiveness in tumor cells; the locomotion of neoplastic cells; chemotactic factors for neoplastic cells; modifications of the heterotypic activity; proteases that digest the constituents of the extracellular matrix; the vascular phase of neoplastic growth.
5	HORMONES AND CARCINOGENESIS: breast adenocarcinoma; endocrine system tumors; paraneoplastic endocrine syndromes; hormone-responsive tumors; notes on immunity and tumors.
5	Cancer and aging: convergent and divergent mechanisms. Tumors and immunity. Cancer and inflammation. Cancer, nutrition, and diet.

MODULE
GENERAL PATHOLOGY I

Prof.ssa GABRIELLA MISIANO - Sede HYPATIA, - Sede HYPATIA

SUGGESTED BIBLIOGRAPHY

M. Pontieri, M.A. Russo, L. Frati - PATOLOGIA GENERALE – Piccin
Robbins e Cotran - LE BASI PATOLOGICHE DELLE MALATTIE - Volume 1 - Edra Masson
C.Caruso, G.Candore - LA MALATTIA: DAGLI SCIAMANI ALLA MEDICINA DI PRECISIONE. Un'introduzione alla Patologia generale - Medical Books, 2016

AMBIT	50401-Patologia generale e molecolare, immunopatologia, fisiopatologia generale, microbiologia e parassitologia
INDIVIDUAL STUDY (Hrs)	60
COURSE ACTIVITY (Hrs)	40

EDUCATIONAL OBJECTIVES OF THE MODULE

The aim of the module I of the General Pathology is the understanding of the causes and the mechanisms that alter the health status, leading to the disease. It will be both from a molecular and a cellular point of view. After examining the mechanisms and the cellular and molecular mediators involved in the onset of the disease, some models of pathologies will be used to provide concrete examples of the pathophysiological processes underlying it. Furthermore, the concept of positive biology will be introduced, mentioning the main tools useful in the prevention of cell damage. Another fundamental objective will be to transmit to students the importance of the acquisition of concrete and certain scientific evidence, obtained from a careful and deep study of the literature.

SYLLABUS

Hrs	Frontal teaching
2	Concept of disease from Hippocratic medicine to EBM.
4	Etiology and pathogenesis. Diseases due to intrinsic and extrinsic causes. Homeostasis.
4	Cellular responses to stress and toxic insults: adaptation, injury and death.
4	Variation of blood count during inflammation: normal values and their alteration. Cytometric diagnosis of hematological diseases. Anemias: pathopysiological and laboratory classification.
4	Inflammation: definition and biological significance, the mediators of inflammation. Proinflammatory cytokines and chemokines, hematopoietic cytokine and the role of interferons. Cytokines and chemokines and their role in inflammation. Various forms of exudates.
4	Chronic inflammation: principal causes of chronic inflammation, cells and mediators of chronic inflammation, phases of the process, causes and phases of granuloma formation and related human diseases.
2	Wound repair mechanisms and related defects.
4	The systemic effects of inflammation: acute phase proteins, erythrocyte sedimentation rate, leukocytosis, fever. Glucocorticoids and inflammatory responses.
2	Amyloidosis diseases: classification, etiopathogenesis and physiopathology.
2	Hypersensitivity reactions, definition of allergy, atopy and anaphylaxis. Gell and Coombs classification: general criteria and pathogenetic mechanisms,koch phenomenon and tuberculin reaction, vasculitis.
4	Aging and longevity: epidemiology of aging, theories of aging, stem cells, autophagy, biological and chronological age.
2	Malattie età correlata: Aterosclerosi e Alzheimer. Aging and related diseases: Alzheimer and Aterosclerosis.
2	Hemodynamic alterations, embolic thrombus disease, shock.

MODULE
GENERAL PATHOLOGY III

Prof.ssa GIULIA ACCARDI - Sede CHIRONE, - Sede CHIRONE

SUGGESTED BIBLIOGRAPHY

Patologia Generale e Fisiopatologia Generale , G.M. Pontieri VI edizione, Piccin
Principi di Patologia Generale ed oncologia molecolare, E. Mattiolo, M. Piazza, F. Virzi, Medical Books

AMBIT	50401-Patologia generale e molecolare, immunopatologia, fisiopatologia generale, microbiologia e parassitologia
INDIVIDUAL STUDY (Hrs)	60
COURSE ACTIVITY (Hrs)	40

EDUCATIONAL OBJECTIVES OF THE MODULE

ACQUISITION OF SKILLS NECESSARY TO UNDERSTAND THE PATHOGENETIC AND PATHOLOGICAL MECHANISMS OF DISEASES AND ALL THE ALTERATION THAT CONTROL FUNCTIONS AND STRUCTURES AT VARIOUS LEVELS

SYLLABUS

Hrs	Frontal teaching
5	DEVELOPMENT ; STAMINAL CELLS; BENIGN AND MALIGNANT TUMORS; CRITERIA FOR CLASSIFICATION OF CANCER; STRENGTH OF CANCER; CLASSIFICATION AND CLINICAL PATHOLOGY OF CANCER ACCORDING TO THE TNM SYSTEM; STAGING OF CANCER, CANCER CYTOLOGICAL DIAGNOSIS; ADDITIONAL DIAGNOSTIC METHODOLOGIES; EXPERIMENTAL CANCER OF LABORATORY ANIMALS
4	EPIDEMIOLOGY OF CANCER: EPIDEMIOLOGICAL METHODOLOGY; MORBIDITY AND 'MORTALITY OF CANCER; GEOGRAPHIC DISTRIBUTION OF CANCER; AGE DISTRIBUTION OF CANCER ; GENDER DISTRIBUTION OF CANCER; SURVIVAL; THE CROWN CARCINOGENIC RISK; OCCUPATIONAL AND ENVIRONMENTAL ONCOGENIC RISK; ONCOGENIC FOOD RISK. ONCOGENES:
3	MORPHOLOGICAL ASPECTS OF NEOPLASTIC CELL : MORPHOLOGICAL CHARACTERISTICS OF TUMOUR AT OPTICAL AND ELECTRONIC MICROSCOPE
4	ONCOGENES: ONCOGENE DEFINITION ; FAMILIES OF ONCOGENES AND THEIR PRODUCTS; ONCOGENES ENCODING FOR GROWTH FACTORS; ONCOGENES ENCODING FOR PROTEINS RELATED TO RECEPTORS OF GROWTH FACTORS; ONCOGENES CODING FOR CYTOPLASMIC PROTEIN KINASE.
3	CELL PROLIFERATION, CELL DEATH AND DIFFERENTIATION PROGRAM IN CANCER: THE CELL CYCLE; FACTORS ENHANCING PROGRESSION OF CELL CYCLE; GROWTH FACTORS FAVORING STOP CELL CYCLE; APOPTOSIS AND CANCER.
7	TUMOR SUPPRESSOR GENES: DEFINITION OF TUMOR SUPPRESSOR GENES; INTUITION OF EXISTENCE OF GENES TUMOR SUPPRESSOR; HISTORY OF TUMOR SUPPRESSOR GENES IDENTIFICATION ; RB1 GENE AND THE MAIN FUNCTIONS OF ITS PRODUCT; PROTEIN P105RB; GENE WT1 AND MAIN FUNCTIONS OF ITS PRODUCT, THE PROTEIN P46-49WT; TP53 GENE INVOLVED IN A LARGE NUMBER OF HUMAN CANCERS AND THE MAIN FUNCTIONS OF ITS PRODUCT PROTEIN P53; THE BRCA1 AND BRCA2 GENES INVOLVED IN BREAST CANCER; NF1 AND NF2 GENES AND THE MAIN FUNCTIONS OF THEIR PRODUCTS; GENE FAP AND THE MAIN FUNCTIONS OF ITS PRODUCT. THE RAS AND EGFR GENES INVOLVED IN LUNG AND PANCREATIC CANCER. GENES BRAF, PAX8 AND TTF1 INVOLVED IN THYROID CANCER.
6	MOLECULAR ASPECTS OF GLIOBLASTOMA; INVASIVENESS' CANCER: THE AVASCULAR STAGE OF CANCER;GROWTH ADHESIVENESS' CELL; MODIFICATIONS OF HOMOTYPIC 'TACKINESS IN CANCER CELLS; THE LOCOMOTION OF NEOPLASTIC CELL; THE CHEMOTACTIC FACTORS FOR NEOPLASTIC CELL; MODIFICATIONS OF HETEROTYPIC ACTIVITY; THE PROTEASES THAT DIGEST THE CONSTITUENTS OF EXTRACELLULAR MATRIX; VASCULAR PHASE OF CANCER GROWTH.
4	HORMONES AND CARCINOGENESIS: THE BREAST ADENOCARCINOMA OF MICE; CANCER OF THE ENDOCRINE SYSTEM; THE ENDOCRINE PARANEOPLASTIC SYNDROMES; CANCER ORMONE-RESPONSIVE; IMMUNITY 'AND CANCER.
4	STEM CELLS: STEM CELLS AND MECHANISMS OF ACTION AND CHEMORESISTANCE TO DRUGS, CHEMORESISTANCE CHARACTERISTICS OF CANCER STEM CELLS.

MODULE
GENERAL PATHOLOGY III

Prof.ssa GIULIA ACCARDI - Sede IPPOCRATE, - Sede IPPOCRATE

SUGGESTED BIBLIOGRAPHY

Principi di Patologia Generale, Oncologia Molecolare , Medical Books
Pontieri, Russo, Frati – PATOLOGIA GENERALE Piccin.

AMBIT	50401-Patologia generale e molecolare, immunopatologia, fisiopatologia generale, microbiologia e parassitologia
INDIVIDUAL STUDY (Hrs)	60
COURSE ACTIVITY (Hrs)	40

EDUCATIONAL OBJECTIVES OF THE MODULE

ACQUISITION OF SKILLS NECESSARY TO UNDERSTAND THE PATHOGENETIC AND PATHOLOGICAL MECHANISMS OF DISEASES AND ALL THE ALTERATION THAT CONTROL FUNCTIONS AND STRUCTURES AT VARIOUS LEVELS.

SYLLABUS

Hrs	Frontal teaching
5	DEVELOPMENT ; STAMINAL CELLS; BENIGN AND MALIGNANT TUMORS; CRITERIA FOR CLASSIFICATION OF CANCER; STRENGTH OF CANCER; CLASSIFICATION AND CLINICAL PATHOLOGY OF CANCER ACCORDING TO THE TNM SYSTEM; STAGING OF CANCER, CANCER CYTOLOGICAL DIAGNOSIS; ADDITIONAL DIAGNOSTIC METHODOLOGIES; EXPERIMENTAL CANCER OF LABORATORY ANIMALS
4	EPIDEMIOLOGY OF CANCER: EPIDEMIOLOGICAL METHODOLOGY; MORBIDITY AND 'MORTALITY OF CANCER; GEOGRAPHIC DISTRIBUTION OF CANCER; AGE DISTRIBUTION OF CANCER ; GENDER DISTRIBUTION OF CANCER; SURVIVAL; THE CROWN CARCINOGENIC RISK; OCCUPATIONAL AND ENVIRONMENTAL ONCOGENIC RISK; ONCOGENIC FOOD RISK. ONCOGENES:
3	MORPHOLOGICAL ASPECTS OF NEOPLASTIC CELL : MORPHOLOGICAL CHARACTERISTICS OF TUMOUR AT OPTICAL AND ELECTRONIC MICROSCOPE
4	ONCOGENES: ONCOGENE DEFINITION ; FAMILIES OF ONCOGENES AND THEIR PRODUCTS; ONCOGENES ENCODING FOR GROWTH FACTORS; ONCOGENES ENCODING FOR PROTEINS RELATED TO RECEPTORS OF GROWTH FACTORS; ONCOGENES CODING FOR CYTOPLASMIC PROTEIN KINASE.
3	CELL PROLIFERATION, CELL DEATH AND DIFFERENTIATION PROGRAM IN CANCER: THE CELL CYCLE; FACTORS ENHANCING PROGRESSION OF CELL CYCLE; GROWTH FACTORS FAVORING STOP CELL CYCLE; APOPTOSIS AND CANCER.
7	TUMOR SUPPRESSOR GENES: DEFINITION OF TUMOR SUPPRESSOR GENES; INTUITION OF EXISTENCE OF GENES TUMOR SUPPRESSOR; HISTORY OF TUMOR SUPPRESSOR GENES IDENTIFICATION ; RB1 GENE AND THE MAIN FUNCTIONS OF ITS PRODUCT; PROTEIN P105RB; GENE WT1 AND MAIN FUNCTIONS OF ITS PRODUCT, THE PROTEIN P46-49WT; TP53 GENE INVOLVED IN A LARGE NUMBER OF HUMAN CANCERS AND THE MAIN FUNCTIONS OF ITS PRODUCT PROTEIN P53; THE BRCA1 AND BRCA2 GENES INVOLVED IN BREAST CANCER; NF1 AND NF2 GENES AND THE MAIN FUNCTIONS OF THEIR PRODUCTS; GENE FAP AND THE MAIN FUNCTIONS OF ITS PRODUCT. THE RAS AND EGFR GENES INVOLVED IN LUNG AND PANCREATIC CANCER. GENES BRAF, PAX8 AND TTF1 INVOLVED IN THYROID CANCER.
6	MOLECULAR ASPECTS OF GLIOBLASTOMA; INVASIVENESS' CANCER: THE AVASCULAR STAGE OF CANCER;GROWTH ADHESIVENESS' CELL; MODIFICATIONS OF HOMOTYPIC 'TACKINESS IN CANCER CELLS; THE LOCOMOTION OF NEOPLASTIC CELL; THE CHEMOTACTIC FACTORS FOR NEOPLASTIC CELL; MODIFICATIONS OF HETEROTYPIC ACTIVITY; THE PROTEASES THAT DIGEST THE CONSTITUENTS OF EXTRACELLULAR MATRIX; VASCULAR PHASE OF CANCER GROWTH.
4	HORMONES AND CARCINOGENESIS: THE BREAST ADENOCARCINOMA OF MICE; CANCER OF THE ENDOCRINE SYSTEM; THE ENDOCRINE PARANEOPLASTIC SYNDROMES; CANCER ORMONE-RESPONSIVE; IMMUNITY 'AND CANCER.
4	STEM CELLS: STEM CELLS AND MECHANISMS OF ACTION AND CHEMORESISTANCE TO DRUGS, CHEMORESISTANCE CHARACTERISTICS OF CANCER STEM CELLS.

MODULE
GENERAL PATHOLOGY I

Prof.ssa GIUSEPPINA CANDORE - Sede IPPOCRATE, - Sede IPPOCRATE

SUGGESTED BIBLIOGRAPHY

F. Mainiero , R. Misasi , M. Sorice , G.M. Pontieri - PATOLOGIA GENERALE – VI Edizione - Piccin, 2018
Robbins e Cotran - LE BASI PATOLOGICHE DELLE MALATTIE - IX Edizione - Edra Masson, 2015
C.Caruso, G.Candore - LA MALATTIA: DAGLI SCIAMANI ALLA MEDICINA DI PRECISIONE. Un'introduzione alla Patologia generale - Medical Books, 2016
Altucci - Berton - Moncharmont - Stivala - PATOLOGIA GENERALE - Edizione - Idelson Gnocchi - 2018

AMBIT	50401-Patologia generale e molecolare, immunopatologia, fisiopatologia generale, microbiologia e parassitologia
INDIVIDUAL STUDY (Hrs)	60
COURSE ACTIVITY (Hrs)	40

EDUCATIONAL OBJECTIVES OF THE MODULE

To acquire the necessary skills to understand the etiology and pathophysiological mechanisms of diseases, the alterations of the structure, functions and control mechanisms of cells and systems. The student must also have the basic information on the main diagnostic techniques, especially on molecular field. The knowledge acquired in the course will represent the indispensable substrate for a correct clinical approach. .

SYLLABUS

Hrs	Frontal teaching
2	Concept of disease from Hippocratic medicine to EBM
4	Etiology and pathogenesis. Diseases due to intrinsic and extrinsic causes. Homeostasis.
4	Cellular responses to stress and toxic insults: adaptation, injury and death
4	Variation of blood count during inflammation: normal values and their alteration. Cytometric diagnosis of haematological diseases. Anemias: phisiopatological and laboratory classification.
4	Inflammation: definition and biological significance, the mediators of inflammation. Proinflammatory cytokines and the chemokines, haematopoietic cytokine and the role of interferons. Cytokines and chemokines and their role in inflammation. Various forms of exudates.
4	Chronic inflammation: principal causes of chronic inflammation, cells and mediators of chronic inflammation, phases of the process, causes and phases of ganuloma formation and related human diseases.
2	Wound repair mechanisms and related defects.
4	The systemic effects of inflammation: acute phase proteins,erythrocyte sedimentation rate, leukocytosis, fever and the effect of the cytokines on the hypothalamus. Glucocorticoids and the systemic effects.
2	Amyloidosis diseases: classification, etiopathogenesis and physiopathology.
2	Hypersensitivity reactions, definition of allergy, atopy and anaphylaxis. Gell and Coombs classification: general criteria and pathogenetic mechanisms,koch phenomenon and tuberculin reaction, vasculitis.
4	Aging and longevity: epidemiology of aging, theories of aging, stem cells, autophagy, biological and chronological age.
2	Aging and related diseases: Alzheimer and Aterosclerosis
2	Alterazioni emodinamiche, malattia trombo embolica, shock

MODULE
GENERAL PATHOLOGY I

Prof.ssa SERENA MERAVIGLIA - Sede CHIRONE, - Sede CHIRONE

SUGGESTED BIBLIOGRAPHY

Pontieri, Russo, Frati – PATOLOGIA GENERALE

Robbins e Cotran. Le basi patologiche delle malattie. Volume 1.

Rubin, Gorstein, Rubin, Schwarting, Stayer- Patologia Fondamenti clinico patologici in medicina Rubin- CEA-Casa editrice Ambrosiana

Caruso C, Candore G. La malattia: dagli sciamani alla medicina di precisione. Medical Books

AMBIT	50401-Patologia generale e molecolare, immunopatologia, fisiopatologia generale, microbiologia e parassitologia
INDIVIDUAL STUDY (Hrs)	60
COURSE ACTIVITY (Hrs)	40

EDUCATIONAL OBJECTIVES OF THE MODULE

The aims of the module is to provide the basis of the etiological and pathogenesis of the diseases.This module provides a basic working knowledge of pathology and pathological conditions. The principal goal is to understand the mechanisms of disease (pathogenesis) and the basic mechanism of production of signs and symptoms of various diseases.

SYLLABUS

Hrs	Frontal teaching
2	Concept of disease from Hippocratic medicine to EBM
4	Etiology and pathogenesis. Diseases due to intrinsic and extrinsic causes. Homeostasis.
4	Cellular responses to stress and toxic insults: adaptation, injury and death
4	Variation of blood count during inflammation: normal values and their alteration. Cytometric diagnosis of haematological diseases. Anemias: phisiopatological and laboratory classification.
4	Inflammation: definition and biological significance, the mediators of inflammation. Proinflammatory cytokines and the chemokines, haematopoietic cytokine and the role of interferons. Cytokines and chemokines and their role in inflammation. Various forms of exudates.
4	Chronic inflammation: principal causes of chronic inflammation, cells and mediators of chronic inflammation, phases of the process, causes and phases of ganuloma formation and related human diseases.
2	Wound repair mechanisms and related defects.
4	The systemic effects of inflammation: acute phase proteins,erythrocyte sedimentation rate, leukocytosis, fever and the effect of the cytokines on the hypothalamus. Glucocorticoids and the systemic effects.
2	Amyloidosis diseases: classification, etiopathogenesis and physiopathology.
2	Hypersensitivity reactions, definition of allergy, atopy and anaphylaxis. Gell and Coombs classification: general criteria and pathogenetic mechanisms,koch phenomenon and tuberculin reaction, vasculitis.
4	Aging and longevity: epidemiology of aging, theories of aging, stem cells, autophagy, biological and chronological age.
2	Aging and related diseases: Alzheimer and Aterosclerosis
2	Hemodynamic alterations, embolic thrombus disease, shock