UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Biomedicina, Neuroscienze e Diagnostica avanzata
ACADEMIC YEAR	2023/2024
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)	MISIANO GABRIELLA — Ricercatore — Univ. di PALERMO AIELLO ANNA — Ricercatore a tempo determinato — Univ. di PALERMO CANDORE GIUSEPPINA — Professore Ordinario — Univ. di PALERMO
OTHER PROFESSOR(S)	MISIANO GABRIELLA — Ricercatore — Univ. di PALERMO AIELLO ANNA — Ricercatore a tempo determinato — 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 **AIELLO ANNA** Tuesday 14:00 16:00 Sezione di patologia generale, Corso Tukory 211, 90134, Palermo Thursday 14:00 16:00 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 **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 ANNA AIELLO- *Sede CHIRONE*

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 GABRIELLA MISIANO- *Sede HYPATIA*

PREREQUISITES	Knowledge regarding the fields of human anatomy, biology, genetics, immunology and microbiology particularly referred to the understanding of 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 directly and indirectly related activity to the protection of health. Making judgments: Being able to independently evaluate the results of studies aimed at clarifying the etiopathogenetic and pathophysiological mechanisms of the disease for future diagnostic and therapeutic implications Communication skill: Ability to illustrate, in a simple, immediate and exhaustive way even to a non-expert audience, the acquired knowledge as well as knowing how to interface with colleagues, healthcare personnel, individual patient and family members 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 profitably 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, referring 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	frontal lessons

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

MODULE
GENERAL PATHOLOGY III

- Sede HYPATIA, - Sede HYPATIA

SUGGESTED BIBLIOGRAPHY	
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	

SYLLABUS

Hrs	Frontal teaching
5	INTRODUCTION TO THE STUDY OF CANCER: tumor definition and general features of the neoplastic development; stem cells; benign and malignant tumors; criteria of nomenclature and classification of tumors; gradation of tumors; clinical and pathological classification of tumors according to the tnm system; stadazione tumor, cytological diagnosis of cancer; further diagnostic methods; tumors of laboratory animals and experimental tumors.
4	EPIDEMIOLOGY OF CANCER: epidemiological methodology; morbidity 'and mortality' for tumors; distribution of tumors by geographical areas; distribution of tumors by age '; distribution of tumors by sex; survival; the risk oncogenic hereditary; the risk oncogenic occupational and environmental; the risk oncogenic food.
3	MORPHOLOGICAL ASPECTS OF CELL CANCER: morphological characteristics of tumors to light and electron microscopy.
4	ONCOGENES: definition of oncogene; the family of oncogenes and their products; oncogenes that encode growth factors; oncogenes that encode related proteins to the receptors of growth factors; oncogenes that encode for protein kinases cytoplasmic.
5	Tumor suppressor genes: definition of tumor suppressor genes; the intuition of the existence of tumor suppressor genes; as it has' come to the identification of tumor suppressor genes; rb1 the gene and the main functions of the product; the p105rb protein; TP53 gene involved in a large number of human tumors and the main functions of the p53 protein product; The BRCA1 and BRCA2 genes involved in breast cancer; fap gene involved in familial adenomatous polyposis and the main functions of the product.
4	CELL PROLIFERATION, CELL DEATH AND DIFFERENTIATION PROGRAM IN CANCER: the cell cycle and its phases; factors enhancing cell cycle progression; growth factors favoring the arrest of the cell cycle; apoptosis and cancer.
5	Metastatic capacity: the avascular stage of neoplastic growth; the adhesiveness' cell; changes adhesiveness' homotypic in cancer cells; locomotion of cancer cells; the chemotactic factors for cancer cells; modifications of the attivita 'heterotypic; proteases that digest the constituents of the extracellular matrix; the vascular phase of neoplastic growth.
5	HORMONES AND CARCINOGENESIS: mammary adenocarcinoma; tumors of the endocrine system; endocrine paraneoplastic syndromes; the hormone-responsive tumors; hints of immunity and tumors.
5	Cancer and aging: convergent and divergent mechanisms. Cancer and immunity. Cancer and inflammation. Cancer, nutrition and diet.

MODULE
GENERAL PATHOLOGY I

Prof.ssa ANNA AIELLO - Sede CHIRONE, - Sede CHIRONE

SUGGESTED BIBLIOGRAPHY

F. Mainiero, R. Misasi, M. Sorice, G.M. Pontieri - PATOLOGIA GENERALE – VI Edizione - Piccin, 2019, ISBN 978-88-299-2963-4.
KUMAR – ROBBINS. LE BASI PATOLOGICHE: PATOLOGIA GENERALE – 9 Ed. Vol I, Edra Masson, giugno 2017, ISBN: 978-88-214-4748-8.
C. Caruso, G. Candore - LA MALATTIA: DAGLI SCIAMANI ALLA MEDICINA DI PRECISIONE. Un'introduzione alla Patologia generale - Medical Books, 2016, ISBN 978-88-8034-101-7.
L.Altucci, G.Berton, B. Moncharmont, L.A. Stivala - PATOLOGIA GENERALE - Idelson Gnocchi, 2019, ISBN 978-88-79476720.

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, homeodynamics and hormesis.
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 acute inflammatory process: blood vascular phenomena. The formation of inflammatory exudate and their various types. Inflammatory mediators: inflammatory cytokines and chemokines and their role in inflammation.
4	Chronic inflammation: main causes of chronic inflammation, cells and mediators involved. Chronic specific and nonspecific inflammation. The formation of the granuloma: stages and examples in human pathology.
2	Wound repair mechanisms and related defects.
4	The systemic effects of inflammation: acute phase proteins, erythrocyte sedimentation rate, leukocytosis and fever. Glucocorticoids and the systemic effects.
2	Amyloidosis diseases: classification, etiopathogenesis and physiopathology.
2	Immune inflammation and hypersensitivity reactions, Gell and Coombs classification, definition of allergy, atopy and anaphylaxis, general criteria and pathogenetic mechanisms, the Koch phenomenon, the reaction to tuberculin. The vasculitis.
4	Aging and longevity: epidemiology of aging, theories of aging, stem cells, autophagy, biological and chronological age.
2	Aging and age-related diseases: Alzheimer and Aterosclerosis.
2	Haemodynamic alterations, thrombo-embolic disease, shock.

MODULE
GENERAL PATHOLOGY I

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

SUGGESTED BIBLIOGRAPHY

Patologia generale e fisiopatologia generale vol.1 di G. M. Pontieri, F. Mainiero, R. Misasi, M. Sorice - VI edizione, Piccin 2018, ISBN: 978-88-299-2963-4
Patologia generale e fisiopatologia generale vol.2 di G. M. Pontieri, F. Mainiero, R. Misasi – VI edizione, Piccin 2019, ISBN: 978-88-299-2967-2
KUMAR – ROBBINS. LE BASI PATOLOGICHE: PATOLOGIA GENERALE – 9 ED Vol I, Edra Masson, giugno 2017, ISBN: 978-88-214-4748-8
C.Caruso, G.Candore - LA MALATTIA: DAGLI SCIAMANI ALLA MEDICINA DI PRECISIONE. Un'introduzione alla Patologia generale - Medical Books, 2016, ISBN:978-88-8034-101-7
Patologia generale. Vol. 1: Eziologia, reazioni al danno e patologia delle funzioni cellullari non differenziate. I edizione. Lucia Altucci, Giorgio Berton, Lucia Anna Stivala, Idelson-Gnocchi 2018, ISBN: 978-88-79476720
Patologia generale. Vol. 2: Funzioni differenziate di organi e sistemi. I edizione. Lucia Altucci, Giorgio Berton, Lucia Anna Stivala, Idelson-Gnocchi 2018, ISBN: 978-88-79479737
Robbins & Cotran Pathologic Basis of Disease, 10th Edition, Vinay Kumar & Abul K. Abbas & Jon C. Aster, Elsevier, 2020. ISBN: 978-0323531139

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 necessary skills aimed 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	Haematopoiesis, complete blood count (CBC) test, white blood cell counts (WBC) peripheral blood smear test. Anemias: physiopatological and laboratory classification, CBC modifications.
4	Inflammation: definition and biological significance, the mediators of inflammation. Acute inflammation and the vascular events. The inflammatory exudate formation: various types of exudate. Inflammatory cytokines and chemokines and their role in inflammation.
4	Chronic inflammation: main causes of chronic inflammation, involved cells and mediators, chronic specific and non-specific inflammation. The granuloma formation: phases and examples in human pathology.
2	Wound repair mechanisms: regeneration and repair, the granulation tissue, differential tissue healing programs
4	The systemic effects of inflammation: acute phase proteins,erythrocyte sedimentation rate, leukocytosis, fever. The effects of cytokines on hypothalamus. Glucocorticoids effects in the inflammatory responses.
2	Amyloidosis: classification, etiopathogenesis and physiopathology
2	Immune inflammation, hypersensitivity reactions, Gell and Coombs classification definition of allergy, atopy and anaphylaxis.: 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	Age-related diseases: Alzheimer and Atherosclerosis
2	Haemodynamic alterations, thromboembolic disease, shock

MODULE
GENERAL PATHOLOGY III

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

SUGGESTED BIBLIOGRAPHY

F. Mainiero, R. Misasi, M. Sorice, G.M. Pontieri - PATOLOGIA GENERALE – VI Edizione - Piccin, 2019, ISBN 978-88-299-2963-4
KUMAR – ROBBINS. LE BASI PATOLOGICHE: PATOLOGIA GENERALE – 9 Ed. Vol I, Edra Masson, giugno 2017, ISBN: 978-88-214-4748-8
L.Altucci, G.Berton, B. Moncharmont, L.A. Stivala - PATOLOGIA GENERALE - Idelson Gnocchi, 2019, ISBN 978-88-79476720

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 module II of the General Pathology course aims to understand the molecular processes that underlie carcinogenesis. At the end of the course the student will be able to interpret the molecular aspects that underlie the etiopathogenetic mechanisms linked to the transformation of the cell from stem to cancerous. 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, changing 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 directly or indirectly connected to the protection of individual and population health. The student will be able to identify molecular targets whose block or activation are able to modulate the carcinogenesis process but also environmental factors that can favor or prevent the onset of oncological pathologies. Furthermore, it will be acquired 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 CANCER: tumor definition and general features of the neoplastic development; stem cells; benign and malignant tumors; criteria of nomenclature and classification of tumors; gradation of tumors; clinical and pathological classification of tumors according to the tnm system; stadazione tumor, cytological diagnosis of cancer; further diagnostic methods; tumors of laboratory animals and experimental tumors.
4	EPIDEMIOLOGY OF CANCER: epidemiological methodology; morbidity 'and mortality' for tumors; distribution of tumors by geographical areas; distribution of tumors by age '; distribution of tumors by sex; survival; the risk oncogenic hereditary; the risk oncogenic occupational and environmental; the risk oncogenic food.
3	MORPHOLOGICAL ASPECTS OF CELL CANCER: morphological characteristics of tumors in microscopy and associated cellular features.
4	ONCOGENES: definition of oncogene; the family of oncogenes and their products; oncogenes that encode growth factors; oncogenes that encode related proteins to the receptors of growth factors; oncogenes that encode for protein kinases cytoplasmic.
5	Tumor suppressor genes: definition of tumor suppressor genes; the intuition of the existence of tumor suppressor genes; as it has' come to the identification of tumor suppressor genes; rb1 the gene and the main functions of the product; the p105rb protein; TP53 gene involved in a large number of human tumors and the main functions of the p53 protein product; The BRCA1 and BRCA2 genes involved in breast cancer; fap gene involved in familial adenomatous polyposis and the main functions of the product.
4	CELL PROLIFERATION, CELL DEATH AND DIFFERENTIATION PROGRAM IN CANCER: the cell cycle and its phases; factors enhancing cell cycle progression; growth factors favoring the arrest of the cell cycle; apoptosis and cancer.
5	Metastatic capacity: the avascular stage of neoplastic growth; the adhesiveness' cell; changes adhesiveness' homotypic in cancer cells; locomotion of cancer cells; the chemotactic factors for cancer cells; modifications of the attivita 'heterotypic; proteases that digest the constituents of the extracellular matrix; the vascular phase of neoplastic growth.
5	HORMONES AND CARCINOGENESIS: mammary adenocarcinoma; tumors of the endocrine system; endocrine paraneoplastic syndromes; the hormone-responsive tumors; hints of immunity and tumors.
5	Cancer and aging: convergent and divergent mechanisms. Cancer and immunity. Cancer and inflammation. Cancer, nutrition and diet.

MODULE
GENERAL PATHOLOGY III

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

SUGGESTED BIBLIOGRAPHY

F. Mainiero, R. Misasi, M. Sorice, G.M. Pontieri - PATOLOGIA GENERALE – VI Edizione - Piccin, 2019, ISBN 978-88-299-2963-4
KUMAR – ROBBINS. LE BASI PATOLOGICHE: PATOLOGIA GENERALE – 9 Ed. Vol I, Edra Masson, giugno 2017, ISBN: 978-88-214-4748-8
L.Altucci, G.Berton, B. Moncharmont, L.A. Stivala - PATOLOGIA GENERALE - Idelson Gnocchi, 2019, ISBN 978-88-79476720

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 module II of the General Pathology course aims to understand the molecular processes that underlie carcinogenesis. At the end of the course the student will be able to interpret the molecular aspects that underlie the etiopathogenetic mechanisms linked to the transformation of the cell from stem to cancerous. 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, changing 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 directly or indirectly connected to the protection of individual and population health. The student will be able to identify molecular targets whose block or activation are able to modulate the carcinogenesis process but also environmental factors that can favor or prevent the onset of oncological pathologies. Furthermore, it will be acquired 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 CANCER: tumor definition and general features of the neoplastic development; stem cells; benign and malignant tumors; criteria of nomenclature and classification of tumors; gradation of tumors; clinical and pathological classification of tumors according to the tnm system; stadazione tumor, cytological diagnosis of cancer; further diagnostic methods; tumors of laboratory animals and experimental tumors.
4	EPIDEMIOLOGY OF CANCER: epidemiological methodology; morbidity 'and mortality' for tumors; distribution of tumors by geographical areas; distribution of tumors by age '; distribution of tumors by sex; survival; the risk oncogenic hereditary; the risk oncogenic occupational and environmental; the risk oncogenic food.
3	MORPHOLOGICAL ASPECTS OF CELL CANCER: morphological characteristics of tumors in microscopy and associated cellular features.
4	ONCOGENES: definition of oncogene; the family of oncogenes and their products; oncogenes that encode growth factors; oncogenes that encode related proteins to the receptors of growth factors; oncogenes that encode for protein kinases cytoplasmic.
5	Tumor suppressor genes: definition of tumor suppressor genes; the intuition of the existence of tumor suppressor genes; as it has' come to the identification of tumor suppressor genes; rb1 the gene and the main functions of the product; the p105rb protein; TP53 gene involved in a large number of human tumors and the main functions of the p53 protein product; The BRCA1 and BRCA2 genes involved in breast cancer; fap gene involved in familial adenomatous polyposis and the main functions of the product.
4	CELL PROLIFERATION, CELL DEATH AND DIFFERENTIATION PROGRAM IN CANCER: the cell cycle and its phases; factors enhancing cell cycle progression; growth factors favoring the arrest of the cell cycle; apoptosis and cancer.
5	Metastatic capacity: the avascular stage of neoplastic growth; the adhesiveness' cell; changes adhesiveness' homotypic in cancer cells; locomotion of cancer cells; the chemotactic factors for cancer cells; modifications of the attivita 'heterotypic; proteases that digest the constituents of the extracellular matrix; the vascular phase of neoplastic growth.
5	HORMONES AND CARCINOGENESIS: mammary adenocarcinoma; tumors of the endocrine system; endocrine paraneoplastic syndromes; the hormone-responsive tumors; hints of immunity and tumors.
5	Cancer and aging: convergent and divergent mechanisms. Cancer and immunity. Cancer and inflammation. Cancer, nutrition and diet.

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, 2019, ISBN 978-88-299-2963-4
KUMAR – ROBBINS. LE BASI PATOLOGICHE: PATOLOGIA GENERALE – 9 Ed. Vol I, Edra Masson, giugno 2017, ISBN: 978-88-214-4748-8
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L.Altucci, G.Berton, B. Moncharmont, L.A. Stivala - PATOLOGIA GENERALE - Idelson Gnocchi, 2019, ISBN 978-88-79476720

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, homeodynamics and hormesis
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	Haemodynamic alterations, thrombo-embolic disease, shock