ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΕΣΣΑΛΙΑΣ
ΣΧΟΛΗ ΕΠΙΣΤΗΜΩΝ ΥΓΕΙΑΣ
ΤΜΗΜΑ ΙΑΤΡΙΚΗΣ

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Παράρτημα ιε. COURSES DESCRIPTIONS

Contents

COURSE DESCRIPTION

BIOLOGY I

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	**BE0101.E**	**Semester**	1st
COURSE TITLE	BIOLOGY I		
COURSE INSTRUCTOR			
CO-INSTRUCTORS	Aspasia Tsezou, Ioanna Papathanasiou		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	6	5

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Background
PREREQUIRED COURSES	NO
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	YES
WEBSITE (URL)	**https://eclass.uth.gr/courses/MED_U_130/**

2.LEARNING OUTCOMES

Aims of the course

The course examines life that characterize living organisms, in general, and humans in particular. The course aims at understanding the physiological and pathological functions of the human body at the cellular level and introducing the principles and techniques of cell biology.

It also presents the application of cell biology knowledge in clinical settings such as the diagnosis and treatment of diseases.

The course also provides the essential background for courses introduced at later semesters.

Finally, another aim of the course is to help students appreciate the importance of correct execution and evaluation of laboratory analyses and acquire the corresponding skills which are required for many clinical medical specialties.

After the successful completion of this course, the students will be able to:

- understand the basic human cellular functions and the cell basis of human diseases
- have basic knowledge of cell, the pathways of homeostasis, the cell cycle and the basic mechanisms of its regulation.
- use basic equipment of a biology lab and perform simple routine cellular/molecular biology analyses.
- analyze and process basic cellular/molecular biology analysis results
- cooperate with their colleagues in the context of a lab environment for the execution of simple cellular/molecular biology analyses and processing of their results.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

- Research, analysis and synthesis of data and information, using the necessary technologies
- *Demonstration of social, professional and moral responsibility and sensitivity in gender issues*
- Teamwork
- *Respect for the natural environment*
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3.Module Content

The content of the course includes the following major items:

A. The content of the lectures together with the relevant theoretical insights the students need to learn/acquire per chapter.
B. The content of the laboratory practical together with the relevant practical & clinical skills the students need to learn/acquire per exercise.

A. Lecture content and relevant theoretical insights

• Biomolecules-The chemical composition of cells
• Structure and function of proteins
• Studying the cell methods
• Energy-Catalysis-Biosynthesis
• Cell membranes
• Transport across cell membranes
• Cell organelles
• The intracellular compartments
• Transport between intracellular compartments
• Communication between cells
• Cells get energy from food
• Mitochondria and energy production
• Cytoskeleton
• Cell cycle: Mitosis
• Cell cycle: Meiosis
• Extracellular matrix/Tissues-Organs

B. Laboratory Practical content

Hands-on learning: Acquisition of general and specific practical & clinical skills:

General Skills

Observing cellular phenomena, obtaining and analyzing experimental data
Interpretation of experimental data
Resolving practical problems
Producing graphical displays of data
Operating basic biology lab equipment
Working as a team
Following instructions
Following safety regulations
Trouble-shooting in laboratory results
Clinical significance of lab results

Specific Skills

- • Microscopy
- • Centrifugation
- • Identification of blood cells and blood type
- • Using a micropipette

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	*Face to Face:* Teaching of theory consists of lectures and laboratory practical. Attendance of Laboratory Practical is obligatory. The lectures content is described above. Laboratory exercises (in 2 student groups of students,2 instructors per group of 10 students) composing the students' practical are complementary to the lectures and they aim to familiarize the student with the operation of simple laboratory instruments and the experimental procedures that are often used in diagnosis as well as to help the students comprehend concepts that are not easily presented theoretically (learning based on practical experience).
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students. Specifically: • Common software (e.g. MS powerpoint) is used to prepare lecture material and display slides and videos. • The study guide (detailed supplementary material & additional bibliography), the theory and protocols of the laboratory exercises, the slides of each lecture as well as relevant videos and scientific articles made available electronically and online to students through the e-class system of our university. • Information about the course, instructors and their research interests and in general the Laboratory of Biology of the Faculty of Medicine are available online on the Laboratory website. • Common software (e.g. MS excel) is used to statistically process student assessment.

<table>
<tr><td></td><td>Announcements, information etc are available online via e-class.
Communication is also done via e-mail.</td></tr>
<tr><td>TEACHING METHODS
The way and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.</td><td>
<table>
<tr><th>Learning activity</th><th>Total semester workload</th></tr>
<tr><td>Lectures</td><td>100 hours</td></tr>
<tr><td>Lab. Practical (obligatory presence)</td><td>15 hours</td></tr>
<tr><td>Study</td><td>15 hours</td></tr>
<tr><td>Preparation for Practical</td><td>5 hours</td></tr>
<tr><td>SUM
(25 hours per teaching credit)</td><td>135 hours</td></tr>
<tr><td></td><td></td></tr>
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</td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, Explicitly defined assessment criteria are stated and if and where they are accessible to students.</td><td>The language of assessment is English.
Evaluation methods.
A. For the laboratory practical: Laboratory Assignment Reports, Written Examination at the end of the semester with …… questions and problem solving.
The participation of students in the laboratory exercises as well as the written report of the results of the exercises is mandatory. The report includes the results (presented in tables and diagrams, and the conclusions (e.g. if the results were expected, if not why, sources of possible errors in the experiments) as requested by each exercise. At the end of each exercise, the written report is checked by the instructors and signed when correctly completed. Successful participation in the practical is certified by the instructors' signatures on the written reports. At the end of the semester the students are examined in the content of the Laboratory practical. The examined material consists of the theory, the methodology and the ways results are processed as included in the Guide of the Laboratory Practical or presented by the instructors during the exercises. Only the students that have successfully completed the laboratory exercises can participate in the written laboratory examination. Success in the laboratory examination is a prerequisite for participation in the course exams.
B. For the lecture material: The course exams are written, lasting 2 hours, and consist of development questions (examples are available in the Course Guide) and critical or short answer questions. The material to be examined is lectures and tutorial material as described above. Only those students who have successfully passed the Laboratory exams have the right to participate in the course exams.</td></tr>
</table>

	Final Grade: The final grade of the course is calculated as the sum of 80% of the grade of the written course exams and 20% of the grade of the Laboratory written exams. All of the above are presented in detail in the Course Guide which is distributed in print to all students and is posted electronically in e-class.
5.Recommended Bibliography	
A. Lecture Material ***Main suggested textbooks:*** Molecular Biology of the Cell 6th (Alberts, Hopkin, Johnson, Morgan, Raff, Roberts, Walter) ***Relevant Scientific Journals:*** *Cell, Journal of Cell Science, Nature Reviews Molecular Cell Biology,* Nature Cell Biology, *Trends in Cell Biology, Cell Research*	

COURSE OUTLINE INFORMATICS

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	*Undergraduate*		
COURSE CODE	**BE0901**	**SEMESTER OF STUDIES**	2nd
COURSE TITLE	INFORMATICS		
COURSE INSTRUCTOR	Theodorou Kyriaki		
CO-INSTRUCTORS	Tsougkos Ioannis, Koutsiaris Aristotelis, Karpetas Georgios and Kylindris Thomas		

SEPERATE TEACHING ACTIVITIES *in case the credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.*	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
Lectures and laboratory exercises	2	2
Add rows if needed. The teaching organization and teaching methods used are described in detail in 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skills Development*	Background-Skills Development
PREREQUISITE COURSES:	---
LANGUAGE OF TEACHING AND EXAMS :	English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO
WEBSITE (URL)	http://eclass.uth.gr/eclass/courses/SEYA1 12 /

2.Learning Outcomes

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

- *Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area*
- *Descriptive Indicators Levels 6, 7 & 8 of the European Qualifications*

Framework for Lifelong Learning
Consult the concise guide for writing learning outcomes

Medical informatics is the study and application of methods to improve the management of patient data, clinical knowledge, population data, and other information relevant to patient care and community health. It is a young science, which emerged in the decades after the invention of the digital computer in the 1940s. Mechanical computing in medicine reflects the multidisciplinary nature of medical informatics, which interacts with various fields, including the clinical sciences, the public health sciences (for example, epidemiology and health services research) as well as cognitive, computing, and information sciences.

An introduction to basic concepts is analyzed including public health informatics, consumer health informatics, and clinical informatics.

Upon successful completion of the course the student will be able to:

- Structure and operation of personal computers.
- Computer Programs and computer languages
- Operating Systems
- Data storage and manipulation using spreadsheets
- Digital Technology
- Computer networks, The Internet
- Data Security – Digital Signatures
- Digital Images, Image processing
- The Python programming language and its applications in life sciences

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course ?.

Search, analysis and synthesis of data and information, using the necessary technologies
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

3. COURSE CONTENT

Lecture 1: Introductory Lecture. Applications of Information

Technology in medical and clinical practice

• Use of computer technology in medical practice
• Computational Imaging (CT/MRI/SPECT/PET)
• Biosignal acquisitions and storage (EEG,ECG,EMG)
• Decision support, Expert Systems, AI driven applications
• Patient monitoring (ICU/Outpatients)

Lecture 2: Fundamental knowledge in Informatics. Data representation.

• Clinical data and information in everyday clinical practice
• Data representation (numbers, text, images, signals)
• Numbering systems. To binary and hexadecimal numbering system
• Predicate logic, Boole's algebra, logic gates and logic circuits
• Structure and components of PC
• Central Processing Unit, operation, instruction set.

Lecture 3: Fundamental knowledge in Informatics. Data representation.

• Data entry and processing in spreadsheets. Data types and their function.
• Common data storage using matrices
• Working with cells. Cell coordinates and names.
• Evaluating numerical expressions using cell coordinates.
• Automatic fill of calculation areas-the fill handle control.
• Import text data to a spreadsheet. Export spreadsheet data in readable csv text files

Lecture 4: Operating Systems.

• Description, operational characteristics of Operating Systems
• The hardware abstraction model of a PC
• Multiprocessing, Multiuser operation
• The File System
• Communication with outer world: Graphical User Interface and the command line
• The architecture of the linux OS, shell and subsystems
• Short presentation of Winodws 7/10 OS and linux distros.

Lecture 5: Scientific Presentations using MS PowerPoint

• Structure and aim of scientific presentations
• Creating Slides
• Using animation and effects to emphasize content
• Multimedia entry in slide presentations
• Rules for successful scientific presentations
• Pitfalls

Lecture 6: Statistical functions, graphs, plots, trend lines

• Summing functions conditional summing, counting and conditional counting
• Functions for statistical analysis
• Graphical presentation of data, bar graphs and histograms

• Scatter plots, log and semi log plots
• Regression lines, equation of regression lines and coefficient of determination
• Common calculation errors

Lecture 7: Digital Technology, Telecommunications - Computer Networks. The Internet and the WWW
• Signal conversion: Analog to Digital
• The transition from analog to digital telecommunications
• Networking technics in computers
• Remote data transfer, remote services, telecom protocols
• The internet and the Word Wide Web
• The Hypertext markup language.
• Computer security and safe internet working
• Virtual Technology and modern services

Lecture 8: Digital Images,
• Image information in medical practice
• Image types, image formats.
• Picture archiving and communication systems, the DICOM standard.
• Digital image processing
• Colour images and coloured images, color lookup tables.
• Image filtering
• Image enhancement technics
• Thresholding functions
• Applying scale to images, Measurements in digital images
• Object counting
• ImageJ: an open source image processing program

Lecture 9: Programming with python: An introduction.
• Fundamental data structures
• Basic program constructs
• Data output
• Conditional program execution
• Loops
• User defined functions

Lecture 10: Programming with python: An introduction II.
• Working with IDLE, python integrated development environment.
• Simple program debugging and syntactic error handling.
• Monitoring program execution
• Using python modules.

Lecture 11: Data structures and Databases
• Data keeping in files
• Databases
• Relational databases
• Working with databases
• Database forms
• Queries and reports

Lecture 12: Data security, Document security, Digital Signatures

- The use of cryptography in modern data security
- Symmetric and asymmetric encryption. The Public Key Infrastructure
- Hashing functions and document IDs
- Digital Certificates, Certificate Authorities
- Digital Signatures, Digitally Signed Documents
- Use of digital certificates in everyday work over the internet

Lecture 13: Electronic Medical Health Record.

Patient's health record.

- Digital implementation of patient health records
- Open source health/medical patient records
- Integrated Health Information Systems.
- Interoperability of HIS
- Our hospital HIS: "Asklipios"
- e-Prescription

Lecture 14: Medical Information encoding - Standards

- Documentation of medical terminology
- Τεκμηρίωση ιατρικών όρων και διαδικασιών concepts, descriptions and relationships.
- International Statistical Classification of Diseases ICD-10 list
- SNOMED CT multilingual clinical healthcare terminology
- Ontologies and knowledge graphs

4. TEACHING AND LEARNING METHODS - EVALUATION	
METHOD OF DELIVERY *Face to face, Distance education etc.*	Lectures in the amphitheater, education and practice in the laboratory.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of personal workstations (PCs) per person. Communication with students through the educational platform e - class for the information of the students, the projection and distribution of the slides of the lectures, the provision of educational material the assignment and the reception of assignments to the students.
TEACHING ORGANIZATION *The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive*	

Activity	***Semester Workload***
Lectures	10
Laboratory Exercise	12
Thesis writing	5
Course Set (…. Working hours per credit unit)	***27***

teaching, Educational visits, project assignment, thesis writing, artwork creation,etc. *The student study hours for each learning activity are indicated as well as the non-guided study hours so that the total workload at the semester level corresponds to the ECTS standards .*	
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Thesis/Report, Oral Examination, Public Presentation, Laboratory Assignment, Clinical Examination of Patients, Artistic Interpretation, Other/Others* *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	Short answer questions, Public presentation of work, Problem solving.
5. RECOMMENDED - BIBLIOGRAPHY	
-Proposed Bibliography: *Alan Evans , Kendall Martin , Mary Anne Poatsy "Introduction to Informatics" Theory and Practice, Critique Publications 2014.* *Ed . Shortlife, Cimino J. Bioinformatics Computer applications in healthcare and biomedicine . Broken Hill Publishers 2013.* *-Related scientific journals: -*	

COURSE OUTLINE MEDICAL PHYSICS

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
LEVEL OF EDUCATION	*Undergraduate*		
COURSE CODE	BE0300	**SEMESTER OF STUDIES**	1st
COURSE TITLE	MEDICAL PHYSICS		
COURSE INSTRUCTOR	THEODOROU KYRIAKI		
CO-INSTRUCTORS	TSOUGOS IOANNIS, ACADEMY SCHOLAR		

SEPARATE TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDIT UNITS
	6	6

COURSE TYPE	BACKGROUND
PREREQUISITE COURSES:	NO
LANGUAGE OF TEACHING AND EXAMS :	ENGLISH
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO
WEBSITE (URL)	http://eclass.uth.gr/eclass/courses

2.Learning Outcomes

Students are introduced to the scientific field of Medical Physics through a series of lectures and laboratory exercises.

Upon successful completion of the course the student will be able to:

- Has knowledge and understanding:
  i. the physical basis of the main functions of the human body (pressure, energy metabolism, hemodynamics, muscle and skeletal engineering, gas exchange, osmosis, etc.)
  ii. of radiation - biological tissue interaction (basic principles of radiation, radioactivity, interaction phenomena, physics of radiology, radiotherapy and nuclear medicine, basic principles of radiology)
  iii. of the basic principles of operation of medical devices (defibrillators, physiological parameters meters, X-ray tubes, CT and MRI scans, gamma / SPECT and PET cameras , linear accelerators, etc.)
- Roughly distinguishes natural principles that are hidden in biological phenomena.
- Uses laboratory devices for measuring normal parameters of the human body.
- observes phenomena in the laboratory, records and analyzes data
- solves problems and draws conclusions from data
- constructs graphs from data and extracts information from them
- handles the basic equipment of the Medical Physics laboratory
- works effectively in a team
- works safely in a laboratory environment and follows instructions
- understands laboratory errors and recognizes their sources .

General Abilities

- Research, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism

Promoting creative and inductive thinking

3. MODULE CONTENT

- **Introduction: Terminology, Standard Design and Measurements**

  Teaching hours: 2

  Course Contents:

  1. Terminology
  2. Modeling
  3. Feedback and homeostasis
  4. Measurements and repeatability

- **Section 1: Energy - Heat - Project and Power**

  Teaching hours: 4

  Course Contents:

  1. Temperature
  2. Material Phase Changes (melting, venting)
  3. Distribution and Transfer of Heat to matter
  4. The human body as a heat engine
  5. Basic Catabolism
  6. Project and Power
  7. Heat Dissemination and Transfer in Biology
  8. Heat loss from the body
  9. Thermography
  10. Other Applications

- **Section 2: Pressure on the Body**

  Teaching hours: 4

  Section Contents:

  1. Measurement of pressure on the body
  2. Pressure inside the skull
  3. Pressure on the eye
  4. Pressure on the digestive system
  5. Pressure (tension) in the frame
  6. Pressure on the bladder
  7. Pressure while diving
  8. Hyperbaric oxygen therapy

- **Section 3: Osmosis and the Kidneys**

  Teaching hours: 4

  Section Contents:

  1. How substances are transported in liquids
  2. How substances are transported through membranes
  3. Regulation of the interstitial (intercellular) fluid
  5. The artificial kidney

- **Section 4: Electrical Signals from the Body**
  Teaching hours: 4
  Section Contents:
    1. The nervous system and the neuron
    2. Electrical potentials of neurons
    3. Electrical signals from the muscles - Electromyogram
    4. Electrical signals from the heart - Electrocardiogram
    5. Electrical signals from the brain - Electroencephalogram
    6. Electrical signals from the eyes
    7. Magnetic signals from the heart and brain
    8. Current research on electricity in the human body

- **Section 5: Physics of the Cardiovascular System**
  Teaching hours: 4
  Section Contents:
    1. Main parts of the cardiovascular system
    2. Exchange of oxygen and carbon dioxide in the capillary system
    3. The work of the heart
    4. Blood pressure and its measurement
    5. The pressure on the vessel wall (transmural pressure)
    6. Application of the Bernoulli principle to the cardiovascular system
    7. How fast does the blood flow?
    8. Blood flow - Flat (linear) and turbulent (turbulent) flow
    9. Sounds of the heart
    10. The physics of some cardiovascular diseases
    11. Some other functions of the blood

- **Section 6: Sound and Speech**
  Teaching hours: 2
  Section Contents:
    1. General properties of sounds
    2. The body as a drum (the percussion in medicine)
    3. The stethoscope
    4. The production of speech (voice)

- **Section 7: Physics of the Ear and Hearing**
  Teaching hours: 2
  Section Contents:
    1. The ear and hearing
    2. Hair cells and sound detection
    3. Sensitivity of the ears
    4. Examination of hearing

- **Section 8: Lung and Breathing Physics**
  Teaching hours: 4
  Section Contents:
    1. The airways
    2. How the blood and lungs interact
    3. Measurement of lung volume
    4. Pressure, air flow, changes in lung volume
    5. Physics of cells

6. The mechanism of respiration
7. The resistance of the airways
8. Work during respiration
9. Physics of some common lung diseases

- **Section 9: Physics of the Eyes and Vision**
  Teaching hours: 4
  Section Contents:
  1. Areas of the eye where the focus is
  2. Other parts of the eye
  3. The retina - the light detector of the eye
  4. The threshold of vision
  5. Diffraction phenomena in the eye
  6. The visual acuity
  7. Optical illusions and related phenomena
  8. Defective vision and its correction
  9. Color vision and color aberration
  10. Organs used in ophthalmology

- **Section 10: Muscles and Strengths**
  Teaching hours: 4
  Section Contents:
  1. Effect of gravity on the body
  2. Friction forces
  3. Strengths, muscles and joints
  4. Forces during the conflict
  5. Physics of the jaw

- **Section 11: Skeleton Physics**
  Teaching hours: 2
  Section Contents:
  1. Skeletal composition and bone strength
  2. Lubrication of joints and bones
  3. Measurement of the body's bone salts

- **Section 12: Atomic Structure**
  Teaching hours: 2
  Section Contents:
  1. Elements of Engineering - Units
  2. Particle nature of electromagnetic radiation
  3. The spectrum of electromagnetic radiation
  4. Principle of uncertainty
  5. Rutherford atomic model
  6. Spectra of individuals
  7. Bohr individual model
  8. Stimulation and ionization
  9. Parameters of the Bohr model
  10. Atoms with many electrons
  11. Quantum mechanics of the individual

- **Section 13: Nuclear Structure, Radioactivity, Nuclear Reactions**
  Teaching hours: 2

Section Contents:

1. Nuclear forces and Nuclear radiation
2. Quantum numbers of nucleons , spin and magnetic moment of nucleus
3. Kernel model
4. Elementary particles and forces
5. Mechanisms of radioactive decay
6. Quantitative relationship of radioactivity
7. Ranges of natural radioactive materials
9. Applications

- **Section 14: Interactions of γ and X of photons, charged particles and neutrons with matter.**

Teaching hours: 4

Section Contents:

1. Interactions of γ and X photons with matter
2. Interactions of charged particles with matter
3. Neutron-matter interactions

- **Section 15: Dosimetry Ionizing Radiation**

Teaching hours: 4

Section Contents:

1. Sources and fields of radiation
2. Energy transfer
3. Energy Conversion
4. Deposition and Absorption of Energy
5. Electronic Balance
6. Radiation detection

- **Section 16: Dosimetry Methods and Instruments**

Teaching hours: 2

Section Contents:

1. Ionizing radiation detectors with gas
2. Calorimeters
3. Chemical Dosimetry
4. Luminosity dosimetry
5. Dosimetry with scintillation detectors
6. Dosimetry luminosity (TLD)
7. Dosimetry with semiconductors
8. Dosimetry with film
9. Dosimetry with gels (gel dosimetry)
10. Neutron detectors
11. Staff dosimeters

- **Section 17: Physical Principles of Nuclear Medicine**

Teaching hours: 4

Section Contents:

1. Nuclear medicine measuring instruments
2. γ- spectrometry
3. Radiopharmaceuticals
4. Biological kinetics of radiopharmaceuticals
5. Gamma -camera
6. Tomography γ -Camera and PET Camera

7. Therapeutic applications of nuclear medicine
8. in- vitro Nuclear Medicine

- **Section 18: Natural Principles of Radiation Therapy**

Teaching hours: 6

Section Contents:

1. Purpose of radiotherapy
2. Radiation therapy methods
3. Sources of Radiotherapy with external beams
4. Irradiation with external photon beams
5. Basic radiation parameters with photon beams
6. Examples of Radiotherapy
7. Special treatments
8. Radiation therapy using particles

- **Section 19: Physical Principles of Radiology**

Teaching hours: 4

Section Contents:

1. X-ray
2. Digital Radiology
3. Radioscopy
4. Plain Tomography
5. Computational CT

- **Section 20: Radiobiology Data**

Teaching hours: 4

Section Contents:

1. Interaction of radiation - biological matter
2. Radial damage to DNA
3. Radiation-induced mutations
4. Radial provocateurs chromosomal alterations
5. Cell survival curves after irradiation
6. Patterns of survival curves
7. Factors affecting the effect of radiation
8. Human irradiation
9. Application of Radiobiology in Radiotherapy

- **Section 21: Principles of Magnetic Resonance Imaging**

Teaching hours: 4

Section Contents:

1. Nuclear Magnetic Resonance (NMR) and imaging (MRI)
2. Static Magnetic Fields
3. Alternating Magnetic Fields
4. From NMR to MRI
5. Nuclear magnetic resonance pulses
6. Relaxation procedures and their measurement
7. The NMR imaging equation

- **Section 22: Radiation Protection Elements**

Teaching hours: 2

Section Contents:

1. Principles of etiology and optimization of radiation

2. protection dosage units in Radiation Protection
3. Radiation from natural sources
4. Radiation from artificial sources
5. Radiation protection system

4. TEACHING AND LEARNING METHODS - EVALUATION

DELIVERY METHOD	Live in the amphitheater, Lectures
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	ICT is used in communication with students (via e-class) for easier management of material and consultation and creation of working groups.
TEACHING ORGANIZATION	***Activity*** / ***Semester Workload*** **Total time (Teaching Hours + Student Workload)** / **161 hours**
STUDENT EVALUATION	The language of assessment is English. Evaluation methods. A. For the laboratory practical: Laboratory Assignment Reports, Written Examination at the end of the semester with Multiple choice questions and problem solving. The participation of students in the laboratory exercises as well as the written report of the results of the exercises is mandatory. The report includes the results (presented in tables and diagrams, and the conclusions (e.g. if the results were expected, if not why, sources of possible errors in the experiments) as requested by each exercise. At the end of each exercise, the written report is checked by the instructors and signed when correctly completed. Successful participation in the practical is certified by the instructors' signatures on the written reports. At the end of the semester the students are examined in the content of the Laboratory practical. The examined material consists of the theory, the methodology and the ways results are processed as included in the Guide of the Laboratory Practical or presented by the instructors during the exercises. Only the students that have successfully completed the laboratory exercises can participate in the written laboratory examination. Success in the laboratory examination is a prerequisite for participation in the course exams. B. For the Tutorials: Oral Presentation, Oral Examination In each tutorial, students prepare answers to the questions related to the examined clinical cases and discuss them with the teachers. The performance of the students during in the tutorials is taken into account in the final evaluation. The material of the tutorials is examined together with the lecture. C. For the lecture material: Written Exams with questions. The course exams are written questions (examples are available in the Course Guide). The material to be examined is lectures and

	tutorial material as described above. Only those students who have successfully passed the Laboratory exams have the right to participate in the course exams. Final Grade: The final grade of the course is calculated as the sum of 80% of the grade of the written course exams and 20% of the grade of the Laboratory written exams. All the above are presented in detail in the Course Guide which is distributed in print to all students and is posted electronically in e-class.

5. RECOMMENDED - BIBLIOGRAPHY

- Suggested Bibliography:

- Kappas K & Theodorou K, Radiation and Radiation Protection, Volumes A 'and B', Broken Hill Eds , 2017
- Georgiou E, Giakoumakis E, Kottou S, Dalles K, Serefoglou A & Skyllakou - Louizi A, Physics of the Human Body, Greek edition, Parisianos publications , Athens, 2003
- Georgiou & co. 2014, Georgiou E & co, Diagnostic & Therapeutic applications of radiation, Ed . Broken Hill Pub , 2014
- Georgoulias P, Elements of Nuclear Medicine, University of Thessaly Publications, 2010
- Psarrakos K, Molyvda - Athanasopoulou E, Gotzamani - Psarrakou A & Siountas A, Medical Physics, Elements of Radiophysics and Applications in Medicine. Radiobiology, Radiation Protection, Psarrakos K, University Studio Press , Thessaloniki

-Related scientific journals:

- Physics in Medicine and Biology
- Medical Physics
- Physica Medica
- Radiotherapy and Oncology

COURSE DESCRIPTION

Medical Chemistry

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	BE200.E	**Semester**	1st
COURSE TITLE	Medical Chemistry		
COURSE INSTRUCTOR	Ilias Mylonis, Associate Professor		
CO-INSTRUCTORS	G. Simos, Professor G. Chachami, Assistant Professor P. Liakos, Professor		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	5	5

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Example: Background & Scientific Area
PREREQUIRED COURSES	-
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	-
WEBSITE (URL)	**https://eclass.uth.gr/courses/MED_U_169/**

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

Aims of the course

The course examines selection of topics of general, physical, organic, and biological chemistry that characterize living organisms, in general, and humans in particular. The course aims for the students to obtain the necessary background knowledge required for understanding the physiological and

pathological functions of the human body at the molecular level and introducing the principles and techniques of laboratory methods commonly used for diagnosis.

It also presents the application of Medical Chemistry knowledge in clinical settings such as the diagnosis and treatment of diseases.

The course also provides the essential background for courses introduced at later semesters such as: Biochemistry, Physiology, Pharmacology and Clinical Biochemistry.
Finally, another aim of the course is to help students appreciate the importance of correct execution and evaluation of laboratory methods and acquire the corresponding skills which are required for the specialty of Clinical Biochemistry as well as many other clinical medical specialties.

After the successful completion of this course, the students will be able to:

- understand the chemical basis of biomedical phenomena
- apply main aspects of laboratory analyses and evaluation of results
- know the structure, properties and biological role of chemical elements and compounds found in the human body as well as the toxicity of xenobiotics.
- Know the structure, properties, and role of fundamental biomolecules such as carbohydrates, lipids, amino acids, and proteins
- use basic equipment of a Medical Chemistry lab and perform simple routine chemical analyses.
- analyze and process basic medical chemistry analysis results
- cooperate with their colleagues in the context of a lab environment for the execution of simple medical chemistry analyses and processing of their results.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Research, analysis and synthesis of data and information, using the necessary technologies.
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3.Module Content

The content of the course includes the following major items:

A. The content of the lectures together with the relevant clinical insights the students need to learn/acquire per chapter.
B. The content of the tutorials/seminars together with the relevant clinical insights the students need to learn/acquire per seminar.
C. The content of the laboratory practical together with the relevant practical & clinical skills the students need to learn/acquire per exercise.

A. Lecture content and relevant clinical insights

1: Periodic Table and Bioinorganic chemistry

- Periodic properties of elements and their relationship with atomic properties such as: ionization energy, electron affinity, electronegativity, size of atoms, size of ions, redox properties.
- Oxidation-reduction reactions, oxidation state, Oxidation-reduction in biological systems, membrane potential.
- Periodic table from a medical point of view: basic and trace elements of the human body. Toxic trace elements and examples of their effect on human health
- Vital elements and their selection by nature. Relevance of the biological role and chemical properties of the vital elements.
- Examples of the involvement of trace elements in pathological conditions.

2: Chemical bonding and non-covalent interactions

- Chemical bonds - Molecular orbitals. Sigma- and Pi- bonds.
- Hybridization of atomic orbitals and stereochemical structure of molecules.
- Types of dipoles and molecule polarity.
- Non-covalent interactions: Van der Waals forces, London, Hydrogen bonding. The role of non-covalent interactions in biomolecules.

3: Complex compounds and chelation therapy

- Complex or coordination compounds (Definition).
- Ligands and chelation complexes.
- Stability of chelation complexes (hard / soft acids and bases).
- Examples of complexes with biological significance.
- Chelation therapy applications. Complexing agents that find use in complex therapy and corresponding pharmaceutical preparations.

4: Acid-Base equilibrium and buffers

- Properties of electrolytic solutions.
- Electrolytes of the extracellular and intracellular fluid.
- Lewis acid-bases.
- Blood pH and pH balance.
- Buffers, buffer capacity.
- Henderson-Hasselbalch equation and preparation of buffer solutions.
- Blood regulatory systems.
- Effects of CO_2, HCO^-_3 and H_2CO_3 on blood pH.

5: Dispersion systems

- Dispersion systems: mixtures, colloidal systems, solutions.
- Solution concentration and solubility, unsaturated, saturated and supersaturated solutions.
- Hydrophilic / hydrophobic / lipophilic chemical compounds and their relation to chemical structure. Hydrophilic functional groups.

- Additive properties of solutions: osmosis. Hypotonic, isotonic and hypertonic solutions. Plasmolysis and hemolysis.
- Colloid systems: aerosol, emulsion, suspension.
- Colloid systems in water: hydrophobic and hydrophilic colloids. Colloid thrombosis and its mechanisms.
- Increasing the water solubility of xenobiotics as means to detoxification.

6: Introduction to organic chemistry

- Distribution of electron cloud in molecules: Inductive (I) and conjugate (delocalization) (R) effect. Resonance.
- Classification of reactions and reagents in organic chemistry. Nucleophilic and electrophilic reagents, free radicals.
- Reactive oxygen compounds, oxidative stress and human health.
- Functional groups of organic compounds and their role in the design of new drugs.

7: Stereochemistry of organic compounds

- Stereochemistry and stereoisomerism.
- Mirror image isomers / enantiomers
- Chiral/achiral compounds
- Asymmetric (chiral) center
- Optical activity, (+) – right-handed and (-) – left-handed enantiomer.
- Racemic mixture, racemization.
- Fischer projection
- Absolute stereochemical structure D,L symbolism.
- Stereoisomerism of chiral centers according to the CHAN-INGOLD-PRELOG rules and R-S symbolism.
- Diastereomerism, meso-isoform.
- Geometric isomerism: CIS - TRANS, Z-E, priority of ligands.
- Nucleophilic substitution reactions SN1, SN2.

8: Hydrocarbons and Aromatic Compounds

- General properties and reactions of hydrocarbons. Electrophilic addition reactions, hydrogenation, hydration of unsaturated hydrocarbons.
- Aromatic hydrocarbons: aromatic character, HUCKEL's rule. Electrophilic substitution – characteristic reaction of aromatic hydrocarbons.
- Resonance energy, aromatic stabilization.
- Examples of hydrocarbons in biological systems.

9: Oxygen, Sulfur, and Nitrogen containing compounds

- Alcohols: properties (water solubility, acidity), production (by reduction of aldehydes, ketones, by hydration of alkenes), reactions (oxidation, dehydration, esterification, nucleophilic substitution).
- Phenols: Properties: water solubility, acidity
- Thiols: properties (water solubility, acidity), reactions, disulfide bond and its biological importance.
- Sulfonic acids and derivatives of 4-aminobenzenesulfonic acid - the sulfonamide drugs.
- Aliphatic amines: primary, secondary, tertiary. General properties. Characteristic reactions.
- Aromatic amines: general properties and their comparison with aliphatic amines.
- Aliphatic quaternary ammonium salts.
- Amides, Imines, Amino-alcohols.

10: Carbonyl- and Carboxyl- compounds

- Carbonyl compounds: properties, polarity, electrophilic and nucleophilic attack, Enol-ketone tautomerization, tautomers.
- Nucleophilic addition reactions. Hemiacetals, hemiketals, acetals, ketals. Condensation with amines ($R\text{-}NH_2$). Imines – Schiff's bases.
- Aldol condensation.
- Ketoacids, urinary ketones, ketoacidosis. Causes of ketoacidosis and ketonuria.
- General properties of carboxyl group: ionization, coordination.
- Acyl derivatives of acids.
- Formation and hydrolysis of carboxylic acid esters.
- Dicarboxylic acids, hydroxy acids, ketone acids and unsaturated acids: Special properties and members of biological interest.

11: Heterocyclic compounds

- Definition of heterocyclic compounds.
- Five-membered ring heterocyclic compounds with one heteroatom and their derivatives: pyrrole (proline, porphyrin), imidazole (histidine), thiophene (biotin). Chemical properties: aromaticity, participation in nucleophilic or electrophilic substitution reactions, acid-base properties.
- Five-membered heterocyclic compounds with two heteroatoms: imidazole and its derivatives histidine and histamine, thiazole (thiamine – vitamin B1).
- Six-membered ring heterocyclic compounds with one heteroatom and their derivatives: pyridine (NAD+ , NADP+ , pyridoxal). Chemical properties of pyridine: aromaticity, participation in nucleophilic or electrophilic substitution reactions, acid-base properties.
- Six-membered ring heterocyclic compounds with two heteroatoms and their pyrimidine derivatives (uracil, thymine, cytosine).
- Condensed heterocyclic rings and their derivatives: indole (tryptophan), purine (adenine, guanine), isoalloxazine (riboflavin, FAD, FMN), pteridine (folic acid).
- Structure and properties of nucleosides and nucleotides.

12: Structure and biological role of amino acids

- Biological functions of amino acids.
- Common chemical structure, stereochemistry, common chemical properties, and ionization of amino acids.
- Chemical structure of the 20 proteinogenic amino acids: Hydrophobic, Polar, Charged.
- Essential Amino Acids, Amino Acid Modifications & Derivatives.
- Spectroscopic properties and biologically important reactions.
- Detection & analysis.
- Peptides & peptide bond, important peptides.

13: Structure and biological role of proteins.

- General properties of proteins
- Molecular interactions determining protein structure and function
- Levels of molecular organization
- Primary structure
- Physicochemical properties – Solubility
- 3D Structure – Limitations
- Secondary structure: α-helix, β-fold, turns & loops
- Tertiary structure

The role of hydrophobic interactions
The example of myoglobin
The role of disulfide bonds

- Quaternary structure
- Protein structure representation
- Experimental determination of protein structure
- Protein folding

Anfinsen's experiment
The role of amino acids, Cumulative selection, Molecular chaperones
Models and computational methods
Intrinsically disordered and metamorphic proteins
Fatal errors: Amyloidosis, encephalopathies, prion diseases

14: Structure and biological role of carbohydrates and lipids

- Basic chemical structure, functions, classes and stereo-isomerism of carbohydrates
- Common monosaccharides:

Circular structures & mutarotation
Reducing sugars, Glycated hemoglobin
Hexose derivatives

- Glycosidic bond
- Common disaccharides
- Polysaccharides: Starch/Glycogen, Cellulose, Chitin
- Glycoproteins, Proteoglycans, Glycosaminoglycans, Glycolipids
- Biological role & Classes of lipids
- Fatty acids: Chemical structure, properties, Nomenclature
- Triacylglycerols: Chemical structure, properties
- Phospholipids: Chemical structure, properties of Phosphoglycerates & Sphingolipids
- Glycolipids and ether lipids
- Steroids: Cholesterol & derivatives, Vitamin D
- Separation and analysis of lipids

15: Thermodynamics and Chemical Equilibrium

- Chemical thermodynamics principles
- Enthalpy, entropy, and free energy of chemical & biochemical reactions. Work and free energy. Standard free energy. Exothermic / endothermic reaction. Exergonic / endergonic reactions
- Equilibrium constant of a reaction. Factors affecting the equilibrium constant – VAN'T HOFF equation.
- Free energy and equilibrium constant $\Delta G^o = - RT \ln K_{equor}$
- HESS's law, LE CHATELIER's principle.
- Coupling of chemical and biochemical reactions, the role of chemical intermediates.
- Experimental determination of enthalpy, entropy and free energy

16: Chemical kinetics and reaction mechanisms

- Rate of chemical reactions, rate law, order of reaction.
- Zero, first and second order reactions and their mathematical description with differential or integral equations. Half-life time and dependence on concentration.
- Molecularity of chemical reactions.
- Theory of molecular collisions. Activation energy of a reaction. Arrhenius equation. Examples of nucleophilic - electrophilic reactions.

17: Introduction to enzymes

- General characteristics, clinical applications, function and enzyme cofactors
- Classification & Nomenclature of Enzymes
- Thermodynamics & Transition state of enzyme reactions
- Enzyme Active Site: Characteristics, Models, Binding Energy

18. Enzyme kinetics

- The steady state model in enzyme kinetics
- The Michaelis-Menten equation
- The significance of Vmax, K_M and the Michaelis-Menten curve
- Vmax and K_M values, turnover number, specificity constant
- Experimental determination of Vmax and K_M
- Double inverse chart
- Physiological Significance of Vmax and K_M:
  Alcohol Sensitivity, Glucose Fate, Laboratory Diagnosis, Drugs and poisons

19: Enzyme regulation

- Basic principles of enzyme activity regulation
- Allosteric regulation:
  - Characteristics of allosteric enzymes
  - V vs [S] sigmoid curve, Two configurations (R and T), Models
  - Allosteric modifiers
  - Synergistic properties
  - Feedback inhibition
  - Catalytic/Regulatory subunits
- Isoenzymes
- Regulation by covalent modifications
- Proteolytic cleavage – Zymogens

20: Catalytic mechanisms of enzymes and enzyme inhibitors

- Basic principles of catalysis
  - Covalent, General acid-base, metal ion, by approximation and orientation
  - pH and temperature effects
- Enzyme inhibitors
  - Types of inhibition and kinetic differences
  - Inhibitors as tools to study enzymes
  - Inhibitors as drugs
- Catalytic strategies of serine proteases
  - Chymotrypsin, Trypsin, Elastase
  - Specificity, Role of active center serine, Catalytic triad
  - Tetrahedral transition state
- Catalysis strategies of other proteases
- High speed enzymes: Carbonic anhydrases
- Enzymes with high specificity: Restriction endonucleases

B. Seminar/Tutorial content and relevant clinical insights

Tutorial 1: Chemical Analysis

- Theoretical background of UV-Vis spectrometry (Lambert-Beer Law, UV-Vis quantitative analysis), standard solutions, equipment calibration and calibration curves.

- Theoretical background of chromatography, methodology, examples
- Analysis and interpretation of experimental data, troubleshooting.

Tutorial 2: Methods of Protein analysis

- Theoretical background of protein isolation, purification, and analysis: centrifugation, fractionation, dialysis, chromatography, methods of electrophoresis, mass spectrometry
- Electrophoresis: Background and examples of diagnostic value
- Protein analysis (sequencing, immunodetection, microscopy)

Seminars:

- Revision of Theoretical / Practical Courses

C. Laboratory Practical content

Hands-on learning: Acquisition of general and specific practical & clinical skills:

General Skills

Observing chemical or biochemical phenomena, obtaining, and analyzing experimental data
Interpretation of experimental data
Resolving practical problems
Producing and understanding graphical displays of data
Operating basic Chemistry & Biochemistry equipment
Working as a team
Following instructions
Following safety regulations
Troubleshooting in laboratory results
Clinical significance of lab results

Specific Skills

Practical 1. Spectrophotometry UV-Vis

Spectrophotometric detection and analyte quantitation

Practical 2. Buffer systems and titration

Measuring the concentration of analytes via titration and preparation and pH measurement of a buffer system

Practical 3. Chromatographic analysis of amino acids and proteins

Separation and analysis of protein and amino acid samples by chromatography

Practical 4. Electrophoresis and analysis of protein samples

Analysis of a protein sample by SDS-PAGE electrophoresis, effect of pH and temperature on protein solubility

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	*Face to Face:* Teaching of Medical Chemistry consists of lectures, seminars/tutorials and laboratory practical. Attendance of Laboratory Practical and Seminars/Tutorials is **obligatory**. The lectures content is described above. Seminars/Tutorials (in 4 student groups with 1 instructor per group) review and extend the theoretical background of laboratory exercises also by using examples of diagnostic methods that highlight the application of Medical Chemistry in the diagnosis and treatment of serious diseases.

<table>
<tr><td></td><td>Laboratory exercises (in 40 student groups of students, 3 instructors per group of 3 students) composing the students' practical are complementary to the lectures and they aim to familiarize the student with the application of Medical Chemistry, the operation of simple laboratory instruments and the experimental procedures that are often used in biomedical research and laboratory medicine as well as to help the students comprehend concepts that are not easily presented theoretically (learning based on practical experience).</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td>Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students. Specifically:
• Common software (e.g. MS powerpoint) is used to prepare lecture material and display slides and videos.
• The study guide (detailed supplementary material & additional bibliography), the tutorial material (clinical cases), the theory and protocols of the laboratory exercises, the slides of each lecture as well as relevant videos and scientific articles made available electronically and online to students through the e-class system of our university.
• Information about the course, instructors and their research interests and in general the Laboratory of Biochemistry of the Faculty of Medicine are available online on the Laboratory website.
• Common software (e.g. MS excel) is used to statistically process student assessment.
• Laboratory examinations via the e-class platform.
Announcements, information etc are available online via e-class. Communication is also done via e-mail.</td></tr>
<tr><td>TEACHING METHODS
The way and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.</td><td>
<table>
<tr><th>Learning activity</th><th>Total semester workload</th></tr>
<tr><td>Lectures</td><td>48</td></tr>
<tr><td>Laboratory Practice (Mandatory)</td><td>12</td></tr>
<tr><td>Tutorials (Mandatory)</td><td>6</td></tr>
<tr><td>Seminars</td><td>4</td></tr>
<tr><td>Study hours</td><td>40</td></tr>
<tr><td>Preparation for lab practical and result reports</td><td>15</td></tr>
<tr><td>SUM (25 hours workload/ECTS)</td><td>125</td></tr>
</table>
</td></tr>
<tr><td>STUDENT EVALUATION</td><td>The language of assessment is English.
Evaluation methods.</td></tr>
</table>

Description of the evaluation process Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	**A. For the laboratory practical:** Laboratory Assignment Reports, Examination at the end of the semester with Online examination of the Laboratory Practical's (Multiple choice test) via e-class & MS Teams platforms. The participation of students in the laboratory exercises as well as the written report of the results of the exercises is mandatory. The report includes the results (presented in tables and diagrams, and the conclusions (e.g. if the results were expected, if not why, sources of possible errors in the experiments) as requested by each exercise. At the end of each exercise, the written report is checked by the instructors and signed when correctly completed. Successful participation in the practical is certified by the instructors' signatures on the written reports. At the end of the semester the students are examined in the content of the Laboratory practical. The examined material consists of the theory, the methodology and the ways results are processed as included in the Guide of the Laboratory Practical or presented by the instructors during the **exercises** and **seminars/tutorials**. Only the students that have successfully completed the laboratory exercises can participate in the written laboratory examination. Success in the laboratory examination is a prerequisite for participation in the course exams. **B. For the lecture material:** Written Exams with Multiple Choice, Short and Essay Development questions. The course exams are written, last 2 hours and consist of Multiple Choice, Short and Essay Development questions (examples are available in the Course Guide). The material to be examined is lectures' material as described above. Only those students who have successfully passed the Laboratory exams have the right to participate in the course exams. **Final Grade:** The final grade of the course is calculated as the sum of 80% of the grade of the written course exams and 20% of the grade of the Laboratory written exams. **(Prerequisite: grade in final exam cannot be lower than 5/10).** All of the above are presented in detail in the Course Guide which is distributed in print to all students and is posted electronically in e-class.
5.Recommended Bibliography	
A. Lecture Material ***Main suggested textbooks:*** - Slides from Lectures (e-class) - Biochemistry, A Short Course (Tymoczko, Berg, Stryer, 3rd edition) - Foundations of Inorganic, Organic & Biological Chemistry (Caret Robert L., Denniston Katherine J., Topping Joseph J., by William C Brown publishers) - Physical Chemistry for the Chemical and Biological Sciences (Raymond Chang, by University Science Books) - Organic Chemistry for Students of Biology and Medicine (G. A. Taylor, by Giles Aldred) **B. Laboratory Practical supplementary Material** Course Guide for Medical Chemistry	

COURSE OUTLINE

1. GENERAL			
SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
LEVEL OF EDUCATION	UNDERGRADUATE		
COURSE CODE	BE 0400	**SEMESTER OF STUDIES**	1st
COURSE TITLE	MEDICAL AND COMPUTER STATISTICS		
COURSE MANAGER	PROFESSOR ILIAS ZINTZARAS		
ASSOCIATES	AC. SCHOLAR THEOD. ΜΠΡΟΤΣΗΣ		

SEPERATE TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDIT UNITS
Lectures - Laboratory	4	4
Tutoring	2	

COURSE TYPE	Specialization
PREREQUISITE COURSES:	OXI
LANGUAGE OF TEACHING AND EXAMS :	English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	
COURSE ELECTRONIC PAGE (URL)	http://biomath.med.uth.gr

2.Learning Outcomes

Statistics is the core of modern scientific methodology. Its role is the most important in medical research and practice. With its knowledge we are able to conduct scientific research and correctly assess the findings of studies. Statistics is essential for the design of experiments and studies, the analysis and presentation of these, and the use of in drawing conclusions.

In this course the theory is applied, with the help of the computer and the use of the statistical program SPSS

Upon successful completion of the course the student will be able to:

Will be able to use the acquired knowledge in order to:

- imports and manages medical data in SPSS
- conducts descriptive statistical analysis of data from clinical studies, ie to summarize the available data (with graphical and quantitative data description methods)
- conducts statistical analyzes of medical data from clinical studies using medical statistical methods (such as t-test, ANOVA, χ2 test, Proportions Ratio, Diagnostic tests-ROC analysis, Regression, Non-parametric tests, Survival analysis, Planning and Analysis of clinical Analysis, Meta-Analysis)
- to present the results of statistical analyzes of data from clinical studies
- interpret the results of statistical analyzes of data from clinical trials
- can collaborate with fellow students for research and analysis of the international medical literature.

General Abilities

3. COURSE CONTENT

Section 1

1. Probabilities
2. Graphic and Quantitative methods of data description
3. Normal distribution
4. t-test for paired observations
5. t-test for two independent samples
6. Dispersion analysis
7. Comparison of percentages
8. Relevance tables -x2 test
9. Proportion ratio
10. Diagnostic tests
11. Correlation coefficient
12. Linear regression
13. Non-parametric controls
14. Survival analysis
15. Design and Analysis of clinical trials
16. Meta-Analysis

Each module is followed by laboratory exercises using the SPSS statistical package on PC.

4. TEACHING AND LEARNING METHODS - EVALUATION

DELIVERY METHOD	Face to face in the IT laboratory of the Department and in the amphitheater.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	• Use of SPSS statistical package. • Use of ICT in communication with students (website, e - mail , etc.)
TEACHING ORGANIZATION	

Activity	***Semester Workload***
Lectures	26
Workshop	26
Independent Study	4
Solving exercises - tasks	4
Tutoring	2
Course Set (1 hour workload per credit unit)	***62***

STUDENT EVALUATION	Written final exam in English which includes the analysis of both real and educational data sets with multiple choice test and problem solving test. Compulsory, usually individual, assignments are given during the semester.

5. RECOMMENDED - BIBLIOGRAPHY

The didactic notes are distributed:

1. Zintzaras Elias (2008). BIOSTATISTICS WITH ELEMENTS OF COMPUTATIONAL MEDICAL STATISTICS. Data analysis with the help of Statistical packages (SPSS)
   (*available on the course website as well as teaching material*)

In addition, the following bibliography is mentioned

2. DENNIS HOWITT, DUNCAN CRAMER (Editor: S. Kontakos). Statistics with SPSS 16.0. Kleidarithmos Publications
3. Carver and Nash (2006). Doing data analysis with SPSS version 18.

COURSE DESCRIPTION

GENERAL MORPHOLOGY

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	MP1000	**Semester**	1st
COURSE TITLE	GENERAL MORPHOLOGY		
COURSE INSTRUCTOR	MARIA SAMARA, ASSISTANT PROFESSOR OF PATHOLOGY WITH EMPHASIS IN MOLECULAR HISTOPATHOLOGY		
CO-INSTRUCTORS	- MARIA IOANNOU, PROFESSOR OF PATHOLOGY, - MARIA SAMARA, ASSISTANT PROFESSOR OF PATHOLOGY WITH EMPHASIS IN MOLECULAR HISTOPATHOLOGY, - HELEN IRENE THODOU, ASSISTANT PROFESSOR OF CYTOLOGY		
TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.		**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
		4	5,00
COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Background		
PREREQUIRED COURSES	No		
LANGUAGE OF TEACHING AND EXAMS	English		
AVAILABLE TO ERASMUS STUDENTS	No		
WEBSITE (URL)	**http://eclass.uth.gr/eclass/courses/MED_U_136**		
2.LEARNING OUTCOMES			
The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course. *• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area* *• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning*			
Aims of the course			

The course is a study of the normal cellular and tissue structures that characterize living beings, in general, and humans.

The course aims to understand basic elements of the human organism for the microscopic structure of cells and tissues of the human body and to introduce students to the basic principles of tumorigenesis at the tissue level, cell growth and differentiation.

The course is the basis on which students will rely to support the knowledge provided in the courses of longer semesters and specifically in the courses: SYSTEMS MORPHOLOGY, PATHOLOGY I, PATHOLOGY II, INTERNAL MEDICINE I, INTERNAL MEDICINE II

After the successful completion of this course, the students will be able to:

- understand the basic principles of the morphology, structure, and function of the normal tissues of the human body.
- Use the basic equipment of the laboratory, the optical microscope and recognize through special histological techniques the special characteristics of each healthy tissue.
- Approach the structure of the main physiological tissues of the human body and understands their role and function.
- Collaborate with fellow students in a laboratory environment to carry out basic research tasks.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Research, analysis and synthesis of data and information, using the necessary technologies.
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3.Module Content

The content of the course includes the following major items:

A. The content of the lectures together with the relevant clinical insights the students need to learn/acquire per chapter.
B. The content of the tutorials/seminars together with the relevant clinical insights the students need to learn/acquire per seminar.
C. The content of the laboratory practical together with the relevant practical & clinical skills the students need to learn/acquire per exercise.

A. Lecture content and relevant clinical insights

1. Introduction to histology and basic histological techniques
2. Correlation of morphology and function in cells (I)
3. Correlation of morphology and function in cells (II)
4. Epithelial tissue
5. Connective tissue
6. Gross tissue
7. Osseous tissue
8. Blood and hematopoiesis
9. Muscle tissue
10. Nervous tissue
11. Circulation system
12. cell damage, death, adaptation, aging
13. General principles of tumorigenesisB. Seminar/Tutorial content and relevant clinical insights

Problem-based learning

Presentation, analysis, discussion of the normal tissues of the human body.

B. Laboratory Practical content

Hands-on learning: Acquisition of general and specific practical & clinical skills:

General Skills

Observing phenomena, obtaining, and analyzing experimental data
Operating basic equipment, especially use of optical microscope
Working as a team
Following safety regulations
Troubleshooting in laboratory results
Clinical significance of lab results

Specific Skills

- Handling of optical microscope
- Familiarization with the use of lenses – magnifications

C. Knowledge - Lecture material

1. Introduction to histology: basic histological techniques, tissue preparation, light microscopy, interpretation of histological sections, transmission, and scanning electron microscopy.
2. Correlation of cell morphology and function: Cytoplasm, cell membrane, cell organelles and enclosed structures, transport membrane proteins, cell signaling, Golgi apparatus, mitochondria, protein synthesis, exocytosis, cell surface modifications. Nucleus, chromatin, epigenetics, cell cycle, mitosis. Extracellular matrix, fibers, basement membrane
3. Epithelial tissue: Surface epithelium, monolayer and pseudostratified epithelia, multilayer and transitional epithelium, pseudostratified ciliated columnar epithelium. Cell polarity and specific epithelial cell characteristics, villi and cilia, epithelial junctions. Glandular epithelium: exocrine, endocrine glands, unicellular, multicellular glands.
4. Connective tissue: Functions, permanent and transient connective tissue cells, fibroblasts and collagen, mast cells, distribution and function of macrophages, classification of connective tissue white and brown adipose tissue.
5. Cartilage and Bone Tissue: Compact bone, endochondral bone formation, early embryonic and hyaline cartilage, elastic and fibrous cartilage, compact bone and intramembranous ossification,

endochondral ossification, hyaline cartilage, osteoblasts, osteoclasts, types of bone tissue, Haversian systems, bone lengthwise and widthwise growth, bone tissue remodeling.

6. Blood and hematopoiesis: Peripheral blood, erythrocytes, leukocytes, platelets. Bone marrow, stem, progenitor and precursor cells, hematopoiesis.
7. Muscle tissue: molecular structure of skeletal muscle, types of muscle tissue, skeletal muscle cell, structural organization of myofibrils, muscle contraction and relaxation, neuromuscular synapse, muscle spindle, Golgi tendon organs, smooth muscle tissue, cardiac muscle tissue, muscle tissue regeneration
8. Nervous tissue: Spinal nerve structure, nervous system cells, neurons, neuromuscular synapse. Central and Peripheral nervous system. Spinal cord, cerebellum, brain, blood-brain barrier, glial cells, sympathetic and sensory ganglia, peripheral nerve, choroid plexus.
9. Circulatory system: Blood vessel structure. Artery and vein, Types of capillaries. Elastic type artery, Muscular type artery and vein, arterioles, venules, capillaries, and lymphatic vessels. Heart, endocardium, myocardium, epicardium.
10. Cell damage, cell death, adaptation, aging: cell stress, acute cell damage, degeneration, necrosis, apoptosis. Mechanisms of cell damage and death, hypoxia, ischemia, oxidative stress, toxins. Cellular adaptation to stress, atrophy, hypertrophy, hyperplasia, metaplasia.
11. General principles of oncogenesis: Introduction to neoplasms, differentiation, anaplasia, dysplasia, infiltration, metastasis. Epidemiologic data, environmental factors. Molecular basis of carcinogenesis, genetic and karyotypic alterations, hereditary forms of cancer, radiation, chemical carcinogenesis, oncogenic viruses, and microbes. Cancer hallmarks, signaling molecules, autophagy, and cancer metabolism reprogramming.

Tutorials – Laboratory Exercises

- Histological techniques
- Operation – Introduction to microscope use – observation of different types of cells
- Connective cells, matrix and fibers, fibroblasts, adipocytes, macrophages, mast cells, lose and dense connective tissue, mucous connective tissue
- Different epithelial types in bronchus, stomach, skin, urothelium (transitional epithelium), thyroid and parathyroid glands
- Hyaline cartilage, Elastic cartilage, Fibrous cartilage, compact bone, spongy bone
- Aorta (H/E and elastic fibers staining), Muscle type artery (elastic fibers staining), Vein
- Skeletal muscle, Cardiac muscle, Smooth muscle
- Blood and bone marrow coating, blood cells
- Cortex, spinal cord, cerebellum, peripheral nerve, ganglion, choroid plexus

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	*Face to Face:* Teaching of GENERAL MORPHOLOGY consists of lectures, seminars/tutorials and laboratory practical. Attendance of Laboratory Practical and Seminars/Tutorials is obligatory. The lectures content is described above. Seminars/Tutorials (in 5 student groups with 1 instructor per group) review and extend the lectures content. In each tutorial, students familiarize themselves with the basic elements per unit and prepare for the laboratory exercises.

<table>
<tr><td></td><td>Laboratory exercises (in 5 student groups of students, 1 instructor per group of 25-27 students) composing the students' practical are complementary to the lectures and they aim to familiarize the student with the application of techniques, the operation of simple laboratory instruments and the experimental procedures that are often used in Morphology as well as to help the students comprehend concepts that are not easily presented theoretically (learning based on practical experience).</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td>Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students.
Specifically:
• Common software (e.g. MS powerpoint) is used to prepare lecture material and display slides and videos.
• The study guide (detailed supplementary material & additional bibliography), the tutorial material, the theory and protocols of the laboratory exercises, the slides of each lecture as well as relevant videos and scientific articles made available electronically and online to students through the e-class system of our university.
• Information about the course, instructors and their research interests and in general the Pathology Department of the Faculty of Medicine are available online on the Laboratory website ……
• Common software (e.g. MS excel) is used to statistically process student assessment.
Announcements, information etc are available online and via e-class. Communication is also done via e-mail.</td></tr>
<tr><td>TEACHING METHODS
The way and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.</td><td>
<table>
<tr><th>Learning activity</th><th>Total semester workload</th></tr>
<tr><td>Lectures</td><td>28 hours</td></tr>
<tr><td>Lab. Practical (obligatory presence)</td><td>28 hours</td></tr>
<tr><td>Tutorials (obligatory presence)</td><td>14 hours</td></tr>
<tr><td>Study</td><td>28 hours</td></tr>
<tr><td>Preparation for Practical</td><td>16 hours</td></tr>
<tr><td>Preparation for Tutorials</td><td>12 hours</td></tr>
<tr><td>SUM
(25 hours per teaching credit)</td><td>126 hours</td></tr>
</table>
</td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process</td><td>The language of assessment is English. Evaluation methods.</td></tr>
</table>

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	**A. For the laboratory practical:** Written Examination at the end of the semester with short questions and problem solving. The participation of students in the laboratory exercises is mandatory. At the end of the semester the students are examined in the content of the Laboratory practical. The examined material consists of the theory, the methodology and the ways results are processed as included in the Guide of the Laboratory Practical or presented by the instructors during the exercises. Only the students that have successfully completed the laboratory exercises can participate in the written laboratory examination. Success in the laboratory examination is a prerequisite for participation in the course exams. **B. For the Tutorials:** In each tutorial, students go deeper to the theoretical background of the laboratory exercises that will follow. The performance of the students during in the tutorials is taken into account in the final evaluation. The material of the tutorials is examined together with the laboratory examination. **C. For the lecture material:** Written Exams with multiple choice questions, true/false questions, short answers and oral examination of students with special needs. The course exams are written, last 2 hours and consist of multiple choice or True/False questions and critical or short answer questions. The material to be examined is lectures and tutorial material as described above. Only those students who have successfully passed the Laboratory exams have the right to participate in the course exams. **Final Grade:** The final grade of the course is calculated as the sum of 100% of the grade of the written course exams. All the above are presented in detail in the Course Guide which is distributed in print to all students and is posted electronically in e-class.

5.Recommended Bibliography

A. Lecture Material

Main suggested textbooks:

1. "Histology" by L.P.Gartner,
   3rd greek/ 4th english edition (2018) ISBN: 9789605833022

2. "Histology and Cell Biology: An Introduction to Pathology" by A. Kierszenbaum
   2nd Greek/5th english edition (2023) ISBN: 9789925350490

Further reading:

None

B. Laboratory Practical supplementary Material

GENERAL MORPHOLOGY LABORATORY GUIDE

Relevant Scientific Journals:

None

COURSE DESCRIPTION

ANATOMY I - MUSCULOSKELETAL SYSTEM

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	**MP0101**	**Semester**	2
COURSE TITLE	ANATOMY I - MUSCULOSKELETAL SYSTEM		
COURSE INSTRUCTOR	Zimpis Aristides, Assocciate Professor		
CO-INSTRUCTORS	A. Zimpis, A. Vasiou, M. Sgantzos		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	6	6

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Background & Scientific area Anatomy
PREREQUIRED COURSES	no
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	Yes
WEBSITE (URL)	http://eclass.uth.gr/eclass/courses/MED_U_115
2.LEARNING OUTCOMES	

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

The overall aim of the course is to introduce students to the anatomy of the musculoskeletal system and to enable them to recognize the structures and understand the function of the musculoskeletal system. Furthermore, the course aims to provide students with the basic elements for the study of other medical courses. The specific objectives of the course are specified in the following intended learning outcomes:

Objectives/Results to be Achieved:

The course consists one of the main core courses of the Medical Schools and has important requirements on the part of the students. Students are required to devote many hours to learning Human Anatomy.

- General Anatomy of the Kinetic Apparatus
- Osteology
- Anatomy of joints and Linkage
- Myology

Objective: to understand or learn and be able to identify all structures of the musculoskeletal system in cadaveric preparations on plastic models and in 3D virtual reality models

General Abilities

Search, analysis and synthesis of data and information, using the necessary technologies

Working in an international environment.

Working in an interdisciplinary environment.

Search, analysis and synthesis of data and information during the study and identification of anatomical structures of the musculoskeletal system in cadaveric preparations in plastic models and in 3D virtual reality models.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Research, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3.Module Content

- General Anatomy of the kinetic apparatus (6
- Osteology of the body (18 hours)
- Anatomy of joints and body Linkage (18 hours
- upper limb (18 hours)
- lower limb (18 hours)
- skull (24 hours)
- Myology

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	*Face to Face:* Teaching of Anatomy I consists of lectures, seminars/tutorials and laboratory practical. Attendance of Laboratory Practical and Seminars/Tutorials is obligatory. The lectures content is described above. Seminars/Tutorials (in 3 student groups with1 instructor per group) review and extend the lectures content using examples of clinical cases (problem-based learning) that highlight the application of Anatomy in the diagnosis and treatment of serious diseases. In each tutorial, students prepare answers to the questions related to the examined clinical cases and discuss them with the teachers. Laboratory exercises (in 3 student groups of students, 1 instructors per group of 12 students) composing the students' practical are complementary to the lectures and they aim to familiarize the student with the application of Anatomy, the operation of simple laboratory instruments and the experimental procedures that are often used in anatomy as well as to help the students comprehend concepts that are not easily presented theoretically (learning based on practical experience).
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students. Specifically: • Common software (e.g. MS powerpoint and keynote) is used to prepare lecture material and display slides and videos. • The study guide (detailed supplementary material & additional bibliography), the tutorial material (clinical cases), the theory and protocols of the laboratory exercises, the slides of each lecture as well as relevant videos and scientific articles made available electronically and online to students through the e-class system of our university. • Information about the course, instructors and their research interests are available online on the Laboratory website• Common software (e.g. MS excel) is used to statistically process student assessment. Announcements, information etc are available online via e-class. Communication is also done via e-mail ans social media. • Use of three-dimensional anatomical models

TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.	***Learning activity*** ***Total semester workload*** Lectures 2 hours Lab. Practical (obligatory presence) 2 hours Tutorials (obligatory presence) 2hours Study 60 hours Preparation for Practical 40 hours Preparation for Tutorials 45 hours ***SUM*** ***(25 hours per teaching credit)*** ***100*** hours

STUDENT EVALUATION **Description of the evaluation process** Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	The language of assessment is English. **Evaluation methods.** **A. For the laboratory practical:** Laboratory Assignment Reports, Written Examination at the end of the semester with questions and problem solving. The participation of students in the laboratory exercises as well as the written report of the results of the exercises is mandatory. The report includes the results (presented in tables and diagrams, and the conclusions (e.g. if the results were expected, if not why, sources of possible errors in the experiments) as requested by each exercise. At the end of each exercise, the written report is checked by the instructors and signed when correctly completed. Successful participation in the practical is certified by the instructors' signatures on the written reports. At the end of the semester the students are examined in the content of the Laboratory practical. The examined material consists of the theory, the methodology and the ways results are processed as included in the Guide of the Laboratory Practical or presented by the instructors during the exercises. Only the students that have successfully completed the laboratory exercises can participate in the written laboratory examination. Success in the laboratory examination is a prerequisite for participation in the course exams. **B. For the Tutorials:** Oral Presentation, Oral Examination In each tutorial, students prepare answers to the questions related to the examined clinical cases and discuss them with the teachers. The performance of the students during in the tutorials is taken into account in the final evaluation. The material of the tutorials is examined together with the lecture. **C. For the lecture material:** Written Exams with questions. The course exams are written, last 2 hours and consist of questions (examples are available in the Course Guide). The material to be examined is lectures and tutorial material as described above. Only those students who have successfully passed the Laboratory exams have the right to participate in the course exams. **Final Grade:** The final grade of the course is calculated as the sum of 50% of the grade of the written course exams and 50% of the grade of the Laboratory written exams. All of the above are presented in detail in the Course Guide which is distributed in print to all students and is posted electronically in e-class.
5.Recommended Bibliography	

Lecture Material

Main suggested textbooks:

Human Anatomy. Anne M. Gilroy, 2019

Functional Anatomy of Joints. A.I.Kapandji

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	**BE0701.E**	**Semester**	2nd
COURSE TITLE	Biochemistry of Enzymes and Human Metabolism		
COURSE INSTRUCTOR	Dr. Georgia Chachami		
CO-INSTRUCTORS	G. Simos., I. Mylonis, P. Liakos,		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	6	6

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Background & Scientific area (Laboratory Medicine)
PREREQUIRED COURSES	-
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	-
WEBSITE (URL)	**http://eclass.uth.gr/eclass/courses/SEYA222/**

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

Aims of the course

The course examines the chemical composition and processes that characterize living organisms, in general, and humans in particular. The course aims at understanding the physiological and pathological functions of the human body at the molecular and cellular level and introducing the

principles and techniques of Laboratory Medicine. It also presents the application of biochemical knowledge in clinical settings such as the diagnosis and treatment of metabolic diseases.

The course also provides the essential background for courses introduced at later semesters such as: "Biochemistry of Gene Expression, Organs and Human Functions", "Systems Physiology", "Neurophysiology & Endocrine physiology", "Clinical Biochemistry", "Pharmacology", "Medical Genetics", "Pathology" and "Pediatrics ".
Finally, another aim of the course is to help students appreciate the importance of correct execution and evaluation of diagnostic laboratory analysis and acquire the corresponding skills which are required for the specialty of Laboratory Medicine as well as many other clinical medical specialties.

After the successful completion of this course, the students will be able to:

- understand the basic human metabolic functions and the molecular-biochemical basis of human metabolic diseases
- have basic knowledge of the structure and properties of proteins and enzymes, the pathways of production, consumption and storage of energy, the intermediate metabolism of the most important biomolecules and basic mechanisms of metabolic regulation.
- distinguish symptoms and propose diagnosis and a suitable therapy of basic metabolic diseases.
- use basic equipment of a biochemical/clinical chemistry lab and perform simple routine biochemical analyses.
- analyze and process basic biochemical analysis results
- - cooperate with their colleagues in the context of a lab environment for the execution of simple biochemical analyses and processing of their results.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Research, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3.Module Content

The content of the course includes the following major items:

A. The content of the lectures together with the relevant clinical insights the students need to learn/acquire per chapter.
B. The content of the tutorials/seminars together with the relevant clinical insights the students need to learn/acquire per seminar.
C. The content of the laboratory practical together with the relevant practical & clinical skills the students need to learn/acquire per exercise.

A. Lecture content and relevant clinical insights

1. Introduction to Biochemistry

Biochemistry as a science: Definition, object, history
Biochemistry in everyday life
Biochemistry as a basic component of medicine
Biochemistry as a course: Textbooks, prerequisite knowledge, organization, program, obligations
Clinical insights:
Biochemical tests as means of diagnosis
Diagnosis & treatment of metabolic diseases
Biochemical basis of drug action

2. Enzymes: Basic Properties, Kinetics, Regulation & Catalytic Mechanisms

Review of basic properties and principles of enzyme function, kinetics, regulation of enzyme activity, catalytic mechanisms and inhibition
Clinical insights:
Protease inhibitors as drugs against hypertension & HIV
Carbonic anhydrase inhibitors as anti-cancer drugs
Applications of restriction nucleases in genetic tests
Lactate dehydrogenase isoenzymes in clinical diagnosis

3. Oxygen binding proteins: Myoglobin & Hemoglobin

General structure of heme
The characteristics and the main amino acids of the heme pocket
O_2 binding curve of myoglobin
Structure and subunits of hemoglobin & O_2 binding curve
Molecular basis and significance of the allosteric effect of hemoglobin
2,3-BPG and the BOHR effect
Clinical insights:
Biochemical basis, diagnosis and treatment of sickle cell disease and thalassaemia

4. Connective tissue proteins

The components of connective tissue
Structure, characteristic composition, modifications, biosynthesis and role of Collagen
Structure, characteristic composition, modifications and role of Elastin
Structure, characteristic composition and role of Proteoglycans and Glycosaminoglycans
Clinical insights:
Biochemical basis, diagnosis and treatment of scurvy, laryngitis, Ehlers-Danlos syndromes, incomplete osteogenesis

5. Introduction to metabolism

Basic concepts of metabolism, anabolism and catabolism, recurring reaction motifs
Free reaction energy and the concept of reaction coupling
ATP and its production
Activated carriers: NAD, FAD, NADP, coenzyme A.
The role of muscle creatine phosphate
Regulation of metabolic pathways and energy status of the cell.

Clinical insights:

Niacin deficiency

6. Regulation of metabolism & metabolic diseases

Regulation of metabolism through signal transduction pathways

Basic signaling components

Structure and function of 7TM receptors, G proteins and adenylate cyclase

Role of cyclic AMP, IP3, DAG and calcium as intracellular messages and importance of reaction cascades

Clinical insights:

Definition and categories of metabolic diseases

Introduction to the diagnosis and treatment of inherited metabolic diseases.

7. Digestion & absorption of carbohydrates

Biological role and chemical nature of glucose and other essential diet carbohydrates

Carbohydrate digestion reactions and enzymes

GLUT glucose transporters

8. Glycolysis

Glycolysis (reactions and enzymes)

Energy yield of glycolysis

Metabolic fate of pyruvate and maintenance of the redox balance

Importance of glycolysis as an anaerobic energy production pathway

Clinical insights:

Biochemical basis, diagnosis and treatment of pyruvate kinase deficiency and lactic acidosis

9. Hormonal regulation of glycolysis and gluconeogenesis

Regulation of glycolysis, properties and functions of insulin and glucagon

Hormonal regulation of phosphofructokinase and role of fructose 2,6-biphosphate

Importance of isoenzymes for tissue metabolic specificity (hexokinase / glucokinase)

Regulation of glycolysis in muscle

Gluconeogenesis reactions and energy cost

Regulation of irreversible reactions

Inverse regulation of glycolysis-gluconeogenesis

Cori and alanine cycles

Clinical insights:

Biochemical basis and treatment of hypoglycemia

10. Galactose and Fructose metabolism

Galactose metabolism

Lactose intolerance

Fructose metabolism

Fructose intolerance

Clinical insights:

Biochemical basis, diagnosis and treatment of galactosemia, fructose and lactose intolerance

11. The citric acid (Krebs) cycle

Conversion of pyruvate to acetyl-coenzyme A in the mitochondria

Krebs cycle (reactions and enzymes)

Anaplerotic reactions

Intermediate Citric Cycle substrates as biosynthetic precursors

Clinical insights:

Biochemical basis, diagnosis and treatment of pyruvate dehydrogenase phosphatase deficiency, Berry-berry disease & mercury or arsenic poisoning

12. Regulation of the citric acid (Krebs) Cycle

Regulation of the pyruvate dehydrogenase complex

Regulation of key enzymes and energy yield of the reactions

Regulation of by energy status and hormones
Clinical insights:
Biochemical basis, diagnosis and treatment of pyruvate carboxylase deficiency

13. Oxidative phosphorylation: The respiratory chain
Complexes and mobile electron transporters of the respiratory chain
Additional electron transfer groups, structure and evolution of cytochrome c
Production of oxygen radicals (ROS) and their regulation
Mitchell's Chemiosmotic Theory
Transport of cytoplasmic NADH electrons to the mitochondria

14. Oxidative phosphorylation: ATP Synthesis
General structure and function of F_0F_1-ATPase
Proton-driven force and coupling of the respiratory chain with oxidative phosphorylation
Transport of ATP in and out of the mitochondria.
Energy efficiency of the respiratory chain and complete glucose oxidation
Regulation of oxidative phosphorylation (respiratory control).

15. Thermogenesis & mitochondrial diseases
Inhibition and decoupling of oxidative phosphorylation
Thermogenesis and gray adipose tissue
Mitochondrial diseases
Role of mitochondria in apoptosis, cancer and aging
Clinical insights:
Pathological action & treatment of reactive oxygen species (ROS)
Biochemical basis of cyanide poisoning
Brown adipose tissue and thermoregulation
Biochemical basis of mitochondrial diseases

16. Glycogen metabolism
Structure, physical and chemical properties of glycogen.
Glycogen breakdown and regulation of glycogen phosphorylase (allosteric and hormonal)
Glycogen synthesis and regulation of glycogen synthase.
Importance of glycogen synthesis and breakdown in liver and muscle
Role of protein phosphatase 1 (PP1) in the regulation of glycogen metabolism & phosphorylase A as a sensory system of glucose in the liver

17. Glucose homeostasis and glycogen-storage diseases
Role of glycogen in glucose homeostasis
The effect of glucagon and insulin on glycogen metabolism
Clinical insights:
Biochemical basis, diagnosis and treatment of glycogen storage diseases, Pombe disease, Von Gierke disease, McArdle disease, hypoglycemia

18. The pentose phosphate pathway
Production of NADPH and pentoses and coordination with glycolysis
Tissues with active pathway, when and why
General oxidative and non-oxidative reaction.
Clinical insights:
Biochemical basis, diagnosis and treatment of G6PD deficiency (drug-induced hemolytic anemia, favism), Thiamine deficiency, Wernicke-Korsakoff syndrome
Principles of neonatal screening

19. Digestion & absorption of lipids
Structural characteristics and nomenclature of lipids
Comparison of energy storage efficiency between triacylglycerols and glycogen
Digestion of food lipids: organs, enzymes, chylomicrons
Lipid mobilization from adipose tissue: hormone-sensitive lipases

Utilization of lipid glycerol

20. Degradation of fatty acids and production of ketone bodies

Activation of fatty acids and their transport to the mitochondria (role of carnitine)
β-oxidation of fatty acids and energy yield
Degradation of very long fatty acids
Degradation of fatty acids in the absence of glucose
Ketone bodies: production, the role in metabolism, importance in fasting and diabetes and diabetic ketoacidosis
Clinical insights:
Biochemical basis, diagnosis and treatment of carnitine deficiency, Vit. B12 insufficiency (megaloblastic anemia), Zellweger syndrome, diabetic ketoacidosis

21. Membrane lipids and membrane structure

Structure, biological role and synthesis of phospholipids, sphingolipids and gangliosides,
Structural characteristics, chemical composition and properties of biological membranes
Factors that affect the fluidity of membranes
Clinical insights:
Biochemical basis, diagnosis and treatment of sphingolipidosis, respiratory distress syndrome, Tay-Sachs disease

22. Fatty acid synthesis, regulation of fatty acid metabolism and weight-loss diets

Basic reactions and energy cost of fatty acid biosynthesis
Importance and origin of acetyl-CoA and NADPH
Regulation of fatty acid degradation and synthesis in response to nutrition
Classic and ketogenic weight loss diets
Essential fatty acids
Clinical insights:
Nutritional causes & treatment of obesity
Structure, metabolism and action of non-steroid anti-inflammatory drugs

23. Synthesis of lipids, cholesterol and cholesterol derivatives

Synthesis of triacylglycerols
Biological roles of cholesterol & basic principles of its synthesis
Reduction of HMG-CoA and its regulation
Structure and function of bile salts, gallstones
Synthesis of steroid hormones - Cytochrome P450
Structure and role of vitamin D
Clinical insights:
Biochemical basis, diagnosis and treatment of cholelithiasis (gallstones) and pediatric rickets

24. Lipoproteins

Classification, composition, function and diagnostic significance of lipoproteins
Structure and function of the LDL receptor and its role in hypercholesterolemia and atherosclerosis
Clinical insights:
Biochemical basis, diagnosis and treatment of hyperlipidemia, familial hypercholesterolemia, Atherosclerosis, hypertriglyceridemia, lipoprotein lipase deficiency

25. Digestion and degradation of proteins and amino acids

Digestion of food proteins
Intracellular degradation of proteins
General principles of amino acid catabolism
Nitrogen transport and release reactions: transamination, oxidative and hydrolytic deamination, glutamine hydrolysis.
Importance and role of vitamin B6 and pyridoxal phosphate
Clinical insights:

Clinical significance of transaminases

26. Nitrogen metabolism and the Urea cycle

Role of alanine and glutamine in the transport of amino groups
General principles of nitrogen excretion
Urea cycle reactions
Clinical insights:
Biochemical basis, diagnosis and treatment of hyperammonemia

27. Amino acid metabolism

General principles of catabolism of the carbon skeleton of amino acids
Glycogenetic and ketogenetic amino acids
Genetic diseases of amino acid catabolism
Incorporation of nitrogen into biomolecules
Essential and non-essential amino acids
Synthesis of non-essential amino acids
Clinical insights:
Biochemical basis, diagnosis and treatment of albinism, phenylketonuria, hyperhomocysteinemia

28. The activated methyl cycle and amino acid derivatives

Transfer reactions of monocarbon groups
Role of tetrahydrofolic acid and S-adenosylmethionine
Biologically important mino acid derivatives: biogenic amines, catecholamines, glutathione, nitric oxide
Clinical insights:
Physiological and pathological role of homocysteine, hyperhomocysteinemia

29. Heme and iron metabolism

General principles of biosynthesis and catabolism of heme
Biological importance and excretion of bilirubin
Biological functions of iron
The daily cycle of iron
Disorders in iron metabolism
Maintaining iron homeostasis
Clinical insights:
Biochemical basis, diagnosis and treatment of hyperbilirubinemia (Jaundice), porphyrias, hemochromatosis, iron deficiency anemia.

30. Nucleotide metabolism

Structure, nomenclature and biological role of nucleotides
Precursors and basic principles for de novo ribonucleotide synthesis & salvage pathways
Synthesis of deoxyribonucleotides
Regulation of nucleotide synthesis
Nucleotide catabolism
Clinical insights:
Biochemical basis and symptoms of Lesch-Nyhan disease, biochemical basus of cytotoxic anti-cancer drugs, biochemical basis, diagnosis and treatment of gout

31. Overview & Integration of metabolism

Recurring patterns in metabolic regulation
Main metabolic pathways,their regulatory sites and key intermediates
Main metabolic pathways in brain, muscle (skeletal and cardiac), adipose tissue and liver
Major hormones of metabolism
Metabolic changes during the starved-fed cycle
Metabolic adaptation to prolonged starvation
Metabolic disorders in diabetes
Metabolic changes during exercise and alcohol consumption

Clinical insights:
Biochemical basis, diagnosis and treatment of diabetes and ethanol-mediated disorders

32. Metabolism and Cancer
The special characteristics of cancer cells
The Warburg effect (aerobic glycolysis)
Importance of the Warburg effect in the diagnosis and treatment of cancer
Metabolic oncogenes and tumor suppressors, oncometabolites
Hypoxia and cancer
Hypoxia-induced HIF factors and their role in cancer
Modern research and targeting of cancer metabolism
Clinical insights:
Principles of PET application in the diagnosis of cancer

B. Seminar/Tutorial content and relevant clinical insights
Problem-based learning: Presentation, analysis and discussion of clinical cases
Tutorial 1: Enzymes, enzyme inhibitors and diseases
a. Penicillin resistance
b. Osteogenesis imperfecta
c. Sickle-cell anemia
d. Antitrypsin deficiency & emphysema
Tutorial 2: Carbohydrate metabolism and enzymopathies
a. Alcoholic coma
b. Glucose-6-phosphate dehydrogenase deficiency & drug-induced hemolytic anemia
c. Pyruvate dehydrogenase deficiency
d. Fructose intolerance
e. Glycogen storage disease type I
Tutorial 3: Lipid and protein metabolism, nutrition and diseases
a. Anorexia nervosa
b. Obesity & non-alcoholic fatty liver disease
c. Hyperhomocysteinemia & myocardial infarction
d. Hyperammonemia
e. Acetyl-coenzyme A carboxylase deficiency

C. Laboratory Practical content
Hands-on learning: Acquisition of general and specific practical & clinical skills:
General Skills
Observing biochemical phenomena, obtaining and analyzing experimental data
Interpretation of experimental data
Resolving practical problems
Producing graphical displays of data
Operating basic Biochemistry & Clinical Chemistry equipment
Working as a team
Following instructions
Following safety regulations
Trouble-shooting in laboratory results
Clinical significance of lab results
Specific Skills
Practical 1. Enzymatic catalysis I
Spectrophotometric detection of the catalytic activity of alkaline phosphatase
Practical 2. Enzymatic catalysis II

Analysis of the effects of substrate concentration and/or an inhibitor on the catalytic activity of alkaline phosphatase, determination of catalytic constants **Practical 3. Enzymatic catalysis III** Determination of alkaline phosphatase concentration in an unknown sample. **Practical 4. Hemoglobin analysis** Measurement of hemoglobin concentration in patient blood and detection of abnormal hemoglobins using electrophoresis **Practical 5. Lipid analysis** Determination of triglyceride, total, HDL and LDL cholesterol concentration in patient serum samples

4. TEACHING AND LEARNING METHODS - EVALUATION	
Teaching Method (face to face, tutoring, distance learning)	*Face to Face:* Teaching of "Biochemistry of enzymes and human metabolism" consists of lectures, seminars/tutorials and laboratory practicals. Attendance of Laboratory Practicals and Seminars/Tutorials is obligatory. The lectures content is described above. Seminars/Tutorials (in two student groups with 1-2 instructors per group) review and extend the lectures content using examples of clinical cases (problem-based learning) that highlight the application of biochemical knowledge in the diagnosis and treatment of serious diseases. In each tutorial, students prepare answers to the questions related to the examined clinical cases and discuss them with the teachers Laboratory exercises (in 4 student groups of students, 3 instructors per group of 30 students) composing the students' practical are complementary to the lectures and they aim to familiarize the student with the application of basic biochemical techniques, the operation of simple laboratory instruments and the experimental procedures that are often used in Clinical Biochemistrt as well as to help the students comprehend concepts that are not easily presented theoretically (learning based on practical experience).
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students. Specifically: • Common software (e.g. MS powerpoint) is used to prepare lecture material and display slides and videos. • The study guide (detailed supplementary material & additional bibliography), the tutorial material (clinical cases), the theory and protocols of the laboratory exercises, the slides of each lecture as well as relevant videos and scientific articles made available electronically and online to students through the e-class system of our university.

<table>
<tr><td></td><td>• Information about the course, instructors and their research interests and in general the Laboratory of Biochemistry of the Faculty of Medicine are available online on the Laboratory website http://www.med.uth.gr/biochemistry/index.html
• Common software (e.g. MS excel) is used to statistically process student assessment.
Announcements, information etc are available online via e-class. Communication is also done via e-mail.</td></tr>
<tr><td>TEACHING METHODS
The way and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.</td><td>
<table>
<tr><th>Learning activity</th><th>Total semester workload</th></tr>
<tr><td>Lectures</td><td>62 hours</td></tr>
<tr><td>Lab. Practical (obligatory presence)</td><td>14 hours</td></tr>
<tr><td>Tutorials
(obligatory presence)</td><td>8 hours</td></tr>
<tr><td>Study</td><td>50 hours</td></tr>
<tr><td>Preparation for Practical</td><td>8 hours</td></tr>
<tr><td>Preparation for Tutorials</td><td>8 hours</td></tr>
<tr><td>SUM
(25 hours per teaching credit)</td><td>150 hours</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
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</table>
</td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, Explicitly defined assessment criteria are stated and if and where they are accessible to students.</td><td>The language of assessment is English.
Evaluation methods.
A. For the laboratory practical: Laboratory Assignment Reports, Written Examination at the end of the semester with short answer questions and problem solving.
The participation of students in the laboratory exercises as well as the written report of the results of the exercises is mandatory. The report includes the results (presented in tables and diagrams, and the conclusions (e.g. if the results were expected, if not why, sources of possible errors in the experiments) as requested by each exercise. At the end of each exercise, the written report is checked by the instructors and signed when correctly completed. In case of very demanding calculations or diagrams, it is possible to complete the report after the end of the exercise and deliver it at a later predetermined date. Successful participation in the practical is certified by the instructors' signatures on the written reports. At the end of the semester the students are examined in the content of the Laboratory practical. The examined material consists of the theory, the methodology and the ways results are processed as included in the Guide of the Laboratory Practical or presented by the instructors during the exercises. Only the students that have successfully completed the laboratory exercises can participate in the written laboratory examination.</td></tr>
</table>

	Success in the laboratory examination is a prerequisite for participation in the course exams. **B. For the Tutorials:** Oral Presentation, Oral Examination, Written Assignment. In each tutorial, students prepare answers to the questions related to the examined clinical cases and discuss them with the teachers. The performance of the students during the tutorials is taken into account in the final evaluation. The material of the tutorials is examined together with the lecture. **C. For the lecture material:** Written Exams with multiple-choice and short answer questions. The course exams are written, last 2 hours and consist of multiple-choice questions (examples are available in the Course Guide) and short answer questions related to a clinical case. The material to be examined is lectures and tutorial material as described above. Only those students who have successfully passed the Laboratory exams have the right to participate in the course exams. **Final Grade:** The final grade of the course is calculated as the sum of 80% of the grade of the written course exams and 20% of the grade of the Laboratory written exams. All of the above are presented in detail in the Course Guide which is distributed in print to all students and is posted electronically in e-class.

5.Recommended Bibliography

A. Lecture Material

Main suggested textbooks:

1. Tymoczko J.L, Berg J.M. & L. Stryer: BIOCHEMISTRY, A SHORT COURSE
   3rd edition, W.H. Freeman and Company
2. Ferrier R. D.: Lippincott's Illustrated Reviews: BIOCHEMISTRY
   6th edition, Lippincott Williams & Wilkins, USA

Further reading:

Berg, Tymoczko & Stryer: BIOCHEMISTRY (7th Edition)

Baynes J. W. & M. H. Dominiczak: Medical Biochemistry (2nd Edition)

Branden C. & J. Tooze: Introduction to Protein Structure

Devlin T. M.: Biochemistry with Clinical correlations Part I and II

M. A. Lieberman & A. Marks: Marks Basic Medical Biochemistry: A clinical approach (4th Edition)

Koolman J. & K.-H. Roehm: Colour Atlas of Biochemistry

Nelson D. L. & M. M. Cox : Lehninger, Principles of Biochemistry Part I, II, and III

Murray et al.: HARPER'S Illustrated Biochemistry

Marshall W.J. & S.K. Bangert: Clinical Chemistry

B. Laboratory Practical supplementary Material

Alexander R. R. & J. M. Griffiths: Basic Biochemical Methods, Wiley-Liss

Anderson S. C. & S. Cockayne: Clinical Chemistry - Concepts and Applications, W. Saunders Co

Dryer R. L. & F. G. Lata: Experimental Biochemistry, Oxford University Press

Holme D. J. & H. Peck: Analytical Biochemistry, Longman Scientific & Technical

Plummer D. T.: Practical Biochemistry - An Introduction, McGraw-Hill

Tietz N. W. (editor): Textbook of Clinical Chemistry, W. B. Saunders Co
Wilson U. & K. H. Goulding: Principles and Techniques of Practical Biochemistry, Edward Arnold

Relevant Scientific Journals:

Annual Review of Biochemistry
Archives of Biochemistry and Biophysics
Biochemical and Biophysical Research Communications
Biochemical Journal
Biochemistry
Biochemistry and Cell Biology
Biochimica et Biophysica Acta
Biochimie
Biological Chemistry
Cell
Cell Metabolism
Cellular Physiology and Biochemistry
Cellular Signalling
Cellular and Molecular Life Sciences
Clinical Biochemistry
Critical Reviews in Biochemistry and Molecular Biology
EMBO Journal
FEBS Letters
Free Radical Biology and Medicine
Free Radical Research
The International Journal of Biochemistry & Cell Biology
Journal of Biochemistry
Journal of Biological Chemistry
Journal of Cell Science
Journal of Cellular Biochemistry
Journal of Lipid Research
Journal of Medical Biochemistry
Journal of Molecular Biology
Journal of Molecular Medicine
Methods in Enzymology
Molecular and Cellular Biology
Molecular Cell
Nucleic Acids Research
Protein Science
RNA
The FEBS Journal
Trends in Biochemical Sciences

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	Health Science		
DEPARTMENT	Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	BE0102.E	**Semester**	2nd
COURSE TITLE	BIOLOGY II -Molecular Biology		
COURSE INSTRUCTOR	Aspasia Tsezou		
CO-INSTRUCTORS	Ioanna Papathanasiou, Alexandros Damalas		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	4	6,00

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Background
PREREQUIRED COURSES	No
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	No
WEBSITE (URL)	

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

The course aims to highlight the role of Molecular Biology in Medicine. It focuses on the investigation of DNA structure and function, on mutagens (endogenous and exogenous) related to DNA damage, on DNA repair mechanisms, as well as on diseases arising as a result of the dysfunction of the above mechanisms. Particular attention is given to the analysis of the flow of genetic information and mechanisms of gene expression regulation, in prokaryotes and eukaryotes. The properties of chromatin (euchromatin and heterochromatin)/ chromosomes/genome and the mechanisms contributing to genetic diversity, as well as gene and genome evolution are examined. In addition, epigenetic modifications (DNA methylation, histone modifications, small and long non-coding RNA molecules) and their impact on homeostasis, diseases and malignancies are analyzed and recent advances on their use in therapeutic interventions are provided. Particular emphasis is given to new technologies of genome analysis and their role in diagnosis, prevention and treatment of diseases and neoplasia, in cloning and its applications in gene therapy. Furthermore, the basic molecular mechanisms that regulate aging, stem cell biology and their use in novel cell therapies of diseases and neoplasia are described. Finally, the basic principles of oncogenesis, oncogenes/ tumor suppressive genes, the role of cancer stem cells in cancer progression and development as well as novel cancer therapies are also analyzed.

Upon successful completion of the course, the student will be able to:

• understand the biology of self-replicating macromolecules and their interactions with proteins
• know the basic functional structures of human genome
• know the basic mechanisms disrupting genome stability (carcinogenesis, hereditary cancer and aging)
• know the new technologies of molecular biology and their applications in the diagnosis and treatment of diseases and malignancies
• distinguish the affected person from the healthy one by interpreting the results of laboratory analyses (e.g. PCR)
• use a variety of laboratory instruments and equipment (pipettes, PCR systems, nucleic acid electrophoresis devices, etc.)

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- *Research, analysis and synthesis of data and information, using the necessary technologies*
- *Teamwork*
- *Demonstration of social, professional and moral responsibility and sensitivity in gender issues*
- *Exercise criticism and self-criticism*

- *Promoting free, creative and inductive thinking*

3.Module Content

The course includes the following modules:

Molecular Biology in Medicine

Introduction to basic concepts of Molecular Biology, techniques used as well as sequencing technologies. Referral to the concept of personalized medicine and basics of Human Genome Project.

Genome organization and structure

Nucleosome (structure, organization and function), centromere and telomere interactions with proteins, chromatin structure, gene organization on genome, classification of genes, repetitive DNA, interspersed elements, transposable elements, non-coding DNA.

Physicochemical properties of nucleic acids

Nucleic acids, DNA/RNA structure, types of RNAs, transcriptome

DNA replication

DNA polymerases, proofreading mechanisms, machinery and enzymes of DNA replication, telomere and telomerase

DNA damage and repair

Types of DNA lesions, mutagens (radiation, chemical agents), basic mechanisms of DNA repair (NHEJ, homologous recombination), dysregulation of DNA repair mechanisms: the example of Xeroderma pigmentosum and Hutchinson-Gilford Progeria Syndrome.

Transcription and RNA processing

Structure and function of RNA polymerase, types of RNAs and RNA polymerases, transcription machinery, transcriptional factors, transcription of mitochondrial genes, RNA processing, splicing and alternative splicing, RNA degradation through exonucleases function

Translation

From RNA to Protein, genetic code and wobble hypothesis, translation initiation factors, protein degradation through ubiquitin-proteasome system: structure and function of the system and diseases (autoimmune diseases, Parkinson disease and cancer). Lysosome depended protein degradation, post-translation modifications, Evolution of RNA-DNA.

Gene regulation in Prokaryotes

Modulation of gene expression in response to exogenous signals, molecular switches, structure and function of operon (repressors and activators), regulation of lac operon, function of CAP protein, regulation of trp operon, trp operon attenuation.

Gene regulation in Eukaryotes

Multiple levels of gene expression in eukaryotic cells, regulatory factors and elements, suppressors and activators, enhancers, combinatorial control of gene expression.

Epigenetic regulation of gene expression

DNA methylation, histone modifications, long and short non-coding RNAs, dysfunction of epigenetic mechanisms and diseases, RNA interference (RNAi)

Mutations and polymorphisms

Types of mutations: the example of sickle cell anemia and cystic fibrosis, polymorphisms (SNPs, STRs, VNTRs, CNVs), polymorphisms as disease risk prediction factors: polymorphisms in *ApoE* gene and Alzheimer disease, polymorphisms and DNA fingerprinting, polymorphisms in mitochondrial DNA, polymorphisms of drug-metabolizing enzymes: enzymes of cytochromes P450 and antithrombotic therapy

Stem Cells and tissue homeostasis

Types of stem cells, reprogramming of differentiated cells and induced pluripotent stem cells (iPSCs), cell cycle of adult stem cells, disruption in signaling and induction of stem cell proliferation, stem cells and cell therapy: neurodegenerative and cardiovascular diseases and cancer.

Molecular mechanisms of cellular senescence

Senescence and DNA damage, hallmarks of senescence, senescence and oncogenesis

Methods and Techniques in Molecular Biology

Polymerase chain reaction (PCR), real-time polymerase chain reaction (RT-PCR), Southern Blot, Northern Blot, Sanger Method, role of molecular technologies in biomedical research and clinical practice - molecular diagnosis.

New technologies and applications in diagnosis

Next generation sequencing (NGS), comparative genome analysis, identification of new genes and prediction of their function, DNA microarrays and RNAseq, application in the diagnosis of genetic disorders (cystic fibrosis) and cancer.

Recombinant DNA

Recombinant DNA technology, genetic engineering and restriction enzymes

Cloning

DNA cloning in bacteria-plasmids and transformation, genomic and cDNA library

Animal models of disease

Animal models (Drosophila, C.elegans, mice), transgenic-conditional transgenic and knock-out mice, role of transgenic organisms in clarifying disease pathogenesis or therapy. Animal models of human diseases (Huntington, progeria, Zucker rats and obesity).

Genome evolution

Genetic diversity, natural selection, evolution: lactose intolerance, horizontal gene transfer and resistance to antibiotics, homologous genes, genetic drift, conserved synteny, purifying selection.

Carcinogenesis/ Oncogenesis

Mechanisms of carcinogenesis, oncogenes and tumor suppressor genes: the example of retinoblastoma, loss of heterozygosity (LOH) and microsatellite instability (MSI), cancer stem cells and EMT transition, novel therapies in cancer.

Laboratory

Part A: Karyotype

- Culture of peripheral blood using mitogens
- Preparation of metaphase chromosomes
- Recognition of chromosome- karyotype analysis

Part B: Diagnosis of sickle anemia using Restriction Fragment Length Polymorphisms (RFLP)

- DNA extraction from peripheral blood using columns
- Amplification of the b-globin gene using PCR
- Fragmentation of PCR product using restriction enzymes
- Interpretation of results –sickle anemia diagnosis

4. TEACHING AND LEARNING METHODS - EVALUATION	
Teaching Method (face to face, tutoring, distance learning)	Face to face, tutoring
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Lecture notes uploaded to e-class Communication via email, or MS teams

TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.	<table><tr><th>*Δραστηριότητα*</th><th>*Φόρτος Εργασίας Εξαμήνου*</th></tr><tr><td>Lectures</td><td>120</td></tr><tr><td>Laboratory exercises</td><td>20</td></tr><tr><td>Written assignment or oral presentation</td><td>22</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td>***TOTAL***</td><td>***162 (27x6 ECTS)***</td></tr></table>
STUDENT EVALUATION **Description of the evaluation process** Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	Students are evaluated by written multiple choice questions and/or short answer questions.

5.Recommended Bibliography

Recommended bibliography: Books[68405346]: “Cell: a molecular approach” by G. Cooper, R. Hausman, 8th edition

Relative scientific journals: Nature Reviews Molecular Cell Biology, Molecular Cell, Molecular Biology and Evolution, Molecular Aspects of Medicine

COURSE DESCRIPTION

SYSTEMS MORPHOLOGY

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	MP1010	**Semester**	2nd
COURSE TITLE	**SYSTEMS MORPHOLOGY**		
COURSE INSTRUCTOR	MARIA IOANNOU, PROFESSOR OF PATHOLOGY		
CO-INSTRUCTORS	- MARIA IOANNOU, PROFESSOR OF PATHOLOGY - MARIA SAMARA, ASSISTANT PROFESSOR OF PATHOLOGY WITH EMPHASIS ON MOLECULAR HISTOPATHOLOGY - ELENI EIRINI THODOU ASSISTANT PROFESSOR OF CYTOLOGY - KONSTANTINA ZACHAROULI, ACADEMIC SCHOLAR		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	4	6,00

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Background
PREREQUIRED COURSES	GENERAL MORPHOLOGY- SUCCESSFUL LABORATORY EXAMINATION
LANGUAGE OF TEACHING AND EXAMS	ENGLISH
AVAILABLE TO ERASMUS STUDENTS	NO
WEBSITE (URL)	**http://eclass.uth.gr/eclass/courses/**

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

Aims of the course

The course is a study of the histological structures of the human organic systems. Further, the course seeks to provide students with the basic elements to understand the correlation of microscopic imaging with their function, with adaptation to tissue damage, and with the development of inflammatory and neoplastic diseases.

Finally, another aim of the course is to help students appreciate the importance of correct execution and evaluation of SYSTEMS MORPHOLOGY and acquire the corresponding skills which are required for the specialty of PATHOLOGY I, PATHOLOGY II and INTERNAL MEDICINE II.

After the successful completion of this course, the students will be able to:

- understand the basic principles of Systems Morphology
- Understanding and thorough knowledge of the normal structure of human organs tissue components at the microscopic ultrastructural and molecular level
- Correlate normal structure of human organs and systems with normal function
- Apply this knowledge to understand pathogenetic mechanisms and altered tissue morphology of human diseases
- Integrate the information and knowledge obtained from this course with information from other basic scientific fields and courses (biochemistry, human biology and genetics etc).
- collaborate with fellow students to write scientific papers and perform basic research for presentation at student conferences.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Research, analysis and synthesis of data and information, using the necessary technologies.
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3.Module Content

The content of the course **SYSTEMS MORPHOLOGY** includes the following major items:

A. The content of the lectures together with the relevant clinical insights the students need to learn/acquire per chapter.

B. The content of the tutorials/seminars together with the relevant clinical insights the students need to learn/acquire per seminar.
C. The content of the laboratory practical together with the relevant practical & clinical skills the students need to learn/acquire per exercise.

A. Lecture content and relevant clinical insights

1. Endocrine system
2. Skin-Breast
3. Respiratory system
4. Digestive system I
5. Digestive system II
6. Digestive system III
7. Urinary system
8. Female reproductive system
9. Male reproductive system
10. Sensory organs
11. Lymphatic system
12. Acute inflammation
13. Chronic inflammation and healing
14. Neoplasia

B. Seminar/Tutorial content and relevant clinical insights

Problem-based learning: Presentation, analysis and discussion of the physiological structure and function of human organic systems.

C. Laboratory Practical content

Hands-on learning: Acquisition of general and specific practical & clinical skills:

General Skills

Observing of phenomena, obtaining, and analyzing experimental data
Operating basic laboratory equipment, use of optical microscope mainly
Working as a team
Following instructions
Following safety regulations
Troubleshooting in laboratory results
Clinical significance of lab results

Specific Skills

- optical microscope manipulation
- familiarization with the use of objective lenses – magnifications
- Observation of laboratory slides and familiarization with digital laboratory slides

Knowledge-lecture context:

1. Endocrine system: Pituitary gland, Thyroid gland, Parathyroid gland, Adrenal glands, epiphysis, Elements of anatomy, vascularity, neurosis and principles of hormonal regulation.
2. Skin-Breast: Hair, sweat gland and sebaceous gland, hair follicles and associated structures. Sweat glands, onychium, Pacini and Meissner bodies, non-secretory mammary gland, breast in lactation, mammary gland secretions.
3. Respiratory system: Transport and respiratory part of the respiratory system, olfactory mucosa, larynx, trachea, respiratory epithelium and cilia, bronchi, bronchioles, lung tissue, blood-air barrier.
4. Digestive system I: tooth and pulp, periodontal ligament and gum, tooth development. Tongue and taste buds, palate

5. Digestive system II: Stomach and small intestine, large intestine, oesophagus, Stomach, Duodenum, Jejunum, ileum, ileum Large intestine, appendix.
6. Digestive system III: Salivary glands, Pancreas, Liver, Gallbladder
7. Urinary system: kidney, vascular glomerulus, urinary tubules, renal arterial supply, and venous drainage, collecting tubules, Paraglomerular apparatus, kidney medulla, ureter and urinary bladder.
8. Female reproductive system: Placenta, Ovary, Fallopian tube, Uterus, vagina, follicles, corpus luteum, menstrual cycle, fertilization and implantation, external genitalia
9. Male reproductive system: Testis, Spermiogenesis, epididymis, seminal duct and seminal vesicle, prostate gland, penis, urethra, interstitial Leydig cells.
10. Sensory organs: Specialized peripheral receptors, mechanoreceptors, thermoreceptors, pain and itch receptors, eye, ear
11. Lymphatic system: Lymphatic tissues, innate and adaptive immune system, immune system cells and functions, major histocompatibility system molecules, lymph nodes, thymus, and spleen.
12. Acute inflammation: General characteristics of inflammation, causes, identification of microbes and damaged cells, acute inflammation, blood flow changes and vascular permeability, cells of acute inflammation, adhesion molecules, chemotaxis, phagocytosis, extracellular traps of neutrophil cells, tissue damage, morphologic features, and outcome of acute inflammation.
13. Chronic inflammation and repair: cause of chronic inflammation, morphologic features, cells and chemical mediators of chronic inflammation, cytokines, and chemokines, complement system, granulomatous inflammation, tissue repair, regeneration mechanisms, scarring, angiogenesis, fibrosis.
14. Neoplasia: Introduction to neoplasms, nomenclature, differentiation, dysplasia, metaplasia, anaplasia, histological grade, infiltration and metastasis, precursor morphological changes, hallmarks of cancer, molecular tumorigenesis, oncogenes, tumor suppressor genes, repair genes, basic mechanisms of molecular carcinogenesis, chromosomal and microsatellite instability of the genome, methods for cancer diagnosis.

Tutorials – Laboratory Exercises

- Pituitary, thyroid and parathyroid gland, adrenal glands
- Thick and thin skin, cross- and horizontal section of the scalp, breast versus breast in lactation
- Epiglottis, larynx, trachea, bronchus, vocal cords, lung
- Tongue, esophagus
- Stomach, small intestine, colon
- Tonsil, sublingual salivary gland, pig and human liver, pancreas, gallbladder
- Ureter, bladder, kidney
- Cervix, endometrium in productive phase, in secretory and in bleeding phase, ovary
- Testis, epididymis, spermatic pore, seminal vesicle, prostate
- lymph nodes, thymus, and spleen
- Acute and chronic inflammation

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	*Face to Face:* Teaching of **SYSTEMS MORPHOLOGY** consists of lectures, seminars/tutorials and laboratory practical. Attendance of Laboratory Practical and Seminars/Tutorials is obligatory.

<table>
<tr><td></td><td>The lectures content is described above.

Seminars/Tutorials (in 4student groups with1 instructor per group) review and extend the lectures content. In each tutorial, students familiarize themselves with the basic elements per unit and prepare for the laboratory exercises.

Laboratory exercises (in 4 student groups of students, 1 instructor per group of 27-30 students) composing the students' practical are complementary to the lectures and they aim to familiarize the student with the application of techniques, the operation of simple laboratory instruments and the experimental procedures that are often used in SYSTEMS MORPHOLOGY as well as to help the students comprehend concepts that are not easily presented theoretically (learning based on practical experience).</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td>Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students.
Specifically:
• Common software (e.g. MS powerpoint) is used to prepare lecture material and display slides and videos.
• The study guide (detailed supplementary material & additional bibliography), the tutorial material (clinical cases), the theory and protocols of the laboratory exercises, the slides of each lecture as well as relevant videos and scientific articles made available electronically and online to students through the e-class system of our university.
• Information about the course, instructors and their research interests and in general the Pathology Department of the Faculty of Medicine are available online on the Laboratory website ……
• Common software (e.g. MS excel) is used to statistically process student assessment.
Announcements, information etc are available online via e-class.
Communication is also done via e-mail.</td></tr>
<tr><td>TEACHING METHODS
The way and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level</td><td>
<table>
<tr><th>Learning activity</th><th>Total semester workload</th></tr>
<tr><td>Lectures</td><td>56 hours</td></tr>
<tr><td>Lab. Practical (obligatory presence)</td><td>14 hours</td></tr>
<tr><td>Tutorials (obligatory presence)</td><td>14 hours</td></tr>
<tr><td>Study</td><td>40 hours</td></tr>
<tr><td>Preparation for Practical</td><td>14 hours</td></tr>
<tr><td>Preparation for Tutorials</td><td>14 hours</td></tr>
<tr><td>SUM
(25 hours per teaching credit)</td><td>152 hours</td></tr>
</table>
</td></tr>
</table>

corresponds to the ECTS standards.	
STUDENT EVALUATION **Description of the evaluation process** Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	The language of assessment is English. **Evaluation methods.** **A. For the laboratory practical:** Written Examination at the end of the semester with short questions and problem solving. The participation of students in the laboratory exercises is mandatory. At the end of the semester the students are examined in the content of the Laboratory practical. The examined material consists of the theory, the methodology and the ways results are processed as included in the Guide of the Laboratory Practical or presented by the instructors during the exercises. Only the students that have successfully completed the laboratory exercises can participate in the written laboratory examination. Success in the laboratory examination is a prerequisite for participation in the course exams. **B. For the Tutorials:** In each tutorial, students go deeper to the theoretical background of the laboratory exercises that will follow. The performance of the students during in tutorials is considered in the final evaluation. The material of the tutorials is examined together with the laboratory examination. **C. For the lecture material:** Written Exams with multiple choice questions, true/false questions, short answers, and oral examination of students with special needs. The course exams are written, last 2 hours and consist of multiple choice or True/False questions and critical or short answer questions. The material to be examined is lectures and tutorial material as described above. Only those students who have successfully passed the Laboratory exams have the right to participate in the course exams. **Final Grade:** The final grade of the course is calculated as the sum of 100% of the grade of the written course exams. All the above are presented in detail in the Course Guide which is posted electronically in e-class.
5.Recommended Bibliography	
A. Lecture Material ***Main suggested textbooks:*** 1. “Guide of systems histology” by M.Ioannou, 1st edition (2021) ISBN: 978-618-5515-12-6 2. “General and Systemic Pathology” by James C.E. Underwood, 5th edition (2010) ISBN: 978-960-394-696-0 ***Further reading:*** NONE	

B. Laboratory Practical supplementary Material

NONE

Relevant Scientific Journals:

NONE

COURSE OUTLINE

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
LEVEL OF EDUCATION	*Undergraduate*		
COURSE CODE	MP0301	**SEMESTER OF STUDIES**	2nd
COURSE TITLE	"Introduction to Embryology - Molecular Embryology" (previous title: Introduction to Perinatal Medicine)		
COURSE MANAGER	ANIFANDIS GEORGE - SPYRIDON		
ASSOCIATES	SOTIRIOU SOTIRIOS		

SEPARATE TEACHING ACTIVITIES *in case the credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.*	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
	3	3.00
Add rows if needed. The teaching organization and teaching methods used are described in detail in 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skills Development*	* The explanation of the terms is given in the annex Background, General Knowledge, and Scientific Area Course
PREREQUISITE COURSES:	THEY DO NOT EXIST
LANGUAGE OF TEACHING AND EXAMS:	ENGLISH
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE ELECTRONIC PAGE (URL)	http://eclass.uth.gr/eclass/courses/SEYA218/

2. Learning Outcomes

The mission of the course is to introduce to medical students the Basic Principles of embryology, their first contact with developmental embryology and embryological techniques for the best possible understanding of the development of the human fetus at the early developmental stages and to offer a high-level scientific knowledge, and finally to promote research and the acquisition of knowledge through the study, critical evaluation and research of relevant with the program relative areas

The learning outcomes of the course are described, as the specific knowledge, skills, and abilities of an appropriate level that students will acquire after the successful completion of the course.

- *Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area*
- *Descriptive Indicators Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning*

Consult the concise guide for writing learning outcomes

The course is a key tool in the undergraduate courses of the curriculum for medical students to understand the basic principles for the beginning of life, which is the subject of Embryology.
The course aims to fully understand all the basic principles of Embryology and to introduce students to the basic concepts of the early stages of development of the human fetus, as well as the molecular events that govern the first stages of development.

It also refers to the concept of acquiring inductive thinking in students that are considered necessary for their proper initiation into their medical profession.
From this point of view, the course is the basis on which the student will be able to understand and get in touch with other courses of the curriculum (anatomy, histology, basic anatomical and embryological principles of all pre-clinical and clinical special courses).
Finally, the aim of the course is to understand the importance of General Developmental Embryology and Molecular Embryology in the context of understanding Clinical Embryology and Assisted Reproduction Embryology.

Upon successful completion of the course, the student will:

- Have understood the basic principles of Embryology and Molecular Embryology.
- Have knowledge of the course material.
- Be able to distinguish embryos and their structures in the various weeks of early developmental life.
- Use the terms correctly and will combine basic knowledge with the basic principles of related courses such as Histology.
- Analyzes and presents correctly the induction (principle of creation of the tissues of the human body) and their maturation in the final structures - tissues of the human body.
- Collaborate with fellow students to write assignments and perform basic research to be presented at student conferences.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course ?.

Search, analysis and synthesis of data information, using the necessary technologies
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management and
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Within the framework of the course and the embryology laboratory, post-graduate courses, workshops, and scientific meetings with active participation in research and inter-university conferences will be organized, aiming at:
- The promotion of knowledge and medical ethics, in combination with the deontology rules will serve the current needs of the student-future doctor as well as the needs of society.
- The promotion of knowledge and research, in a free academic environment, aiming at the highest quality educational level, in order to meet the needs of the medical profession, the needs of the future doctor, and society.
- Conducting high-quality research, published in high-impact factor medical journals.
- To educate students so they understand the modern form of medical thinking, the way of approaching the patient and the physiology and pathophysiology and origin of various diseases, the way of conducting research, the theories and methodological approaches related to modern Embryology and the methods of studying the embryo in its various stages of development.
- The expansion of educational and research collaborations with other educational and research departments - institutions in Greece and abroad, in order to update the way of teaching and medical research.
- To ensure that the teaching staff has the capacity for teaching and conducting research.

Finally, the course aims at the proper preparation of students to be capable of further proper continuation of their studies within the university and their successful career in the difficult field of their working life.

3. COURSE CONTENT

SECTION 1
Introduction in embryology - introductory concepts, an overview of embryogenesis, ovulation, spermatogenesis, oocytes, spermatozoa, gamete morphology, acrosomal reaction, fertilization, fertilization factors, zygote formation

SECTION 2
Embryonic growth factors, methylation cycle, embryonic development, 2-8 blastomeres, morula, blastocyst, morphology, implantation, implantation factors, abnormal implantation.

SECTION 3
2nd week of embryonic development, bilaminar disc, epiblast, hypoblast, gastridiosis, endoderm, mesoderm, ectoderm, trilaminar disc, primary groove, Hensen's node, neuridiosis, placental formation, villi, umbilical cord, formation of the prechordal plate, oropharyngeal and amacrine membranes, myotomes, dermatomes, formation of embryonic cavities, completion of 3rd and 4th week of development.

SECTION 4
Molecular events of fertilization, embryonic development, implantation, gamete and embryo methylation, epigenetic, signal transduction pathways, morphogenesis, abnormalities due to molecular pathway dysfunctions

SECTION 5
Gamete processing, Embryonic development in the laboratory, time-lapse monitoring, ICSI/IVF, culture media, morphology and evaluation of gametes and embryos, cryopreservation of gametes and embryos, techniques, pre - implantation genetic diagnosis (PGD), artificial intelligence

Laboratory exercises:
- Sperm analysis
- Microscopic observation of eggs and gametes.
- Practicing students with placenta preparations at the Museum of Embryology.

4. TEACHING AND LEARNING METHODS - EVALUATION

METHOD OF DELIVERY *In person, Distance education etc.*	▪ Teaching: Lectures, laboratory exercises ▪ Examinations: Written
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	**Use of electronic media, with CDs , e - class , with electronic slides, interactive method using electronic programs**
TEACHING ORGANIZATION *The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive teaching, Educational visits, Project writing, Writing of work /*	

Activity	***Semester Workload***
Lectures	28 hours
Laboratory exercises in the context of lectures	14 hours
Preparation for attending laboratory	28 hours

assignments, Artistic creation, etc. *The student study hours for each learning activity are indicated as well as the non-guided study hours so that the total workload at the semester level corresponds to the ECTS standards.*	*exercises.* *Elaborations of studies and papers for presentation at conferences*	
	Final study and examination time	*17 hours*
	Course Set ***(hours of workload per credit unit)***	***29 hours***

STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Thesis/Reporting, Oral Examination, Public Presentation, Artistic Interpretation, Clinical Examination of a Patient, Laboratory work, Other/Others* *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	▪ Teaching: Lectures, laboratory exercises ▪ Exams: Written, multiple choice with specific time per question- 40 multiple choice questions, oral to students with special needs. ▪ Presentation of works and presentation in each lecture by a student briefly of the subject of the immediately preceding lecture.

5. RECOMMENDED - BIBLIOGRAPHY

-Proposed Bibliography:

Human Embryology and Developmental Biology Type:

Book

Author: Bruce M. Carlson , 5th Edition

PARISIANOU PUBLISHING SOCIETE ANONYME IMPORTING TRADING COMPANY OF SCIENTIFIC BOOKS

Human embryology

Type: Book,

Author : W. Larsen , Edition: 3rd / 2003.

PARISIANOU PUBLISHING SOCIETE ANONYME IMPORTING TRADING COMPANY OF SCIENTIFIC BOOKS

Human Embryology-From Conception to Birth-Clinical Approach. Type: Book,

Author: Moore Keith ,

Edition: 1st / 2019

BROKEN HILL PUBLISHERS LTD

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	**BE0804.E**	**Semester**	2nd
COURSE TITLE	Introduction to Physiology		
COURSE INSTRUCTOR	Paraskeva Effrosyni		
CO-INSTRUCTORS	Gogou Evdoxia		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	4	3

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Background & Scientific area (Physiology)
PREREQUIRED COURSES	None
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	YES
WEBSITE (URL)	https://eclass.uth.gr/courses/MED_U_266/

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

Aims of the course

The course provides the background for understanding the basic principles that govern the mechanisms of operation of the human body.
The course introduces the student to the concepts of physiology and homeostasis, the organization and role of the nervous and endocrine systems, and the regulation of human body energy balance and temperature. In addition, it covers the topics of blood and muscle physiology.

Therefore, the course is the basis for the detailed study of the integrated human body systems physiology, taught in the next semesters.
Upon successful completion of the course the student will be able to:
• Recognize and describe the mechanisms of action of excitable cells
• Understand how the individual systems of the body and the functions interact to accomplish the optimal function of the human body.
• Distinguishes the mobilization of regulatory mechanisms in cases of dysfunction of these systems and the onset of pathological conditions when these mechanisms fail.
• Use the acquired knowledge to understand a) the causes and b) the mechanisms that can lead to pathogenesis.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Research, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3.Module Content

The content of the course includes the following major items:

A. The content of the lectures together with the relevant clinical insights the students need to learn/acquire per chapter.
B. The content of the tutorials/seminars together with the relevant clinical insights the students need to learn/acquire per seminar.
C. The content of the laboratory practical together with the relevant practical & clinical skills the students need to learn/acquire per exercise.

A. Lecture content and relevant clinical insights

Lesson 1: Homeostasis highlights

• Levels of organization in the human body.
• Concept of homeostasis.
• Factors regulated by homeostasis.
• Homeostatic control systems.

Lesson 2: The blood: Plasma and cells of the blood, Hematopoiesis, Erythrocytes

• Blood composition.
• Definition of hematocrit.
• Plasma components and their functional role.

• Types and normal values of blood cells.
• Production and differentiation of blood cells.
• Hematopoetic growth factors.
• Red blood cells
o Structure and function of erythrocytes
o Regulation of erythrocyte production
• Anemia
• Blood types
• White blood cells.

Lesson 3: Megakaryocytes and platelets, Hemostasis

• Megakaryocytes.
• Platelets.
• Definitions: hemorrhage, hemostasis, hematoma.
• Stages of physiologic response to vessel injury.
• Platelet aggregation.
• Blood clotting: formation of blood plug.
• Definition and description of the intrinsic and extrinsic pathway of blood clotting.
• Collaboration of intrinsic and extrinsic pathways of blood clotting. The mechanism of blood clotting in physiologic conditions.
• Anticoagulation systems.
• Fibrinolytic system. Fibrin resolution cascade.
• Synopsis of the anticoagulant function of the endothelial cells and their results.
• Disturbances of hemostasis.
• Clot and plug.
• Thrombosis prevention.
•Thrombolytic factors.

Lesson 4: The plasma membrane and membrane transport

• Structure and functions of the plasma membrane.
• Cell junctions.
• Membrane transport.
• Basic organization of the cardiovascular system and distribution of cardiac output.
• Pressures along the systemic circulation.
• Capillary network.
• Solute exchange across the capillaries.
• Bulk flow through capillaries-Starling forces.

Lesson 5: The plasma membrane potential, Graded and action potentials

• Resting potential.
• Action potential.
• Graded potentials.
• Excitable tissues.

Lesson 6: Synapses of the Central Nervous System

• Functional anatomy of synapses
• Electric synapses
• Chemical synapses
• Activation of the postsynaptic cell
o Excitatory and inhibitory postsynaptic potential
o Spatial and temporal summation of postsynaptic potentials
• Modification of synaptic transmission by drugs and disease

Lesson 7: Neurotransmitters

• Neurotransmitters and their receptors
• Biogenic amines

• Acetylcholine
• Amino acid neurotransmitters
• Neuropeptides
• Neuromodulators

Lesson 8: Organization of the Nervous System, Autonomic nervous system, Protection and Nourishment of the Brain

• Cerebrospinal fluid (CSF): composition and changes in pathological conditions
• Meninges and subarachnoid space
• Choroid plexuses, CSF production and absorption
• Blood-brain barrier
• The role of endothelial cells in the blood-brain barrier
• The importance of the blood-brain barrier in the distribution of lipophilic and hydrophobic drugs in the CNS
• Autonomic nervous system
• Comparison of the sympathetic and parasympathetic nervous system
• General principles of the responses of effector organs to autonomic nerve impulses
• The brain vascular system
• Factors affecting blood flow to the brain

Lesson 9: Skeletal muscle - Muscle contraction - The neuromuscular junction

• Skeletal muscle structure
• Contraction and relaxation
• Sliding-filament mechanism
• Cross bridge cycle
• The role of troponin, tropomyosin and calcium in contraction
• Excitation-contraction coupling
• Sarcoplasmic reticulum and transverse tubes
• Motor neurons and motor units
• The neuromuscular junction
• Motor end plate
• Acetylcholine release
• End plate potential
• Modification of neuromuscular junction by drugs and disease

Lesson 10: Mechanics of muscle contraction

• Tension and load
• Isometric, isotonic and lengthening contraction
• Twitch contraction
• Load-velocity relation
• Frequency-tension relation
• Contraction summation and tetanus
• Length-tension relation - Optimal length
• Skeletal muscle energy metabolism
• Muscle Fatigue
• Types of skeletal muscle fibers
• Whole muscle contraction
• Control of muscle tension - Recruitment
• Control of shortening velocity
• Muscle adaptation to exercise
• Lever action of muscles and bones
• Skeletal muscle disease

Lesson 11: Smooth muscle

• Smooth muscle structure

• Smooth muscle contraction
• Cross-bridge activation
• Sources of cytosolic calcium
• Membrane activation
• Types of smooth muscle
• Comparison of skeletal, smooth and cardiac muscle characteristics

Lesson 12: Principles of hormonal communication

• The role of the endocrine system
• Comparison of endocrine and exocrine glands
• Signaling via endocrine, paracrine or autocrine pathways
• Organization of the endocrine system: the main endocrine glands
• Regulation of hormone action: negative feedback
• Hormone classes: synthesis, storage, release
• Transfer of hormones via the blood
• Hormone metabolism and excretion
• Hormonal action- Hormonal receptors
• Regulation of hormonal action: dose response curve
• Endocrine Disorders: hyposecretion, hypersecretion, reduced hormonal response, excessive hormonal response
• Quantification of hormonal secretion

Lesson 13: Energy balance and temperature regulation

• Energy balance
• Energy expenditure
• Metabolic rate and basic metabolic rate
• Factors that affect the basic metabolic rate
• Regulation of total body energy stores
• Control of food intake
• Adjusting body weight
• Overweight and obesity - Eating disorders
• Regulation of body temperature
• Heat production and loss
• Temperature-regulating mechanisms
• Fever
• Hyperthermia
• Heat stroke and heat collapse
• Hypothermia

B. Problem-based learning: Presentation, analysis and discussion of clinical cases

• Case of Anemia
• Case of Malignant hyperthermia
• Case of blot clotting deficiency

C. Laboratory Practical content

Hands-on learning: Acquisition of general and specific practical & clinical skills:

General Skills

Observing phenomena of human physiology, obtaining and analyzing experimental data
Interpretation of experimental data
Resolving practical problems
Producing graphical displays of data
Operating basic laboratory equipment
Working as a team

Following instructions
Following safety regulations
Trouble-shooting in laboratory results
Clinical significance of lab results
Specific Skills
Exercise 1: Blood and cells of the blood.
• Hematocrit test.
• Erythrocyte sedimentation rate (ESR) test.
• White blood cell differential counting.
Exercise 2: Rest and action potential
• Effect of stimulus intensity on electrical stimulation
• Effect of extracellular Na+ concentration on the generation of an action potential
• Influence of changes in membrane conductance on Na+ or K+ - Refractory period
• Ionic currents
• Power-potential graph (I-V plot)
• Effect of extracellular sodium concentration [Na+]out on the inversion potential
Exercise 3: Skeletal muscle contraction
• Muscle contraction as a function of stimulation intensity
• Superposition of single twitches
• Single twitches vs. tetanic contractions
• Resting tension curve
• Muscle fatigue

4. TEACHING AND LEARNING METHODS - EVALUATION	
Teaching Method (face to face, tutoring, distance learning)	*Face to Face:* Teaching of Introduction to Physiology consists of lectures and laboratory practicals. Attendance of Laboratory Practicals is obligatory. The lectures content is described above. Laboratory exercises (in 4 student groups of students, 3 instructors per group of 25-30 students) composing the students' practical are complementary to the lectures and they aim to familiarize the student with the application of experimentation, the operation of simple laboratory instruments and the experimental procedures that are often used in Physiology, as well as to help the students comprehend concepts that are not easily presented theoretically (learning based on practical experience).
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students. Specifically: • Common software (e.g. MS powerpoint) is used to prepare lecture material and display slides and videos. • Laboratory practicals 2 and 3 are performed in the Bioinformatics laboratory, using simulation programs. • The study guide (detailed supplementary material & additional bibliography), the tutorial material (clinical cases), the theory and

<table>
<tr><td></td><td>protocols of the laboratory exercises, the slides of each lecture as well as relevant videos and scientific articles made available electronically and online to students through the e-class system of our university.
• Information about the course, instructors and their research interests and in general the Laboratory of Physiology of the Faculty of Medicine are available online on the website of the Faculty of Medicine.
• Common software (e.g. MS excel) is used to statistically process student assessment.
Announcements, information etc are available online via e-class. Communication is also done via e-mail.</td></tr>
<tr><td>TEACHING METHODS
The way and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.</td><td>
<table>
<tr><th>Learning activity</th><th>Total semester workload</th></tr>
<tr><td>Lectures</td><td>26 hours</td></tr>
<tr><td>Lab. Practical (obligatory presence)</td><td>6 hours</td></tr>
<tr><td>Study</td><td>40 hours</td></tr>
<tr><td>SUM
(25 hours per teaching credit)</td><td>72 hours</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
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</table>
</td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, Explicitly defined assessment criteria are stated and if and where they are accessible to students.</td><td>The language of assessment is English.
Evaluation methods: Written Exams
The course exams are written, last 2 hours and consist of 5 short answer questions and 50 multiple choice questions. The material to be examined is lectures and tutorial material as described above. Only those students who have attended the Laboratory practicals have the right to participate in the course exams.
All of the above are presented in detail in the Course Guide which is distributed in print to all students and is posted electronically in e-class.</td></tr>
<tr><td colspan="2">5.Recommended Bibliography</td></tr>
<tr><td colspan="2">1.Introduction to Human Physiology, International Edition.
Author: Lauralee Sherwood.</td></tr>
</table>

Publisher: Thomson Brooks/Cole

2. Vander's Human Physiology: The Mechanisms of Body Function.

Authors: Eric Widmaier, Hershel Raff, Kevin Strang.

Publisher: McGraw Hill

COURSE DESCRIPTION

Biochemistry of Gene Expression, Organs and Human Functions

1.GENERAL			
SCHOOL	School of Health Science		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate Course		
COURSE CODE	**BE0702.E**	**Semester**	3rd
COURSE TITLE	Biochemistry of Gene Expression, Organs and Human Functions		
COURSE INSTRUCTOR	Panagiotis LIAKOS, Prof of Medical Biochemistry		
CO-INSTRUCTORS	G. Simos, Professor of Biochemistry I. Mylonis, Associate Professor of Biochemistry G. Chachami, Assistant Professor of Cellular Biochemistry		
TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.		**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
		7	7
COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Background and Scientific Area (Laboratory Medicine)		
PREREQUIRED COURSES	-		
LANGUAGE OF TEACHING AND EXAMS	English		
AVAILABLE TO ERASMUS STUDENTS	Yes		
WEBSITE (URL)	**http://eclass.uth.gr/courses/MED_U_134/**		

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

Aims of the course

In order to complete the metabolism and to understand the regulation of biochemical functions of the human organism on a molecular, cellular, and systematic level, the course is going to study:

-the mechanisms of genetic information: preservation, transfer and expression
-the mechanisms of hormone action and it's role in organism homeostasis
-the biochemical specificity of different tissues and systems
- special biochemical subjects of clinical importance (nutrition, exercise)

The course also provides the essential background for the courses of the later semesters and more specifically in the courses: Clinical Biochemistry, Pathological Physiology, Endocrinology Medical Genetics, Pathology and Pediatrics.

It also aims to deepen the students in the applications of laboratory medicine techniques and in the evaluation of diagnosis and treatment of patients.

After the successful completion of this course, the students will be able to:

• understand the regulation of the biochemical functions of the human body at the molecular, cellular and systemic level.

• know the mechanisms of conservation, transfer and expression of genetic information, the mechanism of action of hormones and their role in the homeostasis of the organism, the biochemical specificity of various tissues and systems as well as the biochemical issues of special importance such as nutrition and exercise.

• distinguish the laboratory pathological picture from the normal one and propose a diagnosis for the treatment of basic metabolic diseases.

• analyzes and processes the results of basic biochemical analyses

• cooperate with his fellow students in the context of a laboratory environment for performing basic biochemical analyzes and processing their results.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

	Project design and management
Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations	*Respect for diversity and multiculturalism*
	Respect for the natural environment
	Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Decision making	*Exercise criticism and self-criticism*
Autonomous work Teamwork	*Promoting free, creative and inductive thinking*
Working in an international environment	
Work in an interdisciplinary environment	
Production of new research ideas	

- Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
- Decision making
- Autonomous work Teamwork

- Working in an international environment Work in an interdisciplinary environment
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3.Module Content

The content of the course "Biochemistry (II) Gene Expression, Human Organs and Functions" is structured as follows:

A. The theoretical clinical skills that students must acquire in order to succeed in the course.
B. The practical and clinical skills that students must acquire in order to considered successful.
C. The knowledge of the material that students must have in order to succeed in the course

A. Lecture content and relevant clinical insights

Lecture 1: Genetic information flow (2 hours)
• the double helix model and types of DNA double helix
• The properties of DNA in solution
• The higher structures of double-stranded DNA
• The structure, species and biological role of RNA
• The genetic code

Lecture 2: Biochemistry and Evolution (1 hour)
• Oparin/Haldane's 'primordial soup' theory, Stanley/Urey's experiment.
• The 'RNA world' theory
• The evolution of the biochemical processes of life until today, based on observations and simulation experiments.
• Examples of organisms of evolutionary interest (D. discoideum, C. elegans)
Exploring evolution
• The comparison of gene sequences and genomes has provided information over the last half century about the evolutionary relationship of man to his environment:
• LUCA
•Ancient
• Position on the tree of life (evolutionary trees)
• The closest evolutionary relative of man is the chimpanzee
• Neanderthals, Denisovans and Homo sapiens
• Why we care about always keeping an evolutionary eye as doctors

Lectures 3, 4 and 5: DNA replication, recombination and repair (5 hours)
• The mechanism of replication in prokaryotic and eukaryotic organisms and comparison
• The enzymes involved and their functions:
• DNA polymerase I, II, III, E. coli
• Primase, ligase, major eukaryotic DNA polymerases
• Enzymatic editing of the reading by polymerases
• PCNA as a prognostic marker of cancer
• The etiology of Huntington's disease
• Helicases and syndromes
• Type I and II topoisomerases: functions and drugs
• Telomerase: the ribonucleoprotein with reverse transcriptase activity and its importance

DNA repair and recombination
Creating DNA damage:
• Autogenous or spontaneous

-Identity of bases
-Polymerase errors
-Products of metabolism
• Foreigners
A) Chemical mutagens
a) analogous bases
b) modification of bases
c) interfering factors
B) radiations
a) ionizing
b) ultraviolet
Repair mechanisms
• A) Damage reversal
• B) Repair of bad connections
- Base excision
- Nucleotide excision
Ames test
Recombination
- Recombinase
- Holliday Structures

Lectures 6 and 7: RNA structure, synthesis and maturation (3 hours)
Initiation
An RNA polymerase: the binding sites, the p subunit
Elongation
• 8 base DNA/RNA hybrid
• the DNA 'bubble' moves
• topoisomerases are necessary
Termination
• With factor p, independent of factor p
• Transcription inhibitors-drugs
Regulation
• General for all carbohydrate operons in the presence of glucose (catalytic repression via CAP protein)
• Specific to each, the example of the lactose operon (the meaning of the operon, its regulation)
R**NA synthesis and regulation in eukaryotic organisms**
• The eukaryotic RNA polymerases
• Specializations (what does cis trans elements mean)
• A-amanitin: its effect on each RNA polymerase, liver disease
• Initiation of transcription: Promoters, formation of basal initiation complex and its properties, cis-elements, trans-elements
• Key transcription factors
• Role of chromatin structure: histones (details), nucleosome, regulation
• Regulation: specific transcription factors and their properties: structures
• Regulation at the chromatin level
• Histone modifications (acetylation-deacetylation-drugs)
• Nucleosome rearrangements
• Example of chromatin remodeling
RNA maturation and regulation
• Cover
• Polyadenylation

• Splitting
• Breakpoints between introns/exons are selected with absolute precision
• The mechanism
• The splicing particle
• Alternative splicing

Lectures 8, 9, 10, 11 and 12: The mechanism of Protein biosynthesis and Gene expression control (8 hours)
• Ribosome
secretory pathway of proteins
• Transfer RNA (tRNA)
Wobble
• Aa-tRNA synthetases
their importance for translation accuracy (editing)
• Protein Synthesis Mechanism
-Inception
• Opening complex
• Eukaryotic-prokaryotic differences
-Elongation
Elongation factors and their functions
-Termination
• What is the fidelity (accuracy) of protein synthesis
• Antibiotics, diseases, toxins
• Post-transcriptional regulation. Generally
• the example of iron homeostasis
• miRNAs

Lecture 13: 1st Tutorial: Summary of Molecular Biology Courses (2 hours)
Course Overview and Problem-Based Learning: presentation, analysis, discussion of clinical cases of patients with pathological conditions reported in Molecular Biology Courses

Lectures 14 and 15: Principals of cell signaling and biochemistry of cancer: (3 hours)
The system of hormone message transduction with G protein-coupled membrane receptors and the mechanism of action of cholera toxin.
• The second messengers: characteristics, who they are, how they are produced, how they act, how they are degraded.
• The action of adenylate cyclase: cyclic AMP, activation of PKA.
•The action of phospholipase Cβ: IP3 and diacylglycerol, Ca2+ and calmodulin, activation of PKC.
• Examples of hormone receptors / growth factors that have tyrosine kinase activity.
• Receptors acting through JAKs-STATs: growth hormone, α-interferon
• Brief description of the EGF signal transduction and the ras-MAP kinase pathway as well as the correlation between signal transduction pathways and cancer.
• Examples of signaling pathway troubles, oncogenes and toxins that can lead to cancer and other diseases.
• The targeting of signaling pathways in order to treat pathological conditions.

Lectures 16, 17 and 18: Biochemical endocrinology: peptide-and steroid-hormones (5 hours)
• Peptide-hormones and Steroid hormones: characteristics of structure, synthesis, maturation and transport of some hypothalamic hormones.

• Hormones of the hypothalamus, pituitary gland, endocrine glands: regulation of the circuit through retrograde feeding.
• The regulation of steroid hormone secretion: ACTH action on the production of cortisol from the adrenal cortex, FSH and LH action on the production of testosterone, estradiol and progesterone from the gonads, multiple regulation of aldosterone secretion from the adrenal cortex.
• Clinical implications in Cushing's syndrome, Addison's disease and Graves' disease.
• Steroid hormone synthesis disorders due to hereditary lack of enzymes. 21α-hydroxylase deficiency. Clinical implications.
• The steroid hormone receptor family: structure and function (transcriptional coactivators).
• The connection of hormone action with signal transduction mechanisms and their targeting to treat pathological conditions.

Lecture 19: Biochemistry of the sensory organs (2 hours)

- The nicotinic and muscarinic acetylcholine receptors: structure, special structural features and mode of action.
- Biochemical basis of vision. Operation of rods, cones and differentials.
- Relationship between structure and function of rhodopsin, conversion of photons into a nerve signal and the adaptation of rods to light
- Genetic basis of color vision and color blindness
- Biochemical basis of olfaction and osmogen signal transduction
- Biochemical basis of taste and receptors of taste molecules
- Biochemical basis of hearing.
- Biochemical basis of touch.

Lecture 20: Overview of Metabolic pathways and vitamins (2 hours)

• Vitamins: their meaning and importance
• Classification of vitamins and connection with metabolism
• Stimulation test
• Biochemical explanation of potential deficiency and disease for each vitamin
• The characteristic participation of each vitamin in the functioning of the body
• Conditions and possibilities of vitamin deficiencies in Western culture

Lectures 21 and 22: Hormonal regulation of Metabolism (3 hours)

• Blood glucose levels remain stable in circulation
• The use of glucose by the body
• Insulin: role, synthesis, maturation and secretion
• receptor: structure, activation, signal transduction
• actions on the metabolism of sugars, lipids, proteins
• Glucagon: structure, action, receptor
• Production of ketone bodies in chronic starvation (secretion of glucagon)
• The biochemical basis of TDM1 (Diabetes Type 1) and TDM2. Similarities and differences, therapeutic management.
• Hypoglycemia
• About leptin: where is it produced, where does it act, how does it affect the body's fuel and energy balance

Lecture 23: Biochemistry of the plasma proteins (2 hours)
Plasma Protein Biochemistry

• Composition of plasma and its difference from serum.
• The electrophoretic sorting of plasma proteins, acute phase proteins and C-reactive protein

• The nature and biological role of albumin, α1-antitrypsin, ceruloplasmin, transferrin and γ-globins and clinical implications of disturbances in the levels or activity of these proteins.
• Characteristic changes in electrophoretic separation patterns of plasma proteins - indication of pathological conditions.
• The enzymes normally contained in plasma and the diagnostic value of enzymes of tissue origin (transaminases, LDH, CPK) and their isozymes.

Lecture 24: Biochemistry of hemostasis (2 hours)
• The role of platelets in blood clotting and the substances that promote their activation and adhesion.
• The role of phospholipase A2, cyclooxygenase and thromboxane synthase in blood coagulation and the mechanism of action of aspirin.
• The nature of blood clotting factors..
• The structure of fibrinogen and the polymerization stages of cross-linked fibrin clot (thrombin, transglutaminase action).
• Limitation of coagulation: antithrombin III and the role of heparin
• The mechanism of fibrinolysis: tissue plasminogen activator and plasmin.
• Coagulation disorders due to genetic deficiency of factors (hemophilia) and for the therapeutic administration of recombinant factors.
• Connecting the mechanisms of hemostasis with cell signaling

Lectures 25 and 26: Biochemistry of Liver (3 hours)
• The functions of the liver as a central metabolic organ and its communication with other tissues
• The functions of the liver as a metabolic organ of amino acids and proteins
• The functions of the liver as a metabolic organ of nitrogen and urea
• Liver functions in biotransformation, drug metabolism and detoxification
• Synthesis and degradation of glycogen as well as in the maintenance of blood glucose levels
• The heme metabolism
• The metabolism of bilirubin
• Assessment of liver function through biochemical tests
• The importance of metabolic mechanisms, their understanding and their applications in clinical diagnosis and practice.

Lecture 27: 2nd Tutorial: Summary of Intercellular Communication Courses (2 hours)
Course Overview and Problem-Based Learning: presentation, analysis, discussion of clinical cases of patients with pathological conditions reported in Courses of Intercellular Communication.

Lectures 28 and 29: Functions of adipose tissue (3 hours)
• Adipose tissue in general: distribution in the body, morphology, separation between white and gray.
• Growth and differentiation of adipose tissue cells. Molecular differentiation, PPARγ and coactivators.
• The biochemical function of WAT as a storage tissue.
• The sensitivity and response of adipose tissue to nerve stimuli.
• The function of adipose tissue as an endocrine organ: Leptin, actions, adiponectin.
• Adipose tissue in relation to inflammation
• Adipose tissue in relation to obesity
• Gray adipose tissue.
• The action of PGC-1 and UCP-1.
• The biochemical function of BAT as thermoregulatory tissue

Lecture 30 and 31: Nutrition and metabolism (3 hours)

• Calorie content of macromolecules.
• The body's energy balance. The concept of BMP.
• In general about macromolecular food components.
• Especially for carbohydrates
• Content of specific foods in specific carbohydrates
• Reminder of the metabolic pathways of fructose and galactose
• Especially for fats
• Essential fatty acids, foods that contain them, the biochemical basis of their deficiency, their functions, symptoms and frequency of deficiency.
• Trace elements
• Normal diet and nutrition. Food preservatives
• Digestion of carbohydrates, fats and proteins.

• The evolution of human nutrition. Relationship with the 'diseases of culture'.
• The metabolic state of the organism in feeding, early starvation, prolonged starvation, refeeding.
• Obesity:
o As a result of overnutrition.
o As a genetic disease.
o As an inflammatory disease.
o Leptin resistance.
o Insulin resistance.
o The relationship between obesity and diabetes.
• Lipodystrophy.
• Slimming diets.
• Anorexia nervosa, bulimia.
• Malnutrition

Lecture 32: Functions of the muscle (2 hours)
• Muscle contraction and the proteins involved: Actin, myosin, tropomyosin, troponin, sarcoplasmic Ca++ pump, taso-dependent Ca++ channel.
• The muscle's stores of ATP.
• The role of creatine phosphate.
• The types of muscle fibers, their function and their importance.
• Myocyte differentiation, myogenic regulatory factors.
• Satellite cells, their activation factors.
• Muscle tissue also contains intracellular fat droplets. (IMTG- intramuscular triglycerides).
• Muscle tissue is important for movement, thermogenesis and the body's glucose homeostasis.
• Muscle fuel, what factors affect it.

Lectures 33 and 34: Biochemistry of exercise (3 hours)
Generally for exercise.
• At the start of the exercise. The role of adenylate kinase (myokinase), fuels and their flow. Exercise parameters.
• High intensity exercise.
• Duration exercise:
o Metabolism of free amino acids.
o Metabolic changes in duration exercise, when increasing either duration or intensity or both.
• Muscle hypertrophy: when it happens, molecular mechanism.
• Mitochondrial biogenesis: when it occurs, molecular mechanism.
• Muscle fibers are mutually converted depending on the exercise state of the muscle.
• The importance of the transcriptional coactivator PGC-1α for metabolism.

• Kama:
o Regional kama (in the muscle): causes
o Central stroke (in the brain): definition, possible causes.
o Disadvantages and advantages of physical exercise

Lecture 35: 3rd Tutorial: Summary of Biochemistry Systems Courses (2 hours)
Course Overview and Problem-Based Learning: presentation, analysis, discussion of clinical cases of patients with pathological conditions reported in Biochemistry Systems Courses.

B. Laboratory Practical content

Hands-on learning: Acquisition of general and specific practical & clinical skills:
General Skills
Observing biochemical phenomena, obtaining and analyzing experimental data
Interpretation of experimental data
Resolving practical problems
Producing graphical displays of data and extract informations
Operating basic Biochemistry & Clinical Chemistry equipment
Working as a team
Following instructions
Following safety regulations
Understanding laboratory errors and identifying their sources
Assessment of laboratory results

Specific Skills

Practical 1. Preparation of recombinant plasmid DNA and restriction endonuclease digestion
Clinical Applications of Recombinant Plasmid Preparation and Restriction Endonucleases Digestion
 Preparation of plasmid DNA from bacteria by the alkaline lysis method.
 DNA quantification by spectroscopy

Practical 2. Recombinant plasmid mapping
Construction of agarose gel and electrophoretic DNA separation based on its molecular weight.
 Recombinant plasmid mapping after restriction endonucleases digestion and agarose gel electrophoresis

Practical 3. Determination of transaminases and urea in blood serum
Clinical application of laboratory analysis of GOT and GPT transaminases
 Diagnostic significance of aspartate aminotransferase transaminase (GOT or AST) and alanine aminotransferase (GPT or ALT).
 Pathological causes of a decrease or increase in GOT and GPT in the blood
 Determination of GOT and GPT concentrations in the blood of patients
 Assessment of laboratory results
Clinical application of laboratory analysis of urea
 Diagnostic significance of serum urea determination
 Pathological causes of decreased or increased urea
 Determination of urea concentration in the blood of patients
 Assessment of laboratory results and correlation with the results of GOT and GPT concentration in the blood of patients

Practical 4. Determination of bilirubin in blood serum
Clinical application of laboratory analysis of bilirubin

⍰ Diagnostic significance of serum bilirubin ⍰ Pathological causes of a decrease or increase in bilirubin ⍰ Determination of bilirubin concentration in the blood of patients ⍰ Assessment of laboratory results

4. TEACHING AND LEARNING METHODS - EVALUATION	
Teaching Method (face to face, tutoring, distance learning)	***Face to Face:*** Teaching of "Biochemistry (II) of Gene Expression, Organs and Human Functions" consists of lectures, seminars/tutorials and laboratory practicals. Attendance of Laboratory Practicals and Seminars/Tutorials is obligatory. The lectures content is described above. Tutorials (in two student groups with 1-2 instructors per group) review and extend the lectures content using examples of clinical cases (problem-based learning) that highlight the application of biochemical knowledge in the diagnosis and treatment of serious diseases. In each tutorial, students prepare answers to the questions related to the examined clinical cases and discuss them with the teachers. Optionally, the students may provide answers to a clinical case as a written assignment. The performance of the students during in the tutorials is taken into account in the final evaluation. Laboratory exercises (in 4 student groups of students, 3 instructors per group of 30 students) composing the students' practical are complementary to the lectures and they aim to familiarize the student with the application of basic biochemical techniques, the operation of simple laboratory instruments and the experimental procedures that are often used in Clinical Biochemistrt as well as to help the students comprehend concepts that are not easily presented theoretically (learning based on practical experience).
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students. Specifically: • Common software (e.g. MS powerpoint) is used to prepare lecture material and display slides and videos. • The study guide (detailed supplementary material & additional bibliography), the tutorial material (clinical cases), the theory and protocols of the laboratory exercises, the slides of each lecture as well as relevant videos and scientific articles made available electronically and online to students through the e-class system of our university. • Common software (e.g. MS excel) is used to statistically process student assessment. Announcements, information etc are available online via e-class. Communication is also done via e-mail.

<table>
<tr><td></td><td>• Information about the course, instructors and their research interests and in general the Laboratory of Biochemistry of the Faculty of Medicine are available online on the Laboratory website http://www.med.uth.gr/biochemistry/index.html</td></tr>
<tr><td>TEACHING METHODS
The way and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.</td><td>
<table>
<tr><th>Learning activity</th><th>Total semester workload</th></tr>
<tr><td>Lectures</td><td>72 hours</td></tr>
<tr><td>Lab. Practical (obligatory presence)</td><td>14 hours</td></tr>
<tr><td>Tutorials (obligatory presence)</td><td>12 hours</td></tr>
<tr><td>Study</td><td>58 hours</td></tr>
<tr><td>Preparation for Practical</td><td>11 hours</td></tr>
<tr><td>Preparation for Tutorials</td><td>8 hours</td></tr>
<tr><td></td><td></td></tr>
<tr><td>SUM
(25 hours per teaching credit)</td><td>175 hours</td></tr>
<tr><td></td><td></td></tr>
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<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, Explicitly defined assessment criteria are stated and if and where they are accessible to students.</td><td>The language of assessment is English.
Evaluation methods.
A. For the laboratory practical: Laboratory Assignment Reports, Written Examination at the end of the semester with short answer questions and problem solving.
The participation of students in the laboratory exercises as well as the written report of the results of the exercises is mandatory. The report includes the results (presented in tables and diagrams, and the conclusions (e.g. if the results were expected, if not why, sources of possible errors in the experiments) as requested by each exercise. At the end of each exercise, the written report is checked by the instructors and signed when correctly completed. In case of very demanding calculations or diagrams, it is possible to complete the report after the end of the exercise and deliver it at a later predetermined date. Successful participation in the practical is certified by the instructors' signatures on the written reports. At the end of the semester the students are examined in the content of the Laboratory practical. The examined material consists of the theory, the methodology and the ways results are processed as included in the Guide of the Laboratory Practical or presented by the instructors during the exercises. Only the students that have successfully completed the laboratory exercises can participate in the written laboratory examination. Success in the laboratory examination is a prerequisite for participation in the course exams.</td></tr>
</table>

	B. For the Tutorials: Oral Presentation, Oral Examination, Written Assignment. In each tutorial, students prepare answers to the questions related to the examined clinical cases and discuss them with the teachers. Optionally, the students may provide answers to a clinical case as a written assignment. The performance of the students during in the tutorials is taken into account in the final evaluation. The material of the tutorials is examined together with the lecture. **C. For the lecture material:** Written Exams with multiple-choice and short answer questions. The course exams are written, last 2 hours and consist of multiple-choice questions (examples are available in the Course Guide) and short answer questions related to a clinical case. The material to be examined is lectures and tutorial material as described above. Only those students who have successfully passed the Laboratory exams have the right to participate in the course exams. **Final Grade:** The final grade of the course is calculated as the sum of 80% of the grade of the written course exams and 20% of the grade of the Laboratory written exams. All of the above are presented in detail in the Course Guide which is distributed in print to all students and is posted electronically in e-class.

5.Recommended Bibliography

A. Lecture Material

Main suggested textbooks:

1. Medical biochemistry , J. W. Baynes & M. H Dominiczak, 5th edition, Elsevier Limited
2. Tymoczko J.L, Berg J.M. & L. Stryer: BIOCHEMISTRY, A SHORT COURSE
3rd edition, W.H. Freeman and Company
3. 3. Nessar Ahmed: Clinical Biochemistry, Fondamentals of Biomedical Science 2016

Further reading:

Berg, Tymoczko & Stryer: BIOCHEMISTRY (7th Edition)
Ferrier R. D.: Lippincott's Illustrated Reviews: BIOCHEMISTRYm6th edition, Lippincott Williams & Wilkins, USA
Marshall W.J. & S.K. Bangert: Clinical Chemistry
Branden C. & J. Tooze: Introduction to Protein Structure
Devlin T. M.: Biochemistry with Clinical correlations Part I and II
M. A. Lieberman & A. Marks: Marks Basic Medical Biochemistry: A clinical approach (4th Edition)
Koolman J. & K.-H. Roehm: Colour Atlas of Biochemistry
Murray et al.: HARPER'S Illustrated Biochemistry
Nelson D. L. & M. M. Cox : Lehninger, Principles of Biochemistry Part I, II, and III

B. Laboratory Practical supplementary Material

Tietz N. W. (editor): Textbook of Clinical Chemistry, W. B. Saunders Co
Alexander R. R. & J. M. Griffiths: Basic Biochemical Methods, Wiley-Liss
Holme D. J. & H. Peck: Analytical Biochemistry, Longman Scientific & Technical
Anderson S. C. & S. Cockayne: Clinical Chemistry - Concepts and Applications, W. Saunders Co

Dryer R. L. & F. G. Lata: Experimental Biochemistry, Oxford University Press
Plummer D. T.: Practical Biochemistry - An Introduction, McGraw-Hill
Wilson U. & K. H. Goulding: Principles and Techniques of Practical Biochemistry, Edward Arnold

Relevant Scientific Journals:
Annual Review of Biochemistry
Archives of Biochemistry and Biophysics
Biochemical and Biophysical Research Communications
Biochemical Journal
Biochemistry
Biochemistry and Cell Biology
Biochimica et Biophysica Acta
Biochimie
Biological Chemistry
Cell
Cell Metabolism
Cellular Physiology and Biochemistry
Cellular Signalling
Cellular and Molecular Life Sciences
Clinical Biochemistry
Critical Reviews in Biochemistry and Molecular Biology
EMBO Journal
FEBS Letters
Free Radical Biology and Medicine
Free Radical Research
The International Journal of Biochemistry & Cell Biology
Journal of Biochemistry
Journal of Biological Chemistry
Journal of Cell Science
Journal of Cellular Biochemistry
Journal of Lipid Research
Journal of Medical Biochemistry
Journal of Molecular Biology
Journal of Molecular Medicine
Methods in Enzymology
Molecular and Cellular Biology
Molecular Cell
Nucleic Acids Research
Protein Science
RNA
The FEBS Journal
Trends in Biochemical Sciences

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	**BEO822.E**	**Semester**	3
COURSE TITLE	Integrative Systems Physiology		
COURSE INSTRUCTOR	……		
CO-INSTRUCTORS	Paraskeva Effrosyni Evdoxia Gogou		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	6	7

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Background & Scientific area (Physiology)
PREREQUIRED COURSES	None
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	Yes
WEBSITE (URL)	**https://eclass.uth.gr/courses/MED_U_224/**

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

Aims of the course

The course material aims at the integrating of the functions of the above systems so that the student acquires a solid background on the positioning and the role of each system in the physiological function of the human body.

Furthermore, the course provides the student with the necessary knowledge of the physiological responses and adaptations of the organism in extreme environments and provides examples of clinical physiology and pathophysiology. Due to the above this course provides the basis on which the student will comprehend the fundamental relationship of physiology and clinical medicine.
Finally, the course aims at having students understand the importance of integrated and in depth knowledge of systems physiology in order to facilitate young physicians of all specialties comprehend the increasing amount of new data produced by the fast evolution of health sciences.

Upon successful completion of the course the students will be able to:

• Understand the mechanisms governing the function of the respiratory, immune, urinary, gastrointestinal, and cardiovascular system of the human body with integrative and critical thinking.
• Understand the systems of the human organism and their interaction in order to have a clear and complete view of the physiological function of the human body.
• Understand the recruitment of counter mechanisms in cases of dysfunction of the above systems and the pathological conditions that establish when these mechanisms do not suffice.
• Use the gained knowledge in order to make hypothesis for the disorders and pathological conditions that occur from a change or dismissal of a physiological function of the above systems, analyze the mechanisms and identify the possible targets for the therapy of such conditions.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Research, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3.Module Content

A. Lecture content and relevant clinical insights

1. Organization of the respiratory system.

Non respiratory functions of the respiratory system.

Atmospheric air composition.
Organization of the human respiratory system.
Functions of the respiratory system.
Non respiratory function of the lungs.
Units and terminology used in respiratory physiology.

Respiration Mechanics.

Lung ventilation.
Important pressures for ventilation and breathing.
Lung compliance.
Elastic recoil.
Airway resistances.
Surface tension.
Lung volumes and capacities.
Thoracic wall and lung parenchyma coupling.
Pneumothorax.
Gas exchange in the lungs.
Partial pressures of gases.
Alveolar air composition.
Gas diffusion through the capillary-alveolar membrane.
Diffusion and perfusion limitations in gas transport.
Evaluation of lung diffusion capacity.
Pathologic conditions reducing the diffusive capacity of the lungs.
Lung circulation.
Lung ventilation.
Lung perfusion.
Differences in lung ventilation and perfusion depending on lung anatomical sites.
Ventilation-perfusion Mismatch.
Gas transport.
Transport of oxygen in the blood.
Transport of carbon dioxide in the blood.
Definition of PO_2, PCO_2 and pH, normal values in the alveoli, in arterial and mixed venous blood.
Hypoxia.
Hypercpnia, and hypocapnia.
Acidosis and alkalosis.
Description of pH and buffers.
Respiratory acidosis and clinical examples**.**
Respiratory alkalosis and clinical examples**.**
Respiratory Physiology based on medical cases.
Thoracic penetrating trauma.
In terms of physiology, this case is relevant to respiratory mechanics, ventilation/perfusion relationships in the lungs, blood typing, and effects of blood loss.
Control of breathing.
Neuronal control of breathing.
Chemical control of breathing.
Non chemical influences of breathing.
Respiratory states.
Control of ventilation during exercise.
Adaptation to high altitude.
Respiratory Physiology based on medical cases- Shortness of breath in a smoker.
In terms of physiology, this case is relevant to the respiratory mechanics, the physiology of acid-base balance , and the regulation of breathing.
2. The Immune system
Introduction to Immunology. Cells that mediate defense mechanisms. Cytokines.
Introduction to immunology. Definition of immunity.
Cells that mediate defense mechanisms.
Cell operators of the immune response.

Cytokines: production-effects-physiology.
Chemokines.
Innate immunity - Inflammation.
Definition and characteristics of the innate immunity.
Physical and mechanical barriers such as the skin and mucosa. Chemical and microbial barriers.
Cellular components such as neutrophils, macrophages and natural killer cells.
Plasma components (complement and acute phase proteins).
Stages of inflammation.
Process of phagocytosis.
Opsonization.
Adaptive immunity I.
Characteristics and stages of adaptive immune response.
Stages of adaptive immune response.
Lymphoid tissues.
Functions of lymphoid tissues.
Antigen mediated or humoral immunity.
Active and passive immunity.
Immunity mediated by cells or cell immunity.
Immune mechanisms against virus-infected cells and cancer cells.
Antigen presentation.
Development of immune tolerance.
Cancer immune-surveillance.
Possible causes of autoimmune attack.
Harmful immune responses.

3. The Urinary system
Kidneys: Functions and Anatomy. Micturition.
Short description of the nephrons.
Nephron structure.
Vessels.
Innervation of kidney vessels.
Kidney functions.
Micturition.
Kidney processes.
Glomerular filtration.
Tubular re-absorption.
Tubular secretion.
Kidney clearance. Excretion of solutes through urine.
Definition of plasma clearance from a particular substance.
The use of clearance for the evaluation of the glomerular filtration rate.
The use of clearance for the evaluation of kidney plasma flow.
Filtration fraction.
Condensation and dilution of urine.
Osmotic gradient in the renal medulla.
Countercurrent multiplication in the renal medulla.
Mechanisms of vasopressin action.
Counter-current exchange in the renal medulla.
Fluid and electrolyte balance.
Ionic composition of the main body fluid compartments.
Water balance.

Sodium balance.
Balance of Fluids and Electrolytes.
Defense of volume.
Defense of tonicity.
Therapies of kidney failure.
Kidney mechanisms for acid-base regulation.
Bicarbonate handling.
Cellular models of H^+ secretion.
Diuretics.
Acid-Base balance.
Acid-base balance.
pH homeostasis.
Sources of gain and loss of hydrogen ions.
Systems neutralizing hydrogen ions ion the body.
Respiratory acidocis – Respiratory alkalosis.
Metabolic acidosis – Metabolic alkalosis.
Disturbances of acid-base balance.
4. The Gastrointestinal system
Overview of Gastrointestinal Function.
Gastrointestinal system structureΔομή του γαστρεντερικού συστήματος.
Structure of the gastrointestinal wall.
Microvillus structure.
Functions of the organs of the gastrointestinal system.
Basic functions of the gastrointestinal system.
Pathways controlling the functions of the gastrointestinal system.
27 Digestion and absorption I.
Digestion and absorption of carbohydrates.
Digestion and absorption of proteins, peptides and aminoacids.
Digestion and absorption of lipids.
Absorption of vitamins and metals.
28. Digestion and absorption II.
Synopsis of fluids and electrolytes transport in the gut.
Regulation of gut ion transport.
Mucosal regeneration of the small intestine.
Diarrhea.
Gastrointestinal regulation . Hormones – Paracrine Function. Enteric Neuronal System (ENS).
Control mechanisms in gastrointestinal system physiology:
Gastrointestinal system hormones.
Enteric neuronal system.
Neuronal junctions in the ENS.
Functions of Biliary System.
Liver functions.
Liver perfusion.
Production of bile.
Secretion of bile.
Enterohepatic circulation of bile salts.
Function of bile salts.
Gastrointestinal secretions.
Secretions of salivary glands.
Functions and control of saliva secretion.

Gastrointestinal secretion.
Gastric secretion.
Control of gastric fluids secretions.
Protection of the gastric surface epithelium.
Pancreatic secretion.
Composition and regulation of pancreatic secretion.
Prevention of pancreatic autodigestion.
Gastrointestinal motility.
Basal electric rhythm or slow wave potentials of smooth muscles.
Special motility patterns:
-Mastication.
-Swallowing.
-Esophagus.
Stomach motility.
-Factors affecting the motility and stomach emptying rate.
-Vomit.
Small intestine motility.
-Peristalsis.
-Segmentation and mixing.
-Migratory motility complex.
Colon motility.
-Defecation reflex.
-Defecation.
-Diarrhea, constipation.

5. The Cardiovascular system
Structure of the cardiac muscle.
Components of the cardiovascular system.
The heart as a pump.
Heart valves.
Pericardium.
Electrical activity of the heart.
Pacemaker potentials and action potentials.
Cardiac excitation spreading.
Temporal correlation between action potential and subsequent contraction-relaxation of a myocardial cell.
Coupling of excitation-contraction of the cardiac muscle and the role of calcium ions.
Refractory period in cardiac muscle.
Normal pacemaker activity.
Abnormal pacemaker activity.
Electrocardiography (ECG).
Electrocardiogram leads.
Association of electrocardiogram waveforms with specific events of the cardiac cycle.
Abnormalities in heart rhythm, heart rate and myocardial defects.
Mechanical events of the cardiac cycle.
Cardiac cycle.
-Systolic stages.
-Diastole.
Heart sounds.
Heart murmurs.

Cardiac output and its regulation.
Regulation of heart rate.
Regulation of stroke volume.
Frank-Starling law.
Compliance.
Systemic circulation. Microcirculation and lymphatic system.
Pressure, flow and resistancies.
Arteries.
Arterial blood pressure.
Arterioles.
-Local control system.
-Exogenous control system.
Capillaries.
-Anatomy of capillary network.
-Blood flow velocity in capillaries.
-Diffusion across the capillary wall.
-Bulk flow across the capillary wall.
Factors defining venous pressure.
Definition of the venous return.
Mechanisms Controlling the Cardiovascular System.
Short term regulatory mechanisms.
-Baroreceptors reflexes.
-Other reflexes and responces.
Long term regulatory mechanisms.
Hypertension.
Circulatory shock.
6. Physiology based on medical cases.
-Four weeks in high altitude.
In terms of physiology, this case is relevant to the effects of high altitude in the human organism, anemia, the acid-base balance and hypothermia.
-Chest pain during exercise.
In terms of physiology, this case is relevant to the cardiovascular physiology and in particular with cardiac cycle, heart sounds and murmurs, regulation of arterial pressure and ECG.

B. Laboratory Practicals and Tutorials
Hands-on learning: Acquisition of general and specific practical & clinical skills:
General Skills
Observing phenomena of human physiology, obtaining and analyzing experimental data
Interpretation of experimental data
Resolving practical problems
Producing graphical displays of data
Operating basic laboratory equipment
Working as a team
Following instructions
Following safety regulations
Trouble-shooting in laboratory results
Clinical significance of lab results

Specific Skills
Practical 1: Spirometry- Peak flow measurement- Pulse oxymetry- eCO measurement.
Short description of every test via videos.

Spirometry, peak flow measurement, pulse oxymetry and exhaled CO measurements in the lab.
Interpretation of normal and pathological findings of the above tests.
Practical 2: Physiology of urinary system based on medical cases.
Clinical case discussion.
Practical 3: Physiology of gastrointestinal system based on medical cases.
Clinical case discussion.
Practical 4: Arterial pressure – Cardiac auscultation.
Short description of the cardiac auscultation and arterial pressure measurement.
Video.
Cardiac auscultation in the lab.
Arterial pressure measurement in the lab, and registration of systolic, diastolic, mean arterial pressure, and pulse pressure.
Practical 5: Electrocardiography (ECG).
Short description of 12 lead Electrocardiogram.
Recording of ECG in the laboratory.
Measurement of heart rate.
Waveforms of atrial and ventricular depolarization.
Segment counting in the electrical conducting system of the heart.
Normal and pathologic heart rate findings.

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	**Teaching Method**: • Lectures (face to face) • Practical • Problem based learning (tutoring)
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students. Specifically: • Common software (e.g. MS powerpoint) is used to prepare lecture material and display slides and videos. • The study guide (detailed supplementary material & additional bibliography), the tutorial material (clinical cases), the slides of each lecture as well as relevant videos and scientific articles made available electronically and online to students through the e-class system of our university. • Information about the course, instructors and their research interests are available online on the Faculty website. • Common software (e.g. MS excel) is used to statistically process student assessment. Announcements, information etc are available online via e-class. Communication is also done via e-mail.
TEACHING METHODS The way and methods of teaching are described in detail.	

Learning activity	***Total semester workload***
Lectures	52 hours
Lab. Practical (obligatory presence)	10. hours

<table>
<tr>
<td>Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.</td>
<td>
<table>
<tr><td>Study</td><td>95 hours</td></tr>
<tr><td>SUM</td><td>157 hours</td></tr>
<tr><td></td><td></td></tr>
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</tr>
<tr>
<td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, Explicitly defined assessment criteria are stated and if and where they are accessible to students.</td>
<td>Assessment:
Written examination at the end of the course</td>
</tr>
<tr><td colspan="2">5.Recommended Bibliography</td></tr>
<tr>
<td colspan="2">A. Lecture Material
Main suggested textbooks:
1. Human Physiology. An Integrated Approach, Global Edition
Author: Dee Unglaub Silverthorn.
Publisher: Pearson
2. Medical Physiology.
Authors: Walter Boron, Emile Boulpaep.
Publisher: Elsevier</td>
</tr>
</table>

MODULE OUTLINE HUMAN ANATOMY – INTERNAL ORGANS

1.GENERAL			
FACULTY	SCHOOL OF LIFE SCIENCES		
DEPARTMENT	MEDICINE		
STUDIES	*Undergraduate*		
MODULE CODE	MP0102	**SEMESTER**	3RD
MODULE	HUMAN ANATOMY – INTERNAL ORGANS		
HEAD OF TEACHING	KATERINA VASSIOU		
TEACHING STUFF	-		

TEACHING	**WEEKLY HOURS**	**ECTS CREDITS**
	6	7.00

MODULE TYPE	MANDATORY
PRE-REQUIRED MODULES:	NON
TEACHING LUNGUAGE AND ASSESSMENT:	ENGLISH
AVAILABLE TO ERASMUS STUDENTS	YES
MODULE WEB PAGE (URL)	NO

2.Module Essentials

Module Objectives (Key learning benefits):

1. The understanding of the general descriptive anatomy of the visceral organs and the vessels
2. The understanding of the topographic anatomy of the neck, the thorax, the abdomen and the pelvis
3. The clinical anatomy of the cardiovascular, respiratory, digestive, immune, endocrine, urinary and female and male reproductive system.

Standard Requirements

1. The recognition of the most anatomical structures of the above mentioned systems at the plastic modules and speciments.
2. Solving simple clinical problems using the knowledge of anatomy

3.Module Outline

1. Anatomy of the heart (2 hrs)
2. Anatomy of the Vascular System (4 hrs)
3. Respiratoty System – Nose, Nosal Cavity and Paranasal sinuses (2 hrs)
4. Respiratoty System – Larynx (2 hrs)
5. Respiratoty System – Lungs (2 hrs)
6. Digestive System – Oran cavity, Pharynx, Oesophagus (2 hr)
7. Digestive System – Abdominal cavity, Stomach, Small Intestine (2 hr)
8. Digestive System – Colon, (2 hr)
9. Digestive System – Liver, Biliary Duct, Pancreas (2 hr)
10. Urinary System (2 hr)
11. Female Reproductive System (2 hr)
12. Male Reproductive System (2 hr)
13. Immune response damage on host - IgE-mediated allergic reactions (2 hrs)
14. Endicrine System (2 hrs)
15. Immune System (2 hrs)

<table>
<tr><td colspan="2">4.TEACHING STRUCTURE-ASSESSMENT</td></tr>
<tr><td>TEACHING STRUCTURE</td><td>Lectures, Laboratory work</td></tr>
<tr><td>RESEARCH SKILLS-DIGITAL LEARNING</td><td>Communication with students (via e-class) for easy access to teaching material and the organization of tutorials and group learning to elaborate research skills</td></tr>
<tr><td>TEACHING OUTLINE</td><td>
<table>
<tr><th></th><th>Number</th></tr>
<tr><td>Lectures</td><td>32</td></tr>
<tr><td>Laboratoty work</td><td>32</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td>156 (22.2)</td></tr>
</table>
</td></tr>
<tr><td>ASSESSMENT</td><td>Laboratory exams
Written Exams (multiple choice questions – questions with short responses and 1-2 paragraph answers)</td></tr>
<tr><td colspan="2">5.SUGGESTED LITERATURE</td></tr>
<tr><td colspan="2">- All students are provided with (in electronic form) lecture notes and presentations,
Recommended literature:
1. Harold Ellis, Vishy Mahadevan. Clinical Anatomy: Applied Anatomy for Students and Junior Doctors 14th Edition
2. Jens Waschke, Tobias Bockers, Friedrich Paulsen. Sobotta Anatomy Textbook : English Edition with Latin Nomenclature, 1st Edition
3. Helga Fritsch, Wolfgang Kuehnel. Color Atlas of Human Anatomy, Vol. 2: Internal Organs 6th Edition</td></tr>
</table>

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	**KI0200**	**Semester**	3rd
COURSE TITLE	Epidemiology and Applied Medical Research		
COURSE INSTRUCTOR	Christos Hadjichristoloulou		
CO-INSTRUCTORS	G. Rachtiotis, V. A. Mouchtouri, P. Mina, M. Koureas, M. Kuritsi, K. Dadouli		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	4	5

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Scientific area
PREREQUIRED COURSES	Monitoring and successful examination in Medical and Computational Statistics
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	No
WEBSITE (URL)	**https://eclass.uth.gr/courses/MED_U_151/**

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

The aim of the course is to introduce students to the principles of research and epidemiology, and to qualify them with skills to design, analyze and interpret epidemiological data in the fields of disease prevention, diagnosis / prognosis and treatment. Furthermore, the course aims to provide students with the basic elements for study design of human diseases and outbreaks.

Upon successful completion of the course the student will be able to:

• Appreciate the importance of epidemiology as a tool for producing evidence on the prevention, control and treatment of diseases, as well as the importance of the collective and comparative theory as the main advantage of the epidemiological research over case-based clinical research.

• Demonstrate knowledge on the applications of epidemiology, the basic epidemiological indicators (prevalence, point prevalence and time period prevalence, incidence, cumulative incidence and incidence rate, mortality, mortality, infestation rate), the main sources of epidemiological categorical data, studies (descriptive: contemporary studies, ecological and analytical: patient controls, retrospective series, prospective series, clinical trial) and outcome measures (probability ratio, relative risk, attributed risk) of sampling methods, basic knowledge of medical statistics and principles of collection, recording, analysis and presentation of data.

• Familiarize with the basic principles of epidemiological surveillance for infectious diseases as well as the basic principles of investigating and dealing with an epidemic. In addition, the student will be familiar with the concept of causality as well as the concept of systematic error and confusing factor. Finally, the student will be aware of the basic principles of providing critique of the study design and quantitative methods used in published literature as well as the systematic review and meta-analysis.

• Distinguish the main categories of epidemiological research and classify a given research into one of the above-mentioned categories.

• Uses the acquired knowledge in order to: a. formulate research questions, plan and carry out an epidemiological study, b. use the basic epidemiological indicators, c. present its results and use simple statistical analysis techniques, d. investigate an outbreak, e. critically appraise a published work and make a comprehensive assessment of its results and its overall quality, g. search medical literature through online databases.

• Critically analyze a published work with emphasis on its design, sampling method, determination of exposure and outcome, statistical analysis of data, presentation of results, control of confounding factors and the presence of systematic errors as well as the evaluation of its conclusions regarding the balanced wording of the research findings.

• Collaborate with his/her fellow students to search for medical literature but also to critically evaluate published research work, as well as - in the context of laboratory exercises - in the application of epidemiological indicators and in the scenario of investigation and response to an epidemic

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

	Project design and management
Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations	*Respect for diversity and multiculturalism*
	Respect for the natural environment
	Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Decision making	*Exercise criticism and self-criticism*
Autonomous work Teamwork	*Promoting free, creative and inductive thinking*

Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas

- Research, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3.MODULE CONTENT

1. THEORY

Introduction to Epidemiology

Epidemiological indicators. Impact, prevalence, mortality, mortality, infection rate, ratio, proportion. Point prevalence, Communicative incidence.

Sources of epidemiological data. By gender and age structure of the population. General and specific mortality rates. Fertility.

Design of a descriptive epidemiological study. Instructions for creating a Questionnaire, Ecological studies, Weighting and reliability of a questionnaire.

Population sample selection, Sampling methods.

Collection, registration and analysis of epidemiological data.

Epidemiological surveillance of infectious diseases. Endemic, epidemic, pandemic. Investigation and treatment of outbreaks.

Epidemiological and Statistical programs

Epidemiological Program EPI - INFO 2000, OSWEGO exercise

Analytical Epidemiology: 1. Studies of patients and witnesses. Selection of the comparison group (reference group). Simulation techniques (matching). Systematic errors (bias).

Analytical Epidemiology: 2. Study studies. Prospective cohort study.

Retrospective cohort study. Systematic errors (bias).

Systematic review - Analysis

Analytical Epidemiology - Clinical trials

Confounders, Causality

Review of published articles, Sources of medical information, Use of Medline

2. EXERCISES

«Introduction to Epidemiology Exercises / Causes Exercises in Diseases»

"Rates and ratio exercises"

"Demographic calculation exercise - Demography"

"Design and organization of a contemporary epidemiological study, questionnaire"

"Sampling using Epi info".

Exercise for organizing epidemiological data. Presentation of results.

"Exercise of epidemiological surveillance". "Investigation and treatment of exacerbations of gastroenteritis at a wedding reception".

"Smoking and lung cancer. Patient and Martyr Study and Retrospective Series »

"Checking the effectiveness and safety of Ephedra"

"Hepatitis A, alcohol and oyster consumption"

"Article Criticism in English, Study Classification Exercises"

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	Lectures (*face to face*)
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Power point Learning process support through e-class electronic platform. Use of ICT (e mail) in communication with them students.
TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.	

Learning activity	***Total semester workload***
Lectures	50 hours
Lab. Practical (obligatory presence)	45 hours
Study	15 hours
Preparation for Practical	15 hours
SUM ***(25 hours per teaching credit)***	**125** hours

STUDENT EVALUATION **Description of the evaluation process** Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	Language of assessment: English Assessment methods: Multiple choice test (60%) and written assignment (40%). The evaluation of the course and the teachers is carried out -at the end of the semester- through the completion of a special questionnaire by the students. Students are encouraged to express their views through the questionnaire both about the educational process of this course, and about any changes that are necessary in their opinion. Students' responses are taken into account in order to make improvements.

5.RECOMMENDED BIBLIOGRAPHY

- Proposed Bibliography:
  General and clinical epidemiology. D. Trichopoulos

Epidemiology, A. Aschengrau

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	**MP0302**	**Semester**	3rd
COURSE TITLE	Organogenesis – Developmental Disorders and Clinical application		
COURSE INSTRUCTOR	SOTIRIOS SOTIRIOU, ASSOCIATE PROFESSOR IN EMBRYOLOGY		
CO-INSTRUCTORS			

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	3	3.00

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Scientific area
PREREQUIRED COURSES	No
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	Yes
WEBSITE (URL)	**http://eclass.uth.gr/courses/ MED_U_196/**

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

Aims of the course

The mission of the Embryology Laboratory is to introduce medical students to the Basic Principles of these subjects, their first contact with embryological preparations for the best possible understanding of the tissues of the human fetus and the offer of high-level university education aimed at further promotion of scientific knowledge and the Medical art and in the promotion of research and the acquisition of knowledge through the study, critical evaluation and research of the programs' relevant areas of knowledge.

The course is a key tool in the undergraduate curriculum for students to understand the basic principles of the beginning of life that is the subject of Embryology.
The course material aims to fully understand all the principles of Embryology, Organogenesis and congenital disorders, and to introduce students to the basic clinical concepts of the development of the structures of the human body.
Also, it refers to the concept of acquiring students' inductive thinking which is deemed necessary for the proper initiation of students to the function of the Doctor.
In this sense, the course is the basis on which the student will be able to understand and come into contact with other courses of the study program (anatomy, histology, basic anatomical and embryological principles of all preclinical and clinical special courses).
Finally, the aim of the course is to understand the importance of Organogenesis and the complaints of constitution in the context of understanding clinical specialties such as Obstetrics and Gynecology, Embryo-Uterine Medicine and Neonatology and in the context of obtaining a title in the above specialties.

After the successful completion of this course, the students will be able to:

- Understand the important concepts and principles of Embryology, Organogenesis, and Embryo-Uterine Medicine as well as knows the main congenital anomalies.
- Acquire knowledge of the Organogenesis course and related anomalies.
- Is able to distinguish embryos and their structures, and their development during fetal life.
- Uses the terms correctly and combine the basic knowledge with the basic principles of related subjects such as Anatomy and Histology, Obstetrics, Gynecology as well as Neonatology.
- Analyzes and correctly presents the induction (principle of creation of the tissues of the human body) and their maturation into the final structures-tissues of the human body, knows the pathophysiology and explains embryologically the congenital disorders of constitution.
- Cooperate with their colleagues in the context of a lab environment to write papers and conduct basic research for presentation at student conferences.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Research, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism

- Promoting free, creative and inductive thinking

3.Module Content

The content of the course includes the following major items:

A. The content of the lectures together with the relevant clinical insights that students need to learn/acquire per chapter.
B. The content of the tutorials/seminars together with the relevant clinical insights that students need to learn/acquire per seminar.
C. The content of the laboratory practical together with the relevant practical & clinical skills that students need to learn/acquire per exercise.

A. Lecture content:
The embryological development of the cranial bones – Congenital malformations
The development of cervical - facial structures. Congenital malformations
Embryology of the sensory organs
Embryology of the respiratory system
The fetal development of the heart. 1st Part
The fetal development of the heart. Part 2 – Cardiac malformations
The fetal, circulatory system. Birth changes.
The embryological development of the gastrointestinal system. 1st Part
The embryological development of the gastrointestinal system. Part 2 – Exophalos and gastroschisis.
Embryology of the urinary system – Congenital malformations
The embryology of the male genital system and its abnormalities
The female fetal embryology, its abnormalities and embryological development of the limbs
Laboratory Practical content the exercises:
A. Student practice on embryo preparations at the Embryology museum
B. Clinical Embryology – Observation of examination of embryos in ultrasound
C. Demonstration of congenital anomalies in ultrasound examination of fetuses
Hands-on learning: Acquisition of general and specific practical & clinical skills:
General Skills
Observing phenomena, obtaining and analyzing experimental data
Interpretation of experimental data
Resolving practical problems
Producing graphical displays of data
Operating basic equipment, especially use of optical microscope
Working as a team
Following instructions
Following safety regulations
Trouble-shooting in laboratory results
Clinical significance of lab results
Specific Skills
- Handling of optical microscope
- Familiarization with the use of lenses – magnifications

Future goals
Teaching the course and training the students based on the following structure:
1 Descriptive Embryology
2. Clinical Embryology
3. Molecular Embryology
4. Training students in the basics of the first weeks of development in the IVF Laboratory
5. Training of students in the identification of normal and pathological embryos, membranes and placentas at the Museum of Embryology in the Katsigra Building
6. Training of students in the identification of normal and pathological embryos, membranes and

placentas with modern imaging methods	
4. TEACHING AND LEARNING METHODS - EVALUATION	
Teaching Method (face to face, tutoring, distance learning)	*Face to Face:* Teaching of Organogenesis – Developmental Disorders and Clinical application consists of lectures, seminars/tutorials and laboratory practical. Attendance of Laboratory Practical and Seminars/Tutorials is obligatory. The lectures content is described above. Seminars/Tutorials (in 5 student groups with 1 instructor per group) review and extend the lectures content. In each tutorial, students familiarize themselves with the basic elements per unit and prepare for the laboratory exercises. Laboratory exercises (in 5 student groups of students, 1 instructors per group of 25-28 students) composing the students' practical are complementary to the lectures and they aim to familiarize the student with the application of techniques, the operation of simple laboratory instruments and the experimental procedures that are often used in Organogenesis – Developmental Disorders and Clinical application as well as to help the students comprehend concepts that are not easily presented theoretically (learning based on practical experience).
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students. Specifically: • Common software (e.g. MS powerpoint) is used to prepare lecture material and display slides and videos. • The study guide (detailed supplementary material & additional bibliography), the tutorial material (clinical cases), the theory and protocols of the laboratory exercises, the slides of each lecture as well as relevant videos and scientific articles made available electronically and online to students through the e-class system of our university. • Information about the course, instructors and their research interests and in general the department of Histology and Embryology of the Faculty of Medicine are available online on the Faculty of Medicine website • Common software (e.g. MS excel) is used to statistically process student assessment. Announcements, information etc are available online via e-class. Communication is also done via e-mail (embryology-histologylab@uth.gr).
TEACHING METHODS	***Learning activity*** | ***Total semester workload***

The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.	<table><tr><td>Lectures</td><td>28 hours</td></tr><tr><td>Lab. Practical (obligatory presence)</td><td>28 hours</td></tr><tr><td>Tutorials (obligatory presence)</td><td>14 hours</td></tr><tr><td>Study</td><td>28 hours</td></tr><tr><td>Preparation for Practical</td><td>16 hours</td></tr><tr><td>Preparation for Tutorials</td><td>12 hours</td></tr><tr><td>***SUM*** ***(25 hours per teaching credit)***</td><td>126 hours</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>
STUDENT EVALUATION **Description of the evaluation process** Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	The language of assessment is English. **Evaluation methods.** **A. For the laboratory practical:** Written test in the middle of the semester with 7 questions and problem solving. The participation of students in the laboratory exercises is mandatory. Successful participation in the practical is certified by the instructors' signatures on the written reports.-exams. **B. For the Tutorials:** In each tutorial, students go deeper to the theoretical background of the laboratory exercises that will follow. The performance of the students during in the tutorials is taken into account in the final evaluation. The material of the tutorials is examined together with the laboratory examination. **C. For the lecture material:** Written Exams with multiple-choice questions. The course exams are written, last 2 hours and consist of multiple-choice questions. The material to be examined is lectures and tutorial material as described above. **Final Grade:** The final grade of the course is calculated as the sum of the grade of the written course exams and the grade of the Laboratory written exams. All of the above are presented in detail in the Course Guide which is posted electronically in e-class.

5.Recommended Bibliography

A. Lecture Material

Main suggested textbooks:

1. Human embryology, W.Larsen, Έκδοση: 3η/2003, Parisianou Publications
2. Human Embryology – From fertilization to Birth-Clinical Orientation, Moore Keith, 1η/2019, BROKEN HILL PUBLISHERS LTD

Further reading:

-

B. Laboratory Practical supplementary Material

……..

Relevant Scientific Journals:

-

COURSE OUTLINE

1.GENERAL			
SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
STUDIES LEVEL	UNDERGRADUATE		
COURSE CODE	**MP0103**	**STUDIES SEMESTER**	4th
COURSE TITLE	**ANATOMY OF THE NERVOUS SYSTEM AND SENSORY ORGANS**		
COURSE RESPONSIBLE	Markos Sgantzos, Ass. Professor		
ASSOCIATES	Vassiou Aikaterini, Associate Professor, Zimpis Aristeidis, Ass. Professor,		

SEPERATE TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDITS UNITS**
	4 Additional participation in the Anatomy Laboratory (2 hours)	6

COURSE TYPE	* Background
PREREQUISITES COURSES:	NO
TEACHING and EXAMS LANGUAGE:	English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE ELECTRONICS PAGE (URL)	NO

2. Learning Results

The course material aims to introduce students to Anatomy of the Nervous System.
In this sense the course is the basis on which the student will acquire basic knowledge in Anatomy of the central and peripheral Nervous System and Sensory Organs as well as the general embryological development of the Nervous System and Sensory Organs.
The student will be exposed to the structures of the human body as represented in the permanent brains, to the cross-sections of the permanent brains in the urban models of the anatomy laboratory, and to immunohistochemistry images available to the anatomy laboratory.

Upon successful completion of the course the student will be able to:
Have an understanding and basic knowledge of Neuroanatomy and in particular, the cerebral hemispheres, grey and white matter, neuromuscular synapse, peripheral nerves and plexuses, spinal cord, the medulla oblongata, the midbrain, the middle brain, the medial brain and the terminal brain the meninges & vessels, the ventricles the autonomous nervous system, the cerebral nerves and the sensory organs

General Abilities

3. COURSE CONTENTS

1. General Anatomical and embryological development of the Nervous System and Sensory Organs
2. Peripheral nervous system
3. Spinal Marrow
4. Prolonged Marrow
5. Midbrain
6. Middle Brain
7. Cerebellum
8. Median Brain
9. Final Brain
10. Autonomous nervous system
11. Sensory Organs
12. Organ of Vision
13. Organ of hearing and of balance
14. Organ of olfactory - Organ of taste - Skin
15. Functional Systems

4. TEACHING and LEARNING METHODS - EVALUATION

DELIVERY METHOD	LECTURES
USE OF INFORMATION TECHNOLOGIES AND COMMUNICATION	PowerPoint Videos Animations MS Teams Quiz programs in PC or tablet

TEACHING ORGANIZATION

Activity	***Semester Load Work***
Lectures	56 hours
Laboratory excercise	26 hours

STUDENTS EVALUATION

- examination in material of laboratory
- Written examination

The general evaluation criteria are analyzed in the introductory lesson.

5. RECOMMENDED-BIBLIOGRAPHY

-*Suggested Bibliography:* - Students are provided in electronic form with Teaching Notes and "Power Point" files.

Additional Bibliography:

- Neuroanatomy , 1/2011, Johnson
-Clinic Neuroanatomy, 1st ed./2013, Waxman St.
-Clinic neuroanatomical , 1st ed./2008 , Snell Richard
-Handbook of Descriptive Anatomical, 2nd ed ./2011, Platzer, Fritsch, Kuhnel , Kahle, Frotscher

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	Health Science		
DEPARTMENT	Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	BE1400.E	**Semester**	4th
COURSE TITLE	PRINCIPLES OF MEDICAL GENETICS		
COURSE INSTRUCTOR	Aspasia Tsezou		
CO-INSTRUCTORS	Ioanna Papathanasiou		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	2	3,00

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Background
PREREQUIRED COURSES	No
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	No
WEBSITE (URL)	

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

The course provides an analytical approach to the principles and applications of Medical Genetics. It focuses on the analysis of modes oof inheritance of monogenic diseases, deviations from Mendelian inheritance, analysis of genetic imprinting (examples of Prader Willi/Angelman syndromes), trinucleotide repeats (examples of the following diseases: Huntington, fragile X syndrome, myotonic dystrophy), uniparental disomy, as well as on the genetic basis of multifactorial and mitochondrial diseases (eg LHON hereditary optic neuropathy and gene therapy). Also, diagnosis, prevention and treatment of monogenic genetic diseases, such as cystic fibrosis, α and β hemoglobinopathies, phenylketonuria, G6PD enzyme deficiency, familial hypercholesterolemia, osteogenesis imperfecta as well as chromosomal syndromes are analyzed. The role of pharmacogenetics as well as advances in gene editing and therapy are highlighted. In addition, special emphasis is given on the genetic analysis and genetic counseling of hereditary cancers, such as breast/ovarian cancer, colon cancer, etc. The course will assist on the knowledge, that the student has acquired by studying the pathophysiology of various diseases, through understanding the genetic basis of them. Therefore, the ultimate aim of the course is to provide the knowledge to the students as future doctors, to know the diagnosis, prevention and treatment of genetic diseases. In all above mentioned diseases, the most recent relevant scientific achievements are provided.

Upon successful completion of the course, the student will be able to:

- Understand the modes of inheritance of genetic diseases and the underlying responsible molecular/genetic defects
- Know the methods of diagnosis, prevention and therapy of genetic diseases, such as cystic fibrosis, α and β hemoglobinopathies, phenylketonuria, G6PD enzyme deficiency, familial hypercholesterolemia, osteogenesis imperfecta as well as chromosomal syndromes
- Construct a family tree and distinguish people who are at risk of developing a genetic disease, know the appropriate genetic counseling and recurrence risk or ways of prevention
- Analyze and collect information from patient's clinical data, phenotypical characteristics, laboratory molecular/genetic analyses aiming to diagnose a genetic disease.
- Understand the role of pharmacogenetic polymorphisms and mutations and their relationship with specific drugs and cancer treatments, respectively
- Understand the genetic basis of various types of hereditary cancers (breast/ovarian cancer, colon cancer, etc.) as well as the appropriate genetic counseling

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- *Research, analysis and synthesis of data and information, using the necessary technologies*

- *Teamwork*
- *Demonstration of social, professional and moral responsibility and sensitivity in gender issues*
- *Exercise criticism and self-criticism*
- *Promoting free, creative and inductive thinking*

3.Module Content

The course includes the following modules:

- Description of different modes of Inheritance- Examples are provided for each type
- Deviations from mendelian inheritance and diseases. Genetic imprinting syndromes (Prader Willi/Angelman syndromes), trinucleotide repeats diseases (Huntington's disease, fragile X syndrome, myotonic dystrophy) and uniparental disomy.
- Multifactorial and mitochondrial diseases and diseases (i.e congenital heart disease, schizophrenia and LHON hereditary optic neuropathy, respectively)
- Human genome program, linkage analysis, population genetics- Hardy-Weinberg equilibrium
- Epigenetics - DNA methylation, histone modifications and non-coding RNAs – and their role in genetic diseases and cancer
- Genetic basis of hemoglobinopathies, diagnosis, prevention and therapy
- Biochemical genetics: genetic basis of enzymopathies (eg alkaptonuria, PKU, G6PD deficiency, a1-antithrypsin deficiency, familiar hypercholesterolemia) as well as diagnosis, prevention and therapy
- Molecular Genetics: Genotype-Phenotype correlation, diagnosis, prevention and therapy of genetic diseases such as cystic fibrosis, osteogenesis imperfecta, collagen syndromes - Ehlers Danlos syndrome
- Cytogenetics: Aneuploidy and structural chromosomal abnormalities. Description of common genetic syndromes.
  Prenatal diagnosis: emphasis in non- invasive prenatal testing (NIPT)
- Hematological malignancies (myelodysplastic syndromes, chronic myeloid leukemia ect): molecular and chromosomal abnormalities and targeted therapies
- Hereditary cancers (breast/ovarian cancer, colon cancer, etc), genetic basis, genetic basis, targeted therapies and genetic counseling
- Pharmacogenetics: genetic polymorphisms in metabolic enzymes (CYP2D6, CYP2C9), response to drugs (codeine, warfarin), enzymes of ethanol metabolism (ADH, ALDH), fetal alcohol syndrome. Polymorphisms/ Mutations and response to cancer therapy
- Gene therapy: viral and non-viral vectors for gene transfer, types of gene therapy, gene editing, stem cells: clinical trial in a1-antithrypsin deficiency, cystic fibrosis, Parkinson disease, AIDS and cancer

Genetic counseling: principles of genetic counseling in genetic diseases and hereditary cancer

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	In class
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	e-class

TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.	<table><tr><th>Δραστηριότητα</th><th>Φόρτος Εργασίας Εξαμήνου</th></tr><tr><td>Lectures</td><td>27</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td>TOTAL</td><td>81 (27x3 ECTS)</td></tr></table>
STUDENT EVALUATION **Description of the evaluation process** Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	Students are evaluated by written exams, containing multiple choice and short answer questions.

5.Recommended Bibliography

Books [13256587] «Medical Genetics» by Thompson & Thompson and[32997976] «Genetics» by Hartwell Leland, Hood Leroy, Goldberg Michael, Reynolds Ann, Silver Lee.

-Relative scientific journal: Nature Genetics, Nature Reviews Genetics, Human Molecular Genetics, Trends in Genetics, Human Genetics, Clinical Genetics, Cancer Genetics and Cytogenetics

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	FACULTY OF HEALTH SCIENCES		
DEPARTMENT	DEPARTMENT OF MEDICINE		
STUDY LEVEL	UNDERGRADUATE		
COURSE CODE	**ΨΧ0100**	**Semester**	4 th
COURSE TITLE	MEDICAL PSYCHOLOGY		
COURSE INSTRUCTOR	Konstantinos S. Bonotis		
CO-INSTRUCTORS	Ioanna Tsiouri		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	2	2

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	
PREREQUIRED COURSES	
LANGUAGE OF TEACHING AND EXAMS	ENGLISH
AVAILABLE TO ERASMUS STUDENTS	NO
WEBSITE (URL)	

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

The general purpose of the course is to introduce students to the Major Schools of Thought in Psychology as well as to the study of mental functions such as Sensation, Perception, Memory, Learning, Emotions, Consciousness. Furthermore, the course seeks to provide students with the knowledge of the neurobiological background of normal psychological functions as well of

psychopathology. Finally, a main purpose of the course is the study of the relationship between stress and health issues.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

Research, analysis and synthesis of data and information, using the necessary technologies, Adaptation to new situations, Work in an interdisciplinary environment, Production of new research ideas, Respect for diversity and multiculturalism, Demonstration of social, professional and moral responsibility and sensitivity in gender issues, Promoting free, creative and inductive thinking

The specific objectives of the course are specialized in the following intended learning outcomes:
Upon successful completion of the course the student will be able to use acquired knowledge in order to:
Comprehend the scope of Psychology concerning the human mind and behavior.
Be able to distinguish the different Schools of Thought of Psychology.
Comprehend the link among neuroanatomy, neurophysiology, mental functions and psychopathology.
Recognize the role of stress in health issues as well as the mind-body interaction.

3.Module Content

1. Psychology: the evolution of a science I
2. Psychology: the evolution of a science II
3. Neuroscience and behavior I
4. Neuroscience and behavior II
5. Sensation
6. Perception
7. Memory
8. Learning
9. Emotions and motivations
10. Consciousness
11. Sleep and Dreams
12. Stress and Health I
13. Stress and Health II

<table>
<tr><td colspan="2">4. TEACHING AND LEARNING METHODS - EVALUATION</td></tr>
<tr><td>Teaching Method
(face to face, tutoring, distance learning)</td><td>Face to face</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td>Microsoft Power point</td></tr>
<tr><td>TEACHING METHODS
The way and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.</td><td>
<table>
<tr><th>Δραστηριότητα</th><th>Φόρτος Εργασίας Εξαμήνου</th></tr>
<tr><td>Lectures</td><td>28 hours</td></tr>
<tr><td></td><td></td></tr>
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</td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, Explicitly defined assessment criteria are stated and if and where they are accessible to students.</td><td>

ENGLISH

Multiple Choice Test

Assessment criteria are stated and accessible to students</td></tr>
<tr><td colspan="2">5.Recommended Bibliography</td></tr>
<tr><td colspan="2">ΕΙΣΑΓΩΓΗ ΣΤΗΝ ΨΥΧΟΛΟΓΙΑ, ΙΑΤΡΙΚΗ ΨΥΧΟΛΟΓΙΑ & ΨΥΧΟΠΑΘΟΛΟΓΙΑ, ΕΙΣΑΓΩΓΗ ΣΤΗΝ ΨΥΧΟΛΟΓΙΑ ΤΗΣ ΥΓΕΙΑΣ</td></tr>
</table>

COURSE DESCRIPTION INTRODUCTION TO CLINICAL MEDICINE – CLINICAL SKILLS

1.GENERAL			
SCHOOL	SchoolofHealthSciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	**XP0101**	**Semester**	**4°**
COURSE TITLE	Introduction to Clinical Medicine- Clinical skills		
COURSE INSTRUCTOR	Georgios Tzovaras, Sokratis Varitimidis		
CO-INSTRUCTORS			

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	4	4

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Skills Development
PREREQUIRED COURSES	None
LANGUAGE OF TEACHING AND EXAMS	ENGLISH
AVAILABLE TO ERASMUS STUDENTS	No
WEBSITE (URL)	No. Presentations and in general data of the course are posted in the e-class

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

Educational Needs:

The course of "Introduction to Clinical Practice-Clinical Skills" aims to meet specific and recognized educational needs as it has been pointed out at the level of the Faculty of Medicine of the University of Thessaly (teaching staff and students) and from external evaluations that:

a)The distinction between basic and clinical sciences from the first day resulting to a delay of students' exposure to the clinical environment for 3 years, creates the feeling that they are trained in something that has nothing to do with the function-profession of the Doctor they chose and pursued with exhausting effort.

b) Medical students' training is highly theoretical and weak in the teaching of clinical skills.

c) There is a need to introduce modern teaching methods for medical students including problem-based approaches in small groups of students, e-learning, better integration of preclinical and clinical subjects, and a focus on clinical skills.

At the same time, the present course enhances better harmonization of the Faculty teaching program according to the programs of certain Universities around the world, where the "Introduction to Clinical Practice" is implemented into the teaching program from the very beginning.

Learning objectives:

At the end of this course students will develop skills to:

• Communicate effectively and easily with patients and their familiesovercoming communication difficulties (children, the elderly, foreigners, people with disabilities) with respect for the privacy and diversity of patients

• Understand the basic principles of medical history taking

• Use personal protection measures, follow good hygiene practices when examining a patient and learn how to manage waste

• To place the patient and themselves in the appropriate position required for the clinical examination - to examine the patient with respect and dignity, paying attention to his privacy, having knowledge and respect for the patient's autonomy

• To get familiar with the various facilities used in diagnostic and therapeutic level during the clinical evaluation and treatment of the patient (stethoscope, sphygmomanometer, nasogastric tube, otoscope, ophthalmoscope, catheters, splints, urine test strips, etc.)

• Be able to receive patients' vital signs

• Be able to take blood samples – take blood gases - blood cultures

• To be able to place a venous-catheter

• Be able to administer intramuscular, subcutaneous, and intravenous therapy

• Be able to treat / change a wound by recognizing pathological conditions (inflammation, collection, rupture, etc.), remove stitches

• Make proper use of oxygen delivery device - inhaler devices

• Be able to catheterize the bladder - insert a splint

• To communicate clearly and distinctly with their colleagues and other members of the medical team and to understand the importance of working with colleagues but also of scientific confrontation with active participation in discussion groups

• Demonstrate the ability to answer questions posed in clinical practice using books, magazines, articles, and computer-based tools.

GeneralAbilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data
and information, using the necessary
technologies
Working in an international environment
Work in an interdisciplinary environment

The course aims to:
• Search, analysis and synthesis of data and information (practical and theoretical)
•Skills Development
•Decision making
• Autonomous work
•Teamwork
• Work in an interdisciplinary environment

3.Module Content

1. Introduction to Basic Skills - Terminology - Linking to previous semesters - preparing for the next
2. Communication Skills - Communication with patients and colleagues - Communication difficulty - Exercise groups
3. Principles of history taking: Respect for patients' privacy and diversity - Basic introduction to history by the GP - Contact with patients under guidance
4. Principles of Protection - Hygiene (cleaning, use of mask, use of gloves, how to wear sterile gloves, waste management, etc)
5. Principles of patient-centered clinical examination (patient approach - informing the patient about the type of examination - respect for privacy and patient diversity - placing the patient in the correct clinical position)
6. Basic clinical skills - When and how: Measurement of vital signs (pulses, number of breaths, blood pressure), familiarity with blood pressure monitor, stethoscope, oximeter
7. Basic clinical skills - When and how: Blood samples - blood gases - blood cultures - venous catheter placement, central line placement
8. Basic clinical skills: basic principles of life support-cardiopulmonary resuscitation (BLS)
9. Basic clinical skills - When and how: Nasogastric tube placement - oxygen delivery device - proper use of inhaled drug devices
10. Basic clinical skills - When and how: Injections (intramuscular, subcutaneous, intravenous)
11. Basic clinical skills - When and how: Wound care - Wound change - Receiving wound culture - Suturing - Stitch removal - Splint placement, Limb immobilization
12. Basic clinical skills - When and how: Bladder catheterization (catheter types - models) - use of urine strips
13. Case assignment - Bibliographic search for information
14. Case presentation
15. Shadow clinical activity (4 hours)

Courses from 4-12 will consist of one hour lecture and three hours of practice.
During the lecture will be presented the clinical practice / skill, the tools-supplementaries and their indications (When and How) in connection with the already acquired knowledge (eg anatomy, physiology) in the respective subject.
The practice will include the use of special instructional videos of the skills and / or models where possible (eg catheterization) and finally exercisein mentored patients.

Lessons 13 and 14: Groups with a faculty member responsible for case selection, guidance and presentation by students
Lesson 15. Following the specialist in his / her clinical activities: 1 (instructor) to 2 (students)

4.TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	**Presentations:** Communication skills - In addition, the discussion of specific problems in the approach and treatment of patients with different backgrounds (racial, social, religious, etc.), the development of privacy, ethics and clinical medicine is encouraged. Theoretical explanation of each clinical task (before practice) in order to understand the indications, the choices of facilities, the way of execution **Small working groups:** Practical exercise (Hands on training) in models and patients under supervision - guidance Due to the number of students, courses 4-12 will be done cyclically in the semester (in parallel) in small students groups. Steady work teams to ensure everyone is exposed to all the practical exercises Discussion and collaboration between team members on cases selected by the instructor. Students without instructor will collaborate to present the case with the help of books, articles and computer-based tools **Two to one / one training:** Two students will follow a faculty member in their clinical duties for one teaching day (shadowing). The aim is to introduce and understand the daily clinical practice in real conditions and to develop communication with the faculty members.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Introduction to the use of digital aids in Medical education Use of instructional videos Use of models
TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc	

Activity	***Semester Workload***
Lectures	15 hours
Clinical Exercise	34 hours
Working groups: Case assignment - bibliographic search - Presentation of findings	7 hours

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.	

Total	**56 hours**

STUDENT EVALUATION **Description of the evaluation process** Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	- Student examination / evaluation takes place at the end of the course with their participation in the presentation of the case (30%) but also with the Objectively Structured Clinical Examination (OSCE) (70%) which consists of skills evaluation through a circular sequence of skillstations in the form of simulation (models, impersonating patients). - The evaluation of the instructor by the student will be done with the special evaluation questionnaires - The general evaluation criteria are analyzed during the introductory course.

5.Recommended Bibliography

Students are provided with electronic Teaching Notes and “Power Point” files

AdditionalBibliography:

-ΣμυρνάκηςΕμμ., Μοιρασγέντη Μ., Τούφας Κ. Βασικές Κλινικές δεξιότητες. UNIVERSITY STUDIO PRESS 2017;ISBN13 978-9-60-122339-1.

- James Thomas and Tanya Monaghan.Oxford Handbook of Clinical Examinationand Practical Skills. OXFORD MEDICAL PUBLICATIONS2014; ISBN 978–0–19–959397–2

COURSE OUTLINE

1. GENERAL			
SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
LEVEL OF EDUCATION	UNDERGRADUATE		
COURSE CODE	EI0101	**SEMESTER OF STUDIES**	5th
COURSE TITLE	MICROBIOLOGY I		
COURSE MANAGER	PROFESSOR EFTHYMIA PETINAKI		
ASSOCIATES	ASSISTANT PROFESSOR KONSTANTINOS PAPAGIANNITSIS		

SEPERATE TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
Lectures	2	4
Laboratory	2	

COURSE TYPE	Specialization
PREREQUISITE COURSES:	OXI
LANGUAGE OF TEACHING AND EXAMS :	English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	
COURSE ELECTRONIC PAGE (URL)	

2.Learning Outcomes

The aim of the course "Microbiology I" is to understand the role of bacteria in infections and how to prevent and treat them as well as familiarity with the diagnostic tests required to investigate bacterial infections.

Upon successful completion of the course the student will be able to know

- the epidemiology of infection in relation to the responsible pathogenic microorganisms
- the laboratory tests required to document the responsible microorganism
- the treatment of infections through knowledge of the physical and acquired resistance of microorganisms
- how to prevent infections

General Abilities

3. COURSE CONTENT

Thematic units:
-Morphology, structure and classification of prokaryotic cells
-Metabolism and growth of microbes
-Mechanisms of pathogenicity of microbes
-Genetics of germs, mutations, transfer of genetic material

-Interactions of infectious agents and host
-Role of the normal flora
-Sterilization-disinfection-antiseptic
-General principles of laboratory diagnosis
-Staphylococci
- Enterococci
-Streptococci
-Nasseries
-Heterobacteria
-Azymotic Gram-negative bacteria
-Legionella, Haemophilus, HACEK group bacteria
-Campylobacter, Helicobacter
-Brucella, Pasteurella, Bartonella, Franciscella,
-Bordetella
- Acid-fast bacteria
-Leptospira, Canella, Treponema
-Listeria, Corynebacterium diphtheria, Gardnerella,
-Bacillus
-clostridia
-Anaerobic Gram-negative bacteria
- Mycoplasma, and Chlamydia
- Rickettsiae, cochineal

4. TEACHING AND LEARNING METHODS - EVALUATION

DELIVERY METHOD	Lectures on the amphitheater Laboratory exercises with clinical examples
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Posting the material in the e - class
TEACHING ORGANIZATION	

Activity	***Semester Workload***
Lectures	26
Laboratory	26
Independent Study	26
Course Set (1 hour workload per credit unit)	**78**

STUDENT EVALUATION	Written final exam in English

5. RECOMMENDED - BIBLIOGRAPHY

1. Medical Microbiology. Murray P, Rosenthal K, Pfaller M. Parisianou Publications SA.

2. Infectious diseases: microbiology and treatment. Bannister B, Gillespie S, Jones J. Parisianou Publications SA.

3. Colored Infectious Diseases Manual. Conlon C, Snydman D. Parisianou Publications SA.

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDIACAL		
STUDY LEVEL	UNDERGRADUATE		
COURSE CODE	**BE0821.E**	**Semester**	4
COURSE TITLE	Neurophysiology & Endocrine Physiology		
COURSE INSTRUCTOR			
CO-INSTRUCTORS	Paraskeva Efrosyni Evdoxia Gogou		
TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.		**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
		6	7
COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Background & Scientific area (Physiology)		
PREREQUIRED COURSES	None		
LANGUAGE OF TEACHING AND EXAMS	English		
AVAILABLE TO ERASMUS STUDENTS	YES		
WEBSITE (URL)	https://eclass.uth.gr/courses/MED_U_192/		

2. LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

Aims of the course

The course provides the necessary background for understanding the basic principles / mechanisms of functioning of the nervous system, endocrine glands and reproduction. Its aim is to familiarize students with terms and concepts of the nervous and the endocrine system, their comprehensive understanding of the function of these systems and to introduce students to recognize possible deviations in the operation of these systems from normal. In this context, reference is made to changes in the function of these systems in cases of diseases of the nervous system (e.g. Parkinson's disease, Dementia) and endocrine (e.g. Diabetes, Thyroid Disease). Therefore, the course is the basis of the pathophysiology and pharmacology of these systems.

Upon successful completion of the course the student will be able to:

• Recognize and describe the mechanisms of the nervous and endocrine sysytems
• Distinguishes the mobilization of regulatory mechanisms in cases of dysfunction of these systems and the onset of pathological conditions when these mechanisms fail.
• Use the acquired knowledge to understand a) the causes and b) the mechanisms that can lead to pathogenesis.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies
Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment Work in an interdisciplinary environment Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

• Search, analysis and synthesis of information / data, using the necessary technologies.
• Decision making.
• Autonomous work
• Teamwork
• Promoting free, creative and inductive thinking

3. Module Content

The content of the course includes the following major items:

A. The content of the lectures together with the relevant clinical insights the students need to learn/acquire per chapter.
B. The content of the tutorials/seminars together with the relevant clinical insights the students need to learn/acquire per seminar.
C. The content of the laboratory practical together with the relevant practical & clinical skills the students need to learn/acquire per exercise.

A. Lecture content and relevant clinical insights

1. Neurophysiology

1.1 Sensory Physiology

Lesson 1: Introduction to sensory systems
- Sensory receptors
- Neural pathways in sensory systems
- Association cortex and perceptual processing
- Primary sensory coding

Lesson 2: Somatic sensation
- Types of somatic sensation
- Dorsal horn-Dorsal column pathway
- Nociceptors and thermoreceptors
- Classification of pain (deep pain, visceral pain, referred pain)
- Ventrolateral spinothalamic tract
- Modulation of pain transmission
- Morphine and enkephalins
- Somatotopic organization
- Cortical plasticity
- Effects of CNS lesions

Lesson 3: The Eye: I. Optics of Vision
- Parts of the eye and their function
- Retina
- Neural pathways involved in vision

- Photoreceptors
- The image forming mechanism
- Principles of optics
- Common defects of the image forming mechanism
- Lens accommodation
- Correction of refractive anomalies with the use of lenses

Lesson 4: The Eye: II. Receptor and Neural Function of the Retina
- Processing of visual information in the retina
- Photoreceptor potentials
- Bipolar, horizontal, amacrine and ganglion cell function
- Receptive field formation

Lesson 5: The Eye: III. Central Neurophysiology of Vision
- Primary visual cortex organization
- Other cortical areas involved in vision
- Color vision
- Visual fields and binocular vision
- Effect of lesions in the optic pathways
- Eye movements

Lesson 6: The sense of Hearing
- Sound - Sound waves
- The structure of the outer, middle and inner ear
- Physiology of the outer, middle and inner ear
- Sound transmission in the ear
- The tympanic reflex
- Travelling waves
- Electrical responses of hair cells
- Action potentials in afferent nerve fibers
- Functions of the inner and outer ear cells
- Action potentials in auditory nerve fibers
- The central auditory pathway
- Auditory responses of neurons in the medulla oblongata
- Other cortical areas concerned with audition
- Sound localization
- Deafness

Lesson 7: The vestibular system - Smell and taste
- The vestibular system central pathway
- Responses to rotational and linear acceleration
- The function of otoliths
- Spatial orientation
- The olfactory epithelium, olfactory bulbs and olfactory cortex
- Olfactory receptors and signal transduction
- Taste buds and pathways
- Taste receptors and signal transduction

Lesson 8: Synopsis of Lessons 1-7: Problem based learning

1.2 Motor and Integrative Neurophysiology

Lesson 9: Voluntary and involuntary control of body movement and posture I
- The areas of the brain involved in the design, initiation and execution of skillful voluntary movements
- Hierarchy of motor control within the CNS
- Motor cortex
- Organization of the primary motor, premotor and supplementary motor cortex

- The role of motor cortex in the control of movement
- The starting point, route and end of the pyramid path
- The corticospinal tracts

Lesson 10: Voluntary and involuntary control of body movement and posture II

- Anatomy of the spinal cord and organization of the sensory and kinetic elements of the gray matter. Somatic organization of motor neurons Local control of motor neurons
- α and γ motor neurons
- Structure and function of the muscle stretch receptors (muscle spindles and Golgi tendon organs)
- Spinal cord reflexes
    - The myotatic (stretch) reflex
    - The reverse myotatic reflex
    - The withdrawal reflex
- Consequences of upper and lower motor neuron damage

Lesson 11: Descending motion control systems - Basal ganglia

Descending motion control systems

- Medial brain stem pathways
- Lateral brain stem pathway
- Posture-regulating systems
- Integration of reflexes at the spinal level
- Movement deficits caused by spinal cord injury

Basal ganglia

- Anatomy and principal connections of the basal ganglia
- Function of the basal ganglia in motion control
- Basal ganglia diseases
- Parkinson disease

Lesson 12: Cerebellum

- The role of the cerebellum in regulating skillful movements
- Anatomic divisions and organization
- Functional divisions of the cerebellum
- Cerebellar cortex neural circuits
- Cerebellar diseases

Lesson 13: Synopsis of Lessons 9-12: Problem based learning

Lesson 14: Cerebral cortex and limbic system

- Brodmann areas in the visual cortex, auditory cortex, sensory cortex, motor cortex and the areas involved in speech
- Brain areas involved in perception
- Functions of the frontal lobe
- The limbic system
- Main structures of the limbic system
- Main ascending and descending pathways of the limbic system
- Main ascending and descending pathways to the amygdala
- Limbic system functions
- Functions of the hypothalamus
- Functions of the amygdala
- The role of dopamine in the limbic system and disorders of cognition and emotion

Lesson 15: Electrical activity of the brain, sleep–wake states, circadian rhythms

- Thalamus, cerebral cortex, & reticular formation
- Physiologic basis of the electroencephalogram (EEG)
- Clinical uses of the EEG
- Sleep–wake cycle
- α, β, γ, θ and δ rhythms

- Sleep stages: REM sleep
- EEG rhythm during various stages of the sleep–wake cycle
- Neural circuits important in sleep-wakefulness regulation
- Changes in human sleep pattern with age
- Circadian rhythms
- Neurochemical mechanisms promoting sleep & arousal

Lecture 16: The Limbic System – Behavioral and Motivational Mechanisms of the Brain

- Motivation and action
- Reward system
- Major dopaminergic pathways in the brain
- Prefrontal cortex
- Nucleus accumbens
- Amygdala - emotional responses (fear, anxiety, and aggression)

Lecture 17: Cerebral Cortex, Intellectual Functions of the Brain

- Basic anatomical differences between the two hemispheres
- Major differences in the function of the two hemispheres in humans
- Complementary specialization of the hemispheres
- Physiology of language
- Cortex areas involved in speech
- Speech disorders
- Language and age
- Clinical cases

Lesson 18: Learning and memory

- Learning and memory
- Forms of memory
- Neural basis of memory
- Synaptic plasticity and learning
- Habituation and sensitization
- Long term potentiation and long term depression
- Conditioned reflexes
- Working memory
- Long term memory
- Brain areas involved in memory formation
- Alzheimer disease & senile dementia

2. Endocrinology & Reproduction

Lesson 19: Hypothalamic regulation of hormonal functions - Pituitary gland, anterior pituitary hormones, regulation of growth and development

Hypothalamic regulation of hormonal functions

- Control of posterior pituitary hormones by the hypothalamus
- Oxytocin
- Antidiuretic hormone
- Functional relationship between the hypothalamus and the anterior pituitary
- Hypophysiotropic hormones
- Differences between hypophysiotropic hormones and posterior pituitary hormones
- Significance & clinical implications

Pituitary gland, anterior pituitary hormones, regulation of growth and development

- Cell types in the pituitary gland
- The anterior pituitary hormones and their main functions
- Regulation of anterior pituitary secretion
- The role of "non-consecutive" hormones in the hypothalamus and pituitary gland

- Prolactin: action and control of secretion
- Growth hormone: plasma levels and metabolism
- Growth hormone receptors
- Effects on growth
- Effects on protein & electrolyte metabolism
- Effects on carbohydrate & fat metabolism
- Actions and regulation of insulin-like growth factor I secretion
- Direct & indirect actions of growth hormone
- Hypothalamic & peripheral control of growth hormone secretion
- Stimuli affecting growth hormone secretion
- Physiology of growth and development
- Environmental factors affecting growth
- Growth periods
- The effect of hormones on growth and development: thyroid hormones, insulin, androgens and estrogens, cortisol
- Growth defects
- Catch-up growth

Lesson 20: Thyroid gland

- Structure of the thyroid gland
- Thyroid hormones
- Iodine homeostasis
- Thyroid hormones synthesis and secretion: the role of thyroglobulin
- Transport & metabolism of thyroid hormones
- Regulation of thyroid hormone secretion
- Effects of TSH on the thyroid gland
- Negative feedback control of thyroid hormones and TSH
- Mechanism of thyroid hormone action
- Effects on metabolism - calorigenic action of thyroid hormones
- Effects on the cardiovascular system
- Effects on the nervous system
- Relation of thyroid hormones to catecholamines
- Effects on growth
- Reduced thyroid function
- Hyperthyroidism

Lesson 21: The adrenal glands

- Functional anatomy of the adrenal glands
- Paracrine effects between adrenal medulla and adrenal cortex cells
- Catecholamines
- Effects of catecholamines
- Regulation of adrenal medullary secretion
- Adrenocortical hormone classification
- Synthesis of steroid hormones
- Effect of steroid biosynthesis enzymes deficiencies on steroid hormone production
- Synthesis, transport and metabolism of cortisol
- Mechanism of cortisol action
- Effects of glucocorticoids on metabolism, tissues and organs
- Secretion in stressful situations
- Regulation of cortisol secretion (CRH, ACTH)
- Synthetic glucocorticoids
- Actions of aldosterone - Regulation of aldosterone secretion
- Disorders of the adrenal cortex (Addison's Disease, Cushing's Syndrome, hyperaldosteronism)

- Resistance to stress
- Functions of cortisol in stress
- Functions of the sympathetic nervous system in stress
- Fight or flight response

Lesson 22: Hormonal control of calcium and the physiology of bone

- The role of calcium in human physiology
- Calcium homeostasis in the body (bones, kidneys, gastrointestinal tract)
- Vitamin D
- Regulation of vitamin D synthesis
- Vitamin D effects on calcium homeostasis
- Mechanism of vitamin D action
- The parathyroid glands
- Synthesis & metabolism of parathormone (PTH)
- Regulation of PTH synthesis
- PTH effects on calcium homeostasis
- Calcitonin
- Bone structure
- Bone formation & resorption
- Bone disease
- Hypocalcemia and hypercalcemia
- Disorders of PTH secretion and vitamin D production

Lesson 23: Endocrine functions of the pancreas - Hormone regulation of carbohydrate metabolism

Endocrine functions of the pancreas

- The pancreatic cells and hormones
- Insulin structure and secretion
- Effects of the plasma glucose level on insulin secretion
- Other factors that regulate insulin secretion
- Principal actions of insulin
- Effects of insulin on carbohydrate, fat and protein metabolism
- Response of muscle, adipocytes and liver cells to insulin
- Mechanism of insulin action
- Consequences of insulin deficiency
- Consequences of insulin excess
- Glucagon synthesis
- Regulation of glucagon secretion
- Glucagon action
- Insulin–glucagon molar ratios
- Somatostatin and pancreatic polypeptide
- Effects of islet cell hormones on the secretion of other islet cell hormones
- Diabetes mellitus
- Hypoglycaemia

Hormone regulation of carbohydrate metabolism

- Metabolic events of the absorption phase
- Metabolic events of the post-absorption phase
- Endocrine and neural control of the absorptive and post-absorptive phase: the effects of insulin, glucagon, epinephrine, cortisol and growth hormone.

Lesson 24: Synopsis of Lessons 18-23: Problem based learning

Lesson 25: Sex differentiation and development - Male reproductive physiology

- Sex determination
- Sex differentiation
- Development of genitalia

- The male reproductive system
- Functional anatomy of the testicles
- Sertoli cells and Leydig cells
- Spermatogenesis
- Transport of sperm
- Hormonal control of male reproductive functions

Lesson 26: Reproductive physiology of the female

- The female reproductive organs
- Ovarian function
- Oogenesis
- Follicle growth
- Formation of the corpus luteum
- Ovarian hormones
- Hormonal control of ovarian function (follicular phase, LH surge and ovulation, luteal phase)
- Uterine changes in the menstrual cycle (menstrual phase, proliferative phase, secretory phase)
- Effects of estrogen and progesterone

Lesson 27: Fertilization - Pregnancy - Lactation

- Egg transport
- Sperm transport and capacitation
- Fertilization
- Early development and implantation
- Formation and function of the placenta
- Hormonal and other changes during pregnancy
- Parturition
- Lactation

B. Problem-based learning: Presentation, analysis and discussion of clinical cases

- Sensory systems deficiencies
- Motor system disorders
- Endocrine system disordres

C. Laboratory Practical content

Hands-on learning: Acquisition of general and specific practical & clinical skills:

General Skills

Observing phenomena of human physiology, obtaining and analyzing experimental data
Interpretation of experimental data
Resolving practical problems
Producing graphical displays of data
Operating basic laboratory equipment
Working as a team
Following instructions
Following safety regulations
Trouble-shooting in laboratory results
Clinical significance of lab results

Specific Skills

Exercise 1: Neurological examination-myotatic reflexes

- Neurological examination (History- general examination- higher mental functions - walking- motor system - sensory system - cerebellar system)
- Testing of myotatic reflexes in the laboratory

Exercise 2: Electroencephalogram (EEG) - Epilepsy

- EEG technique and methodology
- Rhythms recorded in EEG
- The EEG in various forms of epilepsy (Video)

Exercise 3: Reproduction
- Presentation of case reports

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method:
- Lectures (face to face)
- Practical
- Problem based learning (tutoring)

USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES
Lectures: include power point presentations and video.
The learning process is supported by e-Class

TEACHING METHODS
The way and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.

Activity	***Semester work load***
lectures	52 hours
Practical (3 exercises per student)	6 hours
Study	112 hours
Total	170 hours

STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*

Assessment:
Written examination at the end of the course

5.Recommended Bibliography

1. Ganong's Review of Medical Physiology
Authors: Kim Barrett, Susan Barman, Jason Yuan, Heddwen Brooks

2. Vander's Human Physiology: The Mechanisms of Body Function
Authors: Eric Widmaier, Hershel Raff, Kevin Strang

Others
- Fundamental Neuroscience, 3rd Edition
Authors: Squire L.
-The brain from top to bottom / McGill University
http://thebrain.mcgill.ca/index.php

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	**KI0300**	**Semester**	4th
COURSE TITLE	MEDICAL LIABILITY AND ETHICS		
COURSE INSTRUCTOR	Prof. Giannoukas Athanasios,		
CO-INSTRUCTORS	Prof. A. Mavroforou, Prof. Em. G. Koukoulis, Prof. E. Zakynthinos		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	2 Hours	2 .00

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	COMPULSORY | SCIENTIFIC AREA: General knowledge – Skill development
PREREQUIRED COURSES	NO
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	NO
WEBSITE (URL)	**https://eclass.uth.gr/courses/MED_U_161/**

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

Aims of the course

The course constitutes the basic framework for defining and restoring important concepts and principles of Bioethics, Medical Law and Medical Ethics. The course syllabus aims to familiarize students with the introduction of students to the ethical, legal principles and issues associated with
the practice of medicine. It also refers to the critical investigation and ethical substantiation of

medical practice, which are the necessary conditions for decision making. In this sense, the course is
the basis on which the student will be legally shielded in order to avoid future errors that could threaten his/her professional status and dignity. Finally, the aim of the course is for students to understand the importance of Bioethics, Medical Law and Medical Ethics.
Upon successful completion of the course, the student will be able to:

- Has an understanding of the important concepts and principles of Bioethics, Medical Law and Medical Ethics
- Has knowledge of medical ethics
- Is able to distinguish situations that may involve him/her with the law.
- Uses medical and bioethical terms
- Analyzes situations which require special handling in clinical practice.
- Can collaborate with fellow students to deepen critical investigation and documentation of medical practice.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Research, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3.Module Content

1. Elements of moral philosophy
2. Elements of law
3. The code of medical ethics
4. Civil and criminal liability from the performance of medical procedures
5. The obligation to inform and consent of the patient - ethical and legal dimensions
6. The responsibility of the qualified doctor - rural doctor - the nurse
7. Medical law and minor patients
8. Medical records and confidentiality –Medical consultation - ethical and legal dimensions – Physicians and mass media
9. Abortion - moral dimensions and legislative solutions
10. Euthanasia - moral dimensions and legislative solutions
11. The problems of artificially assisted insemination - ethical and legislative dimensions

12. Medical experiments - ethical and legislative dimensions
13. The rights of the hospital patient – Disobedient patients

4.TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	*Face to Face Lectures Microsoft software (PowerPoint) is used to deliver the lessons. The Library has the necessary textbooks for the course. Students also have the possibility to access the international scientific databases (PubMed), which the Library has. All course deliveries are computer-based using PowerPoint. The above lectures of the courses are posted on the websites of the School of Medicine and the University of Thessaly (e -classes) with free access by the students of the School of Medicine. Finally, the e - mail of the person in charge of the course as well as the other teachers can be used for communication between students and teachers and students are encouraged to use this method of communication as well. Also information or announcements regarding the course are posted on the websites of the Medical School and the University of Thessaly with free access by the students of the Medical School.*
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students. Specifically: • Common software (e.g. MS powerpoint) is used to prepare lecture material and display slides. • The study guide (detailed supplementary material & additional bibliography), the slides of each lecture made availableelectronically and online to students through the e-class system of our university. Announcements, information etc are available online via e-class. Communication is also done via e-mail.
TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS	

Learning activity	***Total semester workload***
Lectures	26 hours
Study	24hours
SUM (25 hours per teaching credit)	***50*** hours

standards.	
STUDENT EVALUATION **Description of the evaluation process** Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	The language of assessment is English. **Evaluation methods.** **C. For the lecture material:** Written Exams with Multiple Choice questions. The course exams are written, last 1 hourand consist of questions related to the taught topics (examples are available in the Course Guide). **Final Grade:** The final grade of the course is that of the written course exams. All of the above are presented in detail in the Course Guide which is distributed in print to all students and is posted electronically in e-class.
COMPULSORY ATTENDANCE	Students are obliged to attend at least 10 out of 13 lectures in order their attendance to be considered complete and to be allowed to sit for their exams

5.Recommended Bibliography

Lecture Material

Main suggestedtextbooks

MEDICAL RESPONSIBILITY AND ETHICS (code: EVDOXOS: 68392539)

Relevant Scientific Journals:

1. Medicine and Law
2. Journal of Medical Ethics
3. American Journal of Bioethics
4. European Journal of Bioethics

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	**EI0200**	**Semester**	5th
COURSE TITLE	**IMMUNOLOGY**		
COURSE INSTRUCTOR	MATTHAIOS SPELETAS		
CO-INSTRUCTORS	FANI KALALA		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	6	6

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	MEDICAL IMMUNOLOGY, BASIC AND APPLIED IMMUNOLOGY (CLINICAL AND LABORATORY), IMMUNOLOGY, DIAGNOSIS OF IMMUNE MEDIATED DISORDERS
PREREQUIRED COURSES	NONE
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	YES
WEBSITE (URL)	**https://eclass.uth.gr/main/portfolio.php**

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

Aims of the course

The course examines the study of the immune system, an important system that characterizes living organisms, in general, and humans in particular. The course aims at understanding the physiological and pathological functions of the human body at the immunological level and introducing the principles and techniques of laboratory immunology as well.

It also presents the application of the immunological knowledge in clinical settings such as the diagnosis and treatment of immune-mediated diseases, including immunodeficiencies, autoimmune diseases and transplantation associated disorders.

The course also provides the essential background for courses introduced at later semesters such as: internal medicine, hematology, rheumatology, allergic diseases, dermatology, microbiology. Finally, another aim of the course is to help students appreciate the importance of the correct execution and evaluation of different laboratory methods and acquire the corresponding skills which are required for the specialty of laboratory medicine as well as many other clinical medical specialties.

After the successful completion of this course, the students will be able to:

- understand the basic functions of the human immune system and the immunological basis of human immune-mediated disease
- have basic knowledge of the different immune mechanisms, the pathways of innate and cellular immunity, and basic mechanisms of antigen presentation, immune memory and immune response modulation
- distinguish symptoms and propose diagnosis and a suitable therapy of immune mediated diseases.
- use basic equipment of a Immunology lab and perform simple routine immunology analyses.
- analyze and process basic immune test results
- cooperate with their colleagues in the context of a lab environment for the execution of simple immune analyses and processing of their results.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Research, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3.Module Content

The content of the course includes the following major items:

A. The content of the lectures together with the relevant clinical insights the students need to learn/acquire per chapter.
B. The content of the tutorials/seminars together with the relevant clinical insights the students need to learn/acquire per seminar.
C. The content of the laboratory practical together with the relevant practical & clinical skills the students need to learn/acquire per exercise.

A. Lecture content and relevant clinical insights

1. **Introduction in Immunology**
2. **Innate and Cellular Immunity. Cytokines – Phagocytosis – Inflammation – Complement**
3. **Major Histocompatibility Complex. Antigens – Antibodies – Immune complexes**
4. **B cell maturation, differentiation and activation**
5. **TCR complex – T cell maturation and differentiation – T cell peripheral differentiation**
6. **Antigen presentation, innate and cellular immunity crosstalk and immune memory**
7. **immune response modulation (immune tolerance)**
8. **Transplantation immunology**
9. **Immunology of infectious diseases - the role of the microbiome in immunology**
10. **Autoimmunity – autoimmune disease**
11. **Autoinflammatory disease**
12. **Cancer immunology**
13. **Immune response damage on host - IgE-mediated allergic reactions**
14. **Innate and acquired immunodeficiencies**
15. **Laboratory investigation of immunodeficiencies**
16. **Vaccines**
17. **Immune-interImmune methods in diagnostics – immunoenzymatic methods**
19. **Flow cytometry**
20. **Molecular Immunology**

B. Seminar/Tutorial content and relevant clinical insights

Problem-based learning: Presentation, analysis and discussion of clinical cases

C. Laboratory Practical content

Hands-on learning: Acquisition of general and specific practical & clinical skills:

General Skills

Observing immune-mediated phenomena, obtaining and analyzing experimental data
Producing graphical displays of data
Working as a team
Following instructions
Following safety regulations
Trouble-shooting in laboratory results
Clinical significance of lab results

Specific Skills

Interpretation of experimental data
Resolving practical problems

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	*Face to Face:*

	Teaching of immunology consists of lectures, seminars/tutorials and laboratory practical. Attendance of Laboratory Practical and Seminars/Tutorials is obligatory. The lectures content is described above. Seminars/Tutorials (in three student groups with an instructor per group) review and extend the lectures content using examples of clinical cases (problem-based learning) that highlight the application of Immunology in the diagnosis and treatment of serious diseases. In each tutorial, students prepare answers to the questions related to the examined clinical cases and discuss them with the teachers. Laboratory exercises (in 10 student groups of students,1 instructors per group of 10 students) composing the students' practical are complementary to the lectures and they aim to familiarize the student with the application of laboratory immunology, the operation of simple laboratory instruments and the experimental procedures that are often used in laboratory immunology as well as to help the students comprehend concepts that are not easily presented theoretically (learning based on practical experience).
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students. Specifically: • Common software (e.g. MS powerpoint) is used to prepare lecture material and display slides and videos. • The study guide (detailed supplementary material & additional bibliography), the tutorial material (clinical cases), the theory and protocols of the laboratory exercises, the slides of each lecture as well as relevant videos and scientific articles made available electronically and online to students through the e-class system of our university. • Information about the course, instructors and their research interests and in general of the Laboratory of Immunology and Histocompatibilty of the Faculty of Medicine are available online on the Laboratory website …… • Common software (e.g. MS excel) is used to statistically process student assessment. Announcements, information etc are available online via e-class. Communication is also done via e-mail.
TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop,	

Learning activity	***Total semester workload***
Lectures	30 hours
Lab. Practical (obligatory presence)	10 hours
Tutorials (obligatory presence)	20 hours
Study	50 hours
Preparation for Practical	20 hours
Preparation for Tutorials	20 hours

<table>
<tr>
<td>Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.</td>
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<table>
<tr><td>SUM
(25 hours per teaching credit)</td><td>150 hours</td></tr>
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<td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, Explicitly defined assessment criteria are stated and if and where they are accessible to students.</td>
<td>The language of assessment is English.
Evaluation methods.
A. For the laboratory practical: Laboratory Assignment Reports, Written Examination at the end of the semester with multiple choice questions and problem solving.
The participation of students in the laboratory exercises as well as the written report of the results of the exercises is mandatory. The report includes the results (presented in tables and diagrams, and the conclusions (e.g. if the results were expected, if not why, sources of possible errors in the experiments) as requested by each exercise. At the end of each exercise, the written report is checked by the instructors and signed when correctly completed. Successful participation in the practical is certified by the instructors' signatures on the written reports. At the end of the semester the students are examined in the content of the Laboratory practical. The examined material consists of the theory, the methodology and the ways results are processed as included in the Guide of the Laboratory Practical or presented by the instructors during the exercises. Only the students that have successfully completed the laboratory exercises can participate in the written laboratory examination. Success in the laboratory examination is a prerequisite for participation in the course exams.

B. For the Tutorials: Oral Presentation, Oral Examination
In each tutorial, students prepare answers to the questions related to the examined clinical cases and discuss them with the teachers. The performance of the students during in the tutorials is taken into account in the final evaluation. The material of the tutorials is examined together with the lecture.

C. For the lecture material: Written Exams with multiple choice questions and questions with short answer.
The course exams are written, last two hours and consist of 50 questions (examples are available in the Course Guide). The material to be examined is lectures and tutorial material as described above. Only those students who have successfully passed the Laboratory exams have the right to participate in the course exams.
Final Grade:</td>
</tr>
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	The final grade of the course is calculated as the sum of 60 of the grade of the written course exams and 40 of the grade of the Laboratory written exams and Tutorials. All of the above are presented in detail in the Course Guide which is distributed in print to all students and is posted electronically in e-class.

5.Recommended Bibliography

A. Lecture Material

Main suggested textbooks:

1. David Male, Stokes Peebles, Victoria Male. Immunology, 9th Edition. 2021
2. Abbas KA, Lichtman AH. Basic Immunology. 2004

Further reading:

Specific reviews from the relevant scientific hournals

B. Laboratory Practical supplementary Material

Notes provided by the instructor

Relevant Scientific Journals:

Frontiers in Immunology

Nature Immunology Reviews

COURSE OUTLINE

1. GENERAL			
SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
LEVEL OF EDUCATION	UNDERGRADUATE		
COURSE CODE	EI0102	**SEMESTER OF STUDIES**	6th
COURSE TITLE	MICROBIOLOGY II		
COURSE MANAGER	PROFESSOR EFTHYMIA PETINAKI		
ASSOCIATES	ASSISTANT PROFESSOR KONSTANTINOS PAPAGIANNITSIS		

SEPERATE TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDIT UNITS
Lectures	2	4
Laboratory	2	

COURSE TYPE	Specialization
PREREQUISITE COURSES:	OXI
LANGUAGE OF TEACHING AND EXAMS :	ENGLISH
THE COURSE IS OFFERED TO ERASMUS STUDENTS	
COURSE ELECTRONIC PAGE (URL)	

2.Learning Outcomes

The aim of the course "Microbiology II" is to describe the various viruses (morphological characteristics, life cycle, mode of transmission, etc.), their role in infections, the application of diagnostic algorithms to investigate viral infections and finally the evaluation of laboratory findings. In addition, the main parasites and fungi are taught with a focus on the clinical entities that cause them, the mode of transmission and the methods of diagnosis.

Upon successful completion of the course the student will be able to know

- infections caused by viruses, parasites, fungi
- the laboratory tests required to document the responsible microorganism
- the treatment and the way of the infections

General Abilities

3. COURSE CONTENT

Thematic units:
Morphology, structure and classification of viruses
- Proliferation of viruses-cytopathogenic action
- Mechanisms of virus escape from the host's defense mechanisms
-The role of viruses in viral infections

-Laboratory diagnosis of viral infections
-Antiviral drugs (interferons, anti-retro, etc.)
- Viral infections of the respiratory system
-Viral gastroenteritis
-Viral CNS infections
- Human Herpesviruses (herpes simplex type I and II, chickenpox virus - shingles virus, cytomegalovirus , Epstein - Barr virus)
- Congenital and neonatal infections of viral etiology
-Expressive viral infections
- Hepatitis viruses (HAV, HBV, HCV, HDV, HEV)
- Retroviruses
- Papillomaviruses
- Prions

Parasites

-Toxoplasm
- Leismania
-Malaria
- Trichomonias
-Cryptococcus
-Amoeba

Fungi

- Yeasts
- Fungi

4. TEACHING AND LEARNING METHODS - EVALUATION

DELIVERY METHOD	Lectures on the amphitheater Laboratory exercises with clinical examples
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Posting the material in the e - class
TEACHING ORGANIZATION	

Activity	***Semester Workload***
Lectures	26
Laboratory	26
Independent Study	26
Course Set (1 hour workload per credit unit)	**78**

STUDENT EVALUATION	Written final exam in ENGLISH

5. RECOMMENDED - BIBLIOGRAPHY

1. Medical Microbiology. Murray P, Rosenthal K, Pfaller M. Parisianou Publications SA.

2. Infectious diseases: microbiology and treatment. Bannister B, Gillespie S, Jones J. Publications Parisian SA.

3. Colored handbook Infectious diseases. Conlon C, Snydman D. Publications Parisian SA.

ΠΘ Η0101_PATHOLOGICAL PHYSIOLOGY I_COURSE OUTLINE 2021-2022

1. GENERAL			
SCHOOL	OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF EDUCATION	UNDERGRADUATE		
COURSE CODE	ΠΘ Η0101	**SEMESTER OF STUDY**	5th Semester
COURSE TITLE	Pathological Physiology I		
COURSE RESPONSIBLE	Zoe Daniel, Professor of Pulmonology		
CO-TEACHERS	Gourgoulianis Kon., Daniel Z., Hatzoglou X., Makaritsis K., Stefanidis I., Karetsi E. Zakynthinos E., Makris D., Pantazopoulos I., Anifantakis A., Oikonomou D., Sitafidis G., Skularigis I., Giamouzis G., Dimopoulos V.		

SELF-ENDED TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDIT UNITS
Lectures: 26 lectures (13 of 2 hours and 13 of 1 hour) in an auditorium (all students together), held throughout the semester (compulsory attendance). The lectures-theoretical courses are accompanied by discussion with the students of cases and also by exercises on real cases of corresponding problems.	3h	3.00

COURSE TYPE	Scientific Area Course
PREREQUISITE COURSES:	
LANGUAGE OF TEACHING AND EXAMINATIONS :	ENGLISH
THE COURSE IS OFFERED TO ERASMUS STUDENTS	
COURSE WEBSITE (URL)	

2. Learning Outcomes

The course is essential for understanding the underlying mechanisms of various diseases.
Knowledge of Pathological Physiology is essential for understanding clinical manifestations and is a connecting link between basic sciences and pathological conditions.
Pathological Physiology refers to the consequences of disturbances in the normal functioning of the human body.
The course material aims to introduce undergraduate students to the Pathology of Diseases.
The study of the pathophysiology of diseases also allows the student to understand the underlying mechanisms of diseases as well as their clinical manifestations, with the ultimate goal of applying the appropriate treatment.
The final goal of the course is for the student to understand the disorders of the various systems and how they lead to the appearance of the various symptoms and clinical signs of specific diseases.

Upon successful completion of the course, the student will be able to:

Searches, analyzes and synthesizes data and information, using the necessary technologies

Adapts to new situations
To perform autonomous and group work
To undertake work in an international and interdisciplinary environment

General Skills

3. COURSE CONTENT

Unit 1 Respiratory System: Diseases of the lungs: ventilation disorders, pulmonary circulation disorders, gas exchange disorders, respiratory failure, pathophysiology of asthma and chronic obstructive pulmonary disease, pathophysiology of interstitial lung diseases, pulmonary embolism and pulmonary hypertension. Lung functional tests

Unit 2 Kidney Diseases, pathophysiology of azotemia , tubular function (reabsorption - excretion of substances) in normal and reduced kidney mass, pathophysiology of acute renal failure, pathophysiology of edema

Unit 3 Electrolytes: Body fluids (volume distribution, composition, circulation), regulation of water and electrolyte balance, sodium disorders, potassium, calcium, phosphorus disorders

Unit 4 Acid -base balance: normal plasma solutions, role of lungs, role of kidneys, assessment of acid-base balance -Metabolic disorders of acid- base balance -Respiratory disorders of acid- base balance

Unit 5 Cardiovascular disorders: Cardiovascular diseases

4. TEACHING AND LEARNING METHODS - ASSESSMENT

DELIVERY METHOD	LECTURES
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	PowerPoint
TEACHING ORGANIZATION	***Activity*** / ***Semester Workload***: Lectures / Total 3 hours per week
STUDENT EVALUATION	The assessment is done by written multiple-choice exams and short-answer questions. In ENGLISH language.

5. RECOMMENDED - BIBLIOGRAPHY

1. Pathological Physiology, McPhee Stephen J
2. Functional Breathing Test with 52 clinical problems, Type: Paper, K. I. Gourgoulianis
3. Related scientific journals: Related articles from recognized international medical journals

COURSE DESCRIPTION

PATHOLOGY I

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	MP0501	**Semester**	5th
COURSE TITLE	**PATHOLOGY I**		
COURSE INSTRUCTOR	MARIA IOANNOU, PROFESSOR OF PATHOLOGY		
CO-INSTRUCTORS	- MARIA IOANNOU, PROFESSOR OF PATHOLOGY - MARIA SAMARA ASSISTANT PROFESSOR OF PATHOLOGY WITH EMPHASIS ON MOLECULAR HISTOPATHOLOGY, - ELENI EIRINI THODOU ASSISTANT PROFESSOR OF CYTOLOGY - KONSTANTINA ZACHAROULI, ACADEMIC SCHOLAR		
TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.		**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
		4	5,00
COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Scientific Area		
PREREQUIRED COURSES	GENERAL and SYSTEMS MORPHOLOGY SUCCESSFUL EXAMINATION		
LANGUAGE OF TEACHING AND EXAMS	ENGLISH		
AVAILABLE TO ERASMUS STUDENTS	NO		
WEBSITE (URL)	**http://eclass.uth.gr/eclass/courses/……..**		
2.LEARNING OUTCOMES			
The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course. *• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area* *• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning*			

Aims of the course

The course examines the morphological changes that develop in tissues and organs of all systems in pathological conditions, in pre-cancerous lesions- dysplasias as well as in benign and malignant neoplasms. Furthermore, the course provides students with the fundamentals of the pathogenetic mechanisms, epidemiological data, and clinical correlations of specific diseases. Special emphasis is given on the study of the classic histopathological characters, as well as the recent molecular-cytogenetic findings of tumors with prognostic and predictive significance.

The course also provides the essential background for courses introduced at later semesters such as: DIAGNOSTIC IMAGING I, OBSTETRICS GYNECOLOGY

After the successful completion of this course, the students will be able to:

- Understand of the classical morphological changes that occur in human tissues and organ systems.
- Recognize, through special histological techniques, the differences between normal tissue structures and lesions related to inflammatory diseases, precancerous lesions, and neoplasms.
- Correctly using terminology and combine it with basic knowledge from other subjects.
- Understand and analyze the histopathological and molecular biomarkers of neoplasms with prognostic and/or predictive significance.
- Collaborate with fellow students in searching literature and writing scientific articles - interesting clinical cases, as well as participating in conference presentations.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Research, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3.Module Content

The content of the course includes the following major items:

A. The content of the lectures together with the relevant clinical insights the students need to learn/acquire per chapter.

B. The content of the tutorials/seminars together with the relevant clinical insights the students need to learn/acquire per seminar.
C. The content of the laboratory practical together with the relevant practical & clinical skills the students need to learn/acquire per exercise.

A. Lecture content and relevant clinical insights

1. Diseases of the oral cavity and gastrointestinal tract
2. Liver diseases
3. Pancreas, Biliary tract: inflammatory diseases, benign, malignant neoplasms
4. Female genital system: Diseases of the vulva, vagina, cervix, endometrium -myometrium, ovaries- fallopian tube, trophoblastic disease of pregnancy
5. Breast: Benign conditions and neoplasms. Clinical significance of specific cytogenetic lesions-therapeutic targets
6. Male genital system: diseases of the testicles, penis, prostate gland
7. Kidney and urinary tract: benign lesions and neoplasms.
8. Cardiovascular diseases
9. Basic principles of Cytology
10. Molecular mechanisms of carcinogenesis

B. Seminar/Tutorial content and relevant clinical insights
Problem-based learning: Presentation, analysis, and discussion of real clinical cases of patients with the aforementioned pathological conditions.

C. Laboratory Practical content
Hands-on learning: Acquisition of general and specific practical & clinical skills:
General Skills
Microscopic observation of clinical cases in the laboratory
Handling of optical microscope
Working as a team
Following instructions
Following safety regulations
Troubleshooting in laboratory results
Clinical significance of lab results

Specific Skills
Use of optical microscope
Familiarity with lenses-magnifications
Microscopic observation of laboratory slides and familiarization with digital histological slides

Knowledge- Context
1. **Oral cavity and gastrointestinal system diseases.** Congenital and mechanical anomalies of the esophagus, Achalasia, Mallory-Weiss syndrome, Gastroesophageal reflux, Barrett's esophagus, esophageal adenocarcinoma, esophageal squamous cell carcinoma, CMV esophagitis, Herpes esophagitis, Candida albicans esophagitis, Pyloric stenosis, Acute hemorrhagic gastritis, gastric ulcer, Chronic gastritis, autoimmune atrophic gastritis, Intestinal-type gastric carcinoma, Diffuse-type gastric carcinoma, Hypertrophic gastritis, GIST, Hirschsprung's disease, Whipple's disease, Crohn's disease, ulcerative colitis, indeterminate colitis, Toxic megacolon, Ischemic bowel disease, Pseudomembranous colitis, infectious colitis, Angiodysplasia, Appendicitis, Tubular, villous adenomas, Colon adenocarcinoma, Familial adenomatous polyposis, Lynch syndrome, Carcinoid tumor, Diverticulosis.

2. **Liver diseases.** Liver cirrhosis, inflammations such as hepatitis, chronic – acute hepatitis, alcoholic hepatitis, alcoholic steatosis, hemochromatosis, Liver disease from α1-AT deficiency. Primary biliary cirrhosis, genetic alterations of hemochromatosis, Wilson's disease, Drug-induced liver changes, cholangiopathies, Primary sclerosing cholangitis, Budd-Chiarri syndrome, Chronic passive hyperemia of the liver, hemangioma, benign and malignant neoplasms.
3. **Pancreas, Bile duct: inflammatory diseases, benign, malignant neoplasms.** Acute – chronic pancreatitis, Types of diabetes. Adenocarcinoma of the pancreas, Pancreatic endocrine tumors – MEN 1, 2, gallstones, risk factors and mechanisms of formation, different types of gallstones, Cholesterolosis, Acute cholecystitis, Chronic cholecystitis, Gallbladder carcinoma parameters.
4. **Female reproductive system: Diseases of the vulva, vagina, cervix, endometrium-myometrium, ovaries-fallopian tube diseases, trophoblastic disease of pregnancy.** Condylomas: macroscopic and microscopic morphology. Virus detection by in situ hybridization. VIN: morphology and the concept of intraepithelial neoplasia, reference to flat condyloma. Vulvar squamous cell carcinoma: clinical picture, morphology, prognostic indicators. Leukoplakia: use and abuse of the term, histopathologically respectively. Lichen sclerosus/atrophic: macroscopic and microscopic morphology, etiopathogenetic correlations. Relationship to vulvar carcinoma. Paget's disease of the vulva: macroscopic and microscopic appearance, associations, and differential diagnosis. Papillary hidradenoma: differential diagnosis (clinical) and morphology, (macroscopic and microscopic image). Cystic dilatation of the Bartholinian duct: clinical and morphological picture. VAIN: morphology, relation to HPV types, Vaginal adenosis: macroscopic and microscopic picture. Aetiological associations, with an emphasis on the possible development of carcinoma. Fibroepithelial polyp of vagina: macroscopic and microscopic picture. Possible problems from insufficient histopathological diagnosis. Embryonic rhabdomyosarcoma (botryoid): Clinical – macroscopic picture and histopathological picture. Basic epidemiological and prognostic data.
   Cervical intraepithelial neoplasia. Criteria for distinguishing the various degrees of cervical intraepithelial neoplasia (in the squamous epithelium). Basic principles in exfoliative cytology. Image and "concept" of microinvasive (or "superficially invasive") carcinoma. Invasive squamous cell carcinoma of the cervix: macroscopic images, staging. Microscopic morphology and histological grading criteria. Risk factors for "developing" cervical squamous cell carcinoma. Cervical adenocarcinoma: microscopic morphology, emphasis on the diagnosis of adenocarcinoma in situ and the clinical significance of this diagnosis. Ancillary diagnostic markers (simple reference). Endocervical polyp: morphology (macroscopic and microscopic), clinical appearance. Cervicitis: colposcopic image. Diagnostic approach, etiology. The concept of pelvic inflammatory disease and its distribution. Clinical presentation and complications.
   Endometrial hyperplasia: morphology and comparison with endometrial polyp. Macroscopic and microscopic differences. Morphological picture of simple hyperplasia, complex hyperplasia, atypical endometrial hyperplasia. Early cancerous or precancerous lesions. Relationship between polyp and endometrial carcinomas.
   Endometrial carcinoma: Macroscopic view and microscopic image. Distinguish from complex / atypical hyperplasia. Various histopathological types and corresponding models of carcinogenesis. Grading criteria. Relative frequency. Depth of infiltration as a prognostic factor and its application in daily surgical practice. Staging of endometrial carcinomas.
   Endometrial stromal sarcoma: Macroscopic and imaging picture. Basic / diagnostic microscopic images. Differentiation of low grade and high-grade stromal sarcoma and its biological significance.
   Malignant mixed Müllerian tumor of the endometrium: Macroscopic view and microscopic findings. Biological behavior. Potential diagnostic problems due to inappropriate specimen or incomplete histopathological evaluation.
   Leiomyomas: Frequency, biological behavior, clinical presentation. Macroscopic image. Miniature pictures. Degenerative atypia and the importance to avoid misdiagnosis.

Leiomyosarcomas: What are the "diagnostic criteria" and how pathologists use them for evaluation. The diagnostic value of mitoses and a certain type of necrosis. Adenomyosis: Frequency, clinical presentation. Macroscopic image. Microscopic image. Potential problem in assessing the depth of infiltration of coexisting carcinoma.
Endometriosis: What is it, "definition". Clinical events. Morphological findings. Chocolate cysts. Variety of locations. Relationship to cancer development. Emphasis on unusual findings and their importance in daily diagnostic practice.
Classification of primary ovarian neoplasms. Neoplasms of the "pluripotent" surface epithelium of the ovary. Borderline malignant tumors. Ovarian serous tumors. Ovarian mucinous tumors. Endometrioid neoplasms of the ovary: Morphology and biological behavior. Clear cell carcinoma of the ovary. Brenner tumors of the ovary. Thecoma: Relationship with endometrial diseases. Ovarian granulosa cell tumors: Macroscopic and microscopic images. Biological behavior and the importance of early diagnosis. Sertoli – Leydig tumors: Differentiation and "functional" events. Biological behavior. Germ cell tumors of the ovary: Correspondence with corresponding testicular tumors where the study of morphology is referred. Morphology of mature cystic teratoma and morphology of immature / malignant teratoma. Reference to the grading system based on the percentage of the immature neuroepithelial element. Reference to other tumors which may grow in teratoma terrain. The role of the pathologist in the assessment of the biological behavior of teratomas. Krukenberg tumor: Macroscopic and microscopic picture. Biological behavior. Possible primary foci. Differentiation from ovarian tumors with a similar macroscopic picture.
Chronic salpingitis. Ectopic, tubal pregnancy.
Gestational trophoblastic disease: hydatiform mole and choriocarcinoma. Complete mole: Pathogenesis. Possible "complications". Partial mole: microscopic picture and comparison with complete mole. The difficulty in morphological diagnosis. Pathogenesis. Biological behavior. Invasive mole: Pathogenesis. Relationship between vascular infiltration and various clinical manifestations. Choriocarcinoma: Macroscopic and microscopic picture. The role of molecular methodology to identify the "substrate" on which it developed. Metastases. The role of early chemotherapy and therefore early diagnosis.
Spontaneous wave abortions: Causes and mechanisms by trimester. Causes during the first trimester. Ectopic pregnancy (morphology and locations). Basic facts about the structure of the placenta. Causes during the second trimester. Chorioamnionitis, macroscopic and microscopic images. Meconium staining, morphology, and forensic significance. Spontaneous miscarriages in the 3rd trimester, a brief overview of the causes. The two main causes of bleeding before delivery. Twin pregnancy. Inflammation of placental villi. Basic umbilical cord abnormalities.

5. **Breast: Benign lesions and neoplasms.** Clinical significance of specific cytogenetic alterations-therapeutic targets. Brief review of normal microscopic structure. Clinical problems in which the investigation involves biopsy. Fibrocystic lesions: the mistaken view of the disease and the therapeutic implications, in the distant past, Pathogenetic interpretations, Clinical significance of cystic lesions. Hyperplastic breast lesions with an increased risk of developing cancer. Typical and atypical intraductal hyperplasia. DIN. Ductal carcinoma in situ. Microinvasion in ductal carcinoma in situ. Paget's disease of the breast. Small duct papillomas. Large duct papillomas. Lobular carcinoma in situ. LIN (lobular intraepithelial neoplasia). Classic not otherwise specified (NOS) invasive ductal carcinoma. Invasive ductal carcinoma. Indicative morphological images of NOS. Grade and generally prognostic indicators (ER, PR, Her2). Invasive lobular carcinoma: morphological images, diagnostic difficulties. Special evidence for the biological behavior of lobular carcinoma. Myeloid carcinoma. Mucinous carcinoma. Tubular carcinoma of the breast. Radial scar: morphology, its imaging appearance as a "possible" neoplastic lesion. Sclerosing adenosis: morphology and how it mimics carcinoma. Adenosis from small glandular component of the breast. Porectasia. Inflammatory carcinoma: morphology, clinical and prognostic associations. Familiar breast cancer: basic information. Ancillary prognostic indicators. Examples of applications of such markers in histopathology. Fibroadenoma. Phylloides tumor. Gynecomastia.

6. **Male reproductive system: diseases of testicles, penis, and prostate gland.** Cryptorchidism, Orchitis tuberculous, granulomatous. Testicular torsion. Spermatocele, seminal granuloma. Testicular neoplasms: seminoma, embryonal carcinoma, choriocarcinoma, teratoma. Yolk sac tumor. Etiology of male infertility. Leydig cell tumors, Sertoli cell tumors. Penile squamous cell carcinoma. Verrucous carcinoma. Papillomatosis – HPV role. Hypospadias.
   Prostatic hyperplasia. Difficulties in evaluating the PIN. Adenocarcinoma of the prostate. The importance of the Gleason score in the management of patients, familiarity with staging, morphological problems in needle-biopsy diagnosis, the role of immunohistochemistry, the importance of distinguishing ductal carcinoma. Morphology of chronic prostatitis and malacoplakia. Quality problems in the management of biopsy material in the laboratory.
7. **Kidney and urinary tract: benign lesions and neoplasms.** Glomerulonephritis, glomerular diseases – nephrotic syndrome. Inflammations – acute-chronic pyelonephritis, Berger's disease, Diabetes mellitus glomerulopathy, Potter syndrome, Alport syndrome (hereditary nephritis), Nephritis from circulating/local immune complexes.
   Kidney neoplasms. Differential diagnosis elements of focal papillary tubular hyperplasia. Similarities and differences of various histopathological types of renal cell carcinomas. Grading criteria. Contribution of immunophenotyping to the differential diagnosis of histological types of renal carcinomas. Molecular/genetic analyses and the differentiation of renal cell carcinomas into distinct entities. Oncocytoma Pediatric kidney tumors - nephroblastoma - mesoblastic nephroma. Angiomyolipoma: pathogenesis, immunophenotype, PEComas. Problems in the diagnosis of cystic neoplasms of the kidney. Identification of metastatic renal cell carcinoma (classic and rare examples of differential diagnosis with an emphasis on possible errors).
   • Tumors of the urinary bladder and urinary tract (renal calyces, renal pelvis, ureter, and urethra)
   • Papillomas. Carcinomas from transitional epithelium (urothelial). In situ carcinoma from transitional epithelium. Biological behavior of bladder cancers (p16, p53, FGFR3 mutations). Grade of malignancy (grading), differentiation-depth of infiltration and clinical significance.
8. **Cardiovascular diseases**. Congestive heart disease. Left ventricular failure (pulmonary edema, heart failure macrophages). Right ventricular failure (congestion of soft tissues and abdominal viscera, "muscocaryoid" liver). Ischemic (coronary) heart disease. Myocardial infarction. Chronic ischemic heart disease. Hypertensive heart disease. Pulmonary heart (acute and chronic pulmonary heart and morphological changes).
   Valvular heart diseases: Rheumatic fever. Aortic stenosis from calcification. Mitral valves prolapse. Non-microbial thrombotic endocarditis. Infective endocarditis. Myocarditis. Cardiomyopathies. Congenital heart diseases. Atrial septal defects. Defects of the mediastinal septum. Patent ductus arteriosus. Tetralogy of Fallot. Displacement of large vessels). Stenosis of the aortic isthmus. Pericarditis. Neoplasms of the heart: Myxoma. Rhabdomyoma. Metastatic heart neoplasms.
   Diseases of the arteries: Atherosclerosis: epidemiological data, risk factors, association of hypercholesterolemia with atherosclerosis, pathogenesis, mechanism and stages of atherosclerotic plaque formation, role of macrophages and their cytokines in the progression of atherosclerotic plaque. Complications of atherosclerotic plaques (calcification, ulceration, thrombosis, bleeding, aneurysm) and their clinical significance.
   Hypertension and hypertensive vascular disease: types and mechanisms of hypertension. Histopathological alterations of blood vessels in hypertension.
   Vasculitis: definition, classification. Polyarteritis nodosa (localization, pathogenesis, morphology, Wegener's granulomatosis, Microscopic polyarteritis, Temporal (giant cell) arteritis, Arteritis Takayasu, Obstructive thromboangiitis (Berger's disease).
   Aneurysms: types of aneurysms. Atherosclerotic aneurysms of the abdominal aorta, Syphilitic aortitis and syphilitic aneurysm (location, pathogenesis, morphology, CPAS), Dissecting aortic aneurysm (location, pathogenesis, morphology, association with Marfan syndrome).

Diseases of the veins: Varicose veins, Phlebothrombosis and thrombophlebitis, Superior vena cava and inferior vena cava syndrome
Diseases of the lymphatic system: Lymphangitis. Primary and secondary lymphedema Vascular neoplasms. Cavernous and capillary hemangiomas. Glomangioma (glomus tumor). Hemangioendothelioma. Angiosarcoma. Kaposi's sarcoma. Types, morphology (depending on stage), association with AIDS, comments on HHV-8 etiology.

9. **Basic Principles of Cytology.** Methods of cytological material acquisition. Techniques of cytological material preparation. General morphological criteria for identifying neoplastic cells. Contribution of cytology to the prevention and diagnosis of neoplastic diseases. Contribution of cytology to the treatment of neoplastic diseases (immunocytochemistry-molecular biomarkers).
10. **Molecular mechanisms of carcinogenesis.** Genetic alterations – mutations, rearrangements, translocations, oncogene and tumor suppressor gene alterations, major signaling pathways.

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	*Face to Face:* Teaching of **PATHOLOGY I** consists of lectures, seminars/tutorials, and laboratory practical. Attendance of Laboratory Practical and Seminars/Tutorials is obligatory. The lectures content is described above. Seminars/Tutorials (in 4 student groups with 1 instructor per group) review and extend the lectures content. In each tutorial, students familiarize themselves with the basic elements per unit and prepare for the laboratory exercises. Laboratory exercises (in 4 student groups of students, 1 instructors per group of 25-27 students) composing the students' practical are complementary to the lectures and they aim to familiarize the student with the application of techniques, the operation of simple laboratory instruments and the experimental procedures that are often used in PATHOLOGY as well as to help the students comprehend concepts that are not easily presented theoretically (learning based on practical experience).
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students. Specifically: • Common software (e.g. MS powerpoint) is used to prepare lecture material and display slides and videos. • The study guide (detailed supplementary material & additional bibliography), the tutorial material (clinical cases), the theory and protocols of the laboratory exercises, the slides of each lecture as well as relevant videos and scientific articles made available electronically and online to students through the e-class system of our university. • Information about the course, instructors and their research interests and in general the Pathology Department of the Faculty

<table>
<tr><td></td><td>of Medicine are available online on the Laboratory website ……
• Common software (e.g. MS excel) is used to statistically process student assessment.
Announcements, information etc. are available online and via e-class. Communication is also done via e-mail.</td></tr>
<tr><td>TEACHING METHODS
The way and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.</td><td>
<table>
<tr><th>Learning activity</th><th>Total semester workload</th></tr>
<tr><td>Lectures</td><td>28 hours</td></tr>
<tr><td>Lab. Practical (obligatory presence)</td><td>14 hours</td></tr>
<tr><td>Tutorials (obligatory presence)</td><td>14 hours</td></tr>
<tr><td>Study</td><td>40 hours</td></tr>
<tr><td>Preparation for Practical</td><td>14 hours</td></tr>
<tr><td>Preparation for Tutorials</td><td>14 hours</td></tr>
<tr><td>SUM
(25 hours per teaching credit)</td><td>124 hours</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
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</table>
</td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, Explicitly defined assessment criteria are stated and if and where they are accessible to students.</td><td>The language of assessment is
ENGLISH. Evaluation methods.
A. For the laboratory practical: Written Examination with short-answer questions and problem solving.
The participation of students in the laboratory exercises is mandatory. At the end of the semester the students are examined in the content of the Laboratory practical. The examined material consists of the theory, the methodology and the ways results are processed as included in the Guide of the Laboratory Practical or presented by the instructors during the exercises. Only the students that have successfully completed the laboratory exercises can participate in the written laboratory examination. Success in the laboratory examination is a prerequisite for participation in the course exams.

B. For the Tutorials: In each tutorial, students go deeper to the theoretical background of the laboratory exercises that will follow. The performance of the students during in tutorials is considered in the final evaluation. The material of the tutorials is examined together with the laboratory examination.

C. For the lecture material: Written Exams with multiple choice questions, true/false questions, short answers, and oral examination of students with special needs.
The course exams are written, last 2 hours and consist of multiple choice or True/False questions and critical or short answer</td></tr>
</table>

	questions. The material to be examined is lectures and tutorial material as described above. Only those students who have successfully passed the Laboratory exams have the right to participate in the course exams. **Final Grade:** The final grade of the course is calculated as the sum of 100% of the grade of the written course. All the above are presented in detail in the Course Guide which is distributed in print to all students and is posted electronically in e-class.

5.Recommended Bibliography

A. Lecture Material

Main suggested textbooks:

1. **"Robbin's Basic Pathology",** by V. KUMAR, A. ABBAS, J. ASTER, 10th edition (2019) ISBN: 9789605834623

2. **Pathology, Volume I,** by E.L. Sivridis, 3rd edition (2018)

Further reading:

NONE

B. Laboratory Practical supplementary Material

NONE

Relevant Scientific Journals:

NONE

COURSE OUTLINE

1. GENERAL			
SCHOOL	OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF EDUCATION	UNDERGRADUATE		
COURSE CODE	PTH0200	**SEMESTER OF STUDY**	5 ο
COURSE TITLE	PRE-EDUCATION PATHOLOGY		
COURSE RESPONSIBLE	IRINI I. RIGOPOULOU Associate Professor of Pathology		
CO-TEACHERS	**Clinical exercises** : G. Dalekos , S. Potamianos, A. Kapsoritakis , G. K. Makaritsis , E. Rigopoulou, D. Bogdanos , A. Kotsakis , K. Zachou, T. Eleftheriadis, X. Katsiaris, N. Gatselis, G. Daios , A. Bargiota , N. Giannakoulas , E. Saloustros , I. Pantazopoulos , A. Polyzos, A. Loukopoulos , A. Stefos , S. Georgiadou , A. Michael , S. Gabetta , S. Golfinopoulos , G. Filippidis **Lectures from the amphitheater** : I. Stefanidis, E. Zakynthinos, S. Potamianos, A. Kapsoritakis , G. Vassilopoulos, Z. Daniel, K. Makaritsis , E. Rigopoulou, D. Bogdanos , K. Zachos, N. Gatselis , G. Daios , A. Bargiota , N. Giannakoulas , H. Katsiaris E. Dardiotis		

SELF-ENDED TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDIT UNITS
	six (6)	six (6)
	LECTURES FROM AN AMPHITHEATER (3 hours per week) **2. CLINICAL TRAINING (Clinical Exercises** (3 hours per week)	

COURSE TYPE	***Scientific Area & Skill Development***
PREREQUISITE COURSES:	Attendance and successful examination in at least one course from the following: Anatomy of the Musculoskeletal System, Anatomy of Spinal Veins and Vessels and Anatomy of the Nervous System and Sensory Organs, Systems Physiology
LANGUAGE OF TEACHING AND EXAMINATIONS :	ENGLISH
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	http://83.212.32.147/internalmedicine/index.php/el/propaideftiki

2. Learning Outcomes

The course is one of the core courses of the medical schools and has significant demands on students. Students are required to devote many hours to learning how to take and write the medical history, methods of examination to assess the physical condition of the patient and learning the main symptoms with which various diseases manifest themselves. It is required to attend 3 hours per week of lectures from the lecture theatre and 3 hours per week of clinical practice in the wards of the University Clinic of Pathology with a large number of patients suffering from diseases originating from various systems and require the adoption of the so-called holistic diagnosis and treatment. The teaching is aimed at assessing the physical condition of the patient and learning different diagnosis of pathological findings.

Objectives

The Pre-Educational Pathology course is taught in the 5th semester and aims to acquire the knowledge, experience and skills necessary to perform a correct and complete clinical examination of the patient and to evaluate the clinical (subjective and objective) findings of the examination.

The specific objectives of the course are specialized in the following intended learning outcomes:

Objective purposes

The objectives of the course can be specialized in the following:

• For the student to understand the concept, importance and structure of history and to gain experience in the technique by which it is taken, recorded and presented

• To learn to perform the general objective examination in a coordinated manner, to become familiar with the findings of the examination of normal individuals and to learn to recognize pathological objective signs and their significance.

• To learn the main symptoms with which the various diseases are manifested, their varieties, their pathophysiological basis and their importance in diagnosis.

Upon successful completion of the course, the student will be able to:

He/she will be able to use the acquired knowledge in order to:

- be able to take the patient's history and then record and present it
- to acquire skills so that he can coordinately perform a general objective examination of the patient and be able to recognize both normal and pathological findings during the clinical examination and to be able to appreciate their significance
- to know the main symptoms of various diseases, their pathophysiological basis and their importance in diagnosis

Conditions

In order for the student to attend the Pre-Educational Pathology course efficiently, he should have knowledge of many courses that have already been taught based on the Study Program. Particularly important are the knowledge of Anatomy and histology of the skin, viscera and the nervous system as well as several knowledge of Pathological Anatomy and Physiology.

Structure of the knowledge that the student must acquire in the course of Pre-educational Pathology

• The knowledge that the student must acquire in the course of Pre-educational Pathology, as analyzed below, is not adapted to a specific book and the student can look for it in books of his choice.

• The required knowledge, experiences and skills are intertwined and the systematic monitoring, study and educational practice of the course material are interdependent for its understanding.
• The great importance of gaining experience in taking the history and performing the basic objective examination must be emphasized.

Skills – gaining experience

A key role in the acquisition of experience and skills is played by the students' tutoring sessions in small groups (an attempt is made not to exceed nine) under the guidance of an instructor. The exercise is performed on patients for the following purposes:
- get familiar with the patient and gain experience in taking the history, from the basic structure it should have, to the techniques used to take it, record it and present it
- be trained and gain experience in performing the basic objective examination, which includes familiarization with the findings of the examination of normal subjects and the recognition of pathological objective signs and their significance
- to learn the main symptoms of various diseases, their pathophysiological basis and their importance in diagnosis.

The selection of patients by the instructor is based on the schedule of lectures that goes hand in hand with the schedule of tutorial exercises. The knowledge to be acquired is described below (see course content).

General Skills

3. COURSE CONTENT

The set of knowledge described constitutes the taught and examined material.

Knowledge

1. Background

1.1. Understanding the importance of the history in the diagnosis and treatment of the patient. Awareness of the fact that a complete and accurate history is a prerequisite for the correct diagnosis and consequently the treatment of the patient.
1.2. Structure of history (main complaint, present disease, individual and family history, personal and social history, and review of systems).
1.3. Understanding the importance of age, gender, geography, ethnicity and social background.
1.4. Awareness of the difficulties and pitfalls that may arise in the correct assessment of the information they receive.
1.5. Understanding that history is an active process that requires knowledge and experience. Understanding that initial knowledge and experience is gained in year 3, but that the technique of history taking requires continuous effort and is improved in the pathology course in year 4 and in clinical practice in year 6.

2. Description of main symptoms

2.1. Classification of headaches and description of the clinical features of the most common of them.
2.2. Chest pain: Anatomical elements that cause chest pain. Main clinical features of pleural pain, myocardial ischemia, pericarditis, pain due to esophageal disorders, aortic dissection pain, etc.
2.3. Abdominal pain: Clinical features of pain due to peritoneal irritation, obstructive pain of the hollow viscera, vascular occlusion pain, abdominal pain of metabolic disorders.
2.4. Back pain and neck pain : Description of the clinical features of pain of the most common causes.
2.5. Pathophysiology and clinical types of cough.
2.6. Description of the different types of dyspnea. Differentiate paroxysmal dyspnea from continuous dyspnea. Shortness of breath from respiratory causes (inspiratory, expiratory). Dyspnea of cardiac etiology (dyspnea on exertion, forms of dyspnea at rest). Other types of shortness of breath.

2.7. What are atrial fibrillations and how are they described by the patient. How syncope attacks and fainting are defined. What are the main types of seizures and what are their clinical characteristics.
2.8. How are nausea, vomiting, constipation and diarrhea defined and what is the pathophysiology . Differentiation of acute and chronic inflammatory discharges.

3. Evaluation of certain objective examination findings
3.1. Growth disorders: Description of gigantism and different types of dwarfism.
3.2. Nutritional disorders: Definitions and clinical features of wasting and cachexia. Definition, method of objective measurement and grading of the severity of obesity.
3.3. Pathophysiology of body temperature regulation, description of fever types and accompanying symptoms.
3.4. Characteristic faces.
3.5. Description of primary and secondary skin lesions. Clinical description of common and characteristic skin rashes.
3.6. Bleeding manifestations of the skin: Definitions of petechiae, ecchymoses, hematomas and purpura. Common porphyric lesions.
3.7. Definition and pathophysiology of cyanosis. Distinction of peripheral central cyanosis.
3.8. Definition and pathophysiology of edema, topography of edema according to etiology.
3.9. Objective findings of congestive heart failure.
3.10. Objective findings of valvular diseases .
3.11. Objective findings of pulmonary thickening, pulmonary emphysema , atelectasis , pleural effusion and pneumothorax .
3.12. How is jaundice defined and what are the pathophysiological types of jaundice .
3.13. Objective findings of ascitic collection.
3.14. Lymphadenopathy : Topography of lymph node swellings. Evaluation of lymphadenopathy in terms of size, tenderness, consistency, formation of confluent masses and its duration. Main conditions that cause lymphadenopathy .
3.15. Splenomegaly: Significance of size, texture, tenderness to palpation, and presence of friction sound. Main causes of spleen enlargement .
3.16. Objective signs of arthritis. Description of clinical characteristics of arthritic syndromes: Monoarthritis, oligarthritis, polyarthritis, arthritis of small joints or large joints, migratory arthritis, cumulative arthritis, symmetrical arthritis, erosive or non-erosive arthritis.
3.17. How the level of consciousness is examined and how related disorders are classified. Definitions of confusion and delirium. Memory disorders and dementia.
3.18. Speech disorders. What is dysarthria and what is aphasia. Clinical forms of aphasia and ways to control them. Definition of agnostic and apraxic disorders.
3.19. Manifestations of lesions of the extrapyramidal system and the peripheral central neuron. Gait disorders and clinical gait types.
3.20. Common involuntary pathological movements: Tremor, chorea, athetosis , myoclonus , etc.
3.21. Muscle disorders: Muscle strength and muscle atrophy. Disorders of muscle tone.

4. Paraclinical semiology and basic laboratory investigation of excreta and body fluids
4.1. Evaluation of sputum based on color, texture, quantity and odor of sputum. Clinical significance and evaluation of bloody sputum.
4.2. Evaluation of emesis based on the color and composition (trophic , bilious and bloody) the amount and smell of ememas. Clinical significance of hematemesis.
4.3. Assessment of 24-hour urine output: Definition and clinical significance of oliguria and polyuria. Clinical evaluation of the appearance, color and odor of urine. Clinical significance of urine specific gravity (hyposthenuria , isosthenuria , hypersthenuria) of urine pH reaction .
4.4. Evaluation of urine biochemical parameters such as albumin, sugar, ketone bodies, pigments and urinary hemoglobin.

4.5. Evaluation of urine sediment: Hematuria and its forms, pyuria, cylindruria .
4.6. Clinical assessment of stool quantity and color. Definition and clinical significance of black stools and stool discoloration.
4.7. Pathological components of the feces: Mucus , pus, bloody impurities, intestinal parasites, etc.
4.8. Method of distinguishing the pleural fluid, into interstitial and exudative. Clinical significance of hemorrhagic, purulent, and purulent pleural fluid.
4.9. Macroscopic and microscopic characteristics of pericardial fluid. 4.10. Differentiation of ascitic fluid into portal hypertension fluid and fluid without portal hypertension. Clinical significance of hemorrhagic, purulent, and purulent peritoneal fluid.
4.11. Indications and contraindications for lumbar puncture. Clinical significance of the tension, appearance and presence of blood in the cerebrospinal fluid and normal biochemical and cellular findings.
4.12. The concept of hematocrit and hemoglobin of blood, definition of anemia and erythrocytosis . Definition and evaluation of erythrocyte markers and resulting classification of anemias.
4.13. Quantitative disorders of leukocytes.

Gaining experience and skills
1. Obtaining Background
1.1. Exercise in taking history on clinic patients
1.2. Gain experience in recording history

2. Basic and directed objective examination
2.1. The student must learn to perform the basic systematic objective examination of the patient. This examination is carried out on every patient regardless of the history and projected symptoms. This examination must gradually become the property of the student and be acted upon in a consistent and automatic manner.
2.2. The exam is done in a specific sequence. In our clinic we teach a sequence that includes:
- General overview of the patient
- Examination of the head and neck
- Upper extremity examination
- Chest and trunk examination
- Abdominal examination
- Examination of lower extremities
2.3. A standardized basic objective examination is described in the **table.** This sequence must become the absolute property of the student.
2.4. If the symptoms and general history or physical examination reveal system-specific symptoms, this should be examined in detail (directed physical examination).
2.5. Proper objective examination requires basic equipment that must always be available **(see table)**

3. General overview and assessment of the patient
3.1. Position the patient in bed
3.2. Observation of general growth and nutrition
3.3. Body temperature measurement
3.4. General overview of the skin (complexion, rashes, spider veins etc.). Palpation of the skin and any lesions to determine the temperature of its composition and elasticity.
3.5. Examination of extremities and nails.
- complexion (pallor, cyanosis, redness, Raynaud 's syndrome)
- deformities (scleroderma, muscle atrophy, joint deformities, Dupuytren palm, arachnodactyly)
- hand size
- terror
- examination of nails (coelonychia , keyboardactyly, gram -like hemorrhages.

4. Head and neck examination
4.1. Shape, size of skull, presence of alopecia, facial features , skin lesions, sensitivity, facial swelling.
4.2. General eye examination: external eye .
4.3. Eyelid examination (eyelid ptosis, upper eyelid twitching, eyelid swelling, xanthelasma, etc.).
4.4. Examination of the conjunctiva (complexion , etc.) and cornea. Pupil examination: size, shape, symmetry, pupillary and accommodation reflexes. Identifying Horner 's syndrome .
4.5. Examination of mobility of the eyeballs and examination to determine hemianopsia.
4.6. Examination of the nose and salivary glands
4.7. Examination of lips and oral cavity: (cyanosis, pallor, pigmentation etc.). Examination of gums, tongue (smearing, atrophy of nipples , etc.), palate, pharynx, tonsils.
4.8. Examination of the neck: Examination to find neck stiffness, examination of the thyroid gland, trachea, vessels (jugular pulse, arterial pulse and palpation of cervical lymph nodes)
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5. Respiratory System
5.1. Topographic orientation on the chest
5.2. Overview of the thorax
- Abnormalities of the shape of the chest (pithoid , bird-like etc.)
- Local chest wall abnormalities
- Control of respiratory movements (disorders of breathing rate, frequency, depth).
5.3. Palpation
- Mobility of the hemithorax
- Voice vibrations
- Additional vibration
- Pathological palpitations
5.4. Chest percussion
- Impact technique
- Sounds produced on impact (clear pulmonic, blunt, tympanic)
5.5. Chest auscultation
- Technique (the way listening is done in the different regions)
- Breath sounds (alveolar murmur and its variations, bronchial breathing and subcategories such as tubular murmur, pleural murmur and amphoric sound)
- Additional lung sound (musical and non-musical snoring and friction sounds)
5.6. Breast examination
- Examination of the breasts (positions of the patient during the examination, nipple insertion , skin examination)
- Palpation of the breasts
5.7. How to palpate the armpits

6. Circulation System
6.1. Examination of the vessels
- Examination of the venous (jugular) pulse (patient position, assessment of central venous pressure, hepatosphatic reflux)
- Arterial pulse (carotid pulse examination, aortic pulse examination – frequency, rhythm and rhythm disturbances, types of pulses)
- Technique and pitfalls in blood pressure measurement
6.2. Overview – palpation of the heart
- Prophecy of cardiac area
- Cardiovascular examination
- Roizos
6.3. Listening to the heart

- Hearing centers of the heart
- Physiological heart tones and changes in their intensity
- Additional heart tones (3rd , 4th)
- Clicks
- Heart murmurs (systolic, diastolic, systolic and diastolic) . Determination of focus, quality and effect of breathing.
- Pericardial friction sound

7. Examination of the Digestive System
7.1. Topographical orientation on the abdomen
7.2. Abdominal overview (skin condition, symmetry, abdominal wall movements)
7.3. Abdominal impaction
- Normal impact sound
- Liver impaction
- Spleen impaction
- Abdominal percussion to find free peritoneal fluid
7.4. Abdominal auscultation
- Listening to peristaltic bowel movements in a normal state and in various pathological conditions
- Splash
- Vascular sounds
7.5. Abdominal palpation
- Methods of palpation (very light palpation, muscle resistance)
- Deep palpation
- Palpation of the liver (size of swelling in centimeters, contracture of the lip, texture of the surface, tenderness)
- Gallbladder palpation (Murphy point, Courvoisier point , gall bladder)
- Spleen palpation (size in cm, sensitivity, texture, surface texture)
7.6. Examination of the anus and rectum
- Overview of the ring and finger examination

8. Examination of the genitourinary system
8.1. Inspection and palpation of the lumbar regions (muscle contraction, Giordano 's point)
- Palpation of the kidneys
- Examining the bladder episcopally and percussively
8.2. Examination of the inguinal regions (femoral artery compressions, swollen lymph nodes, hernias).
8.3 Examination of male external genitalia (penile examination, inspection and palpation of testicle and epididymis)

9. Examination of the musculoskeletal system
9.1. Spine examination
- Overview of the spine and identification of changes such as kyphosis, scoliosis, lordosis, etc.
- Palpate and gently tap the spine to find local tenderness and muscle spasm
- Control of spinal mobility (flexion, extension, lateral movements and rotational movement)
- Examination of sacroiliac joints
- Lasegue point
9.2. Examination of peripheral joints
- Examining complexion, temperature and texture of the underlying skin
- Identification of swelling of the joints (thickening of the synovial membrane, hydroarthrosis, bone swelling)
- Sensitivity of joints to pressure

- Examining the range of motion of the joints
9.3. Examination of individual joints
- Temporomandibular joint examination
- Examination of the shoulder
- Examination of the elbow
- Examination of the joints of the extremities
- Examination of the hip
- Examination of the knees
- Examination of the ankle joint
- Examination of the joints of the foot

10. Nervous System
10.1. Examination of level of consciousness and familiarization with the grading of disorders of consciousness
10.2. Examination of mental functions
- Examining memory
- Examination of speech (disorders, aphasic disorders and especially the distinction between perceptual aphasia and expressive aphasia and how to control them)
- Examination of cognitive and practical functions (agnosias and apraxias)
10.3. Cerebrospinal nerve examination
- Examination of the olfactory nerve (anosmia, dysodor)
- Optic nerve examination (visual acuity, color perception disorders, visual field testing for recognition half-breeds)
- Examination of oculomotor nerves (examination method based on eye movements, search for nystagmus)
- Examination of the trigeminal nerve (examination of facial skin sensitivity, scalp, release of corneal reflexes)
- Examination of the facial nerve (overview of facial symmetry and mobility of facial muscles with demonstration of teeth, attempt to whistle, convergence of eyelids, elevation of nostrils and distinction of supranuclear from peripheral damage).
- Examination of the auditory nerve (search for nystagmus, Romberg point , upper hand extension test, pointer test)
- Examination of the glossopharyngeal and vagus nerve (voice box, soft palate mobility, pharyngeal reflexes , autonomic system disorders)
- Examination of accessory nerve (examination of sternocleidomastoid and trapezius muscle)
- Examination of the sublingual nerve
10.4. Examination of sensibility, familiarization with the concepts of hypoesthesia-anesthesia, hypoalgesia - analgesia, hyperalgesia and thermoanesthesia .
- Examination of many sensibilities and specifically the touch of pain, hot, cold and critical sensibilities.
- Examination of deep sensation (sensation of "deeper" pain, joint sensation, vibration sensation - palesthesia).
10.5. Sensory disturbances depending on the point of damage
- Peripheral nerve damage
- Damage to nerve roots
- Spinal cord injury : Complete section, semi- transverse section (Brown Sequard syndrome)
- Posterior damage parcels
- Spinothalamic damage parcels
- Damage to the central part of the spinal cord
- Damage to the stem and optic chambers
- Damage to the sensory cortex and subcortical areas
10.6. Sense of mobility

- Examination of voluntary mobility: gait, gait disorders and recognition of gait characteristics.
- Examination of synergistic movements: walking in a straight line, Romberg test
- Toe - nose and heel-knee test, pronation, forearm supination
10.7. Involuntary pathological movements
- Familiarity with the different types of horrors
- Chorea athetosis , myoclonia, muscle spasms
10.8. Examination of the muscles
- Test for muscle atrophy
- Test of muscle strength
- Examination of muscle tone (hypertonia, hypotonia)
10.9. Examination of reflexes
- Examination of multiple skin reflexes
- Reflexes pharynx , soft palate
- Plantar reflexes
10.10. Examination of tendon reflexes and pathological reflexes

Panel. Objective examination instruments
• Stethoscope
• Electric flashlight
• Neurological hammer
• 128 Hz crossover
• Measuring tape
• Sphygmomanometer
• Tongue depressor
• Cotton -gauze pads
• Elastic gloves
• Vaseline
• Magnifier

BASIC MEDICAL EXAMINATION
GENERAL
1. Personality, mental state.
2. Gait and position during the examination.
3. General overview: body structure, muscle structure, nutrition, skin tone, rashes, coat condition.
4. Temperature measurement.
HEAD
5. Conjunctival examination (anemia, jaundice).
6. Ball motility, nystagmus, pupils (size, shape, reflexes to light and adaptation, visual fields), exophthalmos.
7. Oral cavity (tongue, mucous membranes, paristhmia.
NECK
8. Neck stiffness
9. Palpation of cervical, thyroid lymph nodes.
10. Overview of vessels of the neck, central venous pulse.
UPPER LIMBS
11. Overview – palpation of the extremities (temperature, xanthomas, keyboarding , nails).
12. Palpation of the standing pulse.
13. Blood pressure measurement.
14. Hand tremor control, fine movements and synergy of movements, muscle strength, tendon reflexes.
15. Joint control (sensitivity, mobility, swelling).

16. Hair control and armpit lymph node palpation.

CHEST

17. Types of breathing at rest, comparison of hemithoracic mobility , chest wall abnormalities.
18. Position, intensity of cardiac effort (overview, palpation).
19. Heart auscultation (tones, murmurs, friction).
20. Chest percussion in symmetrical positions.
21. Chest auscultation (respiratory murmur, additional sounds) in symmetrical positions.
22. Overview – breast palpation.
23. Abnormalities of the spine, tenderness and dullness of the renal region.

BELLY

24. Abdominal examination (general or local distention, epiphlebitis).
25. Abdominal palpation (tenderness, masses and especially palpation of the liver, kidney spleen).
26. Palpation of inguinal glands and inspection of hernias .
27. Palpation of femoral artery pulse.
28. Examination of genital organs.
29. Rectal examination and (optionally) fingerprint examination.

LOWER END

30. Overview for varicose veins, atrophies, swellings.
31. Palpation of lower extremities for temperature, pressure to detect swelling.
32. Palpation of lower limb arteries.
33. Joint control (swelling, mobility).
34. Control of muscle power, reflexes.

Subjective symptoms and common clinical syndromes

6.1. Headaches: Classification of headaches and description of the manifestation of the most common of them.
6.2. Chest pain: Forms of chest pain. Special description of angina pain and heart attack pain.
6.3. Abdominal pain:
6.4. Arthralgias, arthritis
6.5. Developmental disorders
6.6. Primary and secondary skin lesions
6.7. Shortness of breath
6.8. Cough and hemoptysis
6.9. Palpitation, fainting, convulsive attacks
6.10. Dysphagia
6.11. Weight loss and obesity
6.12. Nausea and vomiting
6.13. Hematemesis, blacks
6.14. Diarrhea
6.15. Constipation
6.16. Jaundice
6.17. Ascetic
6.18. Lymphadenopathy
6.19. Splenomegaly
6.20. Porphyric lesions
6.21. Dizziness, vertigo
6.22. Coma
6.23. Confusion, delirium
6.24. Automatic movements
6.25. Sensory disturbances
6.26. Movement disorders
6.27. Speech disorders

6.28. Haematuria
6.29. Polyuria

4. TEACHING AND LEARNING METHODS - ASSESSMENT

DELIVERY METHOD	Lectures either from an auditorium or online through a special platform. The clinical tutorials (clinical exercise) are carried out by the patient's bed.
	Microsoft software (PowerPoint) is used to deliver the lessons. The Library has the necessary textbooks for the course. Students also have the possibility to access the international scientific databases (PubMed), which the Library has. All course deliveries are computer-based using PowerPoint. The above lectures of the courses are posted on the websites of the School of Medicine (eclass) and the University Pathology Clinic with free access by the students of the School of Medicine. Finally, the email of the person in charge of the course as well as the other teachers can be used for communication between students and teachers and students are encouraged to use this method of communication as well. Also, information or announcements regarding the course are posted on the websites of the Medical School and the University Pathology Clinic with free access by the students of the Medical School.
TEACHING ORGANIZATION	

Activity	***Semester Workload***
1. LECTURES FROM THE AMPHITHEATER or VIA THE INTERNET (3 hours per week) The classrooms of the Larissa University Hospital (Amphitheater) are used for the delivery of the courses.	**42 hours**
2. CLINICAL TUTORING (Clinical Exercises) (3 hours per week) For the Clinical Training (clinical exercise) the patient wards of the University Pathology Clinic are used, where students are trained by the patient's bed.	**42 hours**
Total Course (….workload hours per credit unit)	**84 hours** ***Workload hours per credit unit: 84:6=14***

STUDENT EVALUATION	- The evaluation of the students is done on the one hand with oral questions on the patients' problems during the clinical exercises and on the other hand with written questions at the end of the semester. Students are assessed in the tutorial course by the instructors at the end of the semester

	on their ability to perform the basic objective examination and history taking. During the examination periods the course is examined according to the written examination system. The students' performance in the tutoring course is also taken into account for the semester's grade. Written questions include ***Short Answer Questions as well as Multiple Choice Questions.*** From the above, it can be concluded that the workload of the students for the Pre-Educational Pathology course is extremely high and the requirements are particularly high. The evaluation criteria can be accessed by students on the course website: http://83.212.32.147/internalmedicine/index.php/el/propaideftiki In order to evaluate the course and the teachers, a special questionnaire is available to the students at the end of the teaching semester of the course, with which each of the teachers is evaluated, both for the lectures from the auditorium (twice a week) and for the clinical tutorials (twice a week the week). Students are also encouraged to express their opinion on the overall educational process of the course and any proposed changes. The results of the above responses to the questionnaire are used appropriately with the aim of improving the educational process for the specific course.

5. RECOMMENDED - BIBLIOGRAPHY

-Suggested Bibliography:

1. Clinical semiology and diagnostics (G.I. Arapakis)
ISBN 960-7795-03-2
2. Guide to clinical examination (Bates Barbara)
3. Clinical diagnosis, history and physical examination (Swartz mark)
ISBN 978-960-7875-52-5
4. Medical Bibliography on the Internet
(PubMed and other bibliographic sources)

- Relevant scientific journals:

1. The New England Journal of Medicine
2. The Lancet
3. Annals of Internal Medicine
4. JAMA Internal Medicine

COURSE DESCRIPTION

PHARMACOLOGY I

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
LEVEL OF EDUCATION	*Undergraduate*		
COURSE CODE	**BE1101.E**	**SEMESTER OF STUDIES**	5th
COURSE TITLE	Pharmacology I		
COURSE MANAGER	A. Vasilaki		
ASSOCIATES	N. Sakellaridis, E. Asprodini , K. Dimas, guest speakers		

TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**CREDIT UNITS**
Lectures	6	6
Laboratory classes	2	1
Total credit units		7

COURSE TYPE	Scientific Area
PREREQUISITE COURSES:	None
LANGUAGE OF TEACHING and EXAMS :	English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes
COURSE ELECTRONIC PAGE (URL)	http://eclass.uth.gr/eclass/courses/SEYA121/

2.Learning Outcomes

The course serves as a bridge between basic sciences and clinical practice, aiming to highlight the fundamental importance of medication as one of the main tools for disease prevention and relief. Students will be introduced to the basic principles of pharmacology, including the concept: receptors, molecular mechanisms of drug action, pharmacokinetics, dosing regimens, pharmacogenetics, individualized therapy, and generic drugs. They will then learn about a new group of therapeutic agents known as biopharmaceuticals, their main differences with "conventional" drugs, and how they have affected the treatment of diseases. Finally, they will be introduced to gene therapy, its promises and problems.

The learning objectives of the course include the pharmacology of the autonomic and central nervous systems. The knowledge of the autonomic nervous system pharmacology helps students understand the mechanisms by which drugs affect the functioning of many body systems, such as cardiovascular, gastrointestinal, respiratory, and urinary (which are part of the course Pharmacology II). In this sense, the course serves as the basis on which the student will rely to understand the rationale for administering specific drugs *versus* others to patients during their clinical practice years.

The pharmacology of the central nervous system includes drugs used in the treatment of

a wide range of neurological and psychiatric conditions, as well as drugs that relieve pain and act as anesthetics. Additionally, they will learn about many CNS drugs used without a prescription to increase the feeling of well-being, leading to drug dependence.

Upon successful completion of the course the student will be able to:

- Have an understanding of the basic principles of pharmacokinetics, pharmacodynamics, pharmacogenetics, bioequivalence, as well as the basic molecular and cellular mechanisms of action of drugs, and in particular those used to affect the autonomic and central nervous system.
- Understand the meaning of drug potency, efficacy, indications, side effects, safety and toxicity
- Know the value of individualized pharmacotherapy before he is exposed to clinical practice.
- Basic principles of drug prescription

General Abilities

- Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork work
- Respect for diversity and multiculturalism
- Demonstration of social, professional and moral responsibility and sensitivity in gender issues
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3. COURSE CONTENT

Section 1: General Principles of Pharmacology

1. Drug Receptors & Pharmacodynamics
2. Pharmacokinetics *(absorption, distribution, metabolism, excretion of drugs)*
3. Bioequivalence studies
4. Biopharmaceuticals and Gene Therapy
5. Pharmacogenetics
6. Safety of Drugs - Pharmacovigilance
7. Drug Development - Basic & Clinical Evaluation of New Drugs

Section 2: Pharmacology of the Nervous System

8. Neuropharmacology - Pharmacology of the Autonomic Nervous System
9. Cholinomimetics & Acetylcholinesterase Inhibitors
10. Anticholinergic/Parasympathetic Drugs
11. Adrenergic Receptor Agonist and Other Sympathomimetics
12. Drugs Adrenergic Receptor Antagonists
13. Central Nervous System (CNS) Pharmacology - Neurotransmission & Drug Action in the CNS
14. Pharmacological Treatment of Alzheimer's Disease and Other Cognitive Disorders/Dementia
15. Pharmacotherapy for Parkinson's and Huntington 's Diseases
16. Pharmacological Treatment of Other Neurodegenerative Disorders - Ischemic Stroke, Amyotrophic Lateral Sclerosis (ALS), Spinal Muscular Atrophy (SMA), Multiple Sclerosis (MS)
17. Pharmacological Treatment of Psychosis and Bipolar Disorder

18. Pharmacological Treatment of Depression
19. Pharmacological Treatment of Anxiety
20. Sedatives - Hypnotics
21. Antiepileptic drugs
22. Local and General Anesthetics
23. Muscle relaxants
24. Opioid Analgesics & Antagonists
25. Addictive drugs
26. Pharmacological Treatment of Migraine

Section 3: Special Topics in Pharmacology

27. Heavy Metal Poisoning & Chelating Agents
28. Vitamins
29. Pharmacotherapy for the Management of Obesity and Other Eating Disorders
30. Ethanol, Other Alcohols and Drugs to Treat Alcohol Use Disorder
31. Pharmacological Treatment and Management of Attention Deficit Hyperactivity Disorder
32. Drug Addiction & Society

SEMINAR

1. Drug Prescription

LABORATORY CLASSES

1. Clinical Application of Pharmacokinetics: Determination of drug levels in biological samples from patients.
2. Drug Metabolism: Chromatographic determination of caffeine metabolic ratios in urine samples from volunteers, and determination of hepatic enzyme phenotype
3. Pharmacodynamics & ANS Drugs: Effect of acetylcholine and atropine on ileus preparation (*in silico* experiment)
4. CNS drugs: Study of the effect of different doses of the NMDA receptor antagonist ketamine on rat psychomotor activity (*in vivo* experiment)

4. TEACHING AND LEARNING METHODS - EVALUATION	
TEACHING METHODS	Face to Face & Online *(in case of need)*
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	***Use of ICT in teaching:*** ✓ Distribution of lectures visual materials ✓ Use of Microsoft Teams online application for conducting lectures in case of problem *(e.g. pandemic)*. ✓ Use of Microsoft Teams online application for communication with students *(sending written messages/video calls and sending assignments)*. ✓ Use of the online Interactive Clinical Pharmacology application (http://www.icp.org.nz) for students to practice pharmacokinetics during online lectures, as well as offline at their convenience. ***Use of ICT in Laboratory Education:*** ✓ Training in the use of an automated analysis system for the determination of drug levels in biological samples of patients

in the context of the laboratory exercise "Clinical Application of Pharmacokinetics". The exercise is conducted in the Clinical Pharmacology Laboratory of the University Hospital of Larissa.

- ✓ Use of the program OBSim: Organ Bath Simulation (http://spider.science.strath.ac.uk/sipbs/software_sims.htm) and spreadsheet software (Excel) for the implementation of the laboratory exercise "Pharmacodynamics & Autonomic Nervous System Drugs: Actions of Acetylcholine & Atropine on the Isolated Ileum (*in silico* experiment)." The exercise takes place in the Computer Science Laboratory (30 workstations) and the use of the programs is carried out individually by each student.

Use of ICT in communication with students:

- ✓ Posting of lecture materials on the e-class platform of the Faculty of Medicine.
- ✓ Posting of weekly schedules for lectures and laboratory exercises on e-class.
- ✓ Posting of all announcements on electronic platforms of the Faculty of Medicine.
- ✓ Completion of an electronic evaluation form by each student.
- ✓ Electronic communication with students regarding scientific or administrative issues that arise during the semester.

TEACHING ORGANIZATION

Learning activity	***Total semester workload***
Lectures	78 hours
Seminar (obligatory presence)	2 hours
Lab. Classes (obligatory presence)	8 hours
Study	82 hours
Course Set (hours of workload per credit unit)	*7 ECTS = 170 hours*

STUDENT EVALUATION	The language of assessment is English. Assessment of the course: written exams with multiple choice questions, short answer questions, problem solving, or a combination of these. Assessment of laboratory exercises: written exam after each exercise with multiple choice questions and/or submission of a report. The final grade is calculated based on the grades of the course exam and the laboratory exercises.

5. RECOMMENDED BIBLIOGRAPHY

Textbooks:

- *Goodman and Gilman's: Goodman & Gilman's: The Pharmacological Basis of Therapeutics, 14th edition, McGraw Hill / Medical, 2022*
- *Lippincott Illustrated Reviews: Pharmacology 8th Edition, Wolters Kluwer Health, 2022*
- *Brody's Human Pharmacology 7th Edition, Elsevier, 2024*
- *Rang & Dale's Pharmacology, International Edition, 10th Edition, Elsevier, 2024*
- *Bertram G. Katzung, Basic & Clinical Pharmacology, 15th Edition, McGraw Hill / Medical, 2020*

Relevant Scientific Journals:

- *Pharmacological Reviews*
- *Nature Reviews Drug Discovery*
- *Annual Review of Pharmacology and Toxicology*
- *Trends in Pharmacological Sciences*

- *E. Asprodine : Notes on Practical Pharmacology Exercises, University Publications of Thessaly, Volos, 2009*
- *Brody's Human Pharmacology Mechanism-based Therapeutics, 6 th Edition, Elsevier 2019*
- *Rang & Dale's Pharmacology 9th Edition, Elsevier 2019*
- *Bertram G. Katzung, Basic & Clinical Pharmacology, 15th Edition, 2021*

Related scientific journals:

- *Pharmacological Reviews*
- *Nature Reviews Drug Discovery*
- *Annual Review of Pharmacology and Toxicology*
- *Trends in Pharmacological Sciences*

COURSE OUTLINE: PATHOLOGY I (PTH 0301)

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF EDUCATION	*Undergraduate*		
COURSE CODE	**PTH 0301**	**SEMESTER OF STUDY**	**6 °**
COURSE TITLE	**PATHOLOGY I**		
COURSE RESPONSIBLE	**KONSTANTINOS P. MAKARITSIS** ASSISTANT PROFESSOR OF PATHOLOGY		
CO-TEACHERS	**CLINICAL TUTORING (Clinical Exercises)** G. Dalekos - S. Potamianos A. Kapsoritakis –- Z. Daniel -E. Rigopoulou - K. Makaritsis - K. Zachou - G. Daios -N. Gatselis- A. Kotsakis- E. Saloustros-F. Koinis -A. Bargiota - C. Katsiari - T. Eleftheriadis -D. Bogdanos - N. Giannakoulas - A. Polyzos - A. Loukopoulos - A. Stefos - S. Georgiadou-A. Michael - S. Gabeta - S. Golfinopoulos - G. Filippidis - I. Pantazopoulos - E. Karetsi - A. Koffas -E. Kourkounis – T. Simopoulou- A. Papaefthymiou – A. Pappa – D. Pappa- A. Saitis-V. Lygoura – I. Stamatis **LECTURES FROM AN AMPHITHEATER - ONLINE** G. Dalekos - S. Potamianos - A. Kapsoritakis - Z. Daniel - K. Gourgoulianis-E. Rigopoulou - K. Makaritsis - K. Zachou - G. Dayos - N. Gatselis - D. Bogdanos		

SELF-ENDED TEACHING ACTIVITIES *in case the credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the entire course, enter the weekly teaching hours and total credits*	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
	8 (eight)	**9.00**
Add rows if necessary. The teaching organization and the teaching methods used are described in detail in 4.	**1. LECTURES BY AMPHITHEATER & ONLINE** (4 hours per week) **2. CLINICAL TUTORING (Clinical Exercises) DID NOT HELD** (4 hours per week)	

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	***of Scientific Area & Skill Development***
PREREQUISITE COURSES:	Based on the Study Guide of the Medical Department of the University of Thessaly.
LANGUAGE OF TEACHING AND EXAMINATIONS :	ENGLISH

	ERASMUS Program and student exchanges in the HELMSIC program).
THE COURSE IS OFFERED TO ERASMUS STUDENTS	**YES**
COURSE WEBSITE (URL)	http://83.212.32.147/internalmedicine/index.php/el/pathology-i

2. Learning Outcomes

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that the students will acquire after the successful completion of the course.

- *Description of the Level of Learning Outcomes for each study cycle according to the Qualifications Framework of the European Higher Education Area*
- *Descriptive Indicators for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning*

Consult the concise guide to writing learning outcomes

The Pathology I course is one of the core core courses of the Medical Schools and has significant demands on the part of the students. Students are obliged to devote many hours to the study and understanding of various diseases. It is also required to attend 4 hours a week of lectures from an amphitheater as well as 4 hours a week of clinical practice in the wards of the University Pathology Clinic with a multitude of patients suffering from diseases originating from various systems and requiring the adoption of the so-called holistic diagnosis and treatment. The teaching aims to gain knowledge and experience in the main nosological entities of Pathology.

Objective

Pathology I is taught in the 6th semester as part of the Pathology course and is complemented by Pathology II which is taught in the 7th semester. The teaching of Pathology I aims to gain knowledge and experience in the nosological entities of Pathology, Infections - Cardiovascular diseases - Respiratory diseases - Gastrointestinal diseases - Liver - Biliary - Pancreatic diseases.

Objective purposes

The objectives of the course can be specified as follows:

• The acquisition of systematic knowledge of the main pathological entities (diseases and clinical syndromes). The student must know the definitions where necessary, the epidemiology, the pathogenesis, the natural history (modes of invasion, symptoms, objective signs, laboratory and imaging findings), the method of diagnosis, the complications, the prognosis and roughly the treatment of the individual diseases of Pathology.

• Gaining bedside experience of the patient's symptoms, physical examination findings, appropriate for potentially morbid laboratory and imaging findings.

• The critical evaluation of the above findings of each one and their combination and their application in diagnosis.

Conditions

• In order to attend the Pathology course efficiently, the student should have the knowledge of all the courses of the previous five semesters. This applies regardless of the requirements of the curriculum regulation that specify the prerequisite courses. The regulations of the Medical Department are of course applied for the admission of students to the attendance and examinations of the course. However, the knowledge of the previous five semesters corresponds to normal study conditions and leads to the maximum benefit of the student from attending the Pathology course.

• Some course knowledge of the first two and a half years are closely interdependent and intertwined with the description of diseases and conditions in the Pathology course. This knowledge is part of the teaching and examination material of Pathology and is clearly marked in the required knowledge of the course.

Structure of the knowledge that the student must acquire in the course of Pathology

• The knowledge that the student must acquire in the Pathology course as analyzed below is not tailored to a specific Pathology book and the student can look for it in books of his choice. The chapters of Pathology that the University has published in notes, are an additional important aid for the student.
• Required knowledge has been stratified into four categories: very important, important, desirable and elementary. The stratification was done according to the following criteria: (1) The frequency of diseases in the Greek population, (2) their importance in the understanding of wider cognitive fields of Medicine, (3) their usefulness as a resource regardless of the specialty that the student will follow in the future and (4) overlaps with other undergraduate clinical courses.
• This stratification was done to help the student in his studies and it should not be misinterpreted that the very important knowledge is enough for success. In fact, the important ones do not differ from the very important knowledge except as an approach to their study by the student. The concept of desired knowledge should not be taken as an optional acquisition of this knowledge but as a focus on the most essential elements of the relevant chapters.

Skills – gaining experience

• The experience response is achieved by an exercise (tutorial) of the students in small groups under the guidance of an instructor. An effort is made to have the teams have the smallest possible number of students and in any case not to exceed the number of nine (9). The exercise takes place in wards and on patients pre-selected by the instructor across the spectrum of Internal Pathology at the Pathology Clinic of the University of Thessaly.
• In this exercise the student comes into direct contact with real incidents and gains experience in the following:
- Expands and improves his ability to take a history, distinguish the important elements and evaluate them.
- Improves his skills in objective examination and is given the opportunity to familiarize himself with a variety of objective findings as well as their evaluation.
- Learns to recognize and code the patient's problems, as they arise from the history and the objective examination and to enrich them based on the basic hematological, biochemical and radiological tests.
- Learns the technique of differential diagnosis. He codes the diagnostic possibilities based on the history, the objective examination and the basic examinations, he becomes familiar with the creation of a differential diagnosis plan that includes the necessary microbiological, hematological, biochemical, imaging and paraclinical tests, which he learns to evaluate.
- He gains experience so that by evaluating all the findings he can make the final diagnosis of the patient and plan the therapeutic approach.
• From a technical point of view, this course follows the following general course, which of course is adapted according to the particularities of each patient.
- Students (usually in pairs) take a complete patient history and perform a complete physical examination. With the help of the instructor, a critical evaluation of the historical data as well as the findings of the objective examination is carried out. In this way, the students gain direct experience of the main symptoms as described by the patient and evaluate them taking into account the manner of appearance, duration, intensity, quality and other parameters. They also gain experience in the objective examination. Specifically, they are practiced in a series known from Pre-educational Pathology where the examination is done, the determination of the various findings as well as their evaluation.
- Based on the history, the findings of the objective examination and the help of the instructor, the students code the main problems of the patient and the main diagnostic possibilities.
- Next, the findings of the simple laboratory tests (general blood count, T.K.E., general urine, routine biochemical tests) are evaluated in relation to the history and the objective findings and where possible the scope of the differential diagnosis is limited.
- Then, based on the diagnostic possibilities, the special microbiological, hematological, biochemical, imaging and paraclinical tests required for the investigation of the patient are discussed.

- If the results of this investigation are available, they are evaluated with the help of the instructor and the students are led to the diagnosis of the disease for which the patient entered the hospital.
- Finally, depending on the case and if there is a definitive diagnosis, the therapeutic possibilities are discussed.
• The whole process of evaluating the various findings and the differential diagnosis is based on the documented medical approach (evidence based medicine).
• The selection of patients by the instructor is based on two criteria: (a) the lecture program and (b) the treatment of patients with teaching interest regardless of the lecture program. Of course, the thoroughness and depth of the incidents increases with time. The cases selected must be common diseases and conditions of great clinical interest. Below is ***a table of diseases or syndromes/symptoms*** in which the student must gain experience with the aim of coming into contact with at least one case of a patient with these diseases during the academic year.

Diseases or syndromes in which the student must gain experience

- Prolonged fever
- Infectious diseases (e.g. honey fever, infectious endocarditis, leptospirosis, meningitis, leishmaniasis, severe sepsis from common microbes, etc.)
- Asthma
- Chronic Obstructive Pulmonary Disease
- Pneumonia
- Pleurisy or pleural effusion
- Pulmonary embolism
- Heart failure – Atrial fibrillation
- Coronary artery disease
- Pericarditis
- Arterial Hypertension – Vascular Strokes
- Upper lower gastrointestinal bleeding
- Idiopathic inflammatory bowel diseases
- Jaundice
- Hepatitis
- Liver cirrhosis
- Ascetic collection
- Acute cholecystitis or cholangitis
- Acute pancreatitis

General Skills

Taking into account the general skills that the graduate must have acquired (as listed in the Diploma Appendix and listed below) which / which of them is the course aimed at?.

Search, analysis and synthesis of data and information, also using the necessary technologies
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Work in an international environment
Work in an interdisciplinary environment
Generating new research ideas
Project planning and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and ethical responsibility and sensitivity to gender issues
Exercise criticism and self-criticism
Promotion of free, creative and inductive thinking

The course aims to:

- Search, analysis and synthesis of data and information, also using the necessary technologies
- Decision making
- Autonomous work

- Teamwork
- Work in an interdisciplinary environment
- Promotion of free, creative and inductive thinking

3. COURSE CONTENT

The set of knowledge described constitutes the taught and examined material.
Knowledge

1. Infectious diseases

1.1. Very important knowledge
1.1.1. The concept of pathogenic micro-organisms, their virulence and opportunistic infections.
1.1.2. Classification of bacteria and pathogenic mechanisms of bacterial infections (especially entry and colonization, penetration, proliferation, circumvention of defense mechanisms).
1.1.3. Cause of clinical disease: Toxins, bacterial proliferation, body reaction.
1.1.4. What are the groups (and subgroups where they exist) of antibacterial drugs (antibiotics). What are their main mechanisms of action, what are the resistance mechanisms and by what mechanisms does resistance develop.
1.1.5. The importance of bacterial susceptibility and evaluation of in vitro susceptibility tests. Importance of the patient's immune status and the location of the infection. Principles underlying the combination chemotherapy of infections.
1.1.6. Main groups of antibacterial drugs, modes of action, main side effects.
1.1.7. Clinical applications of individual antibiotics and groups of antibiotics.
1.1.8. Classification of viruses and pathogenic mechanisms of viral infections (cell adhesion, entry into reproductive cells, dissemination)
1.1.9. What are the main antiviral drugs (except antiretrovirals), how do they work and what are their main clinical indications.
1.1.10. General morphological classification of fungi. What are the main drugs used in the systemic treatment of fungal infections? What is their mechanism of action and the main clinical applications.
1.1.11. Parasites (protozoa and helminths): Classification, pathogenic mechanisms of infection and immune response.
1.1.12. Infections in people with disorders of defense mechanisms and especially in people with impaired humoral and cellular immunity.
1.1.13. Adult vaccines, (what they are, and what are the indications, contraindications, and complications) and passive immunization.
1.1.14. Varicella zoster virus infections: Epidemiology, modes of transmission, pathogenesis, clinical picture and complications of varicella. Pathogenesis, clinical presentation, specific localizations and complications of shingles. Prophylaxis and treatment of zoster-varicella virus infections.
1.1.15. Epstein-Barr virus infections: Epidemiology, mode of transmission, pathogenesis, clinical pictures and especially the clinical picture of infectious mononucleosis, laboratory findings, antibodies produced and diagnosis of the disease. The importance of the virus in the development of neoplasms.
1.1.16. Cytomegalovirus infections: Epidemiology, modes of transmission, cytomegalovirus monocytosis syndrome, cytomegalovirus infections in the immunocompromised. Diagnosis and treatment of cytomegalovirus infections.
1.1.17. Flu. Elements of virology (types of viruses), epidemiology, modes of transmission, clinical picture, complications, diagnosis, prevention and treatment of the disease.
1.1.18. Retroviral infections in general and human immunodeficiency virus (HIV) infections: Virology evidence, modes of transmission and epidemiology, pathogenesis evidence, clinical course of infection (acute syndrome, asymptomatic infection, early symptomatic infection and systemic manifestations). The latter include neurological disease, secondary infections, neoplasms and other manifestations. Diagnosis (methodology and its application).

1.1.19. Pneumococcal infections. Elements of microbiology, pathogenesis, types of infections with the corresponding clinical pictures and treatment.
1.1.20. Streptococcal infections. Elements of microbiology and classification of streptococci, epidemiology and description of the clinical forms of infections (scar, pharyngitis, erysipelas, etc.). Complications and treatment.
1.1.21. Staphylococcal infections. Elements of microbiology, pathogenesis, susceptible populations, forms of staphylococcal infections and treatment.
1.1.22. Infections by Gram (-) enteric bacteria: Evidence of microbiology and pathogenesis of associated infections.
1.1.23. E. Coli Infections: Epidemiology, Clinical Forms of Infection, Diagnosis and Treatment
1.1.24. Non-typhoidal salmonellosis. Elements of microbiology, epidemiology, clinical syndromes, diagnosis and treatment.
1.1.25. Brucellosis. Elements of microbiology, epidemiology, clinical syndromes, diagnosis and treatment
1.1.26. Tuberculosis : Elements of microbiology, epidemiology, elements of pathogenesis (innate and acquired immunity, initial damage, post-primary tuberculosis). Description of the clinical picture and course of primary and post-primary tuberculosis. Diagnosis of pulmonary tuberculosis. Tuberculin test (start of the test, evaluation). Unemployment against tuberculosis and unemployment situations. Description of the extrapulmonary forms of tuberculosis. Antituberculosis drugs, principles determining their administration and side effects. The importance of BCG vaccine and chemoprophylaxis.
1.1.27. Leishmaniasis. Elements of microbiology and epidemiology, modes of transmission, clinical presentation and complications, diagnosis and treatment of visceral leishmaniasis.
1.2. Important knowledge
1.2.1. Normal oral and intestinal flora
1.2.2. Defense mechanisms against infections
1.2.3. Surface, physical and humoral barriers, non-specific defense, specific immune mechanisms.
1.2.4. Red: Epidemiology data, modes of transmission, clinical picture and complications (especially in pregnant women), diagnosis, prevention.
1.2.5. Measles: Epidemiology, pathogenesis, modes of transmission, clinical picture and complications, diagnosis, treatment and prophylaxis.
1.2.6. Epidemic mumps. Epidemiology, modes of transmission, clinical picture, complications, treatment and prevention.
1.2.7. Meningococcal infections. Elements of microbiology, epidemiology, the concept of carriage and susceptible individuals, mode of transmission, pathogenesis, caused clinical syndromes, complications, treatment and prevention.
1.2.8. Legionnaires. Microbiology and epidemiology data, mode of transmission, clinical manifestations, diagnosis, treatment.
1.2.9. Infections from intestinal Gram (-) bacteria other than E. Coli: Which bacteria belong to this category and what infections do they cause.
1.2.10. Pseudomonas infections. Epidemiological data, clinical syndromes, diagnosis and treatment.
1.2.11. Sealings. Elements of microbiology, epidemiology and pathogenesis, clinical manifestations, treatment and prevention.
1.2.12. Campylobacteriosis: microbiology, modes of transmission, clinical spectrum of manifestations, diagnosis and treatment.
1.2.13. Yersinizations. Microbiology data, modes of transmission, clinical spectrum of manifestations, diagnosis and treatment.
1.2.14. Clostridium infections. Elements of clostridia microbiology, epidemiology, pathogenesis, clinical picture, diagnosis and treatment of tetanus as well as prophylaxis, especially in injuries. Pathogenesis, forms of the disease depending on the way it is caused, clinical picture, diagnosis and treatment of botulism. Food poisoning and colitis caused by Clostridium.

1.2.15. Mixed anaerobic infections. General characteristics of anaerobic infections in terms of entry conditions, pathogenesis and clinical manifestations. Clinical syndromes caused by or involving anaerobic bacteria, diagnosis and treatment.
1.2.16. Fine spirals. Microbiology data, epidemiology, mode of transmission, spectrum of clinical manifestations, complications, diagnosis, treatment.
1.2.17. Lyme disease. Details of microbiology, epidemiology, mode of transmission, clinical manifestations by stages, diagnosis and treatment.
1.2.18. Mycoplasma infections. Microbiology data, epidemiology, spectrum of clinical manifestations, diagnosis and treatment.
1.2.19. Fundraising. Microbiology data, epidemiology, mode of transmission, range of clinical manifestations, diagnosis depending on location, treatment.
1.2.20. Malaria. Elements of microbiology and cycle of the parasite. Pathogenicity and type of immunity to the parasite. Clinical pictures, complications, diagnosis, evidence of treatment and prevention.
1.2.21. Toxoplasmosis. Elements of microbiology, biological cycle of the protozoan, mode of transmission and pathogenesis of infections, range of clinical syndromes, (congenital toxoplasmosis, acquired toxoplasmosis in non-immunosuppressed and immunosuppressed individuals), diagnosis and treatment.
1.2.22. Lambriasis: Parasitological data, epidemiology and susceptible individuals, clinical forms of infection, diagnosis and treatment.
1.3. Desired knowledge
1.3.1. Infections by the herpes simplex virus (types of viruses, mode of transmission, pathogenesis, forms of clinical manifestations, treatment)
1.3.2. Adenoviruses: Virology data, mode of transmission, main clinical syndromes
1.3.3. Enteroviruses: Elements of virology and groups of enteroviruses. Epidemiology, pathogenesis, modes of transmission and main clinical syndromes.
1.3.4. Viral respiratory infections. Epidemiological data main groups of pathogenic viruses and clinical syndromes.
1.3.5. Diphtheria: Elements of microbiology, modes of transmission, epidemiology, pathogenesis, clinical presentation and complications, prognosis, diagnosis, treatment, prophylaxis.
1.3.6. Anthrax: Microbiology, epidemiology, clinical forms, prognosis, treatment.
1.3.7. Listeriosis: microbiology data, epidemiology, modes of transmission, description of clinical syndromes in pregnant and non-pregnant women, diagnosis, treatment.
1.3.8. Haemophilus influenza (flu) infections. Microbiology data, epidemiology, mode of transmission, clinical syndromes, treatment and prevention.
1.3.9. Whooping cough: Microbiology, epidemiology and pathogenesis of the infection. Mode of transmission, clinical picture and complications. Diagnosis, treatment, prevention.
1.3.10. Typhoid fever: Definition, mode of transmission, epidemiology, clinical picture and course, complications, prognosis, diagnosis and treatment.
1.3.11. Cholera: Microbiology, epidemiology, modes of transmission, clinical picture and complications, diagnosis, prognosis and treatment.
1.3.12. Actinomycete infections. Elements of microbiology, pathogenesis and predisposing factors, clinical forms, diagnosis and treatment.
1.3.13. Nocardiasis: Microbiology, mode of transmission, susceptible individuals, clinical forms, prognosis and treatment.
1.3.14. Rickettsias. Groups of rickettsiae and epidemiology, clinical picture, prognosis and treatment of the main ones.
1.3.15. Chlamydial infections. Microbiology evidence and C. Trachomatis infections.
1.3.16. Wheezing. Elements of microbiology, epidemiology, modes of transmission, clinical picture, diagnosis, treatment.

1.3.17. Candidiasis: Mycological facts, pathogenesis, clinical manifestations (local and systemic), diagnosis and treatment.
1.3.18. Aspergillosis: Etiology, pathogenesis, clinical syndromes, diagnosis and treatment.
1.3.19. Pneumocystis infections Carinii (jiroveci): Etiology, epidemiology, pathogenesis, clinical manifestations, course, prognosis and treatment.
1.3.20. Intestinal platyhelminthic infections: Elements of parasitology with knowledge of the main parasites and the infections they cause as well as treatment.
1.3.21. Echinococcosis. Elements of parasitology, morphology of cysts, manifestations depending on the affected organs, complications of cyst rupture. Diagnosis and treatment of echinococcal cyst.
1.3.22. Cysticercosis: Description of the way of development and clinical laboratory manifestations.
1.3.23. Intestinal nematode infections. Elements of parasitology and a rough description of the diagnosis and treatment of ascariasis, duodenal hookworm infections, roundworms, trichinuria and oxyuresis.
1.4. Basic knowledge
1.4.1. Smallpox: What are smallpox and what infections do they cause?
1.4.2. Parvoviruses: What are parvoviruses and what is their importance?
1.4.3. Papavovirosis: Major subgroups and clinical significance.
1.4.4. Rabies: Definition, epidemiology, mode of transmission, pathogenesis, clinical picture and prevention.
1.4.5. Arboviruses.: Modes of transmission, groups of caused clinical syndromes.
1.4.6. What infections are moraxellas responsible for?
1.4.7. Staphylococcal infections: Their importance in nosocomial infections.
1.4.8. Tularemia: Microbiological data, mode of transmission, main clinical forms.
1.4.9. Plague: Microbiological data, mode of transmission, main clinical forms.
1.4.10. Bite-bite disease: Etiology, epidemiology, clinical manifestations, diagnosis and treatment.
1.4.11. Leprosy: Modes of transmission, main clinical forms, method of diagnosis.
1.4.12. Relapsing fever: Microbiology data, mode of transmission, clinical picture, diagnosis.
1.4.13. Histoplasmosis: Microbiology elements, main clinical forms, diagnosis.
1.4.14. Coccidioidomycosis: Microbiological elements, main clinical forms, diagnosis.
1.4.15. Blastomycosis: Microbiology elements, main clinical forms, diagnosis.
1.4.16. Tissue nematode infections: Rough description of parasitology, mode of transmission and clinical manifestations of trichinosis and toxocariasis.
1.4.17. Filarial infections: Epidemiological data and infections caused by filarials.
1.4.18. Pinworm infections: Parasitological evidence, epidemiology, pathogenesis, clinical manifestations of acute and chronic infection, diagnosis and treatment of schistosome infections. Bile and biliary-hepatic tapeworm infections.

2. Major microbial clinical syndromes

2.1. Very important knowledge
2.1.1. Systemic inflammatory reaction syndrome, sepsis: Definitions, pathogenesis, description of clinical picture, diagnosis and treatment.
2.1.2. Acute microbial pharyngitis. Etiological factors, clinical manifestations depending on the cause, complications, diagnosis, treatment.
2.1.3. Urinary tract infections: Definitions, etiology and predisposing factors, epidemiology, clinical laboratory manifestations (asymptomatic bacteriuria, acute cystitis, acute pyelonephritis, urinary tract infections in catheterized patients), diagnosis, basic principles of treatment.
2.1.4. Acute microbial gastroenteritis: Definition, epidemiology, causative factors, pathogenesis (importance of defense mechanisms and infectious agents of microbes as well as mechanisms of causing clinical disease), epidemiological forms, clinical manifestations (especially distinguishing between inflammatory and non-inflammatory discharges), criteria indicative of severe disease and basic coping principles.

2.1.5. Microbial endocarditis: Definition and classification. Etiological factors and pathogenesis of native valve endocarditis, endocarditis in drug addicts and prosthetic valve endocarditis. Clinical and laboratory findings. Diagnostic criteria and diagnosis. Basic coping principles.
2.1.6 Bacterial meningitis: Etiological factors, pathogenesis depending on the cause, clinical manifestations, objective findings, laboratory findings and special findings of the cerebrospinal fluid. Diagnosis and principles of treatment. Special forms of bacterial meningitis (tuberculous, syphilitic, fungal, etc.).
2.1.7. Viral meningitis: Etiological factors, clinical laboratory manifestations, cerebrospinal fluid findings, diagnosis and treatment.
2.1.8. Hospital-acquired infections: Definition, frequency, most common pathogens, predisposing factors and main infections caused.
2.1.9. Fever of unknown etiology: Definitions, main groups of diseases with the main sub-diseases presenting as fever of unknown etiology and diagnostic approach.
2.2. Important knowledge
2.2.1. Erysipelas and cellulitis: Definitions, etiological factors, clinical picture, diagnosis and treatment.
2.2.2. Sexually transmitted diseases. Which pathogens are sexually transmitted and which clinical syndromes do they cause in the genitals or other systems.
2.2.3 Hematogenous osteomyelitis: Definition, etiological factors, manifestations of acute hematogenous osteomyelitis and vertebral osteomyelitis. Diagnosis and treatment.
2.2.4. Septic arthritis: How it is caused, predisposing factors, common pathogens, clinical picture, laboratory findings, diagnosis and treatment.

3. Cardiovascular diseases
3.1. Very important knowledge
3.1.1. Elements of normal cardiac function and particularly the importance of end-diastolic volumes, atrial contraction, myocardial inotropic state and ventricular afterload.
3.1.2. Definition, etiology and precipitating factors of heart failure.
3.1.3. Forms of heart failure (HF): Systolic-diastolic HF, high-low HF, right-left HF, forward-reverse HF.
3.1.4. Symptoms (with emphasis on types of dyspnea) and objective findings of heart failure.
3.1.5. CA diagnosis criteria.
3.1.6. Cardiogenic pulmonary edema: Definition, pathophysiology, clinical picture, objective and imaging findings, diagnosis and treatment.
3.1.7. Etiology and pathogenesis of ischemic heart disease. Typical clinical manifestations, electrocardiographic findings, and physical examination findings in stable angina pectoris. Diagnostic approach to stable angina (exercise test, thallium exercise test). Prognosis of stable angina pectoris. Treatment of stable angina (Hygienic dietary measures, treatment of risk factors and management). How is unstable angina and Prinzmetal angina defined .
3.1.8. Acute myocardial infarction: Pathogenesis and clinical presentation. Objective, electrocardiographic and laboratory findings of infarction. Prehospital management, initial hospital management, the importance of fibrinolysis and invasive myocardial revascularization. Brief description of the major complications of heart attack.
3.1.9. Definition, etiological classification, clinical manifestations and objective findings of acute pericarditis. Diagnostic access. How is pericardial tamponade defined, what are the usual causes, symptoms, objective findings and management of tamponade.
3.1.10. How is hypertension defined, how prevalent is it, and how is it classified?
3.1.11. Description of the predisposing factors of essential hypertension.
3.1.12. What is the natural history and target organ effects of arterial hypertension.
3.1.13. Forms of secondary arterial hypertension and diagnostic approach.
3.1.14. Hygienic dietary measures to treat arterial hypertension. Pharmacological treatment of arterial hypertension. Groups of antihypertensive drugs, their mode of action and side effects. Principles of treatment of arterial hypertension.

3.1.15. Malignant hypertension: How it is defined, pathogenesis, main symptoms, treatment.
3.1.16. Venous thrombosis: Predisposing factors, methods of diagnosis and treatment of venous thrombosis. Prophylaxis of venous thrombosis.
3.2. Important knowledge
3.2.1. Definition, pathogenesis, epidemiology, clinical laboratory picture of rheumatic fever.
3.2.2. Etiology, pathophysiology, clinical manifestations and complications, objective findings and diagnosis of valvular diseases.
3.2.3. Elements of physiology and pathophysiology of pulmonary circulation.
3.2.4. Pulmonary hypertension: Definition, conditions that cause it, pathophysiology, diagnostic approach. Natural history of primary pulmonary hypertension.
3.2.5. Pulmonary heart due to pulmonary emboli (acute and chronic). Cardiopulmonary clinical laboratory findings in patients with chronic obstructive pulmonary disease and restrictive lung diseases.
3.2.6. Pathogenesis (accumulation and modification of lipoproteins, role of leukocytes and foam cell formation), progression and complications of atherosclerosis. Atherosclerosis predisposing factors, induced clinical syndromes and prevention (lowering of blood lipids and antihypertensive treatment).
3.2.7. Aortic aneurysms, definition, underlying diseases and natural history. Definition, clinical appearance, diagnosis and treatment of aortic dissection aneurysm.
3.3. Desired knowledge
3.3.1. Chronic pericardial effusions: Where they may be due, clinical manifestations, diagnosis.
3.3.2. Chronic compressive pericarditis: Clinical manifestations and objective findings.

4. Respiratory Diseases
4.1. Very important knowledge
4.1.1. Evaluation of chest x-ray (plain chest and computed tomography) and especially in the imaging of atelectasis, thickenings, reticular pattern, nodular lesions, ganglion lesions, pleural effusion and mediastinal tumors.
4.1.2. Ways to monitor respiratory function: Definitions and significance of parameters of dynamic spirometry, static volumes and diffusing capacity of the lungs.
4.1.3. Evaluation of blood gas values
4.1.4. Sputum laboratory tests (Gram stain, common cultures, special stains and cultures, cytology). Applications and clinical relevance.
4.1.5. Main indications and contraindications for bronchoscopy (diagnostic and therapeutic). Major complications.
4.1.6. Indications for thoracentesis, pleural fluid tests and their evaluation.
4.1.7. Definition, frequency and epidemiology, classification, pathogenesis and pathophysiology of bronchial asthma. Factors that create or contribute to the onset of asthma. Clinical features and classification of bronchial asthma according to them. Diagnosis of bronchial asthma, groups of antiasthmatic drugs (including mode of action and side effects) and principles of drug treatment of asthma (in the acute phase and chronically).
4.1.8. Chronic Obstructive Pulmonary Disease (COPD): Definition of the disease as well as definitions of chronic bronchitis and emphysema. Epidemiology, description of etiological factors and pathophysiology of COPD. Clinical manifestations, objective spirometric and imaging findings depending on the prevalence of chronic bronchitis or emphysema. Diagnosis and treatment of COPD.
4.1.9. Etiological factors and manifestations of acute bronchitis.
4.1.10. By what defense mechanisms is the sterility of the lower respiratory system achieved and what are the mechanisms of entry of microbes into it. Conditions predisposing to the entry of pathogens.
4.1.11. Classification of pneumonia according to the aetiological picture, the aetiological factors and the particular circumstances of the development of the infection.

4.1.12. Community-acquired pneumonias: Most common pathogens, clinical picture and laboratory findings as well as distinguishing between typical and atypical pneumonias. Mechanisms of induction and characteristic aspiration pneumonia. In which infectious diseases is pneumonia a part or their main manifestation in certain endemic areas. Causes and clinical significance of recurrent pneumonia.
4.1.13. Investigation of pneumonia based on epidemiological data, history, clinical picture, laboratory findings and especially imaging findings, sputum examination and serological tests.
4.1.14. What are the main complications of pneumonia and what are their main laboratory and imaging characteristics.
4.1.15. How is lung abscess defined and classification of lung abscesses. In which cases does a lung abscess develop from aspiration of oropharyngeal secretions, which pathogens are involved and what is the natural history of the disease
4.1.16. Empiric treatment of community-acquired pneumonia according to patients' age and underlying diseases. Clinical-laboratory evidence advocating for hospitalization of patients with pneumonia. Treatment of pneumonia cases admitted to hospital according to the severity and criteria of severe pneumonia. Treatment of anaerobic pneumonia and abscesses. Prognosis of the various forms of pneumonia.
4.1.17. Interstitial lung diseases: how are they defined, which pathogenic processes are involved, which are the most common forms. Clinical laboratory and imaging investigation (history, manner of clinical presentation, environmental history, objective and imaging findings, findings of functional lung tests and blood gases). Importance of lung biopsy.
4.1.18. Etiology and predisposing factors of pulmonary embolism. Pathophysiological disorders from the respiratory and circulatory systems. Clinical manifestations depending on the extent of embolism. Diagnostic approach to pulmonary embolism (radiological findings, blood-ventilation scintigraphy, high definition computed tomography, angiography). Treatment of pulmonary embolism.
4.1.19. Acute respiratory distress in adults: Definition, frequency and main causes. Pathogenesis, pathophysiology, clinical manifestations, objective and imaging findings, blood gas disorders, diagnosis and basic principles of treatment.
4.1.20. Etiology, laboratory and imaging investigation, diagnosis and differential diagnosis of pleural effusions.
4.2. Important knowledge
4.2.1. Definition, frequency, etiology (congenital and acquired causes), pathological anatomical features, clinical manifestations, diagnostic means and treatment of bronchiectasis.
4.2.2. Gross pathology anatomy and pathophysiology of interstitial pulmonary fibrosis. Clinical picture (symptoms and objective findings), radiological and spirometric findings of the disease. Prognosis, diagnosis and treatment of interstitial pulmonary fibrosis.
4.2.3. Definition, pathogenesis, pathophysiology, clinical manifestations during sleep and wakefulness, and diagnosis of sleep apnea syndrome. Diagnosis and treatment of the syndrome.
4.2.4. Definition, types, common etiological factors and clinical features of respiratory failure.
4.2.5. Indications for oxygen therapy in acute and chronic conditions. O2 delivery systems and O2 toxicity.
4.2.6. Common mediastinal tumors by location.
4.2.7. Causes, clinical manifestations, objective and imaging findings and treatment of pneumothorax.
4.3. Desired knowledge
4.3.1. Definition, incidence and epidemiology, pathophysiology and molecular genetics, clinical manifestations and progression of cystic fibrosis. Diagnostic criteria and treatment principles.
4.3.2. Etiology, pathophysiology and clinical presentation of hypersensitivity pneumonitis (exogenous allergic alveolitis, eosinophilic pulmonary syndromes). Diagnostic approach and treatment.
4.3.3. Bronchiolitis definition and classification. Clinical picture, imaging findings and diagnosis of obstructive bronchiolitis with organizing pneumonia.
4.3.4. Definition and common causes of hypoventilation, pathophysiology, clinical, laboratory findings, gas exchange control findings and diagnosis.

4.3.5. Hyperventilation syndrome: Definition, common causes, clinical features, pathophysiology and diagnosis.
4.4. Basic knowledge
4.4.1. Indications of bronchoalveolar lavage. What it is, what elements are examined and what is the clinical utility.
4.4.2. Definition, main clinical and imaging features of desquamative interstitial pneumonia, drug-induced interstitial pneumonitis, pulmonary alveolar proteinosis, Langerhans cell pulmonary histiocytosis, lymphocytic infiltrative disorders and alveolar bleeding syndromes.
4.4.3. What are the main interstitial occupational lung diseases, what are the clinical manifestations and how are they investigated.
4.4.4. Acute mesositis (mediatoritis): frequency, causes, laboratory and imaging findings.

5. Diseases of the gastrointestinal tract
5.1. Very important knowledge
5.1.1. Main indications, main contraindications and important complications of upper gastrointestinal endoscopy, lower gastrointestinal endoscopy and retrograde cholangiopancreatography.
5.1.2. Definition and etiological types of dysphagia.
5.1.3. Gastroesophageal reflux disease: Definition, epidemiology, etiology, clinical manifestations and complications, diagnosis and treatment.
5.1.4. Elements of stomach physiology.
5.1.5. Epidemiology, pathophysiology, diagnosis and treatment of Helicobacter pylori infection of the stomach.
5.1.6. Definitions, epidemiology and etiology of peptic ulcer disease. Clinical manifestations of duodenal and gastric ulcer. Ulcer complications (bleeding, perforation, pyloric stenosis). Diagnosis and conservative treatment of peptic ulcer. Indications for surgical treatment.
5.1.7. Definition, classification and clinical picture of acute, chronic and special forms of gastritis
5.1.8. Elements of physiology of the small intestine.
5.1.9. Malabsorption syndromes. Definition, etiology, general clinical manifestations and specific manifestations depending on the cause, paraclinical investigation documenting the diagnosis and the underlying disease.
5.1.10. Celiac disease: Epidemiology and etiology of the disease. Basic histopathological picture and common causes of villous atrophy. Clinical laboratory manifestations, complications and diseases often associated with celiac disease. Diagnosis and treatment of the disease.
5.1.11. Hypolactation (Epidemiology, clinical features, diagnosis and treatment).
5.1.12. Constipation: Definition, main causes and investigation. What causes and how is idiopathic constipation treated?
5.1.13 Inflammatory enteropathies. Etiological classification.
5.1.14. Idiopathic inflammatory enteropathies (IBD): Definition, epidemiology, key pathophysiology of ulcerative colitis and Crohn's disease, and etiology.
5.1.15. General symptoms, specific symptoms, intestinal complications and extraintestinal manifestations of IFE. Clinical forms of ulcerative colitis and Crohn's disease.
5.1.16. Investigation of IFNs (especially endoscopic and radiological findings), prognosis, diagnosis and treatment.
5.1.17. Colonic diverticula: Definition, etiology, epidemiology, and natural history. Clinical picture, objective findings, and complications of diverticulitis. Methods of investigation, complications and treatment of diverticulitis.
5.1.18. How are they defined, how are they macroscopically distinguished, and what is the histopathology of colon polyps.
5.1.19. Upper gastrointestinal bleeding: Frequency, main causes, clinical laboratory assessment (history, objective examination, paraclinical tests), immediate treatment.
5.1.20. Lower gastrointestinal bleeding: Etiology and diagnostic approach.

5.2. Important knowledge
5.2.1. Definition, symptoms, diagnostic approach and treatment of achalasia of the esophagus.
5.2.2. Infectious esophagitis: What pathogens cause them, what is their endoscopic picture.
5.2.3. The concept of dyspepsia, subgroups characterized as dyspepsia, the extent of the problem and the concept and treatment of functional dyspepsia.
5.2.4. Chronic intestinal pseudo-obstruction. Etiology, clinical manifestations, diagnosis and treatment.
5.2.5. Adenomatous (neoplastic) colonic polyps: Definition, frequency, clinical significance, symptomatology, diagnosis, treatment and follow-up.
5.2.6. Main causes, clinical laboratory manifestations, imaging findings and management of acute megacolon.
5.2.7. Classification, etiology and predisposing factors of forms of intestinal ischemia. Clinical picture of embolism and thrombosis of the mesenteric arteries and thrombosis of the mesenteric vein. What are the hematological and biochemical changes of acute ischemia and the imaging methods that help the diagnosis. Chronic intestinal ischemia. Treatment and prognosis of acute and chronic mesenteric ischemia.
5.2.8. Ischemic colitis. Frequency, etiology, clinical picture, diagnostic approach and treatment.
5.3. Desired knowledge
5.3.1. Spasmodic disorders of the esophagus, mainly significance and clinical presentation.
5.3.2. Esophageal foreign bodies: Individuals at increased risk, clinical manifestations.
5.3.3. Causes of bacterial overgrowth in the small intestine, clinical manifestations, diagnostic methodology and treatment.
5.3.4. Polyps, other than neoplastic ones, of the colon: Who are they and what is their clinical significance.
5.3.5. Familial adenomatous polyposis. Pathogenesis of the disease, variants, symptoms, treatment and control of the patient's relatives.
5.3.6. Short bowel syndrome: How it is defined, pathophysiology depending on the area removed, clinical picture and treatment.
5.3.7. Enteropathy with albumin loss. Main causes, clinical laboratory characteristics and treatment.
5.3.8. How is it defined, what is the frequency and pathogenesis, in what clinical forms does it manifest itself, how is the diagnosis documented and how is congenital megacolon treated?
5.3.9. Basic elements of rectal diseases and especially, hemorrhoids, stretch marks, rectal abscesses and fistulas.
5.4. Basic knowledge
5.4.1. Kinetic study of the gastrointestinal tract: manometry of the esophagus and rectal region
5.4.2. Secondary esophageal motility disorders: How they manifest clinically and in which diseases they occur.
5.4.3. Types and manifestations of esophageal diverticula.
5.4.4. Clinical presentation and differential diagnosis and investigation of esophageal perforation.
5.4.5. Etiological categories (and individual diseases and conditions) of delayed gastric emptying, spectrum of clinical manifestations, physical examination findings, paraclinical investigation and treatment.
5.4.6. Definition, Causes, Diagnosis and Treatment of Tropical Sprue
5.4.7. Causes, clinical laboratory manifestations and method of diagnosis of lymphangiectasia.
5.4.8. What causes it, what are the main manifestations, how is the diagnosis made and what is the treatment of Whipple 's disease .
5.4.9. How is it defined, what are the clinical manifestations, how is eosinophilic gastroenteritis diagnosed and treated.
5.4.10. Small bowel diverticula: In what forms of bowel is it found and what are their complications.
5.4.11. Actinitis enteritis: How it manifests clinically

5.4.12. Familial polyposis of the colon: How is it defined, how is it inherited, what is the underlying genetic damage and what are the variants of the disease. Symptoms, diagnosis and treatment.
5.4.13. Hamartomatous polyposis syndromes. What they are, how they are inherited and how they manifest clinically.

6. Diseases of the liver, bile ducts and pancreas

6.1. Very important knowledge
6.1.1. What is bilirubin, which forms exist and are measured, which form is filtered in the urine and what is the interpretation of its increase in the serum and its presence in the urine.
6.1.2. What is the significance of increased aminotransferases, LDH, alkaline phosphatase and γGT in liver and biliary diseases and how are they evaluated.
6.1.3. What is the utility and how are serum albumin levels and prothrombin time evaluated in liver diseases.
6.1.4. What is the usefulness of serum amylase and lipase measurement in pancreatic diseases and in what other conditions are elevated amylase values found.
6.1.5. Imaging methods of liver, bile ducts and pancreas with emphasis on ultrasonography, computed tomography of the upper abdomen, endoscopic retrograde cholangiopancreatography and magnetic cholangiopancreatography.
6.1.6. Main indications and complications of liver biopsy.
6.1.7. Jaundice: Definition, classification based on predominance of unconjugated or conjugated bilirubin (common causes and diagnostic approach). Laboratory distinction of hepatocellular from obstructive jaundice.
6.1.8. Definition, most common causes, clinical presentation, laboratory findings, hepatic and extrahepatic complications, prognosis, treatment and monitoring of acute hepatitis.
6.1.9. Hepatitis A virus infection. Virology data, modes of transmission, serological diagnosis and prophylaxis.
6.1.10. Hepatitis B virus infection. Virology evidence, modes of transmission, high-risk groups, clinical picture and outcome. Serological and virological indicators that establish the diagnosis and prevention of the disease.
6.1.11. Hepatitis C virus infection. Virology data, epidemiology, modes of transmission, clinical picture and outcome of the disease, favorable or unfavorable factors involved in the progression of the disease. Diagnosis based on biochemical tests, serological and virological control and disease prevention.
6.1.12. Definition, histological forms and grading system of chronic viral hepatitis.
6.1.13. Chronic hepatitis B: The spectrum of clinical manifestations and the phases of the natural history of chronic hepatitis B. Laboratory investigation (serological and virological findings) of the disease.
6.1.14. Chronic hepatitis C: The spectrum of clinical manifestations and the phases of the natural history of chronic hepatitis B. Laboratory investigation (serological and virological findings) of the disease.
6.1.15. Prognosis and treatment of chronic hepatitis B and C.
6.1.16. Epidemiology and risk factors in alcoholic liver disease. Pathogenesis and histopathological forms of alcoholic liver disease. Clinical manifestations, laboratory findings, diagnosis and complications of the individual forms of alcoholic liver disease.
6.1.17. Definition, classification and causes of acute liver failure. Clinical and laboratory findings, treatment and prognosis of acute liver failure.
6.1.18. Definition of morphological and etiologic classification of cirrhosis of the liver. Clinical picture according to disease phase and severity classification according to Child-Pugh. Laboratory findings and treatment of cirrhosis.
6.1.19. Portal hypertension. Definition and justification depending on the identification of the cause.

6.1.20. Clinical sequelae and clinical laboratory findings of portal hypertension. What are gastroesophageal varices and congestive portal gastropathy. What are the prognostic indicators of impending variceal bleeding? Prophylactic treatment, treatment of active variceal bleeding and prevention of its recurrence.
6.1.21. Pathophysiological mechanisms of ascites development. Causes of ascites based on diseases that affect or do not affect the peritoneum. Symptoms and clinical signs. Diagnosis of the presence of ascitic collection. Biochemical and cytological analysis of ascitic fluid, classification of ascites into that due or not due to portal hypertension. Treatment of ascites according to the type of ascitic fluid.
6.1.22. Hepatic (portal-systemic) encephalopathy. Definition, staging and differential diagnosis from other forms of brain dysfunction, predisposing factors for the development of the syndrome. Therapeutic measures.
6.1.23. Definitions, pathogenesis and risk factors for the development of gallstones.
6.1.24. Etiology, pathogenesis, clinical picture, complications, laboratory findings, diagnosis and treatment of acute cholecystitis.
6.1.25. Definition etiology, pathogenesis, clinical presentation, laboratory findings, complications, diagnosis and treatment of acute cholangitis.
6.1.26. Definitions, severity discrimination and early diagnostic indicators of severity of acute pancreatitis. The meaning of the different forms of acute pancreatitis depending on whether there is necrosis or not, fluid collection, cysts and abscess.
6.1.27. Pathogenesis and predisposing factors for the development of acute pancreatitis.
6.1.28. Symptoms, objective findings, laboratory findings, and imaging test findings in acute pancreatitis.
6.1.29. Diagnosis, systemic and local complications of acute pancreatitis. Prognosis and therapeutic interventions in acute pancreatitis.
6.2. Important knowledge.
6.2.1. Hepatitis D virus infections: Conditions of infection, frequency, clinical forms, diagnosis
6.2.2. Non-alcoholic steatohepatitis: Etiology, clinical manifestations, laboratory findings, prognosis and treatment.
6.2.3. Classification based on etiology and histology of drug-induced liver diseases.
6.2.4. Primary biliary cirrhosis. Definition, epidemiology, associations with other autoimmune diseases, the range of clinical laboratory manifestations, histological findings, diagnosis, prognosis and treatment of the disease.
6.2.5. Budd-Chiari syndrome: How it is defined, main causes, clinical laboratory manifestations, diagnosis and treatment.
6.2.6. Clinical and laboratory findings, diagnosis and treatment of chronic cholecystitis.
6.3. Desired knowledge
6.3.1. Epidemiology, clinical presentation and clinical forms, laboratory and serological findings, classification based on serological findings, diagnosis and treatment of autoimmune hepatitis.
6.3.2. Chronic pancreatitis: Definition, classification, epidemiology, clinical picture and laboratory findings, diagnosis, complications and management.
6.3.3. Endocrine tumors of the pancreas. Who are they, what hormones do they secrete, where are they usually located in each case, what are their clinical manifestations.
6.4. Basic knowledge
6.4.1. Hepatitis E and G/GB-C virus infections: Modes of transmission, incidence and clinical significance.
6.4.2. α1-antitrypsin deficiency: Mode of inheritance, genetic basis, pathogenesis, organs affected and clinical manifestations, diagnosis and treatment.
6.4.3. Hepatonephric syndrome: Definition, frequency, pathogenesis, clinical picture and diagnostic criteria, prognosis and treatment.
6.4.4. Hepatonephric syndrome: What are the main disorders of the pulmonary parenchyma in cirrhosis of the liver, pathophysiology, manifestations and treatment.

6.4.5. Primary sclerosing cholangitis: Frequency, clinical presentation, laboratory findings, diagnosis.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

MODE OF DELIVERY *Face to face, Distance learning etc.*	***Face to face - Online (Zoom system)***
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of T.P.E. in Teaching, in Laboratory Education, in Communication with students*	Microsoft software is used (Power Point) through which the courses are delivered. The Zoom system is used for online lectures . The Library has the necessary textbooks for the course. Students also have the possibility to access the international scientific databases (PubMed), which the Library has. All course deliveries are via computer viewing using Power Points . The Zoom system is used for online lectures . The above lectures of the courses are posted on the websites of the School of Medicine (eclass) and the University Pathology Clinic with free access by the students of the School of Medicine. Electronic discs (CD-DVDs) are also used for the teaching of the clinical tutorial. Finally, the email of the person in charge of the course as well as the other teachers can be used for communication between students and teachers and students are encouraged to use this method of communication as well. Also, information or announcements regarding the course are posted on the websites of the School of Medicine (eclass) and the University Pathology Clinic with free access by the students of the School of Medicine.
TEACHING ORGANIZATION *The way and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Literature Study & Analysis, Tutorial, Internship (Placement), Clinical Exercise, Artistic Workshop, Interactive Teaching, Educational Visits, project writing, thesis writing/Assignments, Artistic Creation, etc.* *The student's study hours for each learning activity as well as the unguided study hours are listed so that the total workload at semester level corresponds to the ECTS standards*	

Activity	***Semester Workload***
1. LECTURES FROM THE AMPHITHEATER - ONLINE (4 hours per week) The classrooms of the Larissa University Hospital (Amphitheater) are used for the delivery of the courses and the Zoom system for the online deliveries.	**56 hours**
2. CLINICAL TRAINING (Clinical Exercises) (4 hours per week) For the Clinical Training (clinical exercise) the patient wards of the University Pathology Clinic are used, where students are trained the patient's bed.	**56 hours** **THEY WERE NOT CARRIED OUT**

	Total Course (….workload hours per credit unit)	***114 hours Workload hours per credit unit: 114:9= 12.66***
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Deductive, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Thesis/ Report, Oral Examination, Public Presentation, Laboratory Work, Clinical Patient Examination, Artistic Interpretation, Other / Others* *Explicitly defined evaluation criteria are mentioned and if and where they are accessible by students.*	- The evaluation of the students is done on the one hand with oral questions on the patients' problems during the clinical exercises and on the other hand with written questions at the end of the semester. Students are evaluated in the tutorial course by the instructors at the end of the semester on their ability to perform the basic differential diagnosis of pathological diseases based on the main symptoms and signs of the patient. The rating is graded as follows: poor, average, good and very good. The course is also reviewed during the exams periods according to the system of written examinations. For the grade of the semester, the performance of the students in the tutoring course is also taken into account. The exams are particularly demanding and it is usually necessary to answer at least 70% of the questions correctly, so that the student receives a passable grade. Written questions may include ***Multiple Choice Questions or Short Answer Questions.*** From the above, it can be concluded that the workload of the students for the Pathology I course is extremely large and the requirements particularly high. Because of this, the Pathology I course is the only clinical course of the Medical Department of the University of Athens (with the exception, of course, of the trimesters of the 6th year), which has been graded with **nine (9) teaching units (ECTS).** The evaluation criteria can be accessed by students on the course website: http://83.212.32.147/internalmedicine/index.php/el/pathology-i . Finally, a special questionnaire is available to the students at the end of the semester of teaching the course, so that there is an evaluation by the students of each of the teachers, on the one hand for each of the 2-hour lessons (twice/week) and on the other hand for each of the 2-hour clinical tutorials (twice/weekly). Students are also encouraged to express their opinion on the overall educational process of the course and any proposed changes. The results of the above responses to the questionnaire are used appropriately with the aim of improving the educational process for the specific course.	

5. RECOMMENDED - BIBLIOGRAPHY

- ***Suggested Bibliography*** *:*

1. Cecil Basic Pathology
(Andreoli Thomas , Carpenter Charles , Griggs Robert)
ISBN 978960372176-5 K. & N. LITSAS OE.
2. Basic diagnostic and therapeutic guide
(Tierney Lawrence M., Saint Sanjay , Thompson Clinton E., Whooley Mary A.)
ISBN 9789603998099 BROKEN HILL PUBLISHERS LTD
3. Internal Mayo clinic pathology
(Thomas Habermann)

ISBN 978-960-6894-43-5 HAVALES A - HATZISIMEON K OE
4. HARRISON Interior Pathology
(D. KASPER, E. BRAUNWALD, A. FAUC I , S. HAUSER, D. LONGO L. JAMESON)
ISBN 978-960-394 684-7 PARISIANOU PUBLISHING
5. Pathology Notes
a. Infectious Diseases (N. Stathakis)
b. Liver Biliary Pancreatic Diseases (G. Dalekos)
c. Diseases of the Gastrointestinal System (S. Potamianos)
6. Medical Bibliography on the Internet
(PubMed and other bibliographic sources)

- Relevant scientific journals :
1. The New England Journal of Medicine
2. The Lancet
3. European Journal of Internal Medicine
4. Annals of Internal Medicine
5. JAMA Internal Medicine

ΠΘ H0102_PATHOLOGICAL PHYSIOLOGY II_COURSE OUTLINE 2021-2022

1. GENERAL			
SCHOOL	OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF EDUCATION	UNDERGRADUATE		
COURSE CODE	**ΠΘ 0102**	**SEMESTER OF STUDY**	6th Semester
COURSE TITLE	Pathological Physiology II		
COURSE RESPONSIBLE	Zoe Daniel, Professor of Pulmonology		
CO-TEACHERS	Zoe Daniel, Nikolaos Giannakoulas, Georgios Vassilopoulos, Nikolaos Gatselis, Kalliopi Zachou, Spyridon Potamianos, Andreas Kapsoritakis, Alexandra Bargiota, Efthimios Dardiotis, Georgia Xiromerisiou, Konstantinos Argyriou		

SELF-ENDED TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDIT UNITS
Lectures: 27 lectures (14 of 2 hours and 13 of 1 hour) in an auditorium (all students together), held throughout the semester (compulsory attendance). The lectures-theoretical courses are accompanied by discussion with the students of cases and also by exercises on real cases of corresponding problems.	3h	3.00

COURSE TYPE	Scientific Area Course
PREREQUISITE COURSES:	
LANGUAGE OF TEACHING AND EXAMINATIONS :	ENGLISH
THE COURSE IS OFFERED TO ERASMUS STUDENTS	
COURSE WEBSITE (URL)	

2. Learning Outcomes

The course is essential for understanding the underlying mechanisms of various diseases.
Knowledge of Pathological Physiology is essential for understanding clinical manifestations and is a connecting link between basic sciences and pathological conditions.
Pathological Physiology refers to the consequences of disturbances in the normal functioning of the human body.
The course material aims to introduce undergraduate students to the Pathology of Diseases.
The study of the pathophysiology of diseases also allows the student to understand the underlying mechanisms of diseases as well as their clinical manifestations, with the ultimate goal of applying the appropriate treatment.
The final goal of the course is for the student to understand the disorders of the various systems and how they lead to the appearance of the various symptoms and clinical signs of specific diseases.
Upon successful completion of the course, the student will be able to:

Searches, analyzes and synthesizes data and information, using the necessary technologies
Adapts to new situations

To perform autonomous and group work
To undertake work in an international and interdisciplinary environment

General Skills

3. COURSE CONTENT

Unit 1 Hematopoietic System: Hematopoiesis and hematopoietic factors, pathophysiology of anemias, physiology of platelet function and pathophysiology of bleeding disorders, concept of hypercoagulability and thrombophilia .

Unit 2 Liver: Jaundice, Acute and Chronic Hepatitis, Liver Cirrhosis-Pathophysiology, Complications of Cirrhosis

Unit 3 Digestive tract diseases- Pathophysiological mechanisms

Unit 4 Pancreatic, Adrenal, Hypothalamic, Pituitary, Parathyroid and Thyroid Disorders

Unit 5 Disorders of the Nervous System- Pathophysiological mechanisms

4. TEACHING AND LEARNING METHODS - ASSESSMENT

DELIVERY METHOD	LECTURES
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	PowerPoint
TEACHING ORGANIZATION	***Activity*** / ***Semester Workload***: Lectures / Total 3 hours per week
STUDENT EVALUATION	The assessment is done by written multiple-choice exams and short-answer questions in ENGLISH language

5. RECOMMENDED - BIBLIOGRAPHY

1. Pathological Physiology, McPhee Stephen J
2. Related scientific journals: Related articles from recognized international medical journals

COURSE DESCRIPTION

PATHOLOGY II

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	MP0502	**Semester**	6th
COURSE TITLE	PATHOLOGY II		
COURSE INSTRUCTOR	MARIA IOANNOU, PROFESSOR OF PATHOLOGY		
CO-INSTRUCTORS	- MARIA IOANNOU, PROFESSOR OF PATHOLOGY - MARIA SAMARA ASSISTANT PROFESSOR OF PATHOLOGICAL ANATOMY WITH EMPHASIS ON MOLECULAR HISTOPATHOLOGY, ELENI EIRINI THODOU ASSISTANT PROFESSOR OF CYTOLOGY - KONSTANTINA ZACHAROULI, ACADEMIC SCHOLAR		
TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.		**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
		4	4,00
COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	SCIENTIFIC AREA		
PREREQUIRED COURSES	SUCCESSFUL EXAMINATION IN GENERAL AND SPECIFIC MORPHOLOGY SUCCESFFUL EXAMINATION OF PATHOLOGY I LABORATORY EXERCISES		
LANGUAGE OF TEACHING AND EXAMS	ENGLISH		
AVAILABLE TO ERASMUS STUDENTS	NO		
WEBSITE (URL)	http://eclass.uth.gr/eclass/courses/		

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

Aims of the course

The aim of Pathology II course is to introduce students to the morphological changes that develop in tissues and organs of all systems in pathological conditions, in precancerous lesions- dysplasia as well as in benign and malignant neoplasms. Furthermore, the course provides students with the fundamentals of the pathogenetic mechanisms, epidemiological data, and clinical correlations of specific diseases. Special emphasis is given on the study of the classic histopathological characters, as well as the recent molecular-cytogenetic findings of tumors with prognostic and predictive significance.

The course also provides the essential background for courses introduced at later semesters such as: DIAGNOSTIC IMAGING I, OBSTETRICS GYNECOLOGY

After the successful completion of this course, the students will be able to:

- Understand the classical morphological changes that occur in human tissues and organ systems.
- Recognize, through special histological techniques, the differences between normal tissue structures and lesions related to inflammatory diseases, precancerous lesions, and neoplasms.
- Use terminology and combine it with basic knowledge from other subjects.
- Understand and analyze the histopathological and molecular biomarkers of neoplasms with prognostic and/or predictive significance.
- Collaborate with fellow students in searching literature and writing scientific articles - interesting clinical cases, as well as participating in conference presentations.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Research, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3.Module Content

The content of the course includes the following major items:

A. The content of the lectures together with the relevant clinical insights the students need to learn/acquire per chapter.

B. The content of the tutorials/seminars together with the relevant clinical insights the students need to learn/acquire per seminar.
C. The content of the laboratory practical together with the relevant practical & clinical skills the students need to learn/acquire per exercise.

A. Lecture content and relevant clinical insights

1. Inflammatory and neoplastic skin diseases.
Basic histopathological changes of the skin after the action of agents that cause damage.
Acute inflammatory skin diseases.
Chronic inflammatory skin diseases.
Vesicular (bullous) diseases.
Skin infections.
Tumors and neoplastic lesions
Tumors of skin appendages with apocrine differentiation
Tumors with extrinsic differentiation
Malignant epidermal tumors
Tumors and neoplastic lesions of melanocytes.

2. Endocrine system: diseases of the thyroid, adrenal glands, pituitary gland, endocrine part of the pancreas.
Thyroid gland diseases: general view, hyperplasia, neoplasms, inflammations.
Diseases of parathyroid glands.
Pituitary diseases: general view, neoplasia, inflammation.
Diseases of endocrine part of the pancreas.

2. Lung diseases: Categories of atelectasis depending on the mechanism.
Emphysema.
Pathogenesis of bronchial asthma.
Definition of bronchopneumonia and lobar pneumonia.
Tuberculosis.
Conditions associated with ARDS.
Chronic interstitial lung disease.
Idiopathic Pulmonary Fibrosis.
Sarcoidosis.
Hypersensitivity pneumonitis.
Asbestosis and silicosis.
Lung cancer.
Neuroendocrine carcinomas and carcinoids.
Mesothelioma.
INJURIES OF THE UPPER RESPIRATORY TRACT: Infections.
Carcinoma of the nasopharynx.
Benign and malignant neoplasms of the larynx.

3. Musculoskeletal system diseases. Congenital and hereditary bone diseases.
Achondroplasia and osteogenesis imperfecta.
Definition of osteoporosis, clinical features and pathological conditions associated.
The role of parathyroid hormone in bone metabolism and bone diseases associated with hyperparathyroidism.
Paget's disease.
Acute and chronic pyogenic osteomyelitis.
Tuberculous osteomyelitis.

Osteonecrosis.
Bone tumors.
Osteoma, osteoid osteoma, osteoblastoma.
Osteosarcoma: clinical features and prognosis.
Osteochondroma, enchondroma.
Chondrosarcoma.
Giant cell tumor of bone.
Ewing's sarcoma/PNET.
Fibrous Dysplasia.
Chronic osteoarthritis.
Gout.
Muscular atrophy, fibromuscular atrophy.
Myasthenia Gravis.
Duchenne and Becker muscular dystrophy.
Soft tissue tumors. Specific cytogenetic changes associated with pathogenesis and diagnosis in soft tissue tumors. Applications of FISH.
Lipoma, Liposarcoma.
Fibroids, fibrosarcoma.
Rhabdomyosarcoma.
Leiomyoma, leiomyosarcoma.

5. Central Nervous system diseases: Neurons (morphology, function, basic histopathological changes),
Brain edema,
Brain tumors
Hydrocephalus.
Vascular diseases of the brain
Brain infarcts, Intracranial hemorrhages
Vascular dysplasia:
CNS injuries
Congenital malformations, and perinatal brain damage.
Perinatal lesions -Traumatic parenchymal lesions.
CNS infections
Spongiform encephalopathies
Degenerative CNS diseases
CNS neoplasms

6. Haemopoietic and lymphatic system diseases: Hematopoiesis in the bone marrow.
Analysis of immunohistochemistry technique and its usefulness.
The concept of clonality.
Analysis of in situ hybridization techniques and molecular techniques for the study of clonality and the search for specific cytogenetic alterations-pathogenic mechanisms for lymphomas.
Anemias.
Myelodysplastic syndromes.
Myeloproliferative syndromes.
Chronic Myeloid Leukemia.
Acute myeloid leukemia.
Acute lymphoblastic leukemia/lymphoblastic lymphoma.
Chronic lymphocytic leukemia/small cell lymphoma.
Plasma cell myeloma.
Monoclonal gammopathy, Waldenstrom macroglobulinemia, primary amyloidosis.

Langerhans histiocytosis.
Acute and chronic reactive lymphadenitis.
Granulomatous lymphadenitis.
Infectious mononucleosis.
Classification of non-Hodgkin's lymphomas.
Specific cytogenetic alterations/chromosomal translocations diagnostic for specific types of lymphomas.
Specific pathogens associated with lymphomagenesis.
B-cell non-Hodgkin lymphomas:
Diffuse large B cell lymphoma,
Lymphoid lymphoma,
Burkitt's lymphoma,
Mantle lymphoma,
MALT lymphoma.
Non-Hodgkin lymphomas from T cells:
Anaplastic lymphoma,
"mycosis Fungoides",
Adult T-cell leukemia/lymphoma.
Hodgkin's lymphoma,
Causes of splenomegaly.
Thymomas.

7. Molecular carcinogenesis - Epigenetics: Hypermethylation, hypomethylation, histone modifications, microRNAs, liquid biopsy species, cell free circulating DNA, circulating tumor cells, extracellular vesicles.

B. Seminar/Tutorial content and relevant clinical insights
Problem-based learning: Presentation, analysis, and discussion of real clinical cases of patients with the aforementioned pathological conditions.

C. Laboratory Practical content
Hands-on learning: Acquisition of general and specific practical & clinical skills:
General Skills
Microscopic observation of clinical cases in the laboratory
Handling of optical microscope
Working as a team
Following instructions
Following safety regulations
Troubleshooting in laboratory results
Clinical significance of lab results

Specific Skills
Use of optical microscope
Familiarity with lenses-magnifications
Microscopic observation of laboratory slides and familiarization with digital histological slides

Knowledge – Context
1**. Inflammatory and neoplastic skin diseases.** Basic histopathological changes of the skin after the action of agents that cause damage. Basic macroscopic and microscopic terms.
Acute inflammatory skin diseases: Urticaria, Acute eczematous dermatitis, Erythema multiforme, p. Stevens-Johnson, toxic epidermal necrolysis.

Chronic inflammatory skin diseases: Psoriasis, Lichen planus.
Vesicular (bullous) diseases: Pemphigus, Bullous pemphigoid, Dermatitis herpetiformis.
Skin infections: Herpes, Warts, Epidermodysplasia Verruciformis, Infectious terminthos, Trichophytosis, Subcutaneous fungal infections, Infections by common bacteria, Leprosy, Tuberculosis, Leishmaniasis, Syphilis, Scabies.
Tumors and neoplastic lesions
Seborrheic keratosis, Keratoacanthoma, Actinic keratosis, Trichoepithelioma, Dermatofibroma, Dermatofibrosarcoma, Keloid, Fibroepithelial polyps, Acanthosis melanosa, Neurinoma, Neurolimmoma, Lipoma.
Tumors of skin appendages with apocrine differentiation: Apocrine cystadenoma, Syringocystadenoma, papilliferum, Hidradenoma, papillary, Cylindroma, Apocrine carcinoma.
Tumors with extrinsic differentiation: Hidradenoma, eccrine, clear cell, Poroma, Globular adenoma, Hydrocystoma, Syringoma, Microcystic carcinoma.
Malignant epidermal tumors: Squamous cell carcinoma, Basal cell carcinoma
Tumors and neoplastic lesions of melanocytes: Melanocytic nevi, Dysplastic nevi, Malignant melanoma, mycosis Fungoides.

2. Endocrine system: diseases of the thyroid, adrenal glands, pituitary gland, endocrine part of the pancreas.
Thyroid gland diseases: general view, hyperplasia, neoplasms, inflammations. "Nodular" goiter, Grave's disease, Hashimoto's thyroiditis, Subacute thyroiditis, Riedel disease, Follicular adenoma, Follicular carcinoma with minimal invasion, Follicular carcinoma with extensive infiltration, Papillary carcinoma, Anaplastic carcinoma, Myeloid carcinoma, Differential diagnosis of solitary thyroid tumor.
Diseases of parathyroid glands: general view, hyperplasia, adenoma, carcinoma. Adenoma, hyperplasia, carcinoma morphology.
Adrenal gland diseases: general view, hyperplasia, neoplasia, inflammations.
Cushing's syndrome, morphological evidence in adrenal hyperplasia, Cushing's adenoma.
Morphological criteria supporting the diagnosis of adrenal carcinoma (detailed presentation).
Hyperaldosteronism, Conn's syndrome/adrenocortical adenoma, Congenital hyperplasia, Cortico-adrenal insufficiency. Pheochromocytoma, Neuroblastoma.
Pituitary diseases: general view, neoplasia, inflammation.
Adenomas: clinical appearance, macroscopic and microscopic images, immunohistochemistry, malignancy criteria, ectopic appearances.
Diseases of endocrine part of the pancreas: Normal morphology. Immunohistochemistry, electron microscopy. Clinical manifestations of diabetes mellitus. Type 1 diabetes, Type 2 diabetes, Insulinoma, Gastrinoma. Glucagonoma. VIPoma. MENIA, MENIIB. Neuromas in various locations.

3. Lung diseases: Categories of atelectasis depending on the mechanism. Pathoanatomical changes of acute pulmonary edema of cardiac etiology and differences from pulmonary edema due to diffuse damage of the alveolar walls. Clinical laboratory definition of restrictive and obstructive lung disease. Emphysema. Pathogenesis of bronchial asthma. Definition of bronchopneumonia and lobar pneumonia. Primary atypical pneumonias. Tuberculosis. Primary Gohn's complex, secondary tuberculosis, tuberculous tuberculosis. Conditions associated with ARDS. Chronic interstitial lung disease. Idiopathic Pulmonary Fibrosis. Sarcoidosis. Hypersensitivity pneumonitis. Asbestosis and silicosis. Lung cancer. Histological types of lung cancer. Prognostic histological and molecular prognostic factors. Neuroendocrine carcinomas and carcinoids. Mesothelioma. Differential diagnosis from mesothelial hyperplasia and adenocarcinoma.
INJURIES OF THE UPPER RESPIRATORY TRACT: Infections. Carcinoma of the nasopharynx. Histological image, pathogenesis/ EBV, prognosis. Benign and malignant neoplasms of the larynx. The concept of dysplasia and carcinoma in situ.

4. Musculoskeletal system diseases. Congenital and hereditary bone diseases. Achondroplasia and osteogenesis imperfecta. Definition of osteoporosis, clinical features and pathological conditions associated. The role of parathyroid hormone in bone metabolism and bone diseases associated with hyperparathyroidism. Renal osteodystrophy. Paget's disease.
Acute and chronic pyogenic osteomyelitis. Tuberculous osteomyelitis. Osteonecrosis.
Bone tumors. Osteoma, osteoid osteoma, osteoblastoma. Osteosarcoma: clinical features and prognosis. Macroscopic and microscopic imaging: the histological ''mimics'' of osteosarcoma, potential difficulties in differential diagnosis and the importance of radiological imaging. Osteochondroma, enchondroma. Chondrosarcoma. Giant cell tumor of bone. Ewing's sarcoma/PNET. Cytogenetic findings associated with pathogenesis- the importance of fluorescence in situ hybridization (FISH) analysis. Fibrous Dysplasia. Chronic osteoarthritis. Gout. Muscular atrophy, fibromuscular atrophy. Myasthenia Gravis. Duchenne and Becker muscular dystrophy.
Soft tissue tumors. Principles of classification and staging. Specific cytogenetic changes associated with pathogenesis and diagnosis in soft tissue tumors. Applications of FISH. Lipoma, Liposarcoma. Fibroids, fibrosarcoma. Rhabdomyosarcoma. Leiomyoma, leiomyosarcoma.

5. Central Nervous system diseases. Neurons (morphology, function, basic histopathological changes), Astrocytes and their common reactive changes to various damaging factors (morphology, function, astrocytic gliosis, hemicellular astrocytes, Rosenthal fibers, Alzheimer type II astrocytes, amyloid bodies). Oligodendrocytes, ependymal cells (morphology, function, basic histopathological changes). Microglial cells (morphology, function, participation in phagocytosis and in viral infections).
Brain edema, Brain tumors: Supramedullary helix impingement - Interstage helix hooking, Cerebellar tonsillar intussusception, Hydrocephalus.
Vascular diseases of the brain: Total hypoxic/ischemic encephalopathy ("ventilator brain")
Brain infarcts, Intracranial hemorrhages: a) primary cerebral parenchymal hemorrhage b) saccular aneurysms and subarachnoid hemorrhages.
Vascular dysplasia: a) arteriovenous, b) cavernous hemangiomas, c) capillary telangiectasias, d) venous hemangiomas.
CNS injuries: Epidural hematoma, Subdural hematoma, Traumatic parenchymal lesions, Congenital malformations, and perinatal brain damage. Neural tube defects, Hydrocephalus associated defects, Disorders of forebrain development, Neurocutaneous syndromes (Neurofibromatosis type I and II, nodular sclerosis, von Hippel-Lindau syndrome and Sturge-Weber disease).
Perinatal lesions (hemorrhages of vegetative intercellular substance, periventricular leukomalacia, gray matter lesions). Traumatic parenchymal lesions.
CNS infections:
Acute purulent meningitis, Acute lymphocytic (viral) meningitis, Chronic meningitis, Brain abscess, Viral encephalitis: a) herpes encephalitis, b) CMV encephalitis, c) HIV encephalopathy
Spongiform encephalopathies: Primary myelin diseases, Multiple sclerosis, Other acquired demyelinating diseases, Leukodystrophies.
Degenerative CNS diseases: Alzheimer's disease, Pick's disease, Parkinson's disease, Huntington's disease, Degenerative motor neuron diseases: a) myotrophic lateral sclerosis/ALS, b) Werding-Hoffmann disease.
CNS neoplasms: Gliomas. Astrocytic neoplasms: a) pilocytic astrocytoma, b) fibrillary astrocytoma, c) anaplastic astrocytoma, d) glioblastoma multiforme. Oligodendrogliomas. Ependymomas. Fetal tumors: a) Medulloblastoma, b) CNS-PNET. Meningiomas. Tumors of the peripheral nervous system: a) schwannomas and b) neurinomas.

6. Haemopoietic and lymphatic system diseases. Hematopoiesis in the bone marrow.
Analysis of immunohistochemistry technique and its usefulness. The concept of clonality. Analysis of in situ hybridization techniques and molecular techniques for the study of clonality and the search for specific cytogenetic alterations-pathogenic mechanisms for lymphomas.

Anemias. Differential diagnosis of iron-deficient megaloblastic and aplastic anemia. Sickle cell anemia. B-Thalassemia. Myelodysplastic syndromes. Myeloproliferative syndromes: Idiopathic thrombocythemia. Idiopathic polycythemia, idiopathic myelination. Chronic Myeloid Leukemia. Acute myeloid leukemia. Acute lymphoblastic leukemia/lymphoblastic lymphoma. Chronic lymphocytic leukemia/small cell lymphoma. Plasma cell myeloma. Monoclonal gammopathy, Waldenstrom macroglobulinemia, primary amyloidosis. Langerhans histiocytosis. Acute and chronic reactive lymphadenitis. Granulomatous lymphadenitis. Infectious mononucleosis. Classification of non-Hodgkin's lymphomas. Specific cytogenetic alterations/chromosomal translocations diagnostic for specific types of lymphomas. Specific pathogens associated with lymphomagenesis.
B-cell non-Hodgkin lymphomas: Diffuse large B cell lymphoma, Lymphoid lymphoma, Burkitt's lymphoma, Mantle lymphoma, MALT lymphoma.
Non-Hodgkin lymphomas from T cells: Anaplastic lymphoma, "mycosis Fungoides", Adult T-cell leukemia/lymphoma. Hodgkin's lymphoma, histological subtypes-morphology of neoplastic cells. Causes of splenomegaly. Thymomas.

7. Molecular carcinogenesis – Epigenetics. Hypermethylation, hypomethylation, histone modifications, microRNAs, liquid biopsy species, cell free circulating DNA, circulating tumor cells, extracellular vesicles.

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	*Face to Face:* Teaching of **PATHOLOGY II** consists of lectures, seminars/tutorials and laboratory practical. Attendance of Laboratory Practical and Seminars/Tutorials is obligatory. The lectures content is described above. Seminars/Tutorials (in 4 student groups with 1 instructor per group) review and extend the lectures content. In each tutorial, students familiarize themselves with the basic elements per unit and prepare for the laboratory exercises. Laboratory exercises (in 4 student groups of students, 1 instructor per group of 25-27 students) composing the students' practical are complementary to the lectures and they aim to familiarize the student with the application of techniques, the operation of simple laboratory instruments and the experimental procedures that are often used in PATHOLOGY as well as to help the students comprehend concepts that are not easily presented theoretically (learning based on practical experience).
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students. Specifically: • Common software (e.g. MS powerpoint) is used to prepare lecture material and display slides and videos. • The study guide (detailed supplementary material & additional bibliography), the tutorial material (clinical cases), the theory and protocols of the laboratory exercises, the slides of each lecture as well as relevant videos and scientific articles made available

<table>
<tr><td></td><td>electronically and online to students through the e-class system of our university.
• Information about the course, instructors and their research interests and in general the Pathology Department of the Faculty of Medicine are available online on the Laboratory website ……
• Common software (e.g. MS excel) is used to statistically process student assessment.
Announcements, information etc are available online via e-class. Communication is also done via e-mail.</td></tr>
<tr><td>TEACHING METHODS
The way and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.</td><td>
<table>
<tr><th>Learning activity</th><th>Total semester workload</th></tr>
<tr><td>Lectures</td><td>28 hours</td></tr>
<tr><td>Lab. Practical (obligatory presence)</td><td>14 hours</td></tr>
<tr><td>Tutorials (obligatory presence)</td><td>14 hours</td></tr>
<tr><td>Study</td><td>40 hours</td></tr>
<tr><td>Preparation for Practical</td><td>14 hours</td></tr>
<tr><td>Preparation for Tutorials</td><td>14hours</td></tr>
<tr><td>SUM
(25 hours per teaching credit)</td><td>124 hours</td></tr>
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</td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, Explicitly defined assessment criteria are stated and if and where they are accessible to students.</td><td>The language of assessment is English.
Evaluation methods.
A. For the laboratory practical: Written Examination with short-answer questions and problem solving.
B. The participation of students in the laboratory exercises is mandatory. At the end of the semester the students are examined in the content of the Laboratory practical. The examined material consists of the theory, the methodology and the ways results are processed as included in the Guide of the Laboratory Practical or presented by the instructors during the exercises. Only the students that have successfully completed the laboratory exercises can participate in the written laboratory examination. Success in the laboratory examination is a prerequisite for participation in the course exams.

B. For the Tutorials: In each tutorial, students go deeper to the theoretical background of the laboratory exercises that will follow. The performance of the students during in tutorials is considered in the final evaluation. The material of the tutorials is examined together with the laboratory examination.</td></tr>
</table>

	C. For the lecture material: Written Exams with multiple choice questions, true/false questions, short answers, and oral examination of students with special needs. The course exams are written, last 2 hours and consist of multiple choice or True/False questions and critical or short answer questions. The material to be examined is lectures and tutorial material as described above. Only those students who have successfully passed the Laboratory exams have the right to participate in the course exams. **Final Grade:** The final grade of the course is calculated as the sum of 100% of the grade of the written course exams. All the above are presented in detail in the Course Guide which is posted electronically in e-class.

5.Recommended Bibliography

A. Lecture Material

Main suggested textbooks:

1. "Muir's Pathology" by H.C. Simon, 1st edition (2019)
   ISBN: 9789925563166

2. "Pathology, Volume II" by E.L. Sivridis, 3rd edition (2018)
   ISBN: 9786185135140

Further reading:

NONE

B. Laboratory Practical supplementary Material

NONE

Relevant Scientific Journals:

NONE

COURSE DESCRIPTION ESSENTIALS IN CLINICAL SURGERY

1.GENERAL			
SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF EDUCATION	UNDERGRADUATE		
CLASS CODE	**XP0100**	**SEMESTER OF STUDIES**	**6th**
COURSE TITLE	**ESSENTIALS IN CLINICAL SURGERY**		
COURSE MANAGER	GEORGE TZOVARAS		
ASSOCIATES	KONSTANTINOS TEPETES, DIMITRIOS ZACHAROULIS, ANTIGONI POULTSIDI, IOANNISMPALOGIANNIS, CHARALAMPOS SKOULAKIS, KONSTANTINOS PATERAKIS, GEORGIOS KOUVELOS, KIRIAKOS SPILIOPOULOS, MATHAIOS EFTHIMIOU, GRIGORIOS XRISTODOULIDIS, IOANNIS MAMALOUDIS, EFFROSINI MPOMPOU, ALEXANDROS DIAMANTIS, KONSTANTINOS PERIVOLIOTIS		

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
	7 Hours	6

COURSE TYPE	SCIENTIFIC AREA & SKILLS DEVELOPMENT
PREREQUISITE COURSES:	NO
LANGUAGE OF TEACHING AND EXAMS:	English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
LESSON PAGE (URL)	https://www.med.uth.gr/DetailsLesNew.aspx?id=45

2.Learning Outcomes

At the end of this course students will have the ability to:

- Communicate effectively and easily with patients
- Communicate clearly and distinctly with their colleagues and other members of the medical staff
- Use the appropriate language for each patient
- To extract and record a proper and organized medical history
- Use the appropriate questions that will help to reach the correct diagnosis
- To decide what is relevant with the current medical history and what to do with his or her past health problems
- Follow appropriate sanitary practices during the patient examination
- Place the patient and himself in the appropriate position required for the examination or control of the physical examination
- To treat the patient with respect and dignity, paying attention to his privacy.
- Modify the examination according to the special needs of the patient
- Explain to the patient the possibility of pain or discomfort during the examination
- To record the physiological and pathological findings
- To distinguish the importance of pathological findings during clinical assessment
- Know and respect the patient's autonomy and understand the patient's possible choices

including the right to refuse treatment

- To give a structured oral presentation of the most important findings
- Approach the presentation flawlessly and with confidence
- Understand the importance of working with colleagues and scientific juxtaposition with active participation in discussion groups
- Demonstrate the ability to answer questions posed in clinical practice using electronic books, magazines, articles, and tools

GeneralAbilities

3. COURSE CONTENT

1. General clinical examination. Clinical examination of the head
2. Clinical examination of ears, nose, mouth, lips, tongue, cheeks, oropharynx, temporal, τemporomandibular joint, skull fractures, salivary glands)
3. Clinical examination of the neck
4. Clinical examination of the thyroid gland
5. Clinical examination of the breast
6. Clinical examination of the chest (chest wall, respiratory disorders, pleural effusion)
7. Clinical examination of the mediastinum. Clinical examination of chest trauma.
8. Clinical examination of peripheral vessels (arteries, veins, lymphatics)
9. Clinicalexaminationofthe abdomen
10. Clinical examination of anus and rectum
11. Clinical examination of acute abdomen
12. Clinical examination of abdominal trauma
13. Clinicalexaminationofhernias
14. Clinical examination of surgical heart pathologies
15. Clinicalneurosurgicalexamination

4. TEACHING AND LEARNING METHODS - EVALUATION

teachingmethod	Development of essentials in clinical surgerytopics - Presentation - Commentary on typical patient cases - Clinical exercise in the ward.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Examination and analysis of clinical cases from the department information system.
TEACHING ORGANIZATION	***Activity*** / ***Semester Workload***
	Number of teaching hours / week: 5 Number of hours of preparation of exercises / workshops: 2.5 Total number of teaching hours & semester preparation: 105 Exam preparation & course examination: 34 Total Time: 139 Hours
STUDENT EVALUATION	• *Multiple Choice Test, Short Answer Questions.* • *Examination prerequisite:* • *Minimum attendance in 70% of lectures*

	• *1 unjustified and 1 justified absence in clinical practice.* • *Assessment of their participation in interactive teaching* WrittenExams 80% 20% participation
5. RECOMMENDED-BIBLIOGRAPHY	
Suggested Bibliography: 1. SurgicalSemiology, HamiltonBailey 2. Surgery at a glance, P.GRACE, N 3. The examination of the surgical patient, SkalkeasGrigorios	

COURSE DESCRIPTION

Pharmacology II

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	**BE1102.E**	**Semester**	6th
COURSE TITLE	Pharmacology II		
COURSE INSTRUCTOR	Konstantinos Dimas, Professor		
CO-INSTRUCTORS	N. Sakellaridis, E. Asporidini, A. Vassilaki, collaborators		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	8	6

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Background & Scientific area
PREREQUIRED COURSES	No
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	Yes
WEBSITE (URL)	https://eclass.uth.gr/courses/MED_U_221/

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

Aims of the course

The purpose of the course is for the student to become familiar, learn and understand:

- the major classes of drugs,
- their action mechanisms,
- their indications and contraindications,
- their interactions with other drugs

- their main side effects and the mechanisms leading to them

The final goal of the course is the students to understand the importance of the correct use of medicines.

After the successful completion of this course, the students will be able to:

- Have deep knowledge of the main drug classes.
- Understand of the mechanisms of action of the main drug groups.
- Distinguish and be aware of their indications and contraindications, their interactions, their main side effects and the mechanisms that lead to them.
- Recognize, analyze and evaluate the mechanisms governing the adverse effects of drugs.
- Use this knowledge to make decisions towards the correct choice of medicines

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

	Project design and management
Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations	*Respect for diversity and multiculturalism*
	Respect for the natural environment
	Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Decision making	*Exercise criticism and self-criticism*
Autonomous work Teamwork	*Promoting free, creative and inductive thinking*
Working in an international environment	
Work in an interdisciplinary environment	
Production of new research ideas	

- Research, analysis and synthesis of data and information, using the necessary technologies.
- Adaptation to new situations
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking
- Decision making

3.Module Content

Theoretical clinical skills

1. Introduction
2. Hypothalamus & Pituitary Hormones
3. Thyroid and antithyroid drugs
4. Adrenocorticosteroids & Adrenocorticoid Antagonists
5. Female gonadal Hormones & Inhibitors
6. Male gonadal Hormones & Inhibitors
7. Medicines affecting Bone Homeostasis
8. Antihypertensive drugs
9. Vasoactive peptides
10. Diuretic drugs
11. Vasodilators & treatment of angina pectoris
12. Medicines used in the treatment of heart failure
13. Medicines used in cardiac arrhythmias
14. Medicines for the treatment of gastrointestinal diseases

15. Medicines to treat dyslipidemia
16. Pulmonary medicines
17. Hormones of pancreas & Antidiabetic Drugs
18. Anemia - Hematopoietic agents
19. Medicines for Blood Coagulation Disorders.
20. Topical Hormones
21. Non-Steroidal Anti-Inflammatory Drugs
22. Antibiotics
1) Antimicrobials
2) Antimycobacterial/antifungal Medicines
3) Antiprotozoal/anthelmintic drugs
4) Antiviral drugs
23. Anticancer Drugs
24. Targeted therapeutic approaches
25. Immunopharmacology
26. Special topics of Pharmacology
1) Medicines in Pregnancy
2) Advances in immunotherapeutic approaches
27. Recapitulation/Repetitive lectures

In compulsory tutoring classes
Presentation, analysis, discussion in the sections shown below:
A. Diabetic patient
B. Clinical applications of antibiotics
C. Clinical applications of anticancer drugs
D. Drugs and nanomedicine

4. TEACHING AND LEARNING METHODS - EVALUATION	
Teaching Method (face to face, tutoring, distance learning)	*Face to Face/distance learning.* Teaching of Pharmacology II consists of lecture and seminars/tutorials. Attendance of Seminars/Tutorials is compulsory.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students. Specifically: • Common software (e.g., MS powerpoint) is used to prepare lecture material and display slides and videos. • The study guide (detailed supplementary material & additional bibliography), the tutorial material (clinical cases), the slides of each lecture as well as relevant videos and scientific articles made available electronically and online to students through the e-class system of our university. • Common software (e.g., MS excel) is used to statistically process student assessment.

<table>
<tr><td></td><td>Announcements, information etc. are available online via e-class.
Communication is also done via e-mail.</td></tr>
<tr><td>TEACHING METHODS
The way and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.</td><td>
<table>
<tr><th>Learning activity</th><th>Total semester workload</th></tr>
<tr><td>Lectures</td><td>72 hours</td></tr>
<tr><td>Tutorials
(compulsory presence)</td><td>10 hours</td></tr>
<tr><td>Study</td><td>82 hours</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td>SUM
(Hours per teaching credit)</td><td>164 hours (27 hours/ECTS)</td></tr>
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<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, Explicitly defined assessment criteria are stated and if and where they are accessible to students.</td><td>The language of assessment is English.
Evaluation methods.
Written Exams with 50-60 questions.
The course exams are written, last 1 hour and consist of multiple-choice questions. The material to be examined is lectures and tutorial material as described above. Only these students who have successfully attended the tutorial classes have the right to participate in the course exams.
Final Grade:
The final grade of the course is the grade of the written exams.</td></tr>
<tr><td colspan="2">5.Recommended Bibliography</td></tr>
<tr><td colspan="2">

Basic and Clinical Pharmacology, Bertram Katzung, Susan Masters, Anthony Trevor, McGraw Hill,
Lippincott Illustrated Reviews: Pharmacology
Rang and Dale’s pharmacology,
Goodman & Gilman's The Pharmacological Basis of Therapeutics
Web/other resources/pubmed/reviews (Relevant Scientific Journals: Nature drug discovery, Drugs today, European journal of pharmacology, Pharmacology & Therapeutics, Journal of experimental pharmacology, Molecular pharmacology, Biochemical pharmacology etc

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DIAGRAM OF THE COURSE «ANAESTHESIOLOGY»

1.GENERAL

SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	XP0300	**SEMESTER OF STUDIES**	7TH SEMESTER
COURSE TITLE	ANAESTHESIOLOGY		
COURSE DIRECTOR	ELENI ARNAOUTOGLOU		
FACULTY	CHALKIAS ATHANASIOS, BAREKA METAXIA,STAMOULIS KONSTANTINOS, NTALOUKA MARIA,KORAKIS ALEXANDROS, BOUZIA AIKATERINI.		

AUTONOMOUSTEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
LECTURES	2	2
OPERATING ROOM PRACTICE	2	1
TYPE OF COURSE	GENERAL KNOWLEDGE OF SPECIFIC SCIENTIFIC AREA (ANAESTHESIOLOGY) AND SKILL DEVELOPMENT	
PREREQUESTED COURSES:	PHYSIOLOGY PHARMACOLOGY	
TEACHING LANGUAGE ANDEXAMINATION LANGUAGE:	ENGLISH	
THE CLASS IS OFFERED TOERASMUS STUDENTS	YES	
COURSE WEBSITE (URL)	NO	

2.LEARNING GOALS

Classmaterialaimstotheunderstandingandfamiliarizationwithfundamentalvaluesandtechniquesrelated tocontrolledand reversible lossofconsciousnessand analgesia, which are required as basic knowledge by every doctor regardless of his specialty.
Learning goals are accomplished by:
a. attendance oftheAnaesthesiologyClinic´s activities (operating rooms, post-anaesthesia care unit, Pain Clinicand preanesthetic evaluation)
b. practicing BLS (BasicLifeSupport)and the use of AED (AutomatedExternalDefibrillator) according to currentERC guidelines (EuropeanResuscitationCouncil)
c. practicing ALS (Advanced Life Support) according to currentERC guidelines
d. practicing airway management
e. simulation to Anaesthesiology

Description ofthelevelofLearningGoalsaccordingtotheQualifications Framework of the European Higher Education Area(EHEA): Thestudents, after successful examination, have proven knowledge and understanding of topicsof the subject of Anaesthesiology (level PPS). SkillsandknowledgeacquiredareLevel 6 (1st Cycle of Studies) of theEuropean Qualifications Framework (EQF).

Aftersuccessfully completingthecoursethestudent will have knowledge and understanding of the following subjects:
General Anaesthesia, Central and Peripheral Nervous Blockades, Anaesthesia Drugs, Patient Monitoring, Management of fluids, bloodand blood products.

General Skills

The course aims atacquiring the following skills:

Research, analysis and composition of data and information using the necessary technology.
Decision making
Autonomous work
Teamwork
Working in international environment
Design and manage projects
Exhibitsocial, professionalandmoralresponsibilityandsensitivityin gender issues
Practice criticism and self-criticism

3. COURSE CONTENT

1. BLStochildrenandadults, airway obstruction management by a foreign object.
2. ALS.
3. Physiology during anaesthesia (respiratory and circulatory system).
4. Physiology during anaesthesia (autonomous nervous system, neuromuscular transmission, brain-sleep-memory-consciousness, liver, kidneys).
5. Anaesthesia techniques, advantages, disadvantages.
6. Medications used by the anaesthesiologist.
7. Preanestheticevaluationandpreparationofthepatientwho will undergo surgery.
8. How does the anaesthesiologist monitor the patient in the perioperative period? (Monitoring)
9. Vascular access and management of fluids, blood and blood products.
10. Critical events during anaesthesia and patient recovery and how to manage them. Postoperative care.
11. Management of adult anaesthesia subspecialties. Paediatric anaesthesia.
12. Simulation crisis management
13. Management of a. acute and postoperative pain, b. chronic benign pain, c. cancer pain.
14. The importance of teamwork (teamwork).

4.TEACHINGandLEARNING METHODS - EVALUATION

TEACHING METHOD	FACE TO FACE -LECTURES
USEOF INFORMATION AND COMMUNICATION TECHNOLOGY	Microsoft software (PowerPoint) is being used,for thecourses lectures. The Library has all the necessary books and reading material for the course. Additionally, the students have access to international databases (PubMed), through the library. All class lectures are performed by using PowerPoint presentations. Those lectures are all uploaded to the medical schools' and the University of Thessaly websites (e-class) with free access to the students. Thee-mail of the course director and the faculty can be used for communication purposes between teachers and students and the students are encouraged to use this method of communication. Also ,information or announcements about the course will be posted to the websites of the medical department and the University of Thessaly with free access from the medical school students.
TEACHING PLANNING *Detailed description of teaching methods. Lectures,Seminars, LaboratoryPractice, Field Exercise, Reading&analyzing readingmaterial, Tutorial, Practice, ClinicalPractice, Artistic Laboratory, InteractiveTeaching, Educationalvisits, Project assignment, Writing paper / papers, Artistic Creation, etc.* *The students' study hours arelistedforeverylearningactivityaswellasthehoursofnon-guided study so that the total workload during the semester will correspond to theECTS standards.*	

Activity	***Semester Workload***
LECTURES	28 HOURS (14 weeks x2 hours)
CLINICAL PRACTICE	25 HOURS (5 weeks x5 hours)
TUTORIAL	4 HOURS
ELECTIVE CLINICAL PRACTICE	6 HOURS
Course Total (….Workload hours per credit unit)	

STUDENTEVALUATION *Description of the evaluation procedure* *EvaluationLanguage, EvaluationMethods, Formativeorconclusive, MultipleChoiceQuestions, ShortAnswerQuestions, Essay writing questions, Problem solving, Written Assignment, Essay / Report,*	**LANGUAGE OF EVALUATION:** ENGLISH **METHODS OF EVALUATION:** Multiple Choice Questions, Short answer-questions

Oral Examination, Public Presentation, Laboratory assignment, Clinical Examination of a patient, Artistic Interpretation, Other/ Others *There are mentioned established evaluation criteria and if/and where they are accessible by the students.*	Right to examinations: 1unjustified absence, 2 justified absences 3 periods, Examination with20 MCQ Evaluation of student participation to interactive teaching Students are given in writing the evaluation criteria during the first lesson.
5.SUGGESTED READINGMATERIAL	
-Suggested Reading Material: **Lecture Notes: Clinical Anaesthesiology, code EVDOXOS: 50660951** *-Related Scientific magazines:*	

COURSE OUTLINE

1. GENERAL			
SCHOOL	OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF EDUCATION	UNDERGRADUATE		
COURSE CODE	AA0101	**SEMESTER OF STUDY**	7 THE SEMESTER
COURSE TITLE	DIAGNOSTIC IMAGING I		
COURSE RESPONSIBLE	VLYCHOU MARIANNA, TEACHER		
CO-TEACHERS	KAPSALAKI EVTYCHIA, ROUDAS CHRISTOS, GEORGOULIAS PANAGIOTIS, KYRGIAS GEORGIOS, VALOTASIOU VARVARA, AKAD. SCHOLAR		

SELF-ENDED TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDIT UNITS
LECTURES, CLINICAL TUTORIALS, ELECTRONIC COURSE, PROGRESSES	4	4

COURSE TYPE	OF SCIENTIFIC AREA
PREREQUISITE COURSES:	ANATOMY I, II, III and PATH AN II
LANGUAGE OF TEACHING AND EXAMINATIONS :	ENGLISH
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	From e class

2. Learning Outcomes

The overall aim of the course is to introduce students to the basic principles of imaging modalities and the study of the imaging approach by system, with an introduction to the correct hierarchy of imaging modalities based on clinical indication; and to enable them to plan, analyze and formulate an imaging diagnosis and as well as the combined imaging-based approach to disease. Further, the course seeks to provide students with the fundamentals of the combined imaging-based approach to disease. The specific objectives of the course are specified in the following intended learning outcomes:

Upon successful completion of the course, the student will be able to:

He/she will be able to use the acquired knowledge in order to:

- Distinguish the main differences between normal and pathological imaging of the main organs of the human body
- To describe the pathology in an imaging method.
- To know basic differential diagnosis in Medical Imaging
- To be able to collaborate with fellow students to research and analyze the international literature.

General Skills

3. COURSE CONTENT

Unit 1 Introduction to basic principles of radiology.

Unit 2 Chest Radiology, CNS Radiology, head and neck
Unit 3 Musculoskeletal Radiology
Unit 4 Principles of Radiation Therapy Oncology
Unit 5 Nuclear Medicine
Unit 6. Repetitive exercises.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

DELIVERY METHOD	LECTURES
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	PowerPoint ……. …….
TEACHING ORGANIZATION	***Activity*** / ***Semester Workload***
STUDENT EVALUATION	

5. RECOMMENDED - BIBLIOGRAPHY

1. Clinical Radiology: Authors: M. I. Argyropoulou, A. Gouliamos, A. Drevelegas, A. Karantanas, N. L. Kelekis, P. Prasopoulos, D. Siablis, K. Tsampoulas, I. V. Fezoulidis,
   Publishers: I. Constantara.

2. Teaching Notes – Related scientific journals

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	**KI0502**	**Semester**	7th
COURSE TITLE	Primary Health Care		
COURSE INSTRUCTOR	Hadjichristodoulou Christos		
CO-INSTRUCTORS	MEMBERS DEP (Teaching Research Staff): C. Lionis, E. Symvoulakis, E. Smyrnakis, I. Tsiligianni, Z. Tsimtsiou, G. Marinos, A. Tatsioni, V. Mouchtouri, G. Rachiotis, M. Tseroni . EDIP (Special Teaching Research Staff): P. Mina Scientific Associates: M. Koureas, K. Melou PhD candidate: Ioanna Avakian		
TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.		**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
		2	**2**
COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Scientific area		
PREREQUIRED COURSES	None		
LANGUAGE OF TEACHING AND EXAMS	English		
AVAILABLE TO ERASMUS STUDENTS	No		
WEBSITE (URL)			

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

Upon successful completion of the course the student will be able to:

- Describe the relationship of primary health care with the healthcare system and public health.

- Familiarise with the approaches of primary healthcare in supporting the needs of individuals, families and the communities.
- Value the factors influencing health and well-being in communities.
- Apply with the principles of designing primary and community care strategies on individuals, families and communities.
- Understand the influences and challenges in meeting healthcare needs for individuals, families and communities.

Communicate effectively when providing care during the patient's first contact with the health system.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Research, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3.MODULE CONTENT

1. Theory
Primary healthcare principles and the concept “health for all”.
Designing Health Promotion Programs and Professional Teams.
Prevention Strategies for Adolescents - Adults – Elderly.
National Immunization Strategy. The role of primary health care.
Organization of Health Prevention and Promotion Programs in the Community.
Introduction to General Practice Guidelines for management of most common diseases and health conditions in Primary Health Care.
Mental Health
Addictions. Preventive strategy programs.
Integrated Primary Care and Management of Chronic Diseases.
Effective communication between the family doctor and the patient and his/her environment.

2. Laboratories
Students will be divided into teams and each team will design a health promotion program regarding a subject of their choice (smoking, diet, exercise, obesity, alcohol, polypharmacy, car accidents etc.) that will be addressed to a certain target group.

Students will be divided into groups and will visit the children's clinics of Larissa's TOMYs in order to observe the vaccinations of children as well as to perform vaccinations. Students will get the opportunity to monitor the entries in the national vaccination registry.
Students will be separated into teams and each team will have to design a preventive medical program on a subject that they decide upon (cervical cancer, breast cancer, colon cancer, dental hygiene, prenatal checkup) that will target a specific group of people (KAPI, KDAP, kindergarten, school, ROMA, refugees).
Students will be divided into groups and they will visit Mental Health Structures in Larissa (OKANA, KETHEA, Selfcare program.

Students' clinical practice is recommended in Larissa's region (Medical Center of Agia, Medical Center of Gonnoi, Medical Center of Tyrnavos) for one week. Students will acquire clinical skills on primary health care, focusing on being able to distinguish patients in need of hospital care from those who can be treated at home or the medical center. Also, they will be exposed to basic emergency medicine management, diagnostic access and treatment of the most common acute and chronic diseases in the community and at home. In the end of Laboratory Practice, students will have to present the results of a descriptive study by using data on acute and chronic diseases from the patients of the Health Centers.

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	Lectures (Face to Face)
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Power point Learning process support through the e-class electronic platform Use of ICT (e-mail) in communication with the students.
TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.	

Learning activity	***Total semester workload***
Lectures	30 hours
Lab. Practical (obligatory presence)	20 hours
Individual Assignments	10 hours
SUM (25 hours per teaching credit)	60 hours

STUDENT EVALUATION **Description of the evaluation process** Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	Language of assessment: English. Assessment methods: Multiple choice test (60% of total score) and research paper with presentation (40% of total score). The evaluation of the course and its tutors is carried out -at the end of the semester- through the completion of a specific questionnaire by the students. Students are encouraged to express their views through the questionnaire both about the educational process of this course, and about any changes that are necessary according to their opinion. Students' responses are taken into account in order to make improvements.

5.RECOMMENDED BIBLIOGRAPHY

Introduction to General Medicine(Εισαγωγή στη Γενική Ιατρική)

(Tatsioni, A., Karathanos, V., & Missiou, A. (2015). *Εισαγωγή στη γενική ιατρική* [Undergraduate textbook]).

Good practice applications of a primary health care team

(Kalokairinou, A., Adamakidou, T., Velonaki, V., Vivilaki, V., Kapreli, E., Kriempardis, A., Lagiou, A., Lionis, C., Markaki, A., Bodosakis, P., Papadakaki, M., & Sakellari, E. (2015). Εφαρμογές καλών πρακτικών ομάδας πρωτοβάθμιας φροντίδας υγείας [Laboratory Guide]. Kallipos, Open Academic Editions).

Community and coordination of care (A practice brief to support implementation of the WHO. Framework on integrated people-centred health services), WHO, 2018

Doctor and patient relationship (Theoretical and practical approach0. University of Crete – School of Health Sciences – Medical department. Lionis C., Eleni Pitelou E. October 2015.

Planning health promotion programs: introductory workbook. Public Health Ontario, 4th edition,2015

http://www.greekphcguidelines.gr/

COURSE OUTLI

1.GENERALLY			
FACULTY	FACULTY OF HEALTH SCIENCES		
SCHOOL	MEDICINE		
SCHOOLING DEGREE LEVEL	*Undergraduate*		
COURSE CODE	XP0401	**STUDIES SEMESTER**	7th
COURSE TITLE	**MUSCULOSCELETAL SYSTEM DISEASES**		
COURSE SCIENTIFIC INSTRUCTOR	Th. Karachalios, Professor of Orthopaedics		
Co-teachers	Z. Dailiana, S. Varitimidis, M. Hantes, N. Rigopoulos		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**CREDIT UNITS**
Lectures (Medical Students who select the lesson are obliged to attend 11 out of 13 lectures)	6	3.00

	• Lectures at the amphitheater
	• Tutorials
	  ○ Clinic
	  ○ International educational seminars
	• Practical training:
	  ○ *clinic*
	  ○ *emergency department*
	  ○ *operating room*	

PRELIMINARY COURSES:	YES: Attendance and successful exams in the course of ANATOMY OF THE MUSCULOSCELETAL SYSTEM
LANGUAGE OF TEACHING AND EXAMS:	ENGLISH

AVAILABLE COURSE FOR ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	http://www.med.uth.gr/DetailsAr.aspx?id=22835 http://www.ortho-uth.org/

2. Learning Outcomes

The course is a basic lesson of the Medical Schools. Course content aims at introducing students to the concept of extremity trauma and spine diseases.

The purpose of the course is to make the student able to understand common diseases and clinical examination principles. Also, the students are trained to immobilize a member and inject a drug or puncture a joint.

The learning objectives to be fulfilled in students' training in Orthopedic Pathology are that upon completion of the semester, they must be able:

1. to carry out a clear and focused patient history,
2. to perform a complete objective examination of the patient,
3. to decide on the need for diagnostic investigation, to administer various laboratory and imaging tests and methods, to apply simple differential diagnostics, recommending only the necessary tests, and to properly evaluate their findings,
4. to recognize the potential for complications and suggest their prevention,
5. to decide on appropriate and necessary preoperative screening for the patient
6. to understand basic surgical principles in specific common Orthopaedic diseases

Preconditions

Mandatory knowledge:

- Anatomy of the musculoskeletal system
- Drug treatment of common microbial infections

3.COURSE CONTENT

Musculoskeletal disorders are the most common cause of chronic pain and disability in the world. The high prevalence of arthritis and osteoporosis associated with an aging population burden millions of people, their families, health systems and the costs to society generally. Musculoskeletal problems are the second most common cause for coming in the emergency departments after respiratory distress. The teaching of the field of Orthopedics is intended to give undergraduate students basic knowledge of the diagnosis of the most common musculoskeletal disorders. The rheumatic diseases that are the subject of a corresponding lesson are not included. Lectures by teachers begin with the clinical anatomy followed by a description of the diseases and their treatment briefly. Emphasis is placed on complications and representative examples. An attempt is also made to inductively present the problem to the student and to motivate him searching out the necessary knowledge to solve it.

CONTENT-TEACHING MODULES

1. SPINAL CORD ABNORMALITIES IN CHILDREN
2. SPINAL CORD DISORDERS
3. ARTHITIS
4. PERIPHERAL NERVE COMPRESSION SYNDROMES–NEONATAL BRACHIAL PLEXUS PALSY
5. METABOLIC BONE DISEASES
6. INFECTIONS IN MUSCULOSKELETAL SYSTEM
7. MALIGNANCIES OF THE MUSCULOSKELETAL SYSTEM
8. OSTEONECROSIS IN MUSCULOSKELETAL SYSTEM
9. CEREBRAL PALSY
10. DISORDERS OF THE SHOULDER AND ELBOW
11. DISORDERS OF THE HAND
12. COMMON HIP DISORDERS IN CHILDREN
13. DISORDERS OF THE FOOT

4.TEACHING AND LEARNING METHODS-EVALUATION

LEARNING PROCEDURE	• Face to face • e-class • Preparation for congress participation
USE OF INFORMATION COMMUNICATION TECHNOLOGY	• Power point presentations • E-class • E-book access • Pubmed access • Posting online information and announcements about the course and other educational activities • Students and teachers communications by e-mail
TEACHING STRUCTURE	

Activity	***Semester Workload***
Course lectures: compulsory attendance - signed on the attendance card - in all subject modules of the course	26
Attendance at the operating room: 1 compulsory attendance / semester	6
Training in the Emergency Department (ED): **3** compulsory attendances / semester	18
Clinical practice: a total of 3 compulsory attendances / semester as follows: (Clinic and Outpatient clinic)	12

	Mandatory attendance at afternoon post-graduate seminars (4.00pm - 8.00pm) organized by the Orthopedic Clinic on regular dates, which have been announced, involving scientific meetings with invited speakers of international prestige.	12
	Scientific activity preparation	0-10
	Private practice	40-50
	Exams	2
	Course Summary ***(39-45 workload hours per credit unit)***	116-136

STUDENTS EVALUATION	The student's progress is monitored throughout the semester and the final grade is co-ordinated by the student's overall image throughout the course of teaching. It is primarily aimed at informing the students whether their self-assessment was objective. **Optional work**: After consulting with a faculty member it is possible to carry out scientific work at various levels. The performance on the scientific work is counted in the final evaluation positively and if it is accepted at a conference the student is supported to present it. **Final Exam**: Oral exams at the end of each semester **EVALUATION** A relevant questionnaire is available to the students at the end of the semester's course to evaluate the lesson and the teachers, assessing each of the lecturers for both amphitheater and clinical tutoring. Students are also encouraged to express their views on the overall educational process of the course and any proposed changes. The results of the above questionnaire responses are appropriately reclaimed.

5. RECOMMENDED BIBLIOGRAPHY

- RECOMMENDED BIBLIOGRAPHY*:*

1. Option, per year, a textbook available from the «ΕΥΔΟΞΟΣ» database
2. e-book «MICROSURGERY», data base «ΕΥΔΟΞΟΣ»: 320131 AND COURSE NOTES
3. e-class presentations

Medical Bibliography on the Internet

-*Related Scientific Journals:*
Clinical Orthopedics and Related research
Journal of Bone and Joint Surgery

COURSE OUTLINE

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF EDUCATION	*Undergraduate*		
COURSE CODE	**0302**	**SEMESTER OF STUDY**	7 ο
COURSE TITLE	PATHOLOGY II		
COURSE RESPONSIBLE	IOANNIS STEFANIDIS		
CO-TEACHERS	L. Sakkas, , P. Kotsis, S. Potamianos, G. Vassilopoulos, A. Kapsoritakis, K. Makaritsis, D. Bogdanos, E. Rigopoulou, N. Gatselis, N. Giannakoulas, K. Zachos, C. Katsiaris, A. Bargiota, G. Daios, I. Alexiou, T. Eleftheriadis, S. Golfinopoulos, I. Goudios , E. Bouronikou , T. Simopoulou, G. Filippidis, E. Nikolaou, A. Kotsakis, E. Saloustros, F. Koinis		

SELF-ENDED TEACHING ACTIVITIES *in case the credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the entire course, enter the weekly teaching hours and total credits*	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
	8	8
Add rows if necessary. The teaching organization and the teaching methods used are described in detail in 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	*The explanation of the terms is given in the appendix Scientific Area
PREREQUISITE COURSES:	Attendance and successful examination in at least one course of the same subject and no failure in more than three in total from: 1. Physiology of Systems and Neurophysiology and Physiology of Endocrine, 2. Anatomy of the Musculoskeletal System, Anatomy of Spinal Veins and Vessels and Anatomy of the Nervous System and Sensory Organs, 3. Special Pathological Anatomy I, Special Pathological Anatomy II 4. Pharmacology I and 5. Biochemistry (I) of Enzymes and human's Metab.
LANGUAGE OF TEACHING AND EXAMINATIONS :	ENGLISH
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	

2. Learning Outcomes

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that the students will acquire after the successful completion of the course.

- *Description of the Level of Learning Outcomes for each study cycle according to the Qualifications Framework of the European Higher Education Area*

- *Descriptive Indicators for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning*

Consult the concise guide to writing learning outcomes

The course is the basic core of Pathology
The syllabus of the course aims to introduce students to clinical and critical thinking

It also refers to clinical entities. In this sense the course is the basis on which the student will learn various manifestations of clinical diseases.
Finally, the aim of the course is for students to understand the significance of clinical manifestations, laboratory and imaging findings in a distinct scientific field/profession

Upon successful completion of the course, the student will be able to:

- Analyzes key elements of epidemiology and pathogenesis of the main diseases of rheumatology, gastroenterology, hematology, endocrinology, oncology and nephrology
- It describes manifestations of these diseases
- to distinguish the main treatment options for each of the above ailments
- choose (with advantages/disadvantages) imaging laboratory and immunological tests for the diagnosis of the above diseases
- To combine manifestations with laboratory and imaging findings to diagnose one of the above diseases.
- He can collaborate with his fellow students to develop a theme of the above diseases

General Skills

Taking into account the general skills that the graduate must have acquired (as listed in the Diploma Appendix and listed below) which / which of them is the course aimed at?.

Search, analysis and synthesis of data and information, also using the necessary technologies
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Work in an international environment
Work in an interdisciplinary environment
Generating new research ideas
Project planning and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and ethical responsibility and sensitivity to gender issues
Exercise criticism and self-criticism
Promotion of free, creative and inductive thinking

3. COURSE CONTENT

1. Basic elements of epidemiology and pathogenesis of diseases of nephrology, rheumatology, gastroenterology, hematology, oncology, and endocrinology.
2. Clinical Manifestations in the above diseases.
3. Laboratory findings in the above diseases
4. Illustrative findings, in the above diseases.
5. Prognosis and evidence of treatment in the above diseases.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

MODE OF DELIVERY *Face to face, Distance learning etc.*	Face to face

USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of T.P.E. in Teaching, in Laboratory Education, in Communication with students*	Course with computer slides, literature search via PubMed.
TEACHING ORGANIZATION *The way and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Literature Study & Analysis, Tutorial, Internship (Placement), Clinical Exercise, Artistic Workshop, Interactive Teaching, Educational Visits, project writing, thesis writing/Assignments, Artistic Creation, etc.* *The student's study hours for each learning activity as well as the unguided study hours are listed so that the total workload at semester level corresponds to the ECTS standards*	

Activity	***Semester Workload***
Lectures	100
Clinical exercise	100
(Interactive teaching)	
(Workshop)	
(Educational visit)	
Total Course (25 workload hours per credit unit)	***200***

STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Deductive, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, thesis/Report, Oral Examination, Public Presentation, Laboratory Work, Clinical Patient Examination, Artistic Interpretation, Other / Others* *Explicitly defined evaluation criteria are mentioned and if and where they are accessible by students.*	Assessment: Final written exam with multiple choice questions (80-100%) Short answer questions in the clinical exercises despite the patient's bed in relation to a clinical or laboratory/imaging finding (0-10%) Clinical problem solving in clinical practice and interactive lecture theater (0-10%)

5. RECOMMENDED - BIBLIOGRAPHY

-Suggested Bibliography:
1) Pathology
Kumar Parveen, Clark Michael

2) Current Medical Diagnosis and Treatment
MCPHEE ET AL

3) Cecil Basic Pathology
Benjamin Ivor, Griggs Robert, Wing Edward, Fitz J.

-Related scientific journals:

COURSE DESCRIPTIONSURGERY I

1.GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
STUDY LEVEL	*Undergraduate*		
COURSE CODE	**XP0201**	**SEMESTER**	**7th**
COURSE TITLE	SURGERY I		
COURSE INSTRUCTOR	DIMITRIOS ZACHAROULIS		
CO- INSTRUCTORS	KONSTANTINOSTEPETES, GEORGIOSTZOVARAS,ANTIGONIPOULTSIDI, IOANNISMPALOGIANNIS, DIMITRIOSSIMEONIDIS, GEORGIOSKOUVELOS,KIRIAKOSSPILIOPOULOS, MATHAIOSEFTHIMIOU, GRIGORIOSXRISTODOULIDIS, IOANNISMAMALOUDIS, EFFROSYNIMPOMPOU, ALEXANDROSDIAMANTIS, KONSTANTINOSPERIVOLIOTIS		

INDEPENDENT TEACHING ACTIVITIES *in case the credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.*	**WEEKLY TEACHING HOURS**	**CREDIT UNITS (ECTS)**
	26	8
Add rows if needed. The teaching organization and teaching methods used are described in detail in 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skills Development*	Scientificfield
PREREQUISITE COURSES:	YES(ANATOMY II –INTERNAL ORGANS- VASCULAR SYSTEM AND PHYSIOLOGY)
LANGUAGE OF TEACHING AND EXAMS:	ENGLISH
AVAILABLE TO ERASMUS STUDENTS	YES
WEBSITE (URL)	http://www.med.uth.gr/DetailsLes.aspx?id=53

2.LEARNING OUTCOMES

The learning outcomes of the course, are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

- *Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area*
- *Descriptive Indicators Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning*

The course is the basic introductory course for the General Surgery subject. The course material aims to familiarize students with the basic principles of surgery
It also refers to the general principles of General Surgery. In this sense the course is the basis on

which the student will become familiar with Surgery.
Finally, the aim of the course is for students to understand the importance of Surgery in a distinct scientific field / profession.

Upon successful completion of the course the student will be able to:

- Understand the etiology and pathogenesis of surgical pathologies
- Acquire basic knowledge in physiological disorders caused by surgical pathologies (water - electrolyte - acid-base balance disorders, nutritional disorders, endocrine disorders, shock, infections)
- Raisie the awareness of students on major problems of modern surgery (accidents, multiple injuries, oncological surgery, degenerative vascular diseases, organ transplants)

GeneralAbilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course ?.

Research, analysis and synthesis of data and information, using the necessary technologiesAdaptation to new situations
Decision making
Autonomous workTeamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

3. MODULE CONTENT

1. General part: Historical development of medicine and surgery, specific skin - subcutaneous tissue inflammations, sterilization, asepsis, disinfection, antiseptic, surgical infections, water, electrolyte and acid-base balance disorders, shock, postoperative complications
2. Thoracic diseases: thoracic wall diseases, upper thoracic syndrome, thoracic injuries, lung diseases (pulmonary abscess, echinococcus, benign and malignant tumors of the lung)
3. Diseases of the mediastinum (syndrome of the mediastinum-superior vena cava, tumors-cysts of the mediastinum, mediastinum trauma.
4. Cervical pathologies (cervical extrathyroid swelling)
5. Breast pathologies (congenital, inflammatory, neoplastic)
6. Esophagealpathologies
7. Gastric – duodenal pathologies (anatomy - physiology of the stomach, gastroduodenal ulcer, gastric neoplasms)
8. Abdominal Wallhernias

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching method *Face to face, tutoring, distance learning.*	Facetoface
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	**PowerPoint, video usage**
TEACHING METHODS *The way and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory*	

Activity	***SemesterWorkload***
Lectures	60
Clinicalexercise	88
Tutorialexercise	60

Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc. *The student study hours as well as the non-quided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.*		
	Course Set (26 hours of workload per credit unit)	***208***
STUDENT EVALUATION ***Description of the evaluation process*** *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, Public Presentation, Others* *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	• *Mandatory presence in the lectures of the course with the possibility of 2 justified absences* • *Mandatory presence in the clinical practice of the course with the possibility of 2 justified absences* • *Compulsory attendance at the tutoring course with the possibility of 2 justified absences* • *Multiple Choice Test, Short Answer Questions* *WrittenExams 100%*	

5. RECOMMENDED LITERATURE

--LITERATURE:

1. Current Diagnosis and Treatment Surgery, Way L.W., Doherty G.M

2. General Surgery, I. D. Kanelos

3. Surgery Quick,Reed, Harper, Parsy

4. General Surgery Faculty of Surgery, Department of Surgery

5. Oxford Textbook of Fundamentals of Surgery Thomas W., Reed M., Wyatt M.

COURSE DESCRIPTION

FORENSICS

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	MP0700	**Semester**	8th
COURSE TITLE	FORENSICS		
COURSE INSTRUCTOR	MARIA IOANNOU, PROFESSOR OF PATHOLOGY		
CO-INSTRUCTORS	MARIA SAMARA, ASSISTANT PROFESSOR OF PATHOLOGY WITH EMPHASIS ON MOLECULAR HISTOPATHOLOGY, CHAROULA FLOROU FORENSIC PATHOLOGIST		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	3	3,00

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	SCIENTIFIC AREA
PREREQUIRED COURSES	NO
LANGUAGE OF TEACHING AND EXAMS	ENGLISH
AVAILABLE TO ERASMUS STUDENTS	NO
WEBSITE (URL)	**http://eclass.uth.gr/eclass/courses/……..**

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

Aims of the course

The general purpose of the course is to introduce students to the basic principles of human forensic science and toxicology. Further, the course seeks to provide students with the basic elements for acquiring skills in external examination of the cadaver and the basic necropsy approach, including the

determination of the elapsed time from the time of death and the rudimentary investigation of the cause of death.

After the successful completion of this course, the students will be able to:

- understand the basic principles of Forensic Medicine
- have basic knowledge of terms of Forensic Medicine
- to have the supplies to recognize the basic cadaveric phenomena.
- to approach and correctly present the causes of death and the morphological alterations observed in the human body.
- to collaborate with his fellow students to create assignments and basic research to be presentedat student conferences.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Research, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Team work
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3.Module Content

The content of the course includes the following major items:

A. The content of the lectures together with the relevant clinical insights the students need to learn/acquire per chapter.
B. The content of the tutorials/seminars together with the relevant clinical insights the students need to learn/acquire per seminar.
C. The content of the laboratory practical together with the relevant practical & clinical skills the students need to learn/acquire per exercise.

A. Lecture content and relevant clinical insights

1. Subject of Forensic Medicine and Forensic Methodology. Legal and Ethical Principles and Conditions in the practice of Medicine
2. General about death: Corpse phenomena - time of death. Identification of the deceased. Death certificate
3. Sudden deaths. Neonatal and infant deaths. Violent "deprivation" deaths. Drowning. Suffocation

4. Injuries caused by mechanical agents: fractures, injuries caused by crushing and/or cutting instruments, head injuries, brain injuries, injuries caused by firearms, road traffic accident
5. Damage from the influence of natural factors: Damage from heat, damage from electricity, damage from radiation
6. Damage from the effect of chemical agents
7. Infanticide. The abused child syndrome
8. Deaths from "drugs"
9. The work accident
10. Crimes against sexual freedom and crimes of economic exploitation of sexual life. The bodily injury.
11. Artificial termination of pregnancy. Pregnancy, childbirth and postpartum.B. Seminar/Tutorial content and relevant clinical insights

Problem-based learning: Presentation, analysis, and discussion of forensic cases

C. Laboratory Practical content
Hands-on learning: Acquisition of general and specific practical & clinical skills:
General Skills
Observing and analyzing forensic findings
Working as a team
Following instructions
Following safety regulations
Troubleshooting in laboratory results
Clinical significance of lab results

Specific Skills
- Compilation of death certificate
- Methodology and identification of DNA fingerprints

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	*Face to Face:* Teaching of **FORENSICS** consists of lectures, seminars/tutorials and laboratory practical. Attendance of Laboratory Practical and Seminars/Tutorials is obligatory. The lectures content is described above. Seminars/Tutorials (in 4 student groups with 1 instructor per group) review and extend the lectures content using examples of forensic cases (problem-based learning). Laboratory exercises (in 4 student groups of students, 1 instructor per group of 25-28 students) composing the students' practical are complementary to the lectures and they aim to familiarize the student with the application of FORENSICS, as well as to help the students comprehend concepts that are not easily presented theoretically (learning based on practical experience).

<table>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td>Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students.
Specifically:
• Common software (e.g. MS powerpoint) is used to prepare lecture material and display slides and videos.
• The study guide (detailed supplementary material & additional bibliography), the tutorial material (clinical cases), the theory and protocols of the laboratory exercises, the slides of each lecture as well as relevant videos and scientific articles made available electronically and online to students through the e-class system of our university.
• Information about the course, instructors and their research interests and in general the Pathology Department of the Faculty of Medicine are available online on the Laboratory website ……
• Common software (e.g. MS excel) is used to statistically process student assessment.
Announcements, information etc are available online and via e-class. Communication is also done via e-mail.</td></tr>
<tr><td>TEACHING METHODS
The way and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.</td><td><table>
<tr><th>Learning activity</th><th>Total semester workload</th></tr>
<tr><td>Lectures</td><td>28 hours</td></tr>
<tr><td>Lab. Practical (obligatory presence)</td><td>8 hours</td></tr>
<tr><td>Preparation of Students</td><td>40 hours</td></tr>
<tr><td>SUM
(25 hours per teaching credit)</td><td>76 hours</td></tr>
</table></td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation,</td><td>The language of assessment is ENGLISH.
Evaluation methods.
A. For the laboratory practical: Written Examination at the end of the semester with multiple choice and True/False questions, short developmental questions, oral examination of students with special needs.
The participation of students in the laboratory exercises is mandatory. The examined material consists of the theory, the methodology and the ways results are presented by the instructors during the exercises.</td></tr>
</table>

Explicitly defined assessment criteria are stated and if and where they are accessible to students.	**B. For the lecture material:** Written Exams with multiple choice and True/False questions, short developmental questions, oral examination of students with special needs. The course exams are written, last 2 hours and consist of multiple choice and True/False questions, short developmental questions, oral examination of students with special needs. The material to be examined is lectures as described above. The laboratory and course exams are given together. **Final Grade:** The final grade of the course is calculated as the sum of 100% of the grade of the written course exams. All the above are presented in detail to all students and posted electronically in e-class.

5.Recommended Bibliography

A. Lecture Material

Main suggested textbooks:

1. **MEDICAL-JUDICIAL INVESTIGATION OF DEATH**
   Edition: 1st edition / 2001
   Authors: Michalodimitrakis Manolis
   Type: Book
   Distributor (Publisher): BROKEN HILL PUBLISHERS LTD

2. **Manual of Clinical Forensics**
   Edition: 1st /2020
   Authors: Chara Spiliopoulou, Konstantinos Katsos
   Type: Book
   Distributor (Publisher): Parizianou

Further reading:

None

B. Laboratory Practical supplementary Material

None

Relevant Scientific Journals:

None

COURSE OUTLINE

1.GENERALLY			
FACULTY	FACULTY OF HEALTH SCIENCES		
SCHOOL	MEDICINE		
SCHOOLING DEGREE LEVEL	*Undergraduate*		
COURSE CODE	XP0402	**STUDIES SEMESTER**	8th
COURSE TITLE	Disorders and Trauma of the musculoskeletal System		
COURSE SCIENTIFIC INSTRUCTOR	Th. Karachalios, Professor of Orthopaedics		
Co-teachers	Z. Dailiana, S. Varitimidis, M. Hantes, A. Koutalos, G. Komnos		

INDEPENDENT TEACHING ACTIVITIES	TEACHING HOURS PER WEEK	CREDIT UNITS
Lectures (Medical Students who select the lesson are obliged to attend 11 out of 13 lectures)	6	4.00

	• Lectures at the amphitheater
	• Tutorials
	  ○ Clinic
	  ○ International educational seminars
	• Practical training:
	  ○ *clinic*
	  ○ *emergency department*
	  ○ *operating room*	

PRELIMINARY COURSES:	YES: Attendance and successful exams in the course of ANATOMY OF THE MUSCULOSCELETAL SYSTEM
LANGUAGE OF TEACHING AND EXAMS:	English
AVAILABLE COURSE FOR ERASMUS STUDENTS	YES

COURSE WEBSITE (URL)	http://www.med.uth.gr/DetailsAr.aspx?id=22835

2. Learning Outcomes

The course is a basic lesson in the Medical Schools. Course content aims at introducing students to the concept of limb and spinal cord traumatic diseases. The aim of the course is to make the student able to understand the usual spine and limb trauma and to achieve a complete clinical examination. It is also desirable to be able to immobilize an injured extremity and inject a drug or puncture a joint.

The learning objectives to be fulfilled in students' training in Orthopedic Traumatology are that upon completion of the semester, they must be able:

1. to carry out a clear and focused patient history,

2. to perform a complete objective examination of the patient,

3. to decide on the need for diagnostic investigation, to administer various laboratory and imaging tests and methods, to apply simple differential diagnostics, recommending only the necessary tests, and to properly evaluate their findings,

4. to recognize the potential for complications and suggest their prevention,

5. to decide on appropriate and necessary preoperative screening for the patient

6. to understand basic surgical principles in specific common Orthopaedic traumatic diseases

Preconditions

Mandatory knowledge:

- Anatomy of the musculoskeletal system
- Drug treatment of common microbial infections

3.COURSE CONTENT

Musculoskeletal disorders and traumatic diseases are the most common cause of chronic pain and disability in the world. The high prevalence of arthritis and osteoporosis associated with an aging population burden millions of people, their families, health systems and the costs to society generally. Musculoskeletal trauma problems are the second most common cause for coming in the emergency departments after respiratory distress. The teaching of the field of Orthopedics is intended to give undergraduate students basic knowledge of the diagnosis of the most common musculoskeletal disorders and traumatic diseases. The rheumatic diseases that are the subject of a corresponding lesson are not included. Lectures by teachers begin with the clinical anatomy followed by a description of the musculoskeletal trauma diseases and their treatment briefly. Emphasis is placed on complications and representative examples. An attempt is also made to inductively present the problem to the student and to motivate him searching out the

necessary knowledge to solve it.

CONTENT-TEACHING MODULES

1. MANAGEMENT OF FRACTURES AND SOFT TISSUE INJURIES
2. MANAGEMENT OF THE POLYTRAUMA PATIENT
3. FRACTURES COMPLICATIONS
4. FRACTURES IN CHILDREN
5. SHOULDER-HUMERUS-ELBOW INJURIES
6. INJURIES OF THE FOREARM AND WRIST
7. HAND-NERVE INJURIES-AMPUTATIONS
8. SPINAL CORD INJURIES
9. PELVIC RING INJURIES
10. INJURIES OF THE HIP AND FEMUR
11. KNEE FRACTURE AND LIGAMENT INJURIES
12. TIBIA FRACTURES
13. FOOT AND ANKLE INJURIES

4. TEACHING AND LEARNING METHODS-EVALUATION

LEARNING PROCEDURE	• Face to face • e-class • Preparation for congress participation
USE OF INFORMATION COMMUNICATION TECHNOLOGY	• Power point presentations • E-class • E-book access • Pubmed access • Posting online information and announcements about the course and other educational activities • Students and teachers communications by e-mail

TEACHING STRUCTURE

Activity	***Semester Workload***	
Course lectures: compulsory attendance - signed on the attendance card - in all subject modules of the course	26	
Attendance at the operating room: 1 compulsory attendance / semester	6	
Training in the Emergency Department (ED): **3** compulsory attendances / semester	18	
Clinical practice: a total of 3 compulsory attendances / semester as follows: (Clinic and Outpatient clinic)	12	

	Mandatory attendance at afternoon post-graduate seminars (4.00pm - 8.00pm) organized by the Orthopedic Clinic on regular dates, which have been announced, involving scientific meetings with invited speakers of international prestige.	12	
	Scientific activity preparation	0-10	
	Private practice	40-50	
	Exams	2	
	Course Summary ***(29-34 workload hours per credit unit)***	116-136	

STUDENTS EVALUATION	The student's progress is monitored throughout the semester and the final grade is co-ordinated by the student's overall image throughout the course of teaching. It is primarily aimed at informing the students whether their self-assessment was objective. **Optional work**: After consulting with a faculty member it is possible to carry out scientific work at various levels. The performance on the scientific work is counted in the final evaluation positively and if it is accepted at a conference the student is supported to present it. **Final Exam**: Oral exams at the end of each semester **EVALUATION** A relevant questionnaire is available to the students at the end of the semester's course to evaluate the lesson and the teachers, assessing each of the lecturers for both amphitheater and clinical tutoring. Students are also encouraged to express their views on the overall educational process of the course and any proposed changes. The results of the above questionnaire responses are appropriately reclaimed.

5.ΣΥΝΙΣΤΩΜΕΝΗ-ΒΙΒΛΙΟΓΡΑΦΙΑ

1. Option, per year, a textbook available from the «ΕΥΔΟΞΟΣ» database
2. e-book «MICROSURGERY», data base «ΕΥΔΟΞΟΣ»: 320131 AND COURSE NOTES
3. e-class presentations

Medical Bibliography on the Internet

-*Related Scientific Journals:*
Clinical Orthopedics and Related research
Journal of Bone and Joint Surgery

COURSE OUTLINE

1. GENERAL			
SCHOOL	OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF EDUCATION	UNDERGRADUATE		
COURSE CODE	AA0102	**SEMESTER OF STUDY**	8 th SEMESTER
COURSE TITLE	IMAGING DIAGNOSTICS II		
COURSE RESPONSIBLE	VLYCHOU MARIANNA, PROFESSOR		
CO-TEACHERS	KAPSALAKI EVTYCHIA, ROUDAS CHRISTOS, GEORGOULIAS PANAGIOTIS, KYRGIAS GEORGIOS, VALOTASIOU VARVARA, AKAD. SCHOLAR		

SELF-ENDED TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDIT UNITS
LECTURES, CLINICAL TUTORIALS, ELECTRONIC COURSE, PROGRESSES	5	5.00

COURSE TYPE	/OF SCIENTIFIC AREA
PREREQUISITE COURSES:	ANATOMY I, II, III and PATH AN II
LANGUAGE OF TEACHING AND EXAMINATIONS :	ENGLISH
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	From e class

2. Learning Outcomes

The overall aim of the course is to introduce students to the basic principles of imaging modalities and the study of the imaging approach by system, with an introduction to the correct hierarchy of imaging modalities based on clinical indication; and to enable them to plan, analyze and formulate an imaging diagnosis and as well as the combined imaging-based approach to disease. Further, the course seeks to provide students with the fundamentals of the combined imaging-based approach to disease. The specific objectives of the course are specified in the following intended learning outcomes:

Upon successful completion of the course, the student will be able to:

He/she will be able to use the acquired knowledge in order to:

- Distinguish the main differences between normal and pathological imaging of the main organs of the human body
- To describe the pathology in an imaging method.
- To know basic differential diagnosis in Medical Imaging
- To be able to collaborate with fellow students to research and analyze the international literature.

General Skills

3. COURSE CONTENT

Unit 1. Gastrointestinal Radiology

Unit 2 Interventional Radiology
Unit 3 Emergency Radiology
Unit 4 Urinary Radiology
Unit 5 Nuclear Medicine
Unit 6 Principles of Radiation Oncology
Unit 7 Pediatric Radiology
Unit 8 Gynecological Radiology

4. TEACHING AND LEARNING METHODS - ASSESSMENT

DELIVERY METHOD	LECTURES
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	PowerPoint ……. …….
TEACHING ORGANIZATION	

Activity	***Semester Workload***

STUDENT EVALUATION	

5. RECOMMENDED - BIBLIOGRAPHY

LEARNING RADIOLOGY Author: William Herring
Publications: I. Constantara

Teaching Notes – Related scientific journals

COURSE OUTLINE

1. GENERAL			
LEISURE	OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF EDUCATION	UNDERGRADUATE		
COURSE CODE	PTH1100	**SEMESTER OF STUDY**	8 th
COURSE TITLE	INTENSIVE CARE		
COURSE RESPONSIBLE	EPAMEINONDAS ZAKYNTHINOS		
CO-TEACHERS	DEMOSTHENES MAKRIS, KON/NOS MANTZARLIS, BASILIKI TSOLAKI, DEMETRA BAGA, PARIS ZYGOULIS, ELENI PALLI, MARIA BAKA, EUSTRATIOS MANOULAKAS, MARIA KARAPETSAS, ELENI KOSTADHMA, VASILIS VAZGIOURAKIS, NIKITAS KARAVIDAS, GEORGOS ZAKYNTHINOS, MARIA IRINI PAPADONTA, KON/NA DESKATA, FOTEINI BARDAKA, ANTHI BANIA, AIKATERINI KUTSOTHYMIOU.		

SELF-ENDED TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
A) **Lectures:** 12 2-hour lectures in an auditorium held throughout the semester (optional attendance). Lectures - theoretical courses are accompanied (per two theoretical courses) by short video demonstrations relevant with practical skills that are necessary in Intensive Care. B) **Practical Exercise - Tutorial Exercises:** At the beginning of the spring semester, students are divided into groups of 10-11 students and trained in the ICU in rotation (Only one group of students can be in the ICU, so each student can take on one patient). Thus, students are in the ICU daily (for 4 hours) training as discussed below. That is, each student is required to: 1) To be trained for 4 days during morning hours in the Intensive Care Unit (for 4 hours). 2) To be trained for 2 days for at least 4 hours on duty at the Intensive Care Clinic. 3) Participate for 2 hours in case problem solving in the form of a case presentation in an interactive setting. 4) To be trained for 1 hour in props in the laboratory at the University (Intubation, CPR). 5) To prepare a paper - interesting clinical case in English language. Preparation, instructions and assistance for the paper is in the form of hourly tutorial.	2 2	4

COURSE TYPE	**Science Area Course and Skills Development**
PREREQUISITE COURSES:	NO
LANGUAGE OF TEACHING AND EXAMINATIONS :	ENGLISH
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	Yes. The presentations and in general the elements of the course are posted on e - class

2. Learning Outcomes

This course is the core course for the understanding of the main thematic knowledge modules of Intensive Care.
The course syllabus is aimed at the undergraduate introduction of students to Intensive Care.
It also addresses the pathophysiology of the critically ill patient and modern methods of monitoring and supporting the vital functions of the human body. In this sense the course is the basis on which the student will solve complex and urgent problems of clinical medicine.
Finally, the aim of the course is for students to understand the importance of specialization in Intensive Care Medicine a distinct scientific field/specialty

Upon successful completion of the course, the student will be able to:

Will be able to use the acquired knowledge in order to:

1. Understand clinical problems of critically ill patients requiring emergency treatment (Lectures and Practical Exercise - Appendix A)
2. Understand the basic pathophysiology and clinical semiotics of Cataplexy and Multiorgan Failure and the basic strategies for the management of Cataplexy and Respiratory Failure in the critically ill patient through mechanical ventilation (Lectures and Practical Exercise - Appendix A).
3. Calculate hemodynamic indicators and parameters for monitoring respiratory function and evaluate laboratory data (Interactive teaching - appendix B with a choice of 10 indicators)
4. Analyze the individual components of a complex clinical problem of a critically ill patient into its component parts and understand the pathophysiology leading to the complex clinical problem (Interactive teaching - appendix B)
5. Formulate an evaluative judgment of a complex urgent clinical problem requiring diagnosis and urgent treatment (Interactive teaching - Appendix B)
6. Can work with fellow students and staff in an ICU to productively allocate the required actions of urgent clinical problems in the ICU (Practicum - Appendix A)
7. Application of knowledge in an international environment using the English language (Tutorial on the presentation of a common case in English and writing a case (of the patient for whom the student was responsible during the internship in the CCU) in English - Appendix C)

General Skills

3. COURSE CONTENT

1. -Respiratory Insufficiency (Pathophysiology, Types of respiratory insufficiency)
2. - Acid -base balance disorders

3. -Principles of Ventilation Mechanism (Respirators)
4. - Basic principles of heart function. Circulatory Insufficiency (Pathophysiology, - Types of circulatory shock, Hemodynamic Monitoring - Monitoring)
5. - Cardiogenic and non- Cardiogenic Pulmonary Edema
6. - Sepsis, Systemic Inflammatory reaction
7. - Nosocomial Pneumonia
8. – Vascular strokes-Severe Brain injury
9. - Thromboembolism – Pulmonary Embolism
10. - Nutrition

4. TEACHING AND LEARNING METHODS - ASSESSMENT

DELIVERY METHOD	Face to face
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Use of T.P.E. in Teaching, Laboratory Education and Communication with students

TEACHING ORGANIZATION

Activity	***Semester Workload***
Lectures	**12 Two-hour (24 hours)**
Interactive teaching (in groups of 10-11 students/group)	2 hours in ENGLISH (solving a clinical problem) **(2 hours)**
Tutoring (in groups of 10-11 students/group)	1 – hourly (*interesting clinical case* – bibliography *in English*) **(1 hour)**
Clinical exercise (in groups of 10-11 students/group)	***4 four hours*** **(16 hours)** - *(history taking, clinical examination, demonstration and application of techniques such as taking blood, bronchial secretions, placing endovascular catheters, transporting a critically ill patient, under the constant supervision of a physician) Interactive teaching* with demonstration of ventilator and Hemodynamic operation monitoring (2 hours) ***2 Four hours emergency services*** **(8 hours)**
Thesis Writing	*Writing a thesis in the form of an interesting clinical case (of the patient for whom the student was responsible during his internship at the ICU) in ENGLISH* **(20 hours)**
Workshop (in groups of 10-11 students/group)	1 hour training in simulations at the University laboratory (Intubation, cardiopulmonary resuscitation, ..)
Study preparation	*At the end of the semester*
Seminar	*(Optional)* 1 two days

	Hours of not guided study	***40 hours***
	Total Course (workload hours per credit unit)	**113 hours** ***(28.25 workload hours per credit unit)***
STUDENT EVALUATION	*The student assessment in the Intensive Care course is in English. The assessment is done* *a) assessment of participation in the practical training - tutorial exercises* *Annex B - 10% of the final grade* *b) Writing a study in the form of an interesting clinical case in English* *- 20% of the final grade.* *c) written with multiple choice questions (no negative marks) or alternatively oral* *-70% of the final grade* *students will be given 10 indicative questions from the department's pool of multiple choice questions 1 month before the exam.* *Promotion of the course requires that the Study Note be delivered within an acceptable time before the examination. The course requires the correct selection of 50% of the multiple-choice questions*	

5. RECOMMENDED -BIBLIOGRAPHY

1) Author: Intensive Care Unit, Authors: Paul L. Marino , Edited by Spyridon Zakynthinos, Edition: 4th ed./2016

Distributor (Publisher): Dimitrios Lagos, ISBN 978-960-7875-94-5 CODE EUDOXOS 59395180

2) Manual of Intensive Care, Authors: Raoof S, Edited by Epaminondas Zakynthinos, Edition: 1st ed./2010

Distributor (Publisher): P.H. PASCHALIDI, ISBN 978-960-489-094-1, CODE EVDOXOS 13257029

3) Relevant scientific journals : Critical Care Medicine, Intensive Care Medicine

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	**KI0500**	**Semester**	8th
COURSE TITLE	Social and Preventive Medicine		
COURSE INSTRUCTOR	Varvara A. Mouchtouri		
CO-INSTRUCTORS	MEMBERS DEP (Teaching Research Staff): C. Hadjichristodoulou, G. Rachiotis, E. Malisiova EDIP (Special Teaching Research Staff): P. Mina Research associates: M. Koureas, M. Kiritsi, A. Syggelakis, D. Kafetsouli PhD candidates: Ioanna Avakian		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	4	**4**

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Compulsory Scientific area
PREREQUIRED COURSES	None
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	No
WEBSITE (URL)	**https://eclass.uth.gr/courses/MED_U_179/**

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

The purpose of this course is to familiarize students with the principles of public health, social medicine, prevention of diseases and evidence-based medicine.

After successfully completing the course students will be able to:

- Understand the importance of a public health/population hygiene and the perspective in daily medical practice and clinical decision-making.

- Demonstrate knowledge in the concepts and applications of prevention strategies and health promotion, as well as, the effect of the environment (natural and hospital environment, nutrition, smoking, alcoholism) on the development of infectious and chronic diseases (cancer, coronary heart disease, diabetes). In addition, they will gain a knowledge of the epidemiology and prevention of infectious diseases (pathogens, mortality, fatality, reservoir, incubation period and prevention and control measures/vaccinations) and chronic diseases, screening and the conditions for its application in clinical practice, as well as, the epidemiology and prevention of accidents, the basic principles of health economics and their applications in preventive medicine. Finally, they will have learnt about the importance of population movements and sea and air transport and trade in the disease spread and the application of International Health Regulations (IHR) for the protection of public health.

- Distinguish the ways of providing preventive medicine services and give relevant examples. Also, be able to distinguish the different levels of effectiveness of each level of prevention in health protection.

- Apply acquired knowledge in order to critically appraise published literature, compose a written assigment related to a disease, with an emphasis on screening for that disease and present results to the public. Also, have the ability to apply guidelines in daily clinical practice not only for the screening of a disease but also for their primary prevention. Additionally, after completing the laboratory exercise in the Microbiological and Chemical laboratory of the Regional Public Health Laboratory of Thessaly, students will be able to evaluate and interpret the chemical and microbiological indicators of food, drinking water, recreational waters and other environmental samples quality.

- Critically appraise published literature highlighting the strengths and limitations of the studied research methods. Additionally, students will be able to collaborate with fellow students to search for and critically process published information relevant to disease screening guidelines (secondary prevention).

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

Production of new research ideas

- Research, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3.MODULE CONTENT

1. Theory

Introduction to Public Health and Preventive Medicine
Epidemiology and prevention of infectious diseases
Screening programmes
Introduction to environmental health
Prevention of nosocomial infections and hospital hygiene
The role of sea and air transport – International Health Regulations
Prevention of waterborne diseases – Drinking and recreational water safety
Basic nutrition principles: Mediterranean diet
Zoonosis/Animal disease and Foodborne Diseases prevention
Waste Management and Public Health
Vaccination policies
Transmission and preventive measures of infectious diseases
Epidemiology and prevention of chronic diseases – coronary heart disease, diabetes mellitus
Epidemiology and accident prevention
Smoking, alcoholism, drugs
Health economics
Epidemiology and prevention of cancer

2. Exercises

Screening
Exercise: "Study of Air Pollution Episodes (London 1952)" and "Case Study of Dietary Exposure to Mercury During Pregnancy"
Nosocomial infection prevention exercise
Exercise to deal with a public health emergency of international concern
Selection and application of personal protective equipment and infection control practices in the hospital environment

3. Laboratories:

A. Microbiological Laboratory: Detection of Hepatitis A virus in food with real-time PCR. Identification of microorganisms with Matrix Assisted Laser Desorption Ionization Time of Flight (MALDI-TOF) mass spectrometry (MS). Demonstration of good hand washing practice and comparison of pre- and post-washing hand comparison of flora using culture techniques. Determination of safety indicators in food based on regulation 2073/2005 of the European Commission on microbiological criteria in food. Detection and enumeration of Legionella spp. in water samples for human consumption based on the international standard (ISO) 11731:2017. Determination of microbiological indicators in samples of water for human consumption in accordance with Joint Ministerial Decision “ΚΥΑ Γ1(d)/ΓΠ οικ.67322”.

B. Chemical Laboratory: Water quality in an Artificial Kidney Unit, Chemical quality control of surface water and wastewater, Quantitative determination of antibiotics in blood plasma by HPLC.

<table>
<tr><td colspan="2">4. TEACHING AND LEARNING METHODS - EVALUATION</td></tr>
<tr><td>Teaching Method
(face to face, tutoring, distance learning)</td><td>Face to Face

Lectures

Laboratories</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td>Learning process support through the e-class online platform.
Use of ICT (e-mail) in communication with students.</td></tr>
<tr><td>TEACHING METHODS
The way and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.</td><td>
<table>
<tr><th>Learning activity</th><th>Total semester workload</th></tr>
<tr><td>Lectures</td><td>45 hours</td></tr>
<tr><td>Lab. Practical (obligatory presence)</td><td>40 hours</td></tr>
<tr><td>Tutorials
(obligatory presence)</td><td>8 hours</td></tr>
<tr><td>Preparation for Practical</td><td>8 hours</td></tr>
<tr><td>Preparation for Tutorials</td><td>4 hours</td></tr>
<tr><td>SUM
(25 hours per teaching credit)</td><td>105 hours</td></tr>
</table>
</td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, Explicitly defined assessment criteria are stated and if and where they are accessible to students.</td><td>The language of assessment is English.
Evaluation methods.
Assessment methods: Multiple choice questions (60% of the total mark) and submission of a written essay with a public presentation (40% of the total mark).
The course and teachers’ evaluation is carried out - at the end of the semester - through the completion of a specific questionnaire by the students. Students are encouraged to express their opinions through the questionnaire both on the educational process of the course in question, and on any changes that are necessary in their opinion. Student responses are taken under consideration in order to make improvement changes.</td></tr>
<tr><td colspan="2">5. RECOMMENDED-BIBLIOGRAPHY</td></tr>
</table>

1. Public Health. Jenny Kourea-Kremastinou. 2007.
2. Hygiene and Epidemiology. M. Arvanitidou- Vagiona. 2023.
-Related bibliography: U.S. Preventive Services Task Force
https://www.uspreventiveservicestaskforce.org/

COURSE DESCRIPTIONSURGERY II

1.GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF EDUCATION	*Undergraduate*		
CLASS CODE	**XP0202**	**SEMESTER OF STUDIES**	**7th**
COURSE TITLE	SURGERY II		
COURSE MANAGER	KONSTANTINOS N. TEPETES		
ASSOCIATES	GEORGIOSTZOVARAS,DIMITRSIOSZACHAROULIS, ANTIGONIPOULTSIDI, IOANNISMPALOGIANNIS, DIMITRIOSSIMEONIDIS, MILTIADISMATSAGKAS,KIRIAKOSSPILIOPOULOS, MATHAIOSEFTHIMIOU, MICHAILSPIRIDAKIS, GRIGORIOSXRISTODOULIDIS, IOANNISMAMALOUDIS, CHRISTOSKARATHANOS, GEORGIOSKOUKOULIS, EFFROSYNIMPOMPOUALEXANDROSDIAMANTIS, KONSTANTINOSPERIVOLIOTIS		

INDEPENDENT TEACHING ACTIVITIES *in case the credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.*	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
	24	7
Add rows if needed. The teaching organization and teaching methods used are described in detail in 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skills Development*	MANDATORY OF SCIENTIFIC AREA AND SKILLS DEVELOPMENT
PREREQUISITE COURSES:	YES(ANATOMY II –INTERNAL ORGANS–VASCULAR SYSTEM AND PHYSIOLOGY)
LANGUAGE OF TEACHING AND EXAMS:	ENGLISH
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
LESSON PAGE (URL)	https://www.med.uth.gr/DetailsLesNew.aspx?id=61

2.Learning Outcomes

The learning outcomes of the course, the specific knowledge, skills and appropriate level abilities that students will acquire after the successful completion of the course, are described

- *Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area*
- *Descriptive Indicators Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning*

Consult the concise guide for writing learning outcomes

Understanding the etiology and pathogenesis of surgical pathologies- The acquisition of basic knowledge in physiological disorders caused by surgical pathologies (water-electrolyte-acid-base balance disorders, nutritional disorders - major disorders, endocrine disorders,) problems of modern surgery (accidents, multiple injuries, oncological surgery, degenerative vascular diseases, organ transplants).

GeneralAbilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course ?.

Search, analysis and synthesis of data and information, using the necessary technologies
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

3. COURSE CONTENT

1. Liver pathologies: trauma, pyogenic abscess, amoebic abscess, hydatid liver disease, non-parasitic liver cysts, polycystic liver disease, neoplasms, portal hypertension.
2. Bile pathologies (anatomy physiology, gallstones acute-chronic cholecystitis, obstructive, jaundice).
3. Pancreatic pathologies (congenital anomalies, pancreatitis, neoplasms, endocrine tumors).
4. Surgical pathologies of the spleen
5. Small bowel pathologies (intestinal obstruction, inflammatory diseases)
6. Pathologies of the colon - rectum - anus: hemorrhoids, anal fissure, perianal abscesses - fistulas, appendicitis, neoplasms of the colon, inflammatory diseases of the colon, diverticulitis, pilonidal cyst.
7. Carcinoids and carcinoid syndrome
8. Peritonitis
9. Acute abdomen (symptoms, clinical-laboratory examinations, disease classification, diagnosis - differential diagnosis)
10. endocrine gland pathologies (thyroid, parathyroid, adrenal).
11. peripheral vessel pathologies (arteries, veins, lymphatics)
12. Skin pathologies (skin tumors, burns)

4. TEACHING AND LEARNING METHODS - EVALUATION

delivery method *Face to face, distance education etc.*	Development of Surgery II topics - Presentation - Commentary on typical patient cases - Clinical exercise
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	**Examination and analysis of clinical cases from the department information system**

TEACHING ORGANIZATION
The way and methods of teaching

Activity	*SemesterWorkload*
Choose	50

are described in detail. *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive teaching, Study visits, Study work, artwork, creation. λπ.* *The student study hours for each learning activity are listed as well as the non-guided study hours so that the total workload at the semester level corresponds to the ECTS standards.*	Clinicalexercise: 68 *TutorialExercise*: 50 ***Course Set (24 hours workload per credit unit)***: ***168***
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, Public Presentation, Others* *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	• *Multiple Choice Test, Short Answer Questions.* • *Right to examination: 1 unjustified absence, 2 justified in clinical and laboratory practice.* • *Assessment of their participation in interactive teaching* ***WrittenExams 80%*** ***20% participation***
5. RECOMMENDED LITERATURE	
-LITERATURE: 1. Γενική Χειρουργική, Ι. Δ. Κανέλος 2. Χειρουργική (επίτομο), Δ.Κ. Βώρος 3. Κλινική Χειρουργική, M.M. HENRY, J.N. THOMSON	

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
STUDY LEVEL	UNDERGRADUATE		
COURSE CODE	XP0751	**Semester**	8th
COURSE TITLE	Surgery of Heart, Lung, and Vascular diseases		
COURSE INSTRUCTOR	Athanasios Giannoukas, Professor (alternately annually headed by Vascular Surgery and Cardiothoracic Surgery Department)		
CO-INSTRUCTORS	Faculty members and doctors with PhD from Vascular Surgery and Cardio-thoracic surgery Department		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	2	2

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Compulsory| Scientific Area
PREREQUIRED COURSES	No
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	Yes
WEBSITE (URL)	

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

The function of the heart is inextricably linked to the function of the vessels, but also of the lungs. Thus, cardiac dysfunction causes vascular dysfunction and vice versa. In addition, diseases of the heart, blood vessels and lungs are among the leading causes of morbidity and mortality worldwide. For the last 50 years, a very important part of the treatment of the above diseases is performed with surgical-invasive methods, greatly changing the prognosis of patients suffering from them and significantly reducing morbidity and mortality.
Therefore, it is necessary in modern undergraduate education to integrate the surgical treatment of heart diseases (coronary heart disease, valvular heart diseases, etc.), lungs (lung cancer, etc.) and blood vessels (aneurysmal disease, disease of the extracranial arteries, occlusive arterial disease of the visceral arteries and arteries of the lower limbs, etc.) in one course.
The purpose of the course is to offer the basic knowledge that the new doctor should possess for the surgical treatment of the above diseases. Students are expected to acquire theoretical and applied knowledge by presenting cases, to promote critical thinking. There will be self-assessment questions at the end of the course.
The course will last two hours and will include a theoretical lecture and case presentation with interactive participation. Those students who wish will have the opportunity to attend the activity (ward rounds, outpatient clinics and OR) of the Cardiothoracic Surgery and Vascular Surgery Departments.
The final exam of the course will include multiple choice questions with only one correct answer and no negative grade.

3.Module Content

1.
a) Overview of physiology of the cardiovascular system
b) Introduction to the physiopathology of atherosclerosis
2.
a) Anticoagulants
b) Problems in preoperative preparation and anesthesia in cardio-thoracic and vascular surgery
3. Abdominal Aortic and peripheral artery surgery
4.
a) Surgery of the ascending thoracic aortic diseases

b) Surgery of the descending thoracic aorticdiseases
5. Surgery of diseases of the extracranial carotid artery, vertebrobasilar system and aortic arch branches
6. Invasive treatment of acute and chronic occlusive arterial disease of the abdominal aorta, visceral arteries and lower limbs - Diabetic foot
7. Invasive and conservative treatment of Venous Thromboembolism
8. Invasive and conservative treatment of Chronic venous disease and lymphatic diseases (lymphedema)
Arteriovenous fistulas
9.
a) Traumatic aortic and peripheral injuries
b) Traumatic chest - heart injuries
10. Surgical approach to congenital heart diseases
11. Coronary heart disease surgery
12. Surgery of heart valve diseases –Surgery of heart failure
13. Surgery of heart tumors
14. Surgery of lung, tracheal and mediastinaldiseases

4.TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	Face to Face Lectures Microsoft software (PowerPoint) is used to deliver the lessons. The Library has the necessary textbooks for the course. Students also have access to the International Scientific Databases (PubMed) available at the Library. All course deliveries are done by computer projectors using PowerPoint. The above lectures of the courses are uploadedto the websites of the Faculty of Medicine and the University of Thessaly (e-class) with free access by the students of the Faculty of Medicine. Finally, course instructor'sand other co-instructors' e-mailscan be used for communication with students and students are encouraged to use this method of communication. Also information or announcements related to the course are posted on the websites of the Faculty of Medicine and the University of Thessaly with free access by the students of the Faculty of Medicine
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Power point
TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement),	

Activity	***Student Workload***
	54 hours

Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.	<table><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>
STUDENT EVALUATION **Description of the evaluation process** Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	Multiple Choice Test with only one correct answer, without negative score
ATTENDANCE	Students must attend 10 courses (out of 13)

5.Recommended Bibliography

A)

- ΑΓΓΕΙΑΚΗ ΚΑΙ ΕΝΔΑΓΓΕΙΑΚΗ ΧΕΙΡΟΥΡΓΙΚΗ (κωδ. ΕΥΔΟΞΟΣ: 41959376)
- ΑΓΓΕΙΑΚΗ ΧΕΙΡΟΥΡΓΙΚΗ(κωδ. ΕΥΔΟΞΟΣ: 41745)

B)

- Καρδιοχειρουργική. ΑναστασιάδηςΚ.UniversityStudioPress, 2015.ISBN: 9789601222233
- Καρδιοχειρουργική. ΜικρούληςΔ., ΜπουγιούκαςΓ. UniversityStudioPress, 2018. ISBN: 9789601223629

Scientific journals:

1. Journal of VascularSurgery
2. European Journal of Vascular and Endovascular Surgery
3. International Angiology
4. Journal of Endovascular Therapy
5. Journal of Thoracic and Cardiovascular Surgery
6. Annals of ThoracicSurgery

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	**ΜΠ 0101** **ΜΠ 0102**	**Semester**	**9th SEMESTER, WINTER** **10th SEMESTER, SPRING**
COURSE TITLE	**OBSTETRICS – GYNAECOLOGY I** **OBSTETRICS – GYNAECOLOGY II**		
COURSE INSTRUCTOR	**PROFESSOR ALEXANDROS DAPONTE**		
CO-INSTRUCTORS	**KONSTANTINOS DAFOPOULOS, ANTONIOS GKARAS, SOTIRIOS SOTIRIOU, GEORGE-SPIRIDON ANIFANTIS, CHRISTINA MESSINI, TEACHER 407/80, ACADEMIC FELLOW**		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	Amphitheater Lectures 2 hours weekly -Clinical exercises 2 hours weekly	**ΜΠ 0101=4** **ΜΠ 0102=5** **TOTAL =9**

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	SCIENTIFIC AREA AND SKILLS DEVELOPMENT
PREREQUIRED COURSES	NO
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	YES
WEBSITE (URL)	https://eclass.uth.gr/courses/MED_U_185

2.LEARNING OUTCOMES
The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course. *• Description of the Level of Learning Outcomes for each course according to the Qualifications*

Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

Aims of the course

The general purpose of the course is the theoretical and practical training of medical students in the field of Obstetrics – Gynaecology, providing them with the basic knowledge, regardless of the future specialization that each doctor may choose.

The specific objectives of the course are specialized in the following intended learning outcomes:

- To have understood the physiology and pathology of the female genital system as well as the diagnosis and treatment of pathological conditions
- To be able to understand the study of the function of the human reproduction, the female urinary system and gynecological neoplasms, the use and contribution of ultrasound and the normal development of pregnancy, childbirth and
- The diagnosis and treatment of the respective pathological conditions
- Can collaborate with his / her fellow students to research and analyze the international literature
- Learning how to obtain and compile the obstetrics-gynecology history
- Carrying out a detailed physical examination of obstetrics and gynecology
- Evaluation of common symptoms that have basic gynecological diseases
- Evaluation of laboratory and imaging examinations
- Ability to diagnostic approach and differential diagnosis

After the successful completion of this course, the students will be able to use the acquired knowledge in order to:

- be able to receive a detailed obstetric-gynecological history
- have the ability to present a comprehensive medical history
- have the ability to physically examine patients
- have the ability to synthesize and analyze information for the purpose of differential diagnosis
- make use of classic and new diagnostic methods
- select the clinical laboratory test required for the patient's diagnostic approach
- be able to assess the course of the disease

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Research, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3.MODULE CONTENT

The content of the course includes the following major items:

A. The content of the lectures together with the relevant clinical insights the students need to learn/acquire per chapter.
B. The content of the tutorials/seminars together with the relevant clinical insights the students need to learn/acquire per seminar.
C. The content of the clinical practice together with the acquired practical & clinical skills the students need to learn/acquire per exercise.

A. Lecture content and relevant clinical insights

B. Seminar/Tutorial content and relevant clinical insights
Problem-based learning: Presentation, analysis and discussion of clinical cases

C. Clinical Practice content
Hands-on learning: Acquisition of general and specific practical & clinical skills:
General Skills in Obstetrics and Gynaecology
Obtaining and analyzing clinical information and laboratory findings
Interpretation of clinical information and data
Resolving practical problems
Producing graphical displays of data
Operating basic clinical skills
Working as a team
Following instructions
Following safety regulations
Trouble-shooting in laboratory results
Clinical significance of lab results
Clinical significance of examination findings

Examining Specific Skills
- Female Pelvic Floor
- Gynecologic History - Examination
- Diagnostic Procedures in Obstetrics and Gynecology
- Neuroendocrine regulation of the Genital Tract
- Congenital Anomalies of the Genital Tract
- Sexually Transmitted Diseases and Pelvic Infections
- Injuries in the genital tract
- Pelvic pain
- Functional anomalies of the Genital Tract
- Benign Disorders of the Lower Genital Tract
- Benign Disorders of the Upper Genital Tract

- Malignant Disorders of the Lower Genital Tract - Malignant Disorders of the Upper Genital Tract - Complications of Menstruation - Pregnancy - Delivery - Menopause and Postmenopause - Infertility – Assisted Reproductive Technologies: In Vitro Fertilization and Related Techniques - Family Planning - Pediatric and Adolescent Gynecology - Breast - High Risk Pregnancy - Prenatal care

4. TEACHING AND LEARNING METHODS - EVALUATION	
Teaching Method (face to face, tutoring, distance learning)	*Face to Face:* Teaching of Obstetrics and Gynaecology I – II consists of lectures, seminars/tutorials and practical sessions. Attendance of Clinical sessions and Seminars/Tutorials is obligatory. a) The theory of the course (lectures) is available in the form of power point & pdf posted in the e-class of the course. These lectures cover the entire course material and focus on the information that each student should be aware of. The exams will be held according to these lectures, which are based primarily on the textbook provided to students. b) The clinical practice (14 hours) will be performed in small groups of 5 people. These groups will do clinical practice during the morning hours in Obstetrics Clinic, Gynecology Clinic, Obstetrics, Outpatient Clinics Obstetrics-Gynecology, Surgery-Special outpatient clinics (depending on the program of the day) and part of them in hours outside the morning in order to ensure the quality of the clinical practice which is completely dependent on the number of students participating. For the distribution of students, a nominal distribution will be granted in the first days of the internship. c) The live lectures are a total of 14 two-hours lessons. Of these14, the 10 two-hours lessons are mandatory. The purpose of these courses is the presentation of cases and the differential diagnosis with an interactive discussion with the students.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students. Specifically: • Common software (e.g. MS powerpoint) is used to prepare lecture material and display slides and videos. • The study guide (detailed supplementary material & additional

<table>
<tr><td></td><td>bibliography), the tutorial material (clinical cases), the theory and protocols of the exercises, the slides of each lecture as well as relevant videos and scientific articles made available electronically and online to students through the e-class system of our university.
• Information about the course, instructors and their research interests and in general the subject Obstetrics and Gynaecology of the Faculty of Medicine are available online on the departmental website
• Common software (e.g. MS excel) is used to statistically process student assessment.
Announcements, information etc are available online via e-class. Communication is also done via e-mail.

Analysis of clinical cases in digital form with the use of specialized software

The presentations will be held by using specialized teaching software (MS Power Point) and by searching into the bibliography and the available scientific data (PubMed)
Support of the learning process through the electronic platform E-CLASS</td></tr>
<tr><td>TEACHING METHODS
The way and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.</td><td>
<table>
<tr><th>Learning activity</th><th>Total semester workload</th></tr>
<tr><td>Lectures</td><td>56 hours</td></tr>
<tr><td>Lab. Practical (obligatory presence)</td><td>56 hours</td></tr>
<tr><td>Tutorials - (obligatory presence) - Study Preparation for Practical Preparation for Tutorials</td><td>113 hours</td></tr>
<tr><td>SUM
(25 hours per teaching credit)</td><td>225 hours
9 ECTS</td></tr>
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</td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written</td><td>The language of assessment is English.

- Written exams in Obstetrics-Gynecology II based on the lectures posted in the e class.

The exams take place at the end of the spring semester (common written exams for Ob-Gyn I and Ob-Gyn II)</td></tr>
</table>

Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	**Evaluation methods** **A. For the clinical practice:** Assignment Reports, Written and Verbal Examination at the end of the semester with written and oral questions and problem solving sessions. The participation of students in the clinical exercises as well as the written report of the results of the exercises is mandatory. The report includes the results (presented in tables and diagrams, and the conclusions (e.g. if the results were expected, if not why, sources of possible errors in the experiments) as requested by each exercise. At the end of each exercise, the written report is checked by the instructors and signed when correctly completed. Successful participation in the clinical practice sessions is certified by the instructors' signatures on the written reports. At the end of the semester the students are examined. The examined material consists of the theory, the methodology and the ways results are processed as included in the Course Guide or presented by the instructors during the exercises. Only the students that have successfully completed the clinical exercises can participate in the written or verbal examination. Success in the laboratory examination is a prerequisite for participation in the course exams. **B. For the Tutorials:** Oral Presentation, Oral Examination In each tutorial, students prepare answers to the questions related to the examined clinical cases and discuss them with the teachers. The performance of the students during in the tutorials is taken into account in the final evaluation. The material of the tutorials is examined together with the lecture. **C. For the lecture material:** Written Exams with relevant questions. The course exams are written and examples are available in the Course Guide. The material to be examined is lectures and tutorial material as described above. Only those students who have successfully passed the clinical exams have the right to participate in the course exams. **Final Grade:** The final grade of the course is calculated as the sum of the grade of the written course exams and the grade of the written exams. All of the above are presented in detail in the Course Guide which is distributed in print to all students and is posted electronically in e-class.
5.RECOMMENDED BIBLIOGRAPHY	
A. Lecture Material ***Main suggested textbooks:***	

1.Wallwiener D., Becker S. «Atlas of Gynecologic Surgery», Ιατρικές Εκδόσεις Κωνσταντάρας, Athens 2015 (also available in greek)
2. Williams Obstetrics. Cunningham G.F., Leveno K. J., Bloom S.L., Dashe J.S., Hoffman B.L., 1st edition, 2021 (also available in greek)
3. Williams Gynecology. Hoffman B.L., Schorge J.O., Halvorson L.M., Hamid, Schaffer J.I., Corton M.M. 4th edition 12/2020
B. Clinical Practice supplementary Material will be given out

COURSE OUTLINE

1. GENERAL			
SCHOOL	OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF EDUCATION	UNDERGRADUATE		
COURSE CODE	**PTH0600**	**SEMESTER OF STUDY**	Listed in the fall semester study guide. However, half of the students are taught in the 9th semester and the other half in the 10th semester.
COURSE TITLE	DERMATOLOGY		
COURSE RESPONSIBLE	ROUSSAKI-SULCE ANGELIKI-VICTORIA		
CO-TEACHERS	ZAFIRIOU ETERPI, GIDAROCOSTA POLYXENE		

SELF-ENDED TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDIT UNITS

COURSE TYPE	Scientific Area
PREREQUISITE COURSES:	NO
LANGUAGE OF TEACHING AND EXAMS :	English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	NO

2. Learning Outcomes

The course material aims to introduce the students to the scientific field of Dermatology- Venereology.

In this sense, the course is the basis on which the student will acquire fundamental knowledge in Dermatology- Venereology.

Finally, the aim of the course is for the students to understand the importance and clinical contribution of Dermatology- Venoresiology as an independent Medical Specialty.

Upon successful completion of the course, the student will be able to:

•Has an understanding of the basic principles of Dermatology- Venereology .

• Has knowledge of the main diagnostic and therapeutic applications of Dermatology- Venereology .

• Is able to distinguish the main differences between the normal and pathological clinical picture, to describe the cause, pathogenesis, progression and treatment of the most important skin and venereological diseases.

• Uses the main diagnostic and therapeutic applications in clinical practice.

•Analyzes the data in combination with the patient's history, clinical picture and other clinical laboratory control data.

•Can collaborate with fellow students to research and analyze international literature.

General Skills

3. COURSE CONTENT

1. Elementary skin lesions (1 hour)
2. Skin diseases due to bacteria, viruses, fungi, parasites, leishmaniasis, N. Hansen , tuberculosis, AIDS skin manifestations (8 hours)
3. Sexually transmitted diseases (3 hours)
4. Skin diseases due to allergic mechanisms (3 hours)
5. Hereditary skin diseases (2 hours)
6. Erythematolepidoid - Papular dermatoses (4 hours)
7. Photodermatopathies (2 hours)
8. Dyschromia (1 hour)
9. Rashes (3 hours)
10. Hair diseases (1 hour)
11. Papular -nodular skin diseases (5 hours)
12. Skin tumors, mycosis fungoides (5 hours)
13. Connective tissue diseases (4 hours)

4. TEACHING AND LEARNING METHODS - ASSESSMENT

DELIVERY METHOD	Amphitheater lectures, presentations of clinical cases, clinical exercise
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	PowerPoint
TEACHING ORGANIZATION	

Activity	***Semester Workload***
Lectures	42
Clinical exercise	21

STUDENT EVALUATION	Written exam 20 short answer questions Evaluation of student participation in clinical practice

5. RECOMMENDED - BIBLIOGRAPHY

1. Antoniou X, Katsambas A: Dermatology- Venereology , Broken Hill Publishers LTD 2015.
2. Chrysomallis F. and associates: Dermatology- Venereology , Parisianos Publications , 2005.
3. Habift T, Dinulos JGH, Chapman MS, Zug KA: Skin diseases, Diagnosis and Treatment, Parisianos Scientific Publications, Fourth edition, 2018.
4. Rigopoulos D., Stratigos A., Grigoriou S., Katoulis A., Rallis E: Dermatology – Venereology Handbook , NEON Publications 2020.
5. Kouskoukis Konstantinos E., Karpouzis A.: Modern clinical dermatology and aphrodisiology, Paschalidis Publications 2005

-*Related scientific journals:* Hellenic Review of Dermatology and Venereology , Journal of the European Academy of Dermatology and Venereology.

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
STUDY LEVEL	*Undergraduate*		
COURSE CODE	**NP0101**	**Semester**	9^{o}
COURSE TITLE	NEUROLOGY I		
COURSE INSTRUCTOR	Efthymios Dardiotis, Associate Professor of Neurology		
CO-INSTRUCTORS	G. Xiromerisiou, K. Fountas, K. Paterakis, V. Tsimourtou, E Kapsalaki, V. Siokas, A Provatas, V. Valotasiou, M. Sgantzos		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	4	4

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Scientific Area
PREREQUIRED COURSES	No PREREQUISITES
LANGUAGE OF TEACHING AND EXAMS	English for ERASMUS and HELMISIC students
AVAILABLE TO ERASMUS STUDENTS	Yes
WEBSITE (URL)	No

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

The course aims to introduce students to the scientific field of Neurology.
On this grounds, the course is the basis on which the student will acquire basic knowledge on the clinical symptoms of neurological diseases, neurological examination, etiology and treatment of

neurologic diseases. .
Finally, the aim of the course is for students to understand the importance in routine medical clinical practice in neurology and its emergence as an independent medical specialty.

Upon successful completion of the course the student will be able to:

- Understand and recognizes the signs and symptoms of the various pathways of the nervous system
- Perform a satisfactory clinical neurological examination to locate the site of damage to the nervous system
- Have adequate knowledge of clinical symptoms, etiology and treatment of various neurologic diseases
- Use the appropriate neurological differential diagnosis
- Use the neurological outpatient examination to reach a diagnosis

Collaborate with his fellow students to research and analyze the international literature.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

3.Module Content

1. Pyramidal motor system (Clinical tutorial)
2. Sensory System, (Clinical tutorial)
3. Cranial nerves, (Clinical tutorial)
4. Extrapyramidal system, Movement disorders, involuntary movements, Chorea, Athetosis, Ballism, Dystonia, Tremors, Tics and Tourette syndrome, Stereotypies, Myoclonus (Clinical tutorial)
5 Cerebellum (function, disorders) ataxia, gait disorders, (Clinical tutorial)
6. Cognition, Aphasia, Apraxia, Neuropsychological examination (Clinical tutorial)
7. Autonomous Nervous System, Disorders. Neurologic examination, Coma, Localization of a lesion, Brain lobes/brainstem/spinal cord syndromes, peripheral nervous system (Clinical tutorial)
8. Brain and spinal cord vascular diseases
9. Brain and spinal cord lesions, Aneurysms, Vascular malformations, subarachnoid hemorrhage
10. Traumatic brain injury, Spinal cord injury, Syringomyelia
11. Brain and spinal cord infections

12. Spinal cord disorders
13. Peripheral nervous system (nerves and roots) disorders, Polyneuropathy, polyradiculopathy
14. Autoimmune Neurology, CNS, PNS, Paraneoplastic syndromes
15. Myasthenia, neuromuscular junction disorders, Myopathies
16. Epilepsy, Vertigo, Dizziness, Loss of consciousness
17. Extrapyramidal tract diseases, Parkinson's disease, Essential tremor, Corticobasal degeneration, Progressive Supranuclear Palsy, Lewy Body Dementia, Huntington's disease
18. Multiple Sclerosis and other demyelinating disorders
19. Primary and secondary Headaches, Neuralgias, Intracranial hypertension/hypotension
20. Spasticity, Bladder and bowel problems in neurological diseases, Rehabilitation in Strokes
21. Dementias
22. Basic principles of Neuro-rehabilitation
23. Neurologic manifestations of systemic diseases and metabolic disorders
24. Motor neuron diseases
25. Electroencephalogram (EEG)/Electromyography (EMG), Evoked potentials
26. Neuroimaging
27. Nuclear medicine in neurology
28. Lumbar puncture (spinal tap), CSF circulation and disorders
29. U/S doppler of extracranial and intracranial arteries
30. Sleep disorders, Neurocutaneous disorders, Congenital, perinatal disorders

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	Face to face Lectures
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Microsoft (Power Point) software is used during the delivery of the courses. Ability to communicate with the course supervisor via email
TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level	

Activity	***Semester workload***
Lectures	42
Clinical practice (Clinical tutorial, mandatory attendance)	**14**
Total hours (Working hours per credit unit)	***56*** ***56:4=14***

corresponds to the ECTS standards.	
STUDENT EVALUATION **Description of the evaluation process** Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	Written and/or oral examination

5.Recommended Bibliography

Fundamentals of Neurology: An Illustrated Guide 2nd edition, Heinrich Mattle, Marco Mumenthaler
ISBN-13: 978-3131364524
ISBN-10: 9783131364524

COURSE OUTLINE

1.GENERAL			
SCHOOL	OFHEALTHSCIENCES		
DEPARTMENT	OFMEDICINE		
LEVELOFEDUCATION	UNDERGRADUATE		
COURSECODE	XP0500	**SEMESTER OFSTUDY**	**9th**
COURSETITLE	OPHTHALMOLOGY		
COURSERESPONSIBLE			
CO-TEACHERS			
SELF-ENDEDTEACHINGACTIVITIES	**WEEKLYTEACHING HOURS**	**CREDITUNITS**	
LECTURES ((20 hours per semester) CLINICAL PRACTICE (6 hours per student) SESSIONS (12 hours per student) FOLLOW-UP OR SURGERY (4 hours per student)	4 HOURS (2 HOURS LECTURE) (2 HOURS CLINICAL PRACTICE)	4.00	
	COMPULSORY		
COURSETYPE	COMPULSORY | SCIENTIFIC AREA		
PRELIMINARY COURSES:			
LANGUAGEOFTEACHINGAND EXAMINATIONS:	English		
THECOURSEIS OFFEREDTO ERASMUSSTUDENTS	YES		
COURSEWEBSITE(URL)	http://www.med.uth.gr/DetailsLes.aspx?id=77		

2.a.LEARNING OUTCOMES

The general purpose of the course is to introduce the students to the basic principles of Ophthalmology and to make them able to plan, analyze the data in combination with the history, the clinical picture and the data of the other clinical laboratory control of the patients. Furthermore, the course seeks to provide students with the fundamentals to understand the differences between normal and pathological clinical picture as well as to describe the cause, pathogenesis, progression and treatment of the most important eye diseases

Upon successful completion of the course, the student will be able to:

He/she will be able to use the acquired knowledge in order to:
• to make use of the simplest diagnostic methods of ophthalmological examination as well as therapeutic applications

• have the resources to seek the correct assessment and settlement of the urgent eye problem (treatment by him or direct referral)
• to organize the examination steps of a patient
• to broadly approach the acquired knowledge so as to be able to relate the ophthalmic pathological finding to the manifestations of other systemic diseases
• collaborate with his fellow students to research and analyze the international literature or deal with a special subject with the aim of presenting it at a scientific event

2. b. GENERAL SKILLS

Students must acquire communication skills in order to effectively discuss sensitive issues with patients. They must also have the basis of problem-solving skills for complex conditions. In addition, must be able to work effectively with other medical professionals, such as primary care physicians, surgeons, and radiologists.

3.COURSE CONTENT

A. LECTURES (2 hours)
1. Eye examination- Medicine and eye
2. Conjunctiva-Cornea Diseases
3. Sclera-Lens Diseases
4. Retinal Diseases
5. Strabismus. Retinopathy of prematurity
6. Refractive abnormalities, Diseases of the eyelids, Lacrimal apparatus
7. Glaucoma
8. Systemic diseases and the eye: mandatory follow-up
9. The use of lasers in ophthalmology - Intrabulbar tumors - injuries of the eye
10. Neuro-ophthalmology, Orbital diseases: mandatory follow-up

• Lectures take place in the 9th semester and are repeated in the 10th

B. CLINICAL PRACTICE (IN GROUPS)-EXTENDED TO THE 9th AND 10th SEMESTER (Mandatory)
a) 6 mandatory hours of skill development and examination of outpatients and inpatients by specific groups of students with a scheduled specialist instructor /per group/ per training day of clinical practice
During the hours of clinical practice by groups (skills) with a designated instructor, the following is taught:
1. Slit-lamp examination of normal eyes with the help of the team instructor
2. The technological equipment is demonstrated and its use is briefly explained
3. Obtaining visual acuity for all ages, examination of choral reflexes, contrast visual fields, examination of color perception, ocular motility, demonstration of examination of intraocular pressure
4. Analysis and demonstration of drug administration methods in ophthalmology
5. Practice instilling eye drops, eye dressing, eye wash and eyelid inversion
6. Patient examinations (history taking, complete ophthalmological examination) with the participation of students, step by step
7. Instructor-assisted live slit-lamp examination of cataract and anterior hemisphere disease cases via a digital camera attached to the slit-lamp as well as demonstration of anterior hemisphere pathology cases from the digital camera archive.

8. Monitoring of digital fluorescein angiography, optical tomography
coherence (OCT) and fundus digital angiography (OCTA), analysis of disease-normal demonstration from the database
9. Training on how to deal with and manage an ophthalmological emergency
10. Training in the examination of the fundus with direct ophthalmoscopy and dilated pupils (among students) as well as in dilated patients.
11. Visual field performance group monitoring-normal display from database
• The above detailed topic of skill development is delivered to the students at the beginning of the semester on a special card in which the instructor and their attendance are certified by the participation of each student (logbook).
• On-call: students are trained to approach ophthalmological emergencies
• Monitoring of surgical cases takes place in the operating room, where students watch live operations from a monitor connected to the surgical microscope. A member of the surgical team takes over the explanation of the steps of the operation.

4.TEACHING AND LEARNING METHODS-EVALUATION	
LEARNING PROCEDURE	A) 10 HOURS OF LECTURES PER SEMESTER (2 SEMESTERS) (2 compulsory lectures) B) CLINICAL EXERCISE BY GROUPS/ 6 HOURS/PER STUDENT WITH SCHEDULED TEACHER (mandatory) C) MONITORING OF SURGICAL INTERVENTIONS (One SURGICAL DAY PER STUDENT) (mandatory) D) 3 DAYS PER STUDENT (mandatory)
USE OF INFORMATION COMMUNICATION TECHNOLOGY	• Power point presentations • E-class • E-book access • Pubmed access • Posting online information and announcements about the course and other educational activities • Students and teachers communications by e-mail • Power point/VIDEO • Clinical exercise • • Monitor live anterior eye examination via a digital camera fitted to the slit lamp • • Monitoring of fundus diseases through optical coherence tomography (OCT, OCTA) • • Operating room • Live operating room monitoring via a digital camera attached to the operating microscope • • e-class • Supplementary material: Video for a better understanding of the teaching material, surgical videos, emergency response videos, theoretical electronic material,
TEACHING STRUCTURE	***Activity*** | ***SemesterWorkload*** 116 Hours
STUDENTEVALUATION	1. Written examinations of multiple choice questions that include both the content of the lectures and the content of the clinical exercises OR 2. Mixed system: Multiple choice questions combined with short development questions on topics that include both the content of the lectures and the content of the clinical exercises. OR Oral exam.
5.RECOMMENDED-BIBLIOGRAPHY	
• American Academy of Ophthalmology, Medscape, Eyewiki	

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	FACULTY OF HEALTH SCIENCES		
DEPARTMENT	DEPARTMENT OF MEDICINE		
STUDY LEVEL	UNDERGRADUATE		
COURSE CODE	**NPO200**	**Semester**	9τη and 10 th
COURSE TITLE	Otorhinolaryngology		
COURSE INSTRUCTOR	CHARALAMPOS SKOULAKIS		
CO-INSTRUCTORS	IOANNIS CHATZIIOANNOU		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	4	4

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Understanding of the pathology of otolaryngological diseases, with special emphasis on the anatomy of the area, the clinical picture, differential diagnosis and the principles of treatment of these diseases
PREREQUIRED COURSES	NO
LANGUAGE OF TEACHING AND EXAMS	ENGLISH
AVAILABLE TO ERASMUS STUDENTS	YES
WEBSITE (URL)	«https://drive.google.com/open?id=0B8gInKI6CP7XOEJVbUpNYWo5dGc»

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

Upon successful completion of the course the student will be able to:

* Has an understanding of common ENT diseases
* Perform a basic clinical examination of the head and neck area
* Has knowledge about the most common inflammations involving the head and neck area
* Is able to distinguish the most common malignancies localized in the head and neck area
* Uses the frontal mirror and microscope fluently
* Make initial contact with hearing and balance tests in the Neurotology laboratory
* Can collaborate with fellow students in presentations and writing assignments

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies
Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

Research, analysis and synthesis of data and information, using the necessary technologies
Adaptation to new situations
Decision making
Work in an interdisciplinary environment

3.Module Content

Introduction to Otology / differential diagnosis of hearing loss

- External ear diseases (Pinna and external auditory canal)

- Middle ear diseases

- Fractures of the temporal bone, tumors of the middle ear, diseases of the facial nerve

- Otic Herpes Zoster, labyrinthitis, concussion of the labyrinth,

outflow of cerebrospinal fluid into the tympanic cavity, barotrauma, sudden hearing loss, auditory trauma (acute / chronic burden).

- Tinnitus, presbyacusis, congenital hearing loss, deafness

- Principles of clinical and laboratory investigation of the peripheral vestibular system

- Benign paroxysmal positional vertigo, vestibular neuronitis,

Meniere's disease, vestibular schwannoma and other tumors of the bridge-cerebellar angle

- Salivary gland diseases

- Introduction to Rhinology. Clinical and laboratory methods of examination of the nose

and the paranasal sinuses. Diseases of the external nose

- Fractures of the nose, paranasal sinuses and facial skull. Neoplasms

internal nose and paranasal sinuses.

- Inflammatory diseases nasal.

- Inflammatory diseases of the paranasal sinuses. Differential diagnosis and treatment of the patient with nasal breathing difficulty.

- Diseases of the oral cavity and oropharynx .

- Diseases of the nasopharynx. Hypopharynx diseases.

- Laryngeal neoplasms. Non-neoplastic larynx diseases

- Differential diagnosis and treatment of a patient with lateral cervical swelling

- Upper airway obstruction treatment

- Diseases of the thyroid gland and parathyroid glands.

- Diseases of the trachea, bronchi and esophagus from the ENT side

- Sleep apnea syndrome and breathing disorders during sleep

- Dermatological diseases in the ENT anatomical region

- Differential diagnosis of otological, rhinological and laryngological diseases / clinical problems and cases

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	Lectures, cases presentations, participation in outpatient clinics, in the operating rooms, Emergency rooms.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Microsoft Power point Microsoft Teams
TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field	

Δραστηριότητα	***Φόρτος Εργασίας Εξαμήνου***
Lectures	13 x 2 hours
Operating theater *Outpatient Clinics*	10 x 3 hours

Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.	<table><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>
STUDENT EVALUATION **Description of the evaluation process** Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	ENGLISH Multiple choice questions

5.Recommended Bibliography

Ωτορινολαρυγγολογία Χειρουργική Κεφαλής και Τραχήλου Συγγραφείς: M.Anniko, M. Bernal-Sprekelsen, V. Bonkowsky, P. Bradley, S. Iurato Επιμέλεια Ελληνικής Έκδοσης: I. Κωνσταντινίδης, I. Μπιζάκης ISBN: 9789606894480 Ημ. Έκδοσης: 2013 Εκδότης: Ροτόντα

2. Ωτορινολαρυγγολογία και χειρουργική κεφαλής και τραχήλου, έγχρωμο εικονογραφημένο εγχειρίδιο (4η εκδ.)

Συγγραφέας Ram s. Dhillon , Charles a. east

Επιμέλεια Θωμας Νικολοπουλος

Έτος έκδοσης 2016

-Συναφή επιστημονικά περιοδικά: Otolaryngology Head and Neck Surgery, The laryngoscope, Otolaryngology Clinics of North America

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
STUDY LEVEL	UNDERGRADUATE		
COURSE CODE	**ΨΧ0401**	**SEMESTER**	9th
COURSE TITLE	**PSYCHIATRY I**		
COURSE INSTRUCTOR	NIKOLAOS CHRISTODOULOU		
CO-INSTRUCTORS	Faculty, associate faculty and teaching fellows		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	4	5

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	
PREREQUIRED COURSES	NO
LANGUAGE OF TEACHING AND EXAMS	ENGLISH
AVAILABLE TO ERASMUS STUDENTS	
WEBSITE (URL)	

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

According to the World Health Organization, mental disorders are becoming increasingly common, while disability associated with mental illness has already surpassed the disability associated with physical illnesses, and their difference is expected to increase in the future. It is therefore important that all medical students acquire a thorough training in Psychiatry, as they will need it in their future clinical practice, regardless of which specialty they choose.

Psychiatry is perhaps the most complex clinical specialty, as it requires complex interdisciplinarity and creative clinical thinking, a strong clinical evidence base and excellent training in theory. Psychiatry I

aims to help students develop the necessary knowledge and attitudes that underpin Clinical Psychiatry and will prepare them for their final year clinical attachment. In this sense Psychiatry I and Psychiatry II are necessary prerequisites for the final year clinical attachment.

Psychiatry I starts by explaining the psychiatric way of thinking and in general the mentality that defines Psychiatry. It then looks back at the basic theory, helps students develop the basic tools of clinical psychiatry, and covers basic psychopathology.

Upon successful completion of the course the student will be able to:

- Appreciate the importance of the interdisciplinary and holistic approach in Psychiatry
- Know the basic clinical tools of Psychiatry
- Know the phenomenology of the main nosological entities of Psychiatry
- Distinguish mental illnesses from physical illnesses
- Know the basic treatment options for the main psychiatric disorders

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

3.COURSE CONTENT

Unit 1: Introduction to Psychiatry

Unit 2: Clinical Psychopathology: signs and symptoms

Unit 3: Diagnosis in Psychiatry

Module 4: Depression

Unit 5: Bipolar disorder

Unit 6: Anxiety disorders and obsessive-compulsive disorder

Module 7: Schizophrenia

Unit 8: Sleep disorders and disorders of sexual life

Unit 9: Reactions to stressful situations and somatoform disorders

<table>
<tr><td colspan="2">Unit 10: Neuropsychiatric disorders

Unit 11: Personality disorders

Unit 12: Eating disorders

Unit 13: Perinatal Psychiatry</td></tr>
<tr><td colspan="2">4.TEACHING AND LEARNING METHODS - ASSESSMENT</td></tr>
<tr><td>Teaching Method
(face to face, tutoring, distance learning)</td><td>COMPULSORY LECTURES (up to 2 absences allowed)</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td>Power point
e-class
.....</td></tr>
<tr><td>TEACHING METHODS
The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.</td><td><table><tr><th>Activity</th><th>Semester Workload</th></tr><tr><td>Two-hour lectures and two-hour seminar per week</td><td>46 hours of lectures and examination after completion of teaching</td></tr></table></td></tr>
<tr><td>STUDENT ASSESSMENT
Description of the assessment process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report,</td><td>Written exam with multiple choice questions
Marking criteria are accessible to students</td></tr>
</table>

Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	

5.RECOMMENDED READING

- OXFORD PSYCHIATRY
- MEDICAL PSYCHOLOGY AND PSYCHOPATHOLOGY – N.V. ANGELOPOULOS
- PSYCHIATRY – G.N. CHRISTODOULOU et al.
- MANUAL OF CLINICAL PSYCHOPATHOLOGY – P. OULIS

Course Outline

1. GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
LEVEL OF EDUCATION	UNDERGRADUATE		
COURSE CODE	ΜΠ0201	SEMESTER OF STUDIES	9th
COURSE TITLE	Pediatrics I		
COURSE SUPERVISOR	I. GRIVEA		
ASSOCIATES	E. ALEXOPOULOS and Academic Scholars		

INDEPENDENT TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDIT UNITS
Lectures	2	
Clinical practice	2	
Total		4

COURSE TYPE	SCIENTIFIC AREA AND SKILLS DEVELOPMENT
REQUIRED COURSES:	NO
TEACHING AND EXAMINATION LANGUAGE:	ENGLISH
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
ELECTRONIC COURSE PAGE (URL)	https://eclass.uth.gr/courses/MED_U_209/

2. Learning results

The general purpose of the course is the theoretical and practical training of medical students in the field of Pediatrics, providing students with basic knowledge in this field, regardless of the future specialization that each doctor will have.

The specific objectives of the course are outlined in the following intended learning outcomes:

• Learning how to obtain and compile a pediatric history

• Performing a detailed physical examination throughout the age range of pediatrics

• Evaluation of the common symptoms of basic pediatric diseases

• Evaluation of laboratory and imaging results

• Ability to formulate a diagnostic approach and provide a differential diagnosis

Upon successful completion of the course, the student will be able to use the acquired knowledge to:

- Take a detailed pediatric medical history
- Present a comprehensive medical history
- Perform a physical examination on pediatric patients of all ages.
- Make successful differential diagnosis with synthesis and analysis of data from history, clinical examination, and laboratory findings using classic and new diagnostic methods.
- Select the clinical and laboratory test required for the patient's diagnostic approach.
- Evaluates the course of the disease

General Abilities

3. COURSE CONTENT

Course Description / Content: The topics included are:

- **Growth and Development.** Normal growth and development of the children and their disorders and the evaluation of the child with special needs.
- **Nutritional Status and Eating Disorders**. Diet of a normal infant, normal child, and adolescent, obesity, malnutrition, and vitamin and mineral deficiencies
- **Acutely ill or injured child**. Poisoning
- **Genetics and Hereditary metabolic diseases.** Heredity standards, Clinical genetics and counseling, Chromosomal Disorders, and Approach to the Dysmorphic Child.
- **Metabolic Disorders.** Carbohydrate and Amino Acid Disorders
- **Fetal and Neonatal Medicine.** Assessment of the Mother, Fetus, and Newborn, Maternal Diseases Affecting the Newborn, Diseases of the Fetus, Respiratory Diseases of the Newborn, Anemia and Hyperbilirubinemia, Necrotizing Enterocolitis, Hypoxic-Ischemic Encephalopathy, Intracranial Hemorrhage, and Seizures, Sepsis and Meningitis, Congenital Infections.
- **Adolescent Medicine.** Overview and Assessment of Adolescents. Well-Adolescent Care. Eating Disorders.
- **Immunology.** Immunological Assessment, Lymphocyte Disorders, Neutrophil Disorders, Complement System.
- **Allergy.** Allergy Assessment, Asthma, Allergic Rhinitis, Atopic Dermatitis, Urticaria, Angioedema, and Anaphylaxis, Serum Sickness, Insect Allergies, Adverse Reactions to Foods and Drugs.
- **Infectious Diseases.** Immunization and Prophylaxis.
- **Digestive System.** Digestive System Assessment, Oral Cavity, Esophagus and Stomach, Intestinal Tract, Liver Disease.
- **Respiratory System.** Respiratory System Assessment, Control of Breathing, Upper Airway Obstruction, Lower Airway, Parenchymal, and Pulmonary Vascular Diseases, Cystic Fibrosis, Chest Wall and Pleura.
- **Cardiovascular System.** Cardiovascular System Assessment, Syncope, Chest Pain, Dysrhythmias, Acyanotic and Cyanotic Congenital Heart Disease, Heart Failure, Rheumatic Fever, Cardiomyopathies, and Pericarditis.
- **Orthopedics.** Orthopedics Assessment, Fractures, Hip, Lower Extremity and Knee, Foot.
- **Dermatology.** Dermatology Assessment, Acne, Atopic Dermatitis, Contact Dermatitis, Pigmented Lesions, Vascular Anomalies, Erythema Multiforme, Stevens-Johnson Syndrome, and Toxic Epidermal Necrolysis.

4. TEACHING AND LEARNING METHODS - EVALUATION

Attendance	It includes two hours per week of mandatory clinical practice in the wards of the University Pediatric Clinic and 2 hours per week of lectures.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Specialized teaching support software (MS PowerPoint) and bibliography and scientific data management (PubMed) are used. Support of the learning process through the electronic platform E-CLASS
TEACHING STRUCTURE	

Activity	Semester Workload
Clinical practice	(14 weeks x 2 hours) 28

	Lectures TOTAL SEMESTER	(14 weeks x 2 hours) 28 4 ECTS
STUDENT EVALUATION	A written exam that includes: Multiple choice questions	
5. RECOMMENDED BIBLIOGRAPHY		
1. NELSON ESSENTIALS OF PEDIATRICS, EIGHTH EDITION, Elsevier, 2019		

COURSE OUTLINE

1. GENERAL			
SCHOOL	OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF EDUCATION	UNDERGRADUATE		
COURSE CODE	PTH 0500	**SEMESTER OF STUDY**	9th / 10th -
COURSE TITLE	CARDIOLOGY		
COURSE RESPONSIBLE	Filippos Triposkiadis, Professor		
CO-TEACHERS	Ioannis Skularigis, Professor Grigorios Giamouzis, Assistant Professor Andreas Xanthopoulos, Curator II of Cardiology		

SELF-ENDED TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
	3h	3.00

COURSE TYPE	Mandatory | SCIENTIFIC AREA
PREREQUISITE COURSES:	Yes. Passed Examination: Physiology II, Pharmacology II, Pathological Physiology II, Pre-educational Pathology
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO
COURSE WEBSITE (URL)	http :// www.med.uth.gr/DetailsLes.aspx ? id =76

2. Learning Outcomes

The course consists one of the main pillars of Pathology.
- The syllabus of the course aims to introduce students to clinical and critical thinking.
- It also refers to clinical entities. In this sense, the course is the basis on which the student will become familiar with cardiovascular diseases.
Finally, the aim of the course is for students to understand the importance of clinical manifestations, laboratory and imaging findings in a distinct scientific field/profession

Upon successful completion of the course, the student will be able to:
• Have an understanding of the mechanisms, of the clinical picture and laboratory findings of common cardiovascular diseases.
• Has knowledge of the clinical manifestations of the above diseases.
• He is able to distinguish the main treatment options for each of the above ailments.
• Uses the options (advantages and disadvantages) of the various imaging, laboratory and immunological tests used to diagnose the above diseases.

• Analyzes laboratory and imaging findings of the above diseases.
• Can collaborate with fellow students to develop a topic of advanced diseases.

General Skills

3. COURSE CONTENT

- Course Objectives (Intended Learning Outcomes): Teaching the basic principles of electrocardiography and its applications in Clinical Cardiology.

- Description of the main cardiovascular diseases with emphasis on their etiopathogenesis, clinical picture, natural history and therapeutic management.

- Clinical semiotics

- Cardiac function - Heart failure

- Electrocardiography

- Echocardiography

- Coronary artery disease - Diagnosis

- Coronary artery disease-Treatment

- Acute myocardial infarction

- Arterial Hypertension

- Valvular Diseases

- Cardiomyopathies

- Endocarditis

- Pericarditis

- Pulmonary Embolism

- Systemic Diseases and Heart

- Cardiopulmonary resuscitation

- Cardiac arrhythmias

- Interventional Cardiology Interventional treatment of arrhythmias

4. TEACHING AND LEARNING METHODS - ASSESSMENT

delivery method	LECTURES/CLINICAL PRACTICE - USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	PowerPoint
TEACHING ORGANIZATION	

Activity	***Semester Workload***
	81 hours

STUDENT EVALUATION	WRITTEN EXAMS.

5. RECOMMENDED - BIBLIOGRAPHY

1. Cardiology

Edition: 2nd / 2016

Author: Filippos Triposkiadis

Type: Journal

Distributor (Publisher): Medical Publications Lagos Dimitrios

Eudoxos code: 55590872

ISBN : 978-960-7875-92-1

2. Swanton 's Cardiology

Edition: 6th / 2011

Authors: Swanton , Banerjee

Type: Journal

Distributor (Publisher): Havales A. - Hatzisimeon K. O.E.

Eudoxos code: 12338965

ISBN: 9789606894312

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	**ΜΠ 0101** **ΜΠ 0102**	**Semester**	**9th SEMESTER, WINTER** **10th SEMESTER, SPRING**
COURSE TITLE	**OBSTETRICS – GYNAECOLOGY I** **OBSTETRICS – GYNAECOLOGY II**		
COURSE INSTRUCTOR	**PROFESSOR ALEXANDROS DAPONTE**		
CO-INSTRUCTORS	**KONSTANTINOS DAFOPOULOS, ANTONIOS GKARAS, SOTIRIOS SOTIRIOU, GEORGE-SPIRIDON ANIFANTIS, CHRISTINA MESSINI, TEACHER 407/80, ACADEMIC FELLOW**		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	Amphitheater Lectures 2 hours weekly -Clinical exercises 2 hours weekly	**ΜΠ 0101=4** **ΜΠ 0102=5** **TOTAL =9**

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	SCIENTIFIC AREA AND SKILLS DEVELOPMENT
PREREQUIRED COURSES	NO
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	YES
WEBSITE (URL)	https://eclass.uth.gr/courses/MED_U_185

2.LEARNING OUTCOMES
The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course. *• Description of the Level of Learning Outcomes for each course according to the Qualifications*

Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

Aims of the course

The general purpose of the course is the theoretical and practical training of medical students in the field of Obstetrics – Gynaecology, providing them with the basic knowledge, regardless of the future specialization that each doctor may choose.

The specific objectives of the course are specialized in the following intended learning outcomes:

- To have understood the physiology and pathology of the female genital system as well as the diagnosis and treatment of pathological conditions
- To be able to understand the study of the function of the human reproduction, the female urinary system and gynecological neoplasms, the use and contribution of ultrasound and the normal development of pregnancy, childbirth and
- The diagnosis and treatment of the respective pathological conditions
- Can collaborate with his / her fellow students to research and analyze the international literature
- Learning how to obtain and compile the obstetrics-gynecology history
- Carrying out a detailed physical examination of obstetrics and gynecology
- Evaluation of common symptoms that have basic gynecological diseases
- Evaluation of laboratory and imaging examinations
- Ability to diagnostic approach and differential diagnosis

After the successful completion of this course, the students will be able to use the acquired knowledge in order to:

- be able to receive a detailed obstetric-gynecological history
- have the ability to present a comprehensive medical history
- have the ability to physically examine patients
- have the ability to synthesize and analyze information for the purpose of differential diagnosis
- make use of classic and new diagnostic methods
- select the clinical laboratory test required for the patient's diagnostic approach
- be able to assess the course of the disease

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Research, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3.MODULE CONTENT

The content of the course includes the following major items:

A. The content of the lectures together with the relevant clinical insights the students need to learn/acquire per chapter.
B. The content of the tutorials/seminars together with the relevant clinical insights the students need to learn/acquire per seminar.
C. The content of the clinical practice together with the acquired practical & clinical skills the students need to learn/acquire per exercise.

A. Lecture content and relevant clinical insights

B. Seminar/Tutorial content and relevant clinical insights
Problem-based learning: Presentation, analysis and discussion of clinical cases

C. Clinical Practice content
Hands-on learning: Acquisition of general and specific practical & clinical skills:
General Skills in Obstetrics and Gynaecology
Obtaining and analyzing clinical information and laboratory findings
Interpretation of clinical information and data
Resolving practical problems
Producing graphical displays of data
Operating basic clinical skills
Working as a team
Following instructions
Following safety regulations
Trouble-shooting in laboratory results
Clinical significance of lab results
Clinical significance of examination findings

Examining Specific Skills
- Female Pelvic Floor
- Gynecologic History - Examination
- Diagnostic Procedures in Obstetrics and Gynecology
- Neuroendocrine regulation of the Genital Tract
- Congenital Anomalies of the Genital Tract
- Sexually Transmitted Diseases and Pelvic Infections
- Injuries in the genital tract
- Pelvic pain
- Functional anomalies of the Genital Tract
- Benign Disorders of the Lower Genital Tract
- Benign Disorders of the Upper Genital Tract

- Malignant Disorders of the Lower Genital Tract - Malignant Disorders of the Upper Genital Tract - Complications of Menstruation - Pregnancy - Delivery - Menopause and Postmenopause - Infertility – Assisted Reproductive Technologies: In Vitro Fertilization and Related Techniques - Family Planning - Pediatric and Adolescent Gynecology - Breast - High Risk Pregnancy - Prenatal care

4. TEACHING AND LEARNING METHODS - EVALUATION	
Teaching Method (face to face, tutoring, distance learning)	*Face to Face:* Teaching of Obstetrics and Gynaecology I – II consists of lectures, seminars/tutorials and practical sessions. Attendance of Clinical sessions and Seminars/Tutorials is obligatory. a) The theory of the course (lectures) is available in the form of power point & pdf posted in the e-class of the course. These lectures cover the entire course material and focus on the information that each student should be aware of. The exams will be held according to these lectures, which are based primarily on the textbook provided to students. b) The clinical practice (14 hours) will be performed in small groups of 5 people. These groups will do clinical practice during the morning hours in Obstetrics Clinic, Gynecology Clinic, Obstetrics, Outpatient Clinics Obstetrics-Gynecology, Surgery-Special outpatient clinics (depending on the program of the day) and part of them in hours outside the morning in order to ensure the quality of the clinical practice which is completely dependent on the number of students participating. For the distribution of students, a nominal distribution will be granted in the first days of the internship. c) The live lectures are a total of 14 two-hours lessons. Of these14, the 10 two-hours lessons are mandatory. The purpose of these courses is the presentation of cases and the differential diagnosis with an interactive discussion with the students.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students. Specifically: • Common software (e.g. MS powerpoint) is used to prepare lecture material and display slides and videos. • The study guide (detailed supplementary material & additional

<table>
<tr><td></td><td>bibliography), the tutorial material (clinical cases), the theory and protocols of the exercises, the slides of each lecture as well as relevant videos and scientific articles made available electronically and online to students through the e-class system of our university.
• Information about the course, instructors and their research interests and in general the subject Obstetrics and Gynaecology of the Faculty of Medicine are available online on the departmental website
• Common software (e.g. MS excel) is used to statistically process student assessment.
Announcements, information etc are available online via e-class. Communication is also done via e-mail.

Analysis of clinical cases in digital form with the use of specialized software

The presentations will be held by using specialized teaching software (MS Power Point) and by searching into the bibliography and the available scientific data (PubMed)
Support of the learning process through the electronic platform E-CLASS</td></tr>
<tr><td>TEACHING METHODS
The way and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.</td><td>
<table>
<tr><th>Learning activity</th><th>Total semester workload</th></tr>
<tr><td>Lectures</td><td>56 hours</td></tr>
<tr><td>Lab. Practical (obligatory presence)</td><td>56 hours</td></tr>
<tr><td>Tutorials - (obligatory presence) - Study Preparation for Practical Preparation for Tutorials</td><td>113 hours</td></tr>
<tr><td>SUM
(25 hours per teaching credit)</td><td>225 hours
9 ECTS</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written</td><td>The language of assessment is English.

- Written exams in Obstetrics-Gynecology II based on the lectures posted in the e class.

The exams take place at the end of the spring semester (common written exams for Ob-Gyn I and Ob-Gyn II)</td></tr>
</table>

Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	**Evaluation methods** **A. For the clinical practice:** Assignment Reports, Written and Verbal Examination at the end of the semester with written and oral questions and problem solving sessions. The participation of students in the clinical exercises as well as the written report of the results of the exercises is mandatory. The report includes the results (presented in tables and diagrams, and the conclusions (e.g. if the results were expected, if not why, sources of possible errors in the experiments) as requested by each exercise. At the end of each exercise, the written report is checked by the instructors and signed when correctly completed. Successful participation in the clinical practice sessions is certified by the instructors' signatures on the written reports. At the end of the semester the students are examined. The examined material consists of the theory, the methodology and the ways results are processed as included in the Course Guide or presented by the instructors during the exercises. Only the students that have successfully completed the clinical exercises can participate in the written or verbal examination. Success in the laboratory examination is a prerequisite for participation in the course exams. **B. For the Tutorials:** Oral Presentation, Oral Examination In each tutorial, students prepare answers to the questions related to the examined clinical cases and discuss them with the teachers. The performance of the students during in the tutorials is taken into account in the final evaluation. The material of the tutorials is examined together with the lecture. **C. For the lecture material:** Written Exams with relevant questions. The course exams are written and examples are available in the Course Guide. The material to be examined is lectures and tutorial material as described above. Only those students who have successfully passed the clinical exams have the right to participate in the course exams. **Final Grade:** The final grade of the course is calculated as the sum of the grade of the written course exams and the grade of the written exams. All of the above are presented in detail in the Course Guide which is distributed in print to all students and is posted electronically in e-class.
5.RECOMMENDED BIBLIOGRAPHY	
A. Lecture Material ***Main suggested textbooks:***	

1.Wallwiener D., Becker S. «Atlas of Gynecologic Surgery», Ιατρικές Εκδόσεις Κωνσταντάρας, Athens 2015 (also available in greek)
2. Williams Obstetrics. Cunningham G.F., Leveno K. J., Bloom S.L., Dashe J.S., Hoffman B.L., 1st edition, 2021 (also available in greek)
3. Williams Gynecology. Hoffman B.L., Schorge J.O., Halvorson L.M., Hamid, Schaffer J.I., Corton M.M. 4th edition 12/2020
B. Clinical Practice supplementary Material will be given out

COURSE OUTLINE

1.GENERAL			
SCHOOL	OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVELOFEDUCATION	UNDERGRADUATE		
COURSECODE		**SEMESTER OFSTUDY**	**9th**
COURSETITLE	NEUROLOGY II		
COURSERESPONSIBLE	XIROMERISIOU GEORGIA		
CO-TEACHERS			
SELF-ENDEDTEACHINGACTIVITIES		**WEEKLYTEACHING HOURS**	**CREDITUNITS**
(Medical Students who select the lesson are obliged to attend 11 out of 13 lectures)		4hours	5.00
	• Lectures at the amphitheater • Tutorials o Clinic • Practical training: o clinic o emergency department o operating room		
COURSETYPE	COMPULSORY | SCIENTIFIC AREA		
PRELIMINARY COURSES:			
LANGUAGEOFTEACHINGAND EXAMINATIONS:	English		
THECOURSEIS OFFEREDTO ERASMUSSTUDENTS			
COURSEWEBSITE(URL)	http://www.med.uth.gr/DetailsLes.aspx?id=77		

2.a.LEARNING OUTCOMES

The course material aims to introduce students to the scientific field of Neurology.
Neurology includes a wide field and the main goal is to acquire knowledge necessary to perform a neurological examination and to become familiar with the phenomenology of neurological diseases and local diagnostics.
Also, all the paraclinical tests performed in order to make the diagnosis are described and their performance is demonstrated, where possible.
It aims to acquire the knowledge, experience and skills necessary to perform a correct and complete clinical examination of the patient and to evaluate the clinical (subjective and objective) findings of the examination.

Objective purposes
The objectives of the course can be summarized as follows:
• For the student to understand the concept, importance and structure of history and to gain experience in the technique by which it is taken, recorded and presented
• To learn to perform the general objective examination in a coordinated manner, to become familiar with the findings of the examination of normal individuals and to learn to recognize pathological

objective signs and their significance.
• To learn the main symptoms with which the various diseases are manifested, their varieties, their pathophysiological basis and their importance in diagnosis

Uponsuccessfulcompletionofthecourse,thestudentwillbeableto:

- • Has an understanding of basic principles of Neurology.
- • become familiar with the patient and gain experience in taking the history
- • be trained and gain experience in performing the neurological examination. To become familiar with the findings of the examination of normal subjects and the recognition of pathological objective signs and their significance
- • Has knowledge of the main diagnostic and therapeutic applications of Neurology
- • He is able to distinguish the main differences between the normal and pathological clinical picture, to describe the cause, pathogenesis, progression and treatment of the most important neurological diseases.
- • Uses the main diagnostic and therapeutic applications in clinical practice.
- • Analyzes the data in combination with the patient's history, clinical picture and other clinical laboratory control data.
- • Can collaborate with fellow students to research and analyze international literature.

2. b. GENERAL SKILLS

Students must acquire communication skills in order to effectively discuss sensitive issues with patients. They must also have the basis of problem-solving skills for complex conditions. In addition, must be able to work effectively with other medical professionals, such as primary care physicians, surgeons, and radiologists.

3.COURSE CONTENT

CLINICAL PRACTICE (by groups)-Extends to the 9th and 10th semester Includes: 56 HOURS
a) 14 hours of seminar lectures
b) 24 hours of skills development and group examination of outpatients and inpatients
c) 18 mandatory hours on duty, by small groups

During the 12 hours of clinical practice by groups (skills) with a designated instructor, the following is taught:

1. Examination of neurological patients with the help of the team trainer

1.1. Examination of level of consciousness and familiarization with the grading of disorders of consciousness
1.2. Examination of mental functions 1.3.Examination of cerebral conjugations
1.4. Examination of mobility, sensibility, reflexes
1.5. Description of pathological signs in the nervous system Familiarity with the phenomenology of neurological disorders
- Epilepsies
- Demyelinating diseases
- Nonsense
- Brain tumors
- Nervous system infections
- Strokes
- Headache and other cranial pains
- Neuromuscular diseases
- Extrapyramidal diseases and movement disorders
-Spinal cord diseases

2. The technological equipment is demonstrated and its use is briefly explained

3. Patient examinations (history taking, complete neurological examination) with student participation, step by step
4. Monitoring of electroencephalogram and neurophysiological control - electromyogram

5. Training in how to manage a neurological emergency

The above detailed skill development topic is delivered to the students at the beginning of the semester on a special card on which the instructor also certifies their attendance.

On-call: students are trained in the approach and management of neurological emergencies

4.TEACHING AND LEARNING METHODS-EVALUATION	
LEARNING PROCEDURE	Face-to-face with presentations from an amphitheater and withclinical exercises on models and patients except in special cases(pandemic etc.) Use of electronic media using Microsoft software(PowerPoint) through which the courses are delivered, e-class ,Analysis of clinical cases indigital format using specialized software.
USE OF INFORMATION COMMUNICATION TECHNOLOGY	• Power point presentations • E-class • E-book access • Pubmed access • Posting online information and announcements about the course and other educational activities • Students and teachers communications by e-mail
TEACHING STRUCTURE	***Activity*** / ***SemesterWorkload***: 116 Hours
STUDENTEVALUATION	- Oral examination - Clinical examination of the patient - phenomenology of neurological disorders - Evaluation of student participation in clinical practice.

5.RECOMMENDED-BIBLIOGRAPHY

Suggested Bibliography:

A. Ropper, M. A. Samuels, et J. P. Klein (2014) Adams and Victor's Principles ofNeurology, 10th Edition, MC Graw -Hill Education.

S. Hauser (2013) Harrison's Neurology in Clinical Medicine, 3rdEdition McGraw-Hill Education.

COURSE OUTLINE

1.GENERAL			
SCHOOL	OFHEALTHSCIENCES		
DEPARTMENT	OFMEDICINE		
LEVELOFEDUCATION	UNDERGRADUATE		
COURSECODE	XP0500	**SEMESTER OFSTUDY**	**9th**
COURSETITLE	UROLOGY*		
COURSERESPONSIBLE	TzortzisVassilios,Professor of Urology		
CO-TEACHERS	Anastasios Karatzas , Assistant Professor of Urology		
SELF-ENDEDTEACHINGACTIVITIES		**WEEKLYTEACHING HOURS**	**CREDITUNITS**
(Medical Students who select the lesson are obliged to attend 11 out of 13 lectures)		4hours	5.00
	• Lectures at the amphitheater • Tutorials o Clinic • Practical training: o clinic o emergency department o operating room		
COURSETYPE	COMPULSORY | SCIENTIFIC AREA		
PRELIMINARY COURSES:	YES – Attendance and successful exams in the course of ANATOMY and PSYSIOLOGY		
LANGUAGEOFTEACHINGAND EXAMINATIONS:	English		
THECOURSEIS OFFEREDTO ERASMUSSTUDENTS	YES		
COURSEWEBSITE(URL)	http://www.med.uth.gr/DetailsLes.aspx?id=77		

2.a.LEARNING OUTCOMES

The course constitutes a tool for introducing students to the basic principles of the pathophysiology ofdiseases of the urogenital system. It also introduces students, through clinical practice, to the basicprinciples of urogenital surgery (open and endoscopic). Finally, it contributes to the acquisition ofdeductivereasoningwhichisconsideredessentialfortheproperinitiationofstudentsintothemedicalprofession.

Uponsuccessfulcompletionofthecourse,thestudentwillbeableto:

- Has an understanding of the basic principles of the pathophysiology of the genitourinary system.
- Analyzes clinical data to make a diagnosis
- Has knowledge of the main diagnostic tests and the rapeutic applications (interventional and non-interventional).
- Able to distinguish the main diseases of the urogenital system
- Uses acquired knowledge inany subspecial ty related to the subject.
- Work with fellow students to approach the importance of collaboration and scientific debate by actively participating in discussion groups.

2. b. GENERAL SKILLS

Students must acquire communication skills in order to effectively discuss sensitive issues with patients. They must also have the basis of problem-solving skills for complex conditions. In addition, must be able to work effectively with other medical professionals, such as primary care physicians, surgeons, and radiologists.

3.COURSE CONTENT

Anatomy and physiology of the urogenital tract, symptomatology, clinical examination, laboratorytesting of urological patients, imaging tests, radioisotopic studies, endoscopic examination andendoscopic manipulations, obstructive uropathy (congenital and acquired), congenital anomalies of the urogenital tract, specific and non-specific inflammations of the urinary tract, traumatic injuries ofthe genitourinary tract, diseases of the retroperitoneal space and effects on the urinary tract,neurological disorder sofurination,urinary in continence,sexual function disorders, maleinfertility,urinarytractstones,benignprostatichyperplasia,tumors of the kidney, prostate, uroepithelium, penis, testis.

4.TEACHING AND LEARNING METHODS-EVALUATION	
LEARNING PROCEDURE	Face-to-face with presentations from an amphitheater and withclinical exercises on models and patients except in special cases(pandemic etc.) Use of electronic media using Microsoft software(PowerPoint) through which the courses are delivered, e- class ,Analysis of clinical cases indigital format using specialized software.
USE OF INFORMATION COMMUNICATION TECHNOLOGY	• Power point presentations • E-class • E-book access • Pubmed access • Posting online information and announcements about the course and other educational activities • Students and teachers communications by e-mail
TEACHING STRUCTURE	***Activity*** / ***SemesterWorkload***: 116 Hours
STUDENTEVALUATION	Multiple choice test with 60 short answer questions and one development question to assess the structure of thinking and Writing Assessment of student participation in clinical practice.

5.RECOMMENDED-BIBLIOGRAPHY

Suggested Bibliography:

- Urologyataglance,Axel S. Merseburger, Markus A. Kuczyk, Judd W. Moul

Related scientific journals:

- EUROPEANUROLOGY
- JOURNAL OFUROLOGY

Course Outline

1. GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
LEVEL OF EDUCATION	UNDERGRADUATE		
COURSE CODE	ΜΠ0202	SEMESTER OF STUDIES	10th
COURSE TITLE	Pediatrics II		
COURSE SUPERVISOR	I. GRIVEA		
ASSOCIATES	E. ALEXOPOULOS and Academic Scholars		

INDEPENDENT TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDIT UNITS
Lectures	2	
Clinical practice	2	
Total		4

COURSE TYPE	SCIENTIFIC AREA AND SKILLS DEVELOPMENT
REQUIRED COURSES:	NO
TEACHING AND EXAMINATION LANGUAGE:	ENGLISH
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
ELECTRONIC COURSE PAGE (URL)	https://eclass.uth.gr/courses/MED_U_210/

2. Learning results

The general purpose of the course is the theoretical and practical training of medical students in the field of Pediatrics, providing students with basic knowledge in this field, regardless of the future specialization that each doctor will have.

The specific objectives of the course are specialized in the following intended learning outcomes:

• Learning how to obtain and compile a pediatric history
• Performing a detailed physical examination throughout the age range of pediatrics
• Evaluation of the common symptoms of basic pediatric diseases
• Evaluation of laboratory and imaging examinations
• Diagnostic approach and differential diagnosis

Upon successful completion of the course, the student will be able to use the acquired knowledge to:

- Take a detailed pediatric medical history.
- Present a comprehensive medical history
- Perform a physical examination on pediatric patients of all ages.
- Make successful differential diagnosis with synthesis and analysis of data from history, clinical examination, and laboratory findings using classic and new diagnostic methods.
- Select the clinical and laboratory test required for the patient's diagnostic approach.
- Evaluate the course of the disease

General Abilities

3. COURSE CONTENT

Course Description / Content: The topics included are:

- **Rheumatic diseases of childhood.** Rheumatic Disease Assessment, Henoch-Schφnlein Purpura, Kawasaki Disease, Juvenile Idiopathic Arthritis, Systemic Lupus Erythematosus, Juvenile Dermatomyositis, Musculoskeletal Pain Syndromes
- **Infectious Diseases.** Infectious Disease Assessment, Fever Without a Focus, Infections Characterized by Fever and Rash, Cutaneous Infections, Lymphadenopathy, Meningitis, Encephalitis, Upper Respiratory Tract Infection, Pharyngitis, Sinusitis, Otitis Media, Otitis Externa, Croup, Pertussis, Bronchiolitis, Pneumonia, Infective Endocarditis, Acute Gastroenteritis, Viral Hepatitis, Urinary Tract Infection, Osteomyelitis, Infectious Arthritis, Zoonoses, and Vector-Borne Infections, Parasitic Diseases, Tuberculosis.
- **Hematology.** Hematology Assessment, Anemia, Hemostatic Disorders.
- **Oncology.** Oncology Assessment, Leukemia, Lymphoma, Central Nervous System Tumors, Neuroblastoma, Wilms Tumor, Sarcomas.
- **Nephrology and Urology.** Nephrology and Urology Assessment, Nephrotic Syndrome and Proteinuria, Glomerulonephritis and Hematuria, Hemolytic Uremic Syndrome, Acute and Chronic Renal Failure, Hypertension, Vesicoureteral Reflux, Congenital and Developmental Abnormalities of the Urinary Tract, Other Urinary Tract and Genital Disorders.
- **Endocrinology.** Endocrine Assessment, Diabetes Mellitus, Hypoglycemia, Short Stature, Disorders of Puberty, Thyroid Disease, Disorders of Parathyroid, Bone and Mineral Endocrinology, Disorders of Sexual Development and Adrenal Gland Dysfunction.
- **Neurology.** Neurology Assessment, Headache and Migraine, Seizures, Weakness and Hypotonia, Ataxia and Movement Disorders, Altered Mental Status, Neurocutaneous Disorders, Congenital Malformations of the Central Nervous System.

4. TEACHING AND LEARNING METHODS - EVALUATION

Attendance	It includes two hours per week of mandatory clinical practice on the wards of the University Pediatric Clinic and 2 hours per week of lectures.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Specialized teaching support software (MS PowerPoint) and bibliography and scientific data management (PubMed) are used. Support of the learning process through the electronic platform E-CLASS
TEACHING STRUCTURE	**Activity** / **Semester Workload** Clinical practice / (14 weeks x 2 hours) 28 Lectures / (14 weeks x 2 hours) 28 TOTAL SEMESTER / 4 ECTS
STUDENT EVALUATION	A written exam that includes: Multiple choice questions

5. RECOMMENDED BIBLIOGRAPHY

1. NELSON ESSENTIALS OF PEDIATRICS, EIGHTH EDITION, Elsevier, 2019

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
STUDY LEVEL	UNDERGRADUATE		
COURSE CODE	**ΨΧ0402**	**SEMESTER**	10th
COURSE TITLE	**PSYCHIATRY II**		
COURSE INSTRUCTOR	NIKOLAOS CHRISTODOULOU		
CO-INSTRUCTORS	Faculty, associate faculty, and teaching fellows		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	4	4

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	
PREREQUIRED COURSES	NO
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	
WEBSITE (URL)	

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

According to the World Health Organization, mental disorders are becoming increasingly common, while disability associated with mental illness has already surpassed the disability associated with physical illnesses, and their difference is expected to increase in the future. It is therefore important that all medical students acquire a thorough training in Psychiatry, as they will need it in their future clinical practice, regardless of which specialty they choose.

Psychiatry is perhaps the most complex clinical specialty, as it requires complex interdisciplinarity and creative clinical thinking, a strong clinical evidence base and excellent training in theory. Psychiatry II

is the natural continuation of Psychiatry I and aims to develop the necessary knowledge and attitudes that underpin Clinical Psychiatry and will prepare them for their final year clinical attachment.

The course includes comprehensive lectures on the treatment of mental disorders. Both pharmacotherapy and other biological therapies, as well as modern psychotherapeutic methods used in clinical psychiatry, are thoroughly explored. Also, the principles of the basic subspecialties of Psychiatry are taught: Old Age Psychiatry, Child Psychiatry, Learning Disability, Liaison Psychiatry and Addiction Psychiatry.

Upon successful completion of the course the student will be able to:

- Appreciate the importance of interdisciplinarity and of the holistic approach in Psychiatry
- Know in detail treatment options in Psychiatry
- Develop a working understanding of the basic subspecialties of Psychiatry, namely Old Age Psychiatry, Child Psychiatry, Learning Disability, Liaison Psychiatry and Addiction Psychiatry

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

3.COURSE CONTENT

Unit 1: Psychopharmacology I: Anxiolytics

Unit 2: Psychopharmacology II: Antipsychotics

Unit 3: Psychopharmacology III: Antidepressants, mood stabilizers

Unit 4: Other physical treatment options in Psychiatry

Unit 5: Psychotherapies I

Unit 6: Psychotherapies II

Unit 7: Substance misuse I: alcohol

Unit 8: Substance misuse II: other substances

Unit 9: Liaison Psychiatry

Unit 10: Child Psychiatry

Unit 11: Old Age Psychiatry

Unit 12: Suicidality / Self-Harm

Unit 13: Revision

4.TEACHING AND LEARNING METHODS - ASSESSMENT

Teaching Method (face to face, tutoring, distance learning)	COMPULSORY LECTURES (up to 2 absences allowed)
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Power point e-class .....
TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.	***Activity*** / ***Semester Workload*** *Two-hour lectures and two-hour* seminar *per week* / 52 hours of lectures and exams
STUDENT ASSESSMENT **Description of the assessment process** Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report,	Written exam with multiple choice questions Marking criteria are accessible to students

Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	

5.RECOMMENDED READING

- OXFORD PSYCHIATRY
- MEDICAL PSYCHOLOGY AND PSYCHOPATHOLOGY – N.V. ANGELOPOULOS
- PSYCHIATRY – G.N. CHRISTODOULOU et al.
- MANUAL OF CLINICAL PSYCHOPATHOLOGY – P. OULIS

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	KA0400	Semester	11th & 12th SEMESTER, WINTER & SPRING
COURSE TITLE	OBSTETRICS – GYNAECOLOGY Degree		
COURSE INSTRUCTOR	PROFESSOR ALEXANDROS DAPONTE		
CO-INSTRUCTORS	KONSTANTINOS DAFOPOULOS, ANTONIOS GKARAS, SOTIRIOS SOTIRIOU, GEORGE-SPIRIDON ANIFANTIS, CHRISTINA MESSINI, TEACHER 407/80, ACADEMIC FELLOW		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	Two months of Clinical Practice (8 weeks) 30 hours/week	**11**

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	SCIENTIFIC AREA AND SKILLS DEVELOPMENT
PREREQUIRED COURSES	i. Systems Physiology ii. Neurophysiology and Endocrine Physiology iii. Viscera and Vascular Anatomy iv. Introduction to Embryology - Molecular Embryology v. Organogenesis vi. Pharmacology I. vii. Pharmacology II viii. Special Pathological Anatomy I. ix. Special Pathological Anatomy II • To participate in the clinical exercise, the clinical practice of Obstetrics - Gynecology I and II is required. • Participation in the exams requires a successful pass in Obstetrics - Gynecology I and II.
LANGUAGE OF TEACHING AND EXAMS	English

AVAILABLE TO ERASMUS STUDENTS	YES
WEBSITE (URL)	https://eclass.uth.gr/courses/MED_U_183

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

Aims of the course

Clinical practice and education of students in Obstetrics – Gynecology, learning methods of diagnosis and treatment of gynecological and obstetric diseases of inpatients and outpatients as well.
The following structure of the material aims to analyze the main points of each Chapter, which will be the learning goals for students.

A) STRUCTURE OF THE MATERIAL
For each of the sub-Chapters of the course "Obstetrics and Gynecology" the learning objectives for the student are analyzed through lectures and clinical exercises
The aim of the course is to make clear the importance and clinical contribution of Obstetrics-Gynecology as an independent Medical Specialty.

After the successful completion of this course, the students will be able to:

- Has understood the basic principles of Obstetrics-Gynecology, Maternal-Fetal Medicine, Gynecological Oncology, Reproductive Medicine and Urogynecology.
- Has understood the physiology and pathology of the female genital tract as well as the diagnosis and treatment of pathological conditions.
- Is able to understand the function of the human reproduction system, the female urinary system and gynecological neoplasms, the use and contribution of ultrasound in Obstetrics - Gynecology and the normal development of pregnancy, delivery and
- The diagnosis and treatment of each pathological conditions
- Can collaborate with his fellow students in order to make research and analyze the information given in the international literature

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

Production of new research ideas

- Research, analysis and synthesis of data and information, using the necessary technologies
- Scientific presentations
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking
- Working in an international environment
- Work in an interdisciplinary environment

3.MODULE CONTENT

The content of the course includes the following major items:

A. The content of the lectures together with the relevant clinical insights the students need to learn/acquire per chapter.
B. The content of the tutorials/seminars together with the relevant clinical insights the students need to learn/acquire per seminar.
C. The content of the clinical practice together with the acquired practical & clinical skills the students need to learn/acquire per exercise.

A. Lecture content and relevant clinical insights

B. Seminar/Tutorial content and relevant clinical insights
Problem-based learning: Presentation, analysis and discussion of clinical cases

C. Clinical Practice content
Hands-on learning: Acquisition of general and specific practical & clinical skills:
General Skills in Obstetrics and Gynaecology
Obtaining and analyzing clinical information and laboratory findings
Interpretation of clinical information and data
Resolving practical problems
Producing graphical displays of data
Operating basic clinical skills
Working as a team
Following instructions
Following safety regulations
Trouble-shooting in laboratory results
Clinical significance of lab results
Clinical significance of examination findings

Specific Skills
Learn to require the medical history from the patients, physical examination and learning of the diagnostic methods provided.
Attendance in all of the different departments of the Clinic: Obstetrics (delivery room, surgery, outpatient department, prenatal care, maternity care clinic) and Gynecology (Gynecology clinic, surgery, outpatient department, family programming).

4. TEACHING AND LEARNING METHODS - EVALUATION	
Teaching Method (face to face, tutoring, distance learning)	*Face to Face* Teaching of Obstetrics and Gynaecology I – II consists of lectures, seminars/tutorials and practical sessions. Attendance of Clinical sessions and Seminars/Tutorials is obligatory. **Development of Obstetrics-Gynecology-Commentary on typical cases of patients - Participation of students in clinical exercises – Students' presentations (via power point).** • The time schedule is from 08.30am to 14.30 • Students attend the "morning report" (08.30am-9.30am), participate - divided into groups of 2-3 people per specialist doctor - in patient visits, with at least 1 patient in charge. Then, they participate in the visit with the specialized doctor and the respective specialized doctors, as well as in the visit of the Headmaster of the Clinic (or his deputy) with all the doctors of the Clinic, where all the patients are presented. • Each student presents in PowerPoint an interesting incident that he / she chooses under the guidance and supervision of a Faculty member of the Clinic • The noon zone (12.00 - 13.30) includes the tutoring courses, the presentation of cases by the students and any educational event that the Clinic has. These presentations will be posted in the e-class of the course. • During these two months, students are required to attend the shifts, in groups of three person, on different days each, according to a program issued in the first week of the exercise (the students' representative is responsible for this). • Students are also required to participate in the clinic's scientific events • At the end of these two months, the student representative delivers to the person in charge of the course: a) a form with certified attendance from the doctor that was in charge that day, of the shifts of the Clinic b) a CD which includes all the presentations that the students had done during their two-month exercise, c) two case reports from each student. Each student has the right to be absent for 2 days in the 8 weeks of clinical practice. Absences beyond this limit are not accepted
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students. Specifically: • Common software (e.g. MS powerpoint) is used to prepare lecture material and display slides and videos. • The study guide (detailed supplementary material & additional bibliography), the tutorial material (clinical cases), the theory and protocols of the exercises, the slides of each lecture as well as

<table>
<tr><td></td><td>relevant videos and scientific articles made available electronically and online to students through the e-class system of our university.
• Information about the course, instructors and their research interests and in general the subject Obstetrics and Gynaecology of the Faculty of Medicine are available online on the departmental website
• Common software (e.g. MS excel) is used to statistically process student assessment.
Announcements, information etc are available online via e-class. Communication is also done via e-mail.

Analysis of clinical cases in digital form with the use of specialized software</td></tr>
<tr><td>TEACHING METHODS
The way and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.</td><td>
<table>
<tr><th>Learning activity</th><th>Total semester workload</th></tr>
<tr><td>Lectures</td><td>240 hours</td></tr>
<tr><td>Lab. Practical (obligatory presence)</td><td>80 hours</td></tr>
<tr><td>Tutorials (obligatory presence)</td><td>30 hours</td></tr>
<tr><td>Study</td><td></td></tr>
<tr><td>Preparation for Practical</td><td></td></tr>
<tr><td>Preparation for Tutorials</td><td></td></tr>
<tr><td>SUM
(30 hours per teaching credit)</td><td>350 hours</td></tr>
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</table>
</td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, Explicitly defined assessment criteria are stated and if and where they are accessible to students.</td><td>The language of assessment is English.

Home work and presentations of clinical cases

Writing of two case reports

At the end of the two-month clinical practice, an examination is performed (oral)

The evaluation of the course and the teachers is done electronically by the students before the end of their internship.</td></tr>
</table>

	Students complete anonymously a form for a detailed internal evaluation of the Clinic and the Faculty Members. Students are encouraged to express their views on the overall educational process of the course and any proposed changes. The results of the above answers of the questionnaire are used appropriately in order to improve the educational process for the specific course. **Evaluation methods.** **A. For the clinical practice:** Assignment Reports, Written and Verbal Examination at the end of the semester with written and oral questions and problem solving sessions. The participation of students in the clinical exercises as well as the written report of the results of the exercises is mandatory. The report includes the results (presented in tables and diagrams, and the conclusions (e.g. if the results were expected, if not why, sources of possible errors in the experiments) as requested by each exercise. At the end of each exercise, the written report is checked by the instructors and signed when correctly completed. Successful participation in the clinical practice sessions is certified by the instructors' signatures on the written reports. At the end of the semester the students are examined. The examined material consists of the theory, the methodology and the ways results are processed as included in the Course Guide or presented by the instructors during the exercises. Only the students that have successfully completed the clinical exercises can participate in the written or verbal examination. Success in the laboratory examination is a prerequisite for participation in the course exams. **B. For the Tutorials:** Oral Presentation, Oral Examination In each tutorial, students prepare answers to the questions related to the examined clinical cases and discuss them with the teachers. The performance of the students during in the tutorials is taken into account in the final evaluation. The material of the tutorials is examined together with the lecture. **C. For the lecture material:** Written Exams with relevant questions. The course exams are written and examples are available in the Course Guide. The material to be examined is lectures and tutorial material as described above. Only those students who have successfully passed the clinical exams have the right to participate in the course exams. **Final Grade:** The final grade of the course is calculated as the sum of the grade of the written course exams and the grade of the written

	exams. All of the above are presented in detail in the Course Guide which is distributed in print to all students and is posted electronically in e-class.
5.RECOMMENDED BIBLIOGRAPHY	
A. Lecture Material ***Main suggested textbooks:*** 1.Wallwiener D., Becker S. «Atlas of Gynecologic Surgery», Ιατρικές Εκδόσεις Κωνσταντάρας, Αθήνα 2015 **B. Clinical Practice supplementary Material will be given out**	

COURSE OUTLINE: PATHOLOGY DEGREE (KA 0100)

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF EDUCATION	*Undergraduate*		
LESSON CODE	**KA 0100**	**SEMESTER OF STUDY**	**12 °**
COURSE TITLE	**PATHOLOGY DEGREE**		
COURSE RESPONSIBLE	**GEORGIOS N. DALEKOS** PROFESSOR OF PATHOLOGY		
CO-TEACHERS	Dalekos Georgios, Rigopoulou Irini, Makaritsis Konstantinos, Zachou Kalliopi, Gatselis Nikolaos, Daios Georgios: (Daily visit and training of students at the patient's bedside and lectures in person or online [see below] during the 11 weeks of mandatory training at the University Pathology Clinic). Stephanidis Ioannis, Eleftheriadis Theodoros, Vassilopoulos Georgios, Giannakoulas Nikolaos, Gourgoulianis Konstantinos, Daniil Zoe, Pantazopoulos Ioannis, Katssiari Christina, Bogdanos Dimitrios, Bargiota Alexandra, Kotsakis Athanasios, Saloustros Emmanuel, Koinos Philipos, Tryposkiadis Philipos, Skoularigis Ioannis, Yamoouzis Grigorios, Potamianos Spyridon, Kapsoritakis Andreas, Roussaki Angeliki, Zafeiriou Efteriou, Zacynthinos Epaminondas, Makris Demosthenes, Dardiotis Efthimios (The above lecturers participate in the training with some lectures in person or online and during the 3 weeks of the elective training in the Clinics of the relevant specialties of the Pathology Department and in the Neurology Clinic).		

SELF-ENDED TEACHING ACTIVITIES *in case the credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the entire course, enter the weekly teaching hours and total credits*	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
For the 11 weeks of training in the Pathology Clinic	**56 (fifty six hours/week)** **As below:** **7 hours x 5 days = 35 hours** **+ 7 hours x 20 internal calls = 2 calls/week = 14 hours** **+ 7 hours x 9 general shifts = 1 shift/week = 7 hours** **[35+14+7=56]** **Total for the 11 weeks: 616 hours** **[56 hours x 11 weeks=616 hours]**	
For the 3 weeks of optional training in the Clinics of the related specialties of the	**35 (thirty-five hours/week)** **Total for the 3 weeks: 105 hours**	

Pathology Department and in the Neurology Clinic	**[7 hours x 5 days=35 35 hours x 3 weeks = 105 hours]**	
Hours/Academic Year	**721 (seven hundred and twenty one: 616 + 105=721) [56 hours x 11 weeks = 616 + 35 hours x 3 weeks = 105**	
Total Credit Units (ECTS)		**19 (Nineteen)**
Add rows if necessary. The teaching organization and the teaching methods used are described in detail in 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	***of Scientific Area & Skill Development***
PREREQUISITE COURSES:	Based on the Study Guide of the Medical Department of the University of Thessaly.
LANGUAGE OF TEACHING AND EXAMINATIONS :	English language
THE COURSE IS OFFERED TO ERASMUS STUDENTS	**YES**
COURSE WEBSITE (URL)	http://83.212.32.147/internalmedicine/index.php/el/degree

2. Learning Outcomes

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that the students will acquire after the successful completion of the course.

- *Description of the Level of Learning Outcomes for each study cycle according to the Qualifications Framework of the European Higher Education Area*
- *Descriptive Indicators for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning*

Consult the concise guide to writing learning outcomes

The Undergraduate Pathology course is one of the basic trimester courses (along with Surgery, Paediatrics, Gynecology and Psychiatry) of the Medical Schools and has comparatively the greatest demands on the part of the students. Because of this, the Pathology Degree course has the highest rating of all the courses of the Faculty of Medicine of the University of Athens and is the only course that has been rated with nineteen (19) ECTS credits . During the internship, students must acquire and be able to apply the clinical skills necessary to evaluate and care for adult patients with common medical conditions. In addition, students are required to improve their knowledge of Pathology with an emphasis on differential diagnosis, and the diagnosis and treatment of common and urgent pathological problems. Focusing on the treatment and treatment of patients suffering from various diseases of Pathology and related specialties is a primary goal of the education. Finally, students must understand and become familiar with attitudes of behavior that are necessary for the provision of proper medical care and treatment with respect for the patient's personal data and his rights. The clinical practice in Pathology of the 6th year aims to acquire clinical skills, knowledge and professional behavior necessary in the study and care of adult patients under the careful supervision of the medical staff of the Clinic.

The practice is done in groups under the supervision of a person in charge (faculty member) for each group of teachers. Usually 4-8 students are allocated per group. Each student attends at least 4-6 inpatients.

Goals

The clinical practice in Pathology of the 6th year aims to acquire clinical skills, knowledge and professional behavior necessary in the study and care of adult patients under the careful supervision of the medical staff of the clinic.

Objective purposes

Course objectives may be specialized in clinical skills, knowledge and professional behavior.

CLINICAL SKILLS : During the internship students will acquire and be able to apply the clinical skills necessary to evaluate and care for adult patients with frequent pathological problems (with appropriate supervision).

In particular, students should acquire skills in the following:

- To obtain from the patient an accurate, complete and focused medical history, based on the symptoms he is experiencing.
- Perform an accurate, complete and focused medical examination.
- Be able to evaluate simple laboratory tests, such as complete blood count, complete urinalysis, routine biochemical laboratory findings and chest X-ray.
- Identify the main problems of the patient and based on them formulate the diagnostic possibilities.
- To plan the necessary laboratory, imaging and other paraclinical tests required for the differential diagnosis, the documentation of the diagnosis and the treatment of the patient.
- Be able to record the history, the findings of the objective examination, the course of the disease, the findings of the tests and the treatment in appropriate forms (in parallel and independently of the official records performed by the doctors of the clinic).
- To communicate with the other members of the team and in particular to present incidents during the visit and to communicate with the nursing and auxiliary staff of the clinic.
- To become familiar with the ways in which the diagnosis, the prognosis and the therapeutic approach are announced to patients and their families by attending the relevant process of the responsible doctors.
- Become familiar with and be able to perform simple medical procedures, such as venipuncture, arterial blood collection, bladder catheterization, placement of venous catheters, performing an ECG, and placement of nasogastric tubes.
- To become familiar with the use of sterilization and the application of general rules to prevent the transmission of infectious agents.
- Become familiar by assisting in the performance of more complex medical procedures such as pleural fluid, peritoneal fluid, synovial fluid puncture and collection, as well as lumbar puncture, bone marrow smears and bone marrow biopsy.

PROFESSIONAL BEHAVIOR : Students must understand and familiarize themselves with attitudes of behavior necessary to provide proper care. Particularly:

- Independent and spontaneous learning
- Reliability
- Integrity, honesty, altruism
- Respect for the patient's personal data and rights
- Professional appearance and image in manners and attire
- Recognition of personal limitations in knowledge and skills and a constant will to improve them
- Providing medical care without the interference of personal biases
- Respect the role of other health professions

Conditions

In order for the student to attend the 6th year Pathology clinical practice effectively, they will need to have knowledge of many subjects, which have been taught on the basis of the curriculum. Of particular

importance are the knowledge of the preclinical courses: Anatomy, Histology, Physiology, Biology, Biochemistry, Pharmacology and Microbiology. Particularly important are the knowledge in Pathological Anatomy, Pathological Physiology, Imaging Diagnostics, Pre-educational Pathology and Pathology I and II.

Structure of Education

The clinical practice in Pathology takes place in the 6th year according to the Study Guide of the Medical Department. The training lasts 11 weeks in the Pathology Clinic and 3 weeks in the selected clinics of the related specialties of the Pathology Department or in the Neurology Clinic. One of the 3 optional weeks is mandatory in the Pulmonology Clinic.

During the internship, students are trained as follows:

1) They attend the clinic on working days every day from 08.00 to 15.00.

• Each student personally monitors at least 4-6 patients for whom he records in parallel with the official records on paper the history, the findings of the objective examination on a daily basis, the findings of the tests, the course of the disease and the treatment of the patient (in total he monitors approximately 70 patients). At discharge, a review is recorded with a summary of history and findings and an analysis of the rationale for the differential diagnosis, documentation of the diagnosis, and medication.

• Performs and monitors the performance of paraclinical interventions described in "CLINICAL SKILLS".

• Executes instructions assigned to him by the clinic's medical staff.

2) Every student during the term attends the internal on-calls from 16.00 to 23.00 for at least 20 days. There he has the opportunity to familiarize himself with problems that arise in emergency situations in hospitalized patients.

3) Each student during the term participates in nine general shifts from 08.00 to 23.00. With this participation, he becomes familiar with acute cases and especially with abdominal pain, precardial pain, fevers, the various forms of coma, digestive bleeding, acute renal failure, asthma, heart failure, the clinical appearance of lungs, hypertensive seizures, in acute neoplastic syndromes, in venous thrombosis and pulmonary embolism and other acute conditions.

4) During the term, the student attends all Clinic events based on the Clinic's annual post-education program:

- Analysis of patient cases and lectures in nosological entities
- Lectures by guest speakers
- Conferences - Conferences, Symposia and Seminars organized by the Clinic or other Clinics of the Pathological sector
- Bibliographic update
- Interclinical scientific meetings
- Attends lectures held specifically for students (see below)

LECTURES DURING THE PRACTICE OF 6TH YEAR STUDENTS IN PATHOLOGY & ONLINE

1. Coma: Definitions, etiological classification, diagnostic approach when the patient arrives and etiological treatment.
2. Disorders of perception: Confusion, delirium and acute confusional states, amnesia, dementia: Definitions, etiology and diagnostic approach.
3. Febrile conditions: Diagnostic approach to fever during the first week and fever of unknown etiology.
4. Chemotherapy of infections: Drug groups, mode of action, common side effects by drug groups and treatment of common bacterial infections
5. Arterial Hypertension: Definition of arterial hypertension and treatment (groups of antihypertensive drugs, mode of action, side effects) and strategy of medication treatment of hypertension.
6. Bronchial asthma: Groups of antiasthmatic drugs, mode of action, side effects by group. Treatment of acute episodes and chronic treatment.

7. Pneumonia: Community-acquired pneumonia, nosocomial pneumonia, pneumonia in the immunocompromised, lung abscess. Diagnostic approach and treatment.
8. Abdominal pain: Types of abdominal pain, possible causes and diagnostic approach.
9. Peptic ulcer: Clinical manifestations, importance of Helicobacter pylori and treatment.
10. Upper gastrointestinal bleeding: Definition, etiology, methods of investigation and treatment.
11. Interpretation of laboratory findings of liver diseases
12. Anemias: Differential diagnosis of the main groups of anemias (iron deficiency anemias, anemias of chronic disorders, megaloblastic anemias, hemolytic anemias).
13. Anticoagulation treatment: Heparin therapy (forms of heparin, their mechanisms of action, indications for their administration, methods of administration and monitoring, major side effects). Dicoumarin derivatives (mechanism of action, methods of administration, monitoring and major side effects). Newer oral anticoagulants (Dabigatran, Rivaroxaban, Apixaban - mechanism of action, methods of administration, monitoring and major side effects).
14. Transfusions of blood and blood derivatives.
15. Acute & Chronic Renal Failure: Definition, etiology classification, diagnosis and treatment.
16. Electrolyte homeostasis disorders (Sodium, Potassium, Calcium, etc.): Main pathophysiological groups, etiological classification, investigation and treatment.
17. Acid-base balance disorders
18. Arthritic syndromes: Clinical forms, differential diagnosis based on clinical and laboratory data.
19. Autoantibodies: Classification and clinical applications in diagnostics.
20. Non-steroidal anti-inflammatory drugs: Mode of action, clinical applications and side effects.
21. Hyperthyroidism and hypothyroidism: Definition, etiological classification, clinical laboratory manifestations and treatment.
22. Diabetes mellitus: Definition, major complications and treatment with antidiabetic tablets and insulin.
23. Dyslipidemias: Main lipid disorders, clinical implications and management.
24. Paraneoplastic syndromes: Endocrine, neurological, dermatological and hematological.
25. Acute neoplastic syndromes: Superior cavity syndrome, spinal cord compression, gastrointestinal tract obstructions, urological emergencies.
26. Investigation of ascitic collection
27. Emergencies in Pathology: Airway Obstruction-Pneumothorax-Heatstroke-Coldstroke-Poisoning-Seizures-Rhabdomyolysis-Anaphylactic shock-Cardiorespiratory resuscitation

General Skills

Taking into account the general skills that the graduate must have acquired (as listed in the Diploma Appendix and listed below) which / which of them is the course aimed at?.

Search, analysis and synthesis of data and information, also using the necessary technologies
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Work in an international environment
Work in an interdisciplinary environment
Generating new research ideas
Project planning and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and ethical responsibility and sensitivity to gender issues
Exercise criticism and self-criticism
Promotion of free, creative and inductive thinking

The course aims to:

- Search, analysis and synthesis of data and information, also using the necessary technologies
- Decision making
- Autonomous work

- Teamwork
- Work in an international environment
- Work in an interdisciplinary environment
- Generating new research ideas
- Exercise criticism and self-criticism
- Promotion of free, creative and inductive thinking

3. COURSE CONTENT

KNOWLEDGE : During the internship, students will improve their knowledge of Pathology with an emphasis on differential diagnosis, diagnosis and treatment of common pathological problems. Centrally important pathological problems in which students must acquire knowledge are the following:

- Abdominal pain
- Acute renal failure
- Chronic renal failure
- Differential diagnosis and diagnosis of anemias
- Chronic Obstructive Pulmonary Disease and asthma
- Diabetes mellitus
- Dyslipidemia
- Electrolyte and acid-base balance disorders
- Peptic ulcer
- Upper and lower digestive bleeding
- Heart failure
- Acute and chronic liver diseases
- Diseases of the bile ducts and pancreas
- Hypertension
- Diagnosis and differential diagnosis of arthritic syndromes
- Respiratory infections – pneumonia
- Thyroid diseases
- Venous thrombosis and pulmonary embolism
- Common forms of neoplasms and acute neoplastic syndromes
- Febrile conditions of recent onset and fever of unknown etiology
- Diagnosis and treatment of severe sepsis
- Genetics in clinical medicine

4. TEACHING AND LEARNING METHODS - ASSESSMENT

MODE OF DELIVERY *Face to face, Distance learning etc.*	***Face to face*** - ***Online for lectures (Zoom system)***
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of T.P.E. in Teaching, in Laboratory Education, in Communication with students*	Microsoft software is used (Power Point) through which the courses are delivered. The Zoom system is used for online lectures . The Library has the necessary textbooks for the course. Students also have the possibility to access the international scientific databases (PubMed), which the Library has. All course deliveries are via computer viewing using Power Points . The Zoom system is used for online lectures . The above lectures of the courses are posted on the websites of the School of Medicine and the University Pathology Clinic with free access by the students of the School of Medicine. Finally, the email of the person in charge of the course as well as the other teachers can be used for communication between students and teachers and students are

<table>
<tr><td></td><td>encouraged to use this method of communication as well. Also, information or announcements regarding the course are posted on the websites of the Medical School and the University Pathology Clinic with free access by the students of the Medical School.</td></tr>
<tr><td>TEACHING ORGANIZATION
The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Literature Study & Analysis, Tutorial, Internship (Placement), Clinical Exercise, Artistic Workshop, Interactive Teaching, Educational Visits, project writing, thesis writing/ Assignments, Artistic Creation, etc.

The student's study hours for each learning activity as well as the unguided study hours are listed so that the total workload at semester level corresponds to the ECTS standards</td><td>
<table>
<tr><th>Activity</th><th>Semester Workload</th></tr>
<tr><td>1. Clinical Practice
For the 11 weeks of Clinical Practice (training) in the Pathology Clinic, the patient wards of the University Pathology Clinic are used, while for the 3 weeks of optional training, the Clinics of the related specialties of the Pathology Department are used. Students are trained at the patient's bedside.</td><td>721 hours</td></tr>
<tr><td>2. LECTURES (& ONLINE)
(27 hours per Clinical Practice)
The Seminar Room of the University Pathology Clinic is used for the delivery of the Lecture courses. The Zoom system is used for the online lectures.</td><td>27 hours</td></tr>
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<tr><td></td><td></td></tr>
<tr><td>Total Course (….workload hours per credit unit)</td><td>Total hours: 721+27= 748

Workload hours per credit unit : 748:19=39.36</td></tr>
</table>
</td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Deductive, Multiple Choice Test, Short Answer Questions, Essay Development Questions,</td><td>Student evaluation includes:
1. Grading at the end of the exercise by the responsible faculty member regarding his performance in the clinical exercise. This rating is graded as follows: insufficient, average, good, very good.
2. During the daily visit, an examination is performed on a specific patient (history taking, objective examination, identification of the patient's main problems, differential diagnosis based on the problems and general investigation plan)</td></tr>
</table>

Problem Solving, Written Assignment, Thesis/Report, Oral Examination, Public Presentation, Laboratory Work, Clinical Patient Examination, Artistic Interpretation, Other/Others *Explicitly defined evaluation criteria are mentioned and if and where they are accessible by students.*	3. During the examination period with an oral examination in Pathology by the course instructor and Faculty members of the Clinic. The exams are particularly demanding and it is usually necessary to answer at least 70% of the questions correctly, so that the student receives a passable grade. The score is determined based on the above three evaluations. From the above, it can be concluded that the workload of the students for the Pathology Degree course is the maximum possible and the requirements are comparatively the highest of all the courses of the Medical Department of the Faculty of Medicine of the UoTH. Finally, a special questionnaire is available **(via the internet from the academic year 2018-2019)** to the students at the end of the Clinical Practice of (11+3)=14 weeks of the course, so that there is an evaluation by the students of each of the teachers, on the one hand for each of the **Lectures** of the courses and on the other hand for the daily **Clinical Exercise** throughout the 14 week training. Students are also encouraged to express their opinion on the overall educational process of the course and any proposed changes. The results of the above responses to the questionnaire are used appropriately with the aim of improving the educational process for the specific course.

5. RECOMMENDED - BIBLIOGRAPHY

-Suggested Bibliography:

1. Basic diagnostic and therapeutic guide (Tierney Lawrence M., Saint Sanjay, Thompson Clinton E., Whooley Mary A.) ISBN 9789603998099 BROKEN HILL PUBLISHERS LTD
2. Pathology (Kumar Parveen, Clark Michael) ISBN 978-960372-169-7 K. & N. LITSA O.E.
3. Cecil Basic Pathology (Andreoli Thomas, Carpenter Charles, Griggs Robert) ISBN 978960372176-5 K. & N . LITSAS O.E.
4. HARRISON Internal Pathology (D. KASPER, E. BRAUNWALD, A. FAUC I , S. HAUSER, D. LONGO L. JAMESON) ISBN 978-960-394 684-7 PARISIANOU PUBLISHING
5. Medical Bibliography on the Internet (PubMed and other bibliographic sources)

- Relevant scientific journals:

1. The New England Journal of Medicine
2. The Lancet
3. European Journal of Internal Medicine
4. Annals of Internal Medicine
5. JAMA Internal Medicine

Course Outline

1. GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
LEVEL OF EDUCATION	UNDERGRADUATE		
COURSE CODE	KA0300	SEMESTER OF STUDIES	11th and 12 th
COURSE TITLE	Pediatrics – Clinical Practice		
COURSE SUPERVISOR	I. GRIVEA		
ASSOCIATES	E. ALEXOPOULOS and Academic Scholars		

INDEPENDENT TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDIT UNITS
Lectures	5	
Tutoring	5	
Clinical practice	20	11
On-call time	4	
Total	34	

COURSE TYPE	SCIENTIFIC AREA AND SKILLS DEVELOPMENT
REQUIRED COURSES:	• PARTICIPATION IN CLINICAL PRACTICE REQUIRES CLINICAL PRACTICE OF PEDIATRIC I AND II. • SUCCESSFUL EXAMINATION IN PEDIATRICS I AND II ARE REQUIRED TO PARTICIPATE IN THE EXAMS.
TEACHING AND EXAMINATION LANGUAGE:	ENGLISH
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
ELECTRONIC COURSE PAGE (URL)	https://eclass.uth.gr/courses/MED_U_207/

2. Learning results

The general purpose of the course is the theoretical and practical training of medical students in the field of Pediatrics.

Students who have received the basic knowledge of Pediatrics in the previous year will present pediatric cases, practice clinical examination, and perform simple procedures.

The specific objectives of the course are specialized in the following intended learning outcomes:

- Present the medical history of a hospitalized patient.
- Evaluate clinical laboratory findings
- Present the daily progress of hospitalized patients
- Diagnostic approach and differential diagnosis
- Learning appropriate treatments for common pediatric diseases
- Select the clinical and laboratory tests required for the diagnostic approach of the patient.
- Search and evaluation of recent literature

• Preparation and presentation of pediatric cases using recent literature.

Upon successful completion of the course, the student will be able to use the acquired knowledge to:

- Take a detailed pediatric medical history.
- Present a comprehensive medical history
- Perform a physical examination on pediatric patients of all ages.
- Formulate a differential diagnosis with synthesis and analysis of data from history, clinical examination, and laboratory findings using classic and new diagnostic methods.
- Select the clinical and laboratory test required for the patient's diagnostic approach.
- Perform simple medical procedures, such as venipuncture
- Assess the course of the disease.
- Know the treatment of common pediatric diseases.
- Be able to manage high-risk newborns.
- Present a medical subject based on recent literature.

General Abilities

3. COURSE CONTENT

Course Description / Content: The topics included are:

- The content of Pediatrics I and Pediatrics II.
- The chapter "Fluids and Electrolytes."
- The "treatments of Pediatric Diseases".

4. TEACHING AND LEARNING METHODS - EVALUATION

Attendance	**Program of the 2-month clinical practice** • **<u>Daily 08.30 – 14.30 in the Department of Pediatrics of the University of Thessaly at the University General Hospital of Larissa</u>** **08.30 - 9.30:** Morning Report by the doctors, residents, and pediatric specialists, who were on-call duty during the previous day: presentation on the new admissions and clinical progress of the remaining patients. - All the medical staff of the Department and the medical students attends the Morning Report. **09.30 - 10.30:** Visit to the wards in small groups: each medical student has the responsibility of one or two patients that they present during the official visit to the wards that comes later. A specific resident and an attending supervise each medical student's clinical activities. **11.30 - 13.00**: Official Visit to the wards attended by the medical students and all the medical staff of the Department. Rotation of the medical students: Small groups of three students spend one week at the Outpatient Clinics of the Department of

<table>
<tr><td></td><td>Pediatrics and another week at the Department of Neonatology-NICU of the University of Thessaly.

13.00 - 13.30: Presentation of a case report by a medical student (in PowerPoint form).

13.30 - 14.30: Lectures, based on program, presented by members of faculty and physicians.

• <u>"On call" duties for the medical students - program</u>
In addition to the morning-early afternoon training program, each medical student has to participate in the activities of the Pediatric Emergency Room during late afternoon or evening for a 4-hour on-call duty (either 14.00 – 20.00 or 20.00 – midnight; in addition, Saturdays, Sundays and holidays: at 10.00 – 14.00). During the 2-month clinical practice, each medical student is expected to participate in "on-call" duty on eight different days.</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td>Specialized teaching support software (MS PowerPoint) and bibliography and scientific data management (PubMed) are used. Support of the learning process through the electronic platform E-CLASS</td></tr>
<tr><td>TEACHING STRUCTURE</td><td><table>
<tr><th>Activity</th><th>Semester Workload</th></tr>
<tr><td>Clinical practice
Lectures
On-call duty

TOTAL SEMESTER</td><td>(8 weeks x 20 hours) 160
(8 weeks x 10 hours) 80
(8 weeks x 4 hours) 32

11 ECTS</td></tr>
</table></td></tr>
<tr><td>STUDENT EVALUATION</td><td>The final score arises from the performance of the medical student in oral exams. In addition, the following are taken into consideration: (a) the performance at the Clinical Practice and (b) the performance at the case report presentation.</td></tr>
<tr><td colspan="2">5. RECOMMENDED BIBLIOGRAPHY</td></tr>
<tr><td colspan="2">1. NELSON ESSENTIALS OF PEDIATRICS, EIGHTH EDITION, Elsevier, 2019</td></tr>
</table>

1.GENERAL

SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
STUDY LEVEL	*Undergraduate*		
COURSE CODE	**KA0200**	**SEMESTER**	**11th-12th**
COURSE- TITLE	SURGERY (DEGREE)		
COURSE INSTRUCTOR	DIMITRIOS ZACHAROULIS		
CO- INSTRUCTORS	KONSTANTINOSTEPETES, GEORGIOSTZOVARAS,ANTIGONIPOULTSIDI, IOANNISMPALOGIANNIS, DIMITRIOSSYMEONIDIS, MATHAIOSEFTHIMIOU, GRIGORIOSXRISTODOULIDIS, IOANNISMAMALOUDIS, EFFROSINIMPOMPOU,ALEXANDROSDIAMANTIS, KONSTANTINOSPERIVOLIOTIS		

TEACHING ACTIVITIES in case the credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	30	15

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Scientific field and Skills Development
PREREQUISITE COURSES:	YES (SURGERY ESSENTIALS, SURGERY I AND SURGERY II)
LANGUAGE OF TEACHING AND EXAMS:	ENGLISH
AVAILABLE TO ERASMUS STUDENTSS	YES
WEBSITE (URL)	https://www.med.uth.gr/DetailsLesNew.aspx?id=106

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

1. Familiarization of students with the diagnosis and treatment of surgical patients.
2. Participation of students in postgraduate courses, seminars or conferences organized by the Surgery Clinic.
3. Students participate in the clinical activities asfuture practitioners.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

- Search, analysis and synthesis of data and information using the necessary new technologies
- Decisionmaking
- Workingin an international environment
- Workingin an interdisciplinary environment
- Introduction of new research techniques

3. MODULE CONTENT

1. During the students' training in surgery, a rotational training in Orthopedics, Vascular Surgery, Anesthesiology, Urology, Cardiothoracic surgery is included.
2. The educational activities include the active participation of students in the treatment of surgical patients both in the clinic and the emergency department, as well as the follow-up of postoperative patients in the outpatient department.

4. TEACHING AND LEARNING METHODS - EVALUATION

TEACHING METHOD (face to face, tutoring, distance learning)	Training is performed in groups under the supervision of a faculty member and each student assesses specific patients
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Clinical case analysis and utilization of the department's information system
TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.	Participation of students in:ward rounds, the emergency department activities, the outpatient department, as well as the active participation in operations

NUMBER OF TEACHING HOURS / WEEK	30
NUMBER OF EXERCISE PREPARATION HOURS	2
NUMBER OF WEEKS	11
TOTAL NUMBER OF TEACHING HOURS AND SEMESTER PREPARATION	352
PREPARATION FOR EXAMINATION	30
TOTAL TIME	382
ECTS	15

STUDENT EVALUATION **Description of the evaluation process** Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	Compulsory attendance at course lectures Oral Examinations 100%

5. RECOMMENDED LITERATURE

-LITERATURE:

1. Current Diagnosis and Treatment Surgery, Way L.W., Doherty G.M

2. General Surgery, I. D. Kanelos

3. Clinical Surgery, M.M. HENRY, J.N. THOMSON

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
STUDY LEVEL	UNDERGRADUATE		
COURSE CODE	**ΨΧ0500**	**SEMESTER**	$11^{th} – 12^{th}$
COURSE TITLE	**PSYCHIATRY (clinical attachment)**		
COURSE INSTRUCTOR	NIKOLAOS CHRISTODOULOU		
CO-INSTRUCTORS	Faculty, associate faculty, and teaching fellows		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	40	4

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	
PREREQUIRED COURSES	NO
LANGUAGE OF TEACHING AND EXAMS	ENGLISH
AVAILABLE TO ERASMUS STUDENTS	NO
WEBSITE (URL)	

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

The purpose of the final year clinical attachment at the Department of Psychiatry is the application of theoretical knowledge in the diagnosis and management of patients in the clinical field. The ultimate goal is for students to develop the basic and necessary KNOWLEDGE, SKILLS and ATTITUDES in Psychiatry that will allow them to operate autonomously and safely as young doctors in any specialty. The clinical attachment in psychiatry is particularly demanding because students are called upon to develop the above skills in a short time and to use their creativity and initiative.

Upon successful completion of the course, the student must have developed the following:

- Clinical skills (effective communication with patients / relatives / colleagues / third parties, be able to develop a good therapeutic relationship, empathise, take a proper psychiatric history, perform a clinical examination, formulate treatment plans, etc.),
- Understand the clinical diversity of mental disorders, so he/she can distinguish mental from physical illnesses, and mental illnesses from each other.
- Develop advanced clinical management skills (negotiate the overlap of physical and mental morbidity, use the bio-psycho-social model in the formulation of the diagnosis and of the treatment plan, use multiple models in the interpretation of symptomatology, develop an understanding of psychotherapeutic approaches, understand transference / countertranference, etc.).
- Be able to assess risk (suicidality and self-harming behaviours, risk of harm to others, vulnerability, neglect, delinquency, be able to prevent/detect dangerous adverse effects, etc.).
- Have an understanding, and experience the practical application of the law (involuntary hospitalisation, therapeutic confinement, human rights, mental capacity, cooperation with police / prosecutor's office / prisons, etc.)
- Develop a modern attitude towards psychiatry (destigmatization of mental illness, psychiatric parity of esteem, psychiatric reform, community psychiatry, preventive psychiatry, ethics, etc.)

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

3.COURSE CONTENT

- Daily attendance at the Department of Psychiatry and participation in the activities of the Clinic.
- Interview psychiatric in-patients
- Take and properly record a psychiatric history from in-patients
- Participate in on-calls, Outpatient Clinics and Liaison Psychiatry.
- Participate in the daily Ward Round and weekly Grand Round
- Participate in the department’s educational programme

4.TEACHING AND LEARNING METHODS - ASSESSMENT

Teaching Method (face to face, tutoring, distance learning)	Daily physical attendance

<table>
<tr><td></td><td>Participate in the Educational Programme

Reflective Learning</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td>Power point
e-class
.....</td></tr>
<tr><td>TEACHING METHODS
The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.</td><td>
<table>
<tr><th>Activity</th><th>Semester Workload</th></tr>
<tr><td>Clinical attachment (3 weeks)</td><td>-Daily presence at the Clinic
-Taking and recording of at least one complete psychiatric history from hospitalized patients in the clinic
-Participation in at least 2 on-calls
-Participating in at least 2 liaison psychiatry calls
-Outpatient clinic attendance
-Educational programme attendance</td></tr>
<tr><td>Educational Programme</td><td>Live and/or recorded material</td></tr>
<tr><td>Reflective Learning</td><td>Students organise and run small team reflective learning in order to enhance their understanding of clinical cases</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSMENT
Description of the assessment process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation,
Explicitly defined assessment criteria are stated and if and where they are accessible to students.</td><td>Clinical Scenario discussion and/or Objective Structured Clinical Examinationw – OSCE

The examination draws its content from the syllabus of the courses Psychiatry I, Psychiatry II and Psychiatry (clinical attachment), and examines 1/3 the clinical skills and attitudes developed by the student, 1/3 the clinical application of theoretical knowledge, and 1/3 the ability to develop a good differential diagnosis and / or treatment plan.

Marking criteria are accessible to students</td></tr>
<tr><td colspan="2">5.RECOMMENDED READING</td></tr>
<tr><td colspan="2">• MEDICAL PSYCHOLOGY AND PSYCHOPATHOLOGY – N.V. ANGELOPOULOS
• PSYCHIATRY – G.N. CHRISTODOULOU et al.</td></tr>
</table>

- MANUAL OF CLINICAL PSYCHOPATHOLOGY – P. OULIS

COURSE OUTLINE

1.GENERAL			
SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
STUDIES LEVEL	UNDERGRADUATE		
COURSE CODE	**MP1004**	**SEMESTER STUDIES**	8th
COURSE TITLE	**SPORTS MEDICINE**		
COURSE RESPONSIBLE	Sgantzos Markos, Associate Professor		
ASSOCIATES	Invited speakers		

SEPERATE TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDITS UNITS**
	2	2

COURSE TYPE	* Scientific Area
PREREQUISITES LESSONS:	NO
TEACHING and EXAMS LANGUAGE:	English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO
COURSE ELECTRONIC PAGE (URL)	NO

2. Learning Results

- the understanding by students of the importance and clinical contribution of Sports Medicine
- To educate the student in the function, physiology, pathology, surgery and rehabilitation of athletes as well as to acquire general skills and to apply the knowledge in practice. Also the acquisition of knowledge about the beneficial effects and the effects of exercise on the human body
- Informing the student about:

. 1. the initial and periodic examination of persons engaged in exercise, clinical examinations and examinations before participation in sports activities and competitions, as well as the provision of medical assistance to athletes of any sport
. 2. the prevention of chronic diseases caused by a sedentary lifestyle.
. 3. rehabilitation after sports injuries
. 4. athlete nutrition, nutritional supplements, drugs, banned substances and gender verification with the complex ethical, legal and medical issues involved.
. 5. specific medical issues concerning athletes participating in international sports competitions, including disabled athletes or athletes with disabilities as well as the effects of travel and acclimatization.
. 6. Exercise for people with chronic diseases and disabilities, such as bronchial asthma, diabetes mellitus, NM damage and others.
. 7. maximize athletic performance and scientific basis of training control and
. 8. the initial selection of talent and the sporting orientation of young people

Upon successful completion of the course the student will be able to:

- Have an understanding of the basic principles and clinical contribution of sports medicine

- Has knowledge of the main diagnostic and therapeutic applications of Sports Medicine
- Has acquired knowledge about the beneficial effects and the effects of exercise on the human body
- Be aware of the necessary initial periodic check-up
- has knowledge about the prevention of diseases caused by a sedentary lifestyle
- has knowledge of sports nutrition, nutritional supplements, medicines, control of the use of prohibited substances and gender verification with the complex ethical, legal and medical issues involved.

General Abilities

3. CONTENTS COURSE

1. Functional Anatomical of Exercise
2. Physiology of Exercise
3. Applied Hygiene in Exercise
4. Sports Injuries (Acute and Chronic)
5. Illustrative Behavior of diseases and of injuries of athletes
6. Restoration and Excercise
7. first aids in racing space
8. Cardiopulmonary Revitalization
9. Drug stimulation (Doping) - Toxicology
10. Cardiology of Exercise
11. Pulmonology of Exercise
12. Craniocerebral injuries, injuries facial and eyes
13. Effect of Exercise in children
14. Diabetes mellitus, Obesity and excercise.

4. TEACHING and LEARNING METHODS - EVALUATION

DELIVERY METHOD	LIVE LECTURES or/and online
USE OF TECHNOLOGIES INFORMATION AND COMMUNICATION	Power point MS Teams

TEACHING ORGANIZATION

Activity	***Load Working Semester***
Lectures	28 hours
Seminars	12 hours
Thesis Writing	16 hours
Course Set(28. hours load work per creditunit)	***56 hours***

STUDENT EVALUATION	- Thesis Writing The general evaluation criteria are analyzed in the introduction lesson.

5. RECOMMENDED-BIBLIOGRAPHY

-Recommended Bibliography : - Students are provided in electronic form with Teaching Notes and "Power Point" files

Additional Bibliography:

Scuderi GR, McCann PD, Bruno PJ " Sports Medicine"

Fousekis K "Applied Sports Physiotherapy"
Corbin C., Lindsey R., Welk G. Exercise Robustness Health
Brent Brotzman, Robert Manske "ORTHOPAEDIC RESTORATION IN CLINICAL PRACTICE"

COURSE OUTLINE

1.GENERALLY			
FACULTY	FACULTY OF HEALTH SCIENCES		
SCHOOL	MEDICINE		
SCHOOLING DEGREE LEVEL	*Undergraduate*		
COURSE CODE	XP0411	**STUDIES SEMESTER**	7th
COURSE TITLE	**Musculoskeletal Sports Injuries**		
COURSE SCIENTIFIC INSTRUCTOR	Michael Hantes, Professor		
Co-teachers	Th. Karachalios, Z. Dailiana, S. Varitimidis		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**CREDIT UNITS**
Lectures Medical Students who select the lesson are obliged to attend 6 out of 8 lectures)	2	2.00
Προσθέστε σειρές αν χρειαστεί. Η οργάνωση διδασκαλίας και οι διδακτικές μέθοδοι που χρησιμοποιούνται περιγράφονται αναλυτικά στο 4.		

LESSON TYPE	Specific scientific area, Development of dexterities
PRELIMINARY COURSES:	NO
LANGUAGE OF TEACHING AND EXAMS:	English
AVAILABLE COURSE FOR ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	http://www.med.uth.gr/

2.Learning Outcomes

Participation in sports and exercise activities has been increased significantly the last two decades. However, increased participation in sports and recreational activities increases the exposure to the hazards and risk factors associated with the occurrence of sports injuries. As more people participate in such activities, it can be expected that the number of injuries associated with them also has the potential

to increase.

Medical students or young doctors could be involved in many ways (team physician, e.t.c) with athletic injuries and therefore they should familiar with diagnosis and treatment of these injuries.

Learning objectives: Upon completion of this lesson, the student will be able to: Understand the pathophysiology of sports injuries,

Diagnose the most common sports injuries

Provide safe and effective management for on field sports injuries

3.COURSE CONTENT

1. Introduction to sports injuries
2. Pathophysiology of sports injuries
3. Knee sports injuries
4. Ankle and foot sports injuries
5. Wrist and hand sports injuries
6. Shoulder and elbow sports injuries
7. Hip sports injuries
8. Sports injuries of the spine
9. Sports injuries in females and children
10. On field management of sports injuries

4.TEACHING AND LEARNING METHODS-EVALUATION

LEARNING PROCEDURE.	Face to face E-class Preparation for congress participation
USE OF INFORMATION COMMUNICATION TECHNOLOGY	Power point presentations E-class

<table>
<tr><td></td><td>E-book access
Pubmed access
Posting online information and announcements about the course and other educational activities
Students and faculty communications by e-mail</td></tr>
<tr><td>TEACHING STRUCTURE</td><td>
<table>
<tr><th>Activity</th><th>Semester Workload</th></tr>
<tr><td>Lectures</td><td>23</td></tr>
<tr><td>Practical training</td><td>13</td></tr>
<tr><td>Private study</td><td>20</td></tr>
<tr><td>Exams</td><td>2</td></tr>
<tr><td>Course Summary
(30,5 workload hours per credit unit)</td><td>61</td></tr>
</table>
</td></tr>
<tr><td>STUDENTS EVALUATION</td><td>1. The student's progress is monitored throughout the semester and the final grade is summed-up by the student's overall image throughout the course of teaching and practical course.

An evaluation is also being carried out:

• Throught courses with questions and clinical scenarios

• By laboratory workout - evaluation:

✓ model development
✓ the use of microsurgical, surgical and microscope tools
✓ wound suturing techniques

2. Oral exams</td></tr>
<tr><td colspan="2">5.RECOMMENDED BIBLIOGRAPHY</td></tr>
<tr><td colspan="2">-Recommended Bibliography:

e-class presentantions

-Related Scientific Journals:
American Journal of Sports Medicine
Knee Surgery Sports Traumatology and Arthroscopy
Arthroscopy</td></tr>
</table>

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
STUDY LEVEL	UNDERGRADUATE		
COURSE CODE	XP0730	**Semester**	7th
COURSE TITLE	HAEMODYNAMICS OF VASCULAR DISEASES		
COURSE INSTRUCTOR	Giannoukas Athanasios, Professor		
CO-INSTRUCTORS	M. Matsagkas, K. Kappas, G. Kouvelos, A. Koutsiaris, K. Stamoulis, Ch. Karathanos, K. Spanos, A. Raptis		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	2	2

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Elective | Scientific area
PREREQUIRED COURSES	No
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	Yes
WEBSITE (URL)	

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

The understanding of basic principles of haemodynamic pathophysiology of vascular diseases

The course is the key element in understanding the mechanisms of development of vascular diseases. The course syllabus aims at the detailed introduction of the students to the principles of fluid

mechanics - hemodynamics. It also refers to the physiology of vascular diseases. Within this context, the course is the basis on which the student will understand how the vascular system works and the mechanisms of development of disease. Finally, the aim of the course is for students to understand the importance of the basic principles of hemodynamic pathophysiology in vascular diseases. Upon successful completion of the course the student will be able to:

♣Understand basic principles of Hemodynamics
♣Acquire knowledge of the pathophysiology of vascular diseases
♣Distinguish the pathology anduse the knowledge of Hemodynamics in clinical practice
♣ Analyze clinical symptoms and signs
♣Work with his / her classmates to do group work

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

3.Module Content

1. Introduction to Atherosclerosis and the concept of hemodynamics
2. Basic principles of fluid mechanics - Principles of conservation of matter, energy and momentum of the flow
3. Fluid flow in tubes - types of flow
4. Pulsatile flow - Flow in elastic tubes
5. Hemodynamics of acute and chronic lower limb ischemia
6. Hemodynamics of arterial aneurysms
7. Hemodynamics of extracranial cerebral circulation
8. Hemodynamics of intracranial cerebral circulation
9. Hemodynamics of arteriovenous fistulas
10. Hemodynamic behavior of arterial anastomoses and various types of grafts
11. Hemodynamics of venous thrombosis
12. Hemodynamics of chronic venous insufficiency
13. Acute vascular events
14. Applications of non-invasive diagnostics in relation to the hemodynamic pathophysiology of vascular diseases
15. Clinical case presentation

4.TEACHING AND LEARNING METHODS - EVALUATION

<table>
<tr><td>Teaching Method
(face to face, tutoring, distance learning)</td><td>Face to Face Lectures
Microsoft software (PowerPoint) is used to deliver the lessons. The Library has the necessary textbooks for the course. Students also have access to the International Scientific Databases (PubMed) available at the Library. All course deliveries are done by computer projectors using PowerPoint. The above lectures of the courses are uploaded to the websites of the Faculty of Medicine and the University of Thessaly (e-class) with free access by the students of the Faculty of Medicine. Finally, course instructor’s and other co-instructors’ e-mailscan be used for communication with students and students are encouraged to use this method of communication. Also information or announcements related to the course are posted on the websites of the Faculty of Medicine and the University of Thessaly with free access by the students of the Faculty of Medicine</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td>Power point</td></tr>
<tr><td>TEACHING METHODS
The way and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.</td><td><table><tr><th>Activity</th><th>Student Workload</th></tr><tr><td></td><td>54 Hours</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table></td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions,</td><td>Multiple Choice Test and Evaluation of their participation in Interactive Teaching</td></tr>
</table>

Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	
ATTENDANCE	Attendance is not mandatory, however, it is recommended to attend all lectures

5.Recommended Bibliography

1. ΑΓΓΕΙΑΚΗ ΚΑΙ ΕΝΔΑΓΓΕΙΑΚΗ ΧΕΙΡΟΥΡΓΙΚΗ (κωδ. ΕΥΔΟΞΟΣ: 41959376)
2. ΥΠΕΡΗΧΟΓΡΑΦΙΚΗ ΔΙΕΡΕΥΝΗΣΗ ΤΩΝ ΑΓΓΕΙΑΚΩΝ ΠΑΘΗΣΕΩΝ (κωδ. ΕΥΔΟΞΟΣ: 33093742)

Scientific journals:

1. Journal of Vascular Surgery
2. European Journal of Vascular and Endovascular Surgery
3. Journal of Vascular Research
4. Journal of Endovascular Therapy
5. Annals of Vascular Surgery
6. International Angiology

COURSE OUTLINE

1. GENERAL			
SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
LEVEL OF EDUCATION	UNDERGRADUATE		
COURSE CODE	AA0501	**SEMESTER OF STUDIES**	8th
COURSE TITLE	Radiation Oncology		
COURSE MANAGER	George Kyrgias, Professor		
ASSOCIATES	Maria Tolia		

SEPERATE TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDIT UNITS
	2	2

COURSE TYPE	Scientific Area
PREREQUISITE COURSES:	NO
LANGUAGE OF TEACHING AND EXAMS :	English
THE COURSE IS OFFERD TO ERASMUS STUDENTS	YES
COURSE ELECTRONIC PAGE (URL)	

2.Learning Outcomes

The general purpose of the course is to introduce students to the basic principles of radiotherapy oncology. Furthermore, the course seeks to provide students with the basics of state-of-the-art radiotherapy techniques. The specific objectives of the course are specialized in the following intended learning outcomes:

Upon successful completion of the course the student will be able to:

Will be able to use the acquired knowledge in order to:

- plan the Radiotherapy Procedure: Design Illustration, Radiotherapy Simulation, Radiotherapy Plan.
- make use of radiotherapy indications
- have the supplies to work with other oncology specialties.
- to learn to suggest radiotherapy in order to cure or improve the quality of life, or to alleviate the oncology patient.
- enable them to design, analyze and compile a medical article in a foreign language and publish it in an international journal of medicine (optional).

General Abilities

3. COURSE CONTENT

Section 1 CLINICAL INDICATIONS OF RADIOTHERAPY

Section 2 LATEST RADIATION TECHNIQUES

Section3

Section4

4. TEACHING AND LEARNING METHODS - EVALUATION

DELIVERY METHOD	LECTURES, LABORATORY, EDUCATIONAL SEMINAR
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Power point
TEACHING ORGANIZATION	***Activity*** / ***Semester Workload***
	Lectures 52 *Clinical exercise* 2 *Training seminar* 7
STUDENT EVALUATION	Oral exam. Evaluation of students' participation in the delivery and clinical practice.

5. RECOMMENDED - BIBLIOGRAPHY

Suggested Bibliography

Students are provided with teaching notes (power point lectures).

Additional Bibliography

Principles of Radiotherapy Oncology, Edited by Kyriaki Pistevou-Gombaki, University Studio Press Publications (2013), ISBN: 978-960-12-2149-6.

COURSE OUTLINE RADIATION PROTECTION

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	Faculty of Medicine		
LEVEL OF EDUCATION	*Undergraduate*		
COURSE CODE	BE0311	**SEMESTER OF STUDIES**	2nd
COURSE TITLE	RADIATION PROTECTION		
COURSE INSTRUCTOR	TSOUGOS IOANNIS		
CO-INSTRUCTORS	THEODOROU KYRIAKI, ACADEMY SCHOLAR		

SEPARATE TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDIT UNITS
	2	2

COURSE TYPE	BACKGROUND AND SCIENTIFIC AREA
PREREQUISITE COURSES:	MEDICAL PHYSICS
LANGUAGE OF TEACHING AND EXAMS :	ENGLISH
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE ELECTRONIC PAGE (URL)	http://eclass.uth.gr/eclass/courses

2.Learning Outcomes

The course is the basic tool for learning radiation protection techniques to protect health from the dangers of exposure to ionizing radiation for medical purposes.
The course aims to introduce students to the appropriate theoretical and practical training and to provide professional skills in the field of radiation protection.

It also refers to the practical aspects of radiation protection procedures. In this sense, the course is the basis on which continuous education and training will be provided on the clinical use of new techniques and the relevant requirements of clinical radiation protection.

Finally, the aim of the course is for students to understand the importance of the basic principles of radiation protection outside the area of ionizing radiation and the ever-increasing complex legal framework that governs these procedures.

It should be emphasized that this course differs from the classical radiophysics courses taught in the 1st year of the Medical Department in the following points:

Emphasis is placed on the legal dimension of the need for radiation protection

- The philosophy of professionalism and clinical observance of the necessary regulations is introduced. The student learns that regardless of inclination, direction and specialty he will choose in the future, he is involved in his professional field with radiation either diagnostically or therapeutically.
- Radiation and its consequences are demystified through the description in the hospital and with specific examples of the diagnostic and therapeutic value of radiation, its use, abuse and protection from it.
- For the first time, the student is immersed in the idea of quality assurance. He learns that the

faithful observance of work protocols, the application of scientific criteria for the selection and use of technological equipment, ensures the fidelity and quality of the image with simultaneous minimum radial load.

Upon successful completion of the course the student will be able to:
Has knowledge and understanding of:

- The use of radiation in the whole range of human activities
- The dangers of using radiation to hospital staff and patients
- Radiation handling for medical reasons safely for staff and patients, accident prevention and management.
- The legal framework governing the use of radiation
- An additional goal is to ensure quality in radiological operations (patient - staff - machinery - space chain) through the faithful observance of radiation protection rules.

General Abilities

- Research, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting creative and inductive thinking

3. COURSE CONTENT

1. Introduction (1 hour)
   1.1. Objectives
   1.2. Necessity of Radiation Protection in the Hospital
2. Physics of Radiation (2 hours)
   2.1. Basic principles
   2.2. Radiation-Matter Interaction
   2.3. Environmental Radiation
   2.4. Radiation of Medical Operations
3. Etiology and Legislation of Radiation Protection (3 hours)
   3.1. Rationale
   3.2. Dose Definition - Dose Limits
   3.3. European and International Legislation
   3.4. Greek legislation
   3.5. Organizations
      3.5.1. GAEC
      3.5.2. IAEA
      3.5.3. ICRU
4. Radiation Protection Training (1 hour)
5. Staff Responsibilities (1 hour)
6. Dosimetry and Radiation Protection of Patients and Staff (3 hours)
   6.1. Control and Dosimetry Instruments
   6.2. Staff dosimetry
   6.3. Sensitive Population Groups
   6.4. Personnel Logistics - Licenses
7. Description of Parts Using Ionizing Radiation (2 hours)
   7.1. External Radiotherapy and Brachytherapy
   7.2. Nuclear Medicine - in vitro , in vivo
   7.3. Radiodiagnostics

7.3.1. CT scanner
7.3.2. Classical Radiodiagnostics
7.3.3. Invasive Radiology - Angiography
7.3.4. Mammography
7.4. Surgeries
7.5. Dentistry - Maxillofacial
7.6. Computer Radiation
8. Radiobiology - Radiopathology (3 hours)
8.1. Mechanisms Ionizing Radiation Actions
8.2. Biophysical and Cellular Basis of Radial Carcinogenesis
8.3. Biological Base of Maximum Allowed Dose Limits
8.4. Methods for Detection of Hypersensitivity to Radiation
8.5. Danger of Doses from Medical Applications
8.6. Chronic Radiation with low dose
9. Accidents (2 hours)
9.1. Radioactive Contamination
9.2. Information Systems for Radioactive Accidents
9.3. Dosimetric Accident Assessment
9.4. Surgery after a major accident
9.5. Accident History In Hospitals And Outside - Lessons Learned
9.6. Accident Reporting to the Competent Authorities
9.7. Prevention
10. Transportation of Radioactive Materials to and from Hospital (1 hour)
10.1. General Principles of Transport - Procedures
10.2. Transport safety
10.3. Radioactive Residues (disposal - disposal - transport)
11. Radiation Equipment Management (1 hour)
11.1. Standards
11.2. Selection Criteria
11.3. Necessity of Quality Controls
12. Protection from Non- Ionizing Radiation (2 hours)
12.1. Radiation protection bases, High / Low Frequencies
12.2. E / M Fields of very low frequencies
12.3. Mobile
12.4. Effect of magnetic fields on pacemakers - trackers
12.5. Magnetic - Electrical Tomography
12.6. Electrical safety
12.7. Lasers
12.8. Ultrasound
13. Quality Assurance (1 hour)
13.1. Quality Assurance Systems - Responsibilities and Obligations
13.2. Implementation of a Quality Assurance System for Integrated Radiation Protection of a Hospital
14. Ionizing Radiation outside the Hospital (3 hours)
14.1. Industrial Applications of Ionizing Radiation
14.2. Ionizing Radiation Research Applications
14.3. War Use of Ionizing Radiation

4. TEACHING AND LEARNING METHODS - EVALUATION

DELIVERY METHOD	Live in the amphitheater, Lectures, Seminars

COMMUNICATION TECHNOLOGIES	ICT is used. in communication with students (via e - class) for easier management of material and consultation and creation of working groups.
TEACHING ORGANIZATION	

Activity	***Semester Workload***
Lectures	26
Bibliography study & analysis	10
Education based on real problems(Problem Based Learning - PBL)	16
Course Set (…. Working hours per credit unit)	***52 (26)***

STUDENT EVALUATION

Special emphasis is given to the oral examination with emphasis on the possibility of analyzing situations. The student is not asked to memorize terms, mathematical equations or case law but
a) be able to research and find answers through this whole set of documents (laws, books, etc.), already being aware of some basic principles;
b) become the property of any process to be part of a quality assurance system;
c) the student is able to predict what might happen if the procedure approved for the case is not followed.

The material in which the student is going to be examined in the form of multiple choice questions and problem solving during the course is mentioned in detail.

Theoretical training by any supervisory means and to be carried out (blackboard, video projections , slides, etc.) aims to transmit knowledge and experience. Where appropriate, it will be accompanied by demonstrations in clinical and laboratory settings to understand the theory. Two additional elements will allow real consolidation:
a) the teacher, as far as possible, mentions and analyzes specific examples from the international literature and reality or his personal experience. For example, the "Accident Prevention" course will include the theoretical part and conclude with a description of the accident at the Radiotherapy Department of Zaragossa State Hospital , Spain (several dead and hundreds injured by overexposure to radiation). The responsibility of all involved will be analyzed (management, radiophysicists , radiotherapists , technicians and construction company). It will be shown that the error is never of one individual but of an entire chain
b) Problem Based Learning - PBL. At the end of each section there will be a general discussion based on a specific example and the possible solutions will be analyzed. In the previous example, the responsibilities of each person involved will be analyzed and the appropriate scenarios will be constructed for

	the possible developments of the accident if each link in the chain acted differently from what it did.

5. RECOMMENDED - BIBLIOGRAPHY

-Proposed Bibliography:

- Kappas K & Theodorou K, Radiation and Radiation Protection, Volumes A 'and B', Broken Hill Eds , 2017
- Printed matter
- International Bibliography
- European Union Radiation Protection Directives
- Legislation and Methodology of other European countries
- Greek legislation
- Teacher notes
- Multi-question computer program (self -education and examination) that includes 2000 topics

COURSE DESCRIPTION

CROSS-SECTIONAL CADAVERIC HUMAN ANATOMY

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	**MP01001**	**Semester**	5
COURSE TITLE	CROSS-SECTIONAL CADAVERIC HUMAN ANATOMY		
COURSE INSTRUCTOR	Zimpis Aristides, Associate Professor		
CO-INSTRUCTORS	A. Zimpis		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	2	2

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	General Knowledge
PREREQUIRED COURSES	no
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	Yes
WEBSITE (URL)	http://eclass.uth.gr/eclass/courses/MED_U_118
2.LEARNING OUTCOMES	

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

The aim of the course is to study the individual structures of man in the three anatomical planes in cadaveric preparations. This will help to understand the relationships of the different organs and structures of the human body to each other as well as to understand the different surgical approaches. The study of human anatomy through cadaveric cross-sections offers a different perspective on the position, size, shape and relationships between organs and structures.

Upon successful completion of the course the student will be able to:

- Have an understanding of anatomy

- Be able to distinguish topographical anatomy

- Use anatomy in clinical practice

- Analyze and understand surgical approaches

- Can interpret anatomical correlations

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Research, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3.Module Content

The course will be based on cadaveric preparations from our laboratory as well as high-resolution images from the Visible Human Project of the National Library of Medicine, USA.
In addition to the lectures, the course will include laboratory exercises on cadaveric preparations. During the laboratory exercises, cross-sections of fresh frozen cadaveric preparations will be made in which the various anatomical features will be identified.

Course programming
Lesson 1
Anatomy of the cervix

Lesson 2
Anatomy of the thoracic region

Lesson 3
Anatomy of the humerus and forearm

Lesson 4
Anatomy of the elbow and pheocarpic

Lessons 5 and 6
Anatomy of the thoracic cavity

Lessons 7, 8 and 9
Anatomy of the abdominal cavity

Lesson 10
Anatomy of the hip

Lesson 11
Anatomy of the knee

Lesson 12
Anatomy of the ankle and foot

Lesson 13
Anatomy of the thigh and tibia

4. TEACHING AND LEARNING METHODS - EVALUATION	
Teaching Method (face to face, tutoring, distance learning)	*Face to Face:lectures, Live in the amphitheater,* *one hour of laboratory training on volunteers -* *models or using CAL (computer assisted learning)*
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students. Specifically: • Common software (e.g. MS powerpoint) is used to prepare lecture material and display slides and videos. • The study guide (detailed supplementary material & additional bibliography), the tutorial material (clinical cases), the theory and protocols of the laboratory exercises, the slides of each lecture as well as relevant videos and scientific articles made available electronically and online to students through the e-class system of our university. • Information about the course, instructors and their research interests are available online on the Laboratory website• Common software (e.g. MS excel) is used to statistically process student assessment. Announcements, information etc are available online via e-class. Communication is also done via e-mail.
TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.	***Learning activity*** ***Total semester workload*** ***about 54*** hours

STUDENT EVALUATION **Description of the evaluation process** Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	The language of assessment is English. **Evaluation methods.Written exams - potentially online exams.** **The general evaluation criteria are analyzed in the introductory lesson.**
5.Recommended Bibliography	
Lecture Material ***Main suggested textbooks:*** ***Anatomy of Human. Anne M. Gilroy , MA 2019*** ***Shoulder clinic anatomy, Type: Textbook A.H.Zimpis, 1st ed./2017***	

COURSE OUTLINE

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
LEVEL OF EDUCATION	*Undergraduate*		
COURSE CODE	**BE 0401**	**SEMESTER OF STUDIES**	6th
COURSE TITLE	EVIDENTIAL MEDICINE AND META-ANALYSES		
COURSE MANAGER	Zintzaras Elias		
ASSOCIATES	Doxani Chrysoula , Academic Scholar		

SEPARATE TEACHING ACTIVITIES *in case the credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.*	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
Lectures - Laboratory	2	2
Add rows if needed. The teaching organization and teaching methods used are described in detail in 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skills Development*	OPTIONAL
PREREQUISITE COURSES:	NO
LANGUAGE OF TEACHING AND EXAMS :	English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	
COURSE ELECTRONIC PAGE (URL)	http://biomath.med.uth.gr

2.Learning Outcomes

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

- *Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area*
- *Descriptive Indicators Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning*

Consult the concise guide for writing learning outcomes

In this course, the principles of Evidence-Based Medicine and the methodology of Meta-Analysis are introduced to help students evaluate and interpret the results of published clinical trials with the ultimate goal of their application in clinical practice.

Upon successful completion of the course the student will be able to:

- ✓ Understand the types of clinical trials

- ✓ Systematically seek clinical trials from information sources (eg Cochrane Library , etc.)
- ✓ To evaluate methodologically clinical studies as well as their meta-analyzes
- ✓ To process and export clinical trial data
- ✓ Meta-analyze the results of clinical trials, present and interpret them
- ✓ To evaluate and meta-analyze the data of diagnostic studies
- ✓ Become familiar with the decision-making process based on statistical data

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is/are intended for the course?.

Search, analysis and synthesis of data and information, using the necessary technologies
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

Search, analysis and synthesis of data and information, using the necessary technologies
Decision making
Autonomous work
Teamwork
Working in an international environment
Promoting free, creative and inductive thinking

3. COURSE CONTENT

- Categories of medical research and the pyramid of indications.
- Search for clinical trials and sources of clinical information (eg Cochrane Library , etc.).
- Critical methodological/statistical evaluation of clinical studies.
- Clinical Review Methodology 1: check for the existence of published reviews, formulate the clinical question and develop the protocol of the systematic review and design the search method and conduct a bibliographic search.
- Clinical Review Methodology 2. Selection of studies, data extraction and interpretation of results
- Meta-analysis 1: Synthesis of the results of clinical trials when there is no heterogeneity between studies.
- Meta-analysis 2. Calculation and investigation of heterogeneity between studies ..
- Meta-analysis 3: Synthesis of the results of clinical trials when there is heterogeneity between studies.
- Meta-analysis 4: Check for errors,
- Evaluation of the quality of the studies with the tools CONSORT, STROBE and PRISMA.
- Decision making with a statistical approach.
- Diagnostic studies 1: diagnostic indicators and evaluation of the quality of the studies based on the STARD questionnaire.
- Diagnostic studies 2: systematic review and meta-analysis.

4. TEACHING AND LEARNING METHODS - EVALUATION

METHOD OF DELIVERY *Face to face, Distance education etc.*	Face to face in the computer room of the Biomathematics Laboratory.

USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	- In each lesson, laboratory exercises are performed on a computer Use of ICT in communication with students (website, e-mail, etc.)
TEACHING ORGANIZATION *The way and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive teaching, Educational visits, project assignment, Thesis Writing, Artistic creation, etc.* *The student study hours for each learning activity are indicated as well as the non-guided study hours so that the total workload at the semester level corresponds to the ECTS standards .*	

Activity	***Semester Workload***
Lectures -Laboratory	26
Independent Study	12
Solving exercises-tasks	12
Course Set (…. Working hours per credit unit)	***50***

STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Thesis/Reporting, Oral Examination, Public Presentation, Laboratory Assignment, Clinical Examination of Patients, Artistic Interpretation, Other/Others* *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	Students are assessed in English with written assignment.

5. RECOMMENDED - BIBLIOGRAPHY

The teaching notes are distributed:

- Zintzaras Elias (2015) "Methodology of meta-analyzes",
  PSP "Biomedical Research Methodology, Biostatistics and Clinical Bioinformatics", Department of Medicine, University of Thessaly

- Zintzaras Elias and Doxani Chrysoula (2015) "Evidence and Translation Medicine", *PSP "Biomedical Research Methodology, Biostatistics and Clinical Bioinformatics"* Department of Medicine, University of Thessaly

In addition, the following bibliography is mentioned

Anne Whitehead, Meta-Analysis Of Controlled Clinical Trials, Wiley, 2013

Cochrane Handbook for Systematic Reviews of Interventions version 6.2 The Cochrane Collaboration. Cochrane, 2021

MODULE OUTLINE RADIOLOGIC ANATOMY

1.GENERAL			
FACULTY	SCHOOL OF LIFE SCIENCES		
DEPARTMENT	MEDICINE		
STUDIES	*Undergraduate*		
MODULE CODE	AA0201	**SEMESTER**	
MODULE	RADIOLOGIC ANATOMY		
HEAD OF TEACHING	KATERINA VASSIOU		
TEACHING STUFF	MARIANNA VLYCHOU		

TEACHING	**WEEKLY HOURS**	**ECTS CREDITS**
	2	2.00

MODULE TYPE	Optional course
PRE-REQUIRED MODULES:	NON
TEACHING LUNGUAGE AND ASSESSMENT:	ENGLISH
AVAILABLE TO ERASMUS STUDENTS	YES
MODULE WEB PAGE (URL)	NO

2.Module Essentials

Module Objectives (Key learning benefits):
1. The understanding of the human anatomy via radiological methods: X-Ray, Ultrasound, Computed Tomography, Magnetic Resonance Imaging, Interventional Radiology.
2. Became familiar with the sectional anatomy and the anatomy at multi planar reconstruction.

Standard Requirements

The recognition of the most important anatomical structures of the human body and their topographic relationship at different radiological methods

3.Module Outline

1. Radiologic Anatomy of the Upper Limb – X-Ray, CT, MRI (2 hrs)
2. Radiologic Anatomy of the Lower Limb – X-Ray, CT, MRI (4 hrs)
3. Radiologic Anatomy of the Thorax – X-ray, CT (2 hrs)
4. Radiologic Anatomy of the abdominal organs – X-Ray, CT, MRI, US (4 hrs)
5. Radiologic Anatomy of the Central Nervous System - X-Ray, CT, MRI (4 hrs)
6. Radiologic Anatomy of the head and Neck – CT, MRI (4 hr)
7. Radiologic Anatomy of the Vascular System (2 hr)
8. Radiologic Anatomy of the Spine (2 hr)
9. Radiologic Anatomy of the Pelvis (2hr)

4.TEACHING STRUCTURE-ASSESSMENT

TEACHING STRUCTURE	Lectures, Laboratory work	
RESEARCH SKILLS-DIGITAL LEARNING	Communication with students (via e-class) for easy access to teaching material and the organization of tutorials and group learning to elaborate research skills	
TEACHING OUTLINE		***Number***

	Lectures	26
	Laboratoty work	6
	Σύνολο Μαθήματος (…. ώρες φόρτου εργασίας ανά πιστωτική μονάδα) ???	***50 (25)***
ASSESSMENT	Written Exams	

5.SUGGESTED LITERATURE

- All students are provided with (in electronic form) lecture notes and presentations,

Recommended literature:

1. Harold Ellis, Vishy Mahadevan. Clinical Anatomy: Applied Anatomy for Students and Junior Doctors 14th Edition
2. Jens Waschke, Tobias Bockers, Friedrich Paulsen. Sobotta Anatomy Textbook : English Edition with Latin Nomenclature, 1st Edition
3. Helga Fritsch, Wolfgang Kuehnel. Color Atlas of Human Anatomy, Vol. 2: Internal Organs 6th Edition

COURSE OUTLINE

1.GENERALLY			
FACULTY	FACULTY OF HEALTH SCIENCES		
SCHOOL	MEDICINE		
SCHOOLING DEGREE LEVEL	*Undergraduate*		
COURSE CODE	XP0211	**STUDIES SEMESTER**	4th
COURSE TITLE	**FIRST AID IN TRAUMATIC AMPUTATIONS AND MAGLED EXTREMITY INJURIES AND PRINCIPLES OF SURGICAL PROCEDURES OF THE EXTREMITIES. PRACTICAL TRAINING IN MICRO- AND MACRO- SURGICAL SUTURING TECHNIQUES**		
COURSE SCIENTIFIC INSTRUCTOR	Dailiana Zoe, Professor		
Co-teachers	N. Stefanou, S. Varitimidis, M. Hantes, A. Zibis		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**CREDIT UNITS**
Lectures	2	2.00
Practical training	1	
Participation to theoretical and practical part is obligatory and absence from 1-2 theoretical lessons will be compensated by lab practice		

LESSON TYPE	Specific scientific area, Development of dexterities
PRELIMINARY COURSES:	NO
LANGUAGE OF TEACHING AND EXAMS:	English
AVAILABLE COURSE FOR ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	http://www.med.uth.gr/DetailsAr.aspx?id=32954

2.Learning Outcomes

The course is a basic elective course and aims to familiarize students with surgical procedures of the extremities, basic management principles and first aid for injuries of the extremities through:
A. Targeted lectures
B. Acquisition of skills with practical training in anatomy and microsurgery laboratories.

Upon successful completion of the course the student will be able to:
• Have an understanding of the extremity injuries and first aid
• To be familiar with the use of surgical instruments and surgical microscopes

• To be familiar with basic trauma suturing techniques

3.COURSE CONTENT

1. TRAUMATIC INJURIES OF THE EXTREMITIES
2. MICROSURGIGAL PRINCIPLES
3. USE OF SURGICAL MICROSCOPE-MICROTOOLS-MICROSUTURES
4. SURGICAL PRINCIPLES OF THE EXTREMITIES
5. USE OF SURGICAL INSTRUMENTS AND SUTURES
6. SUTURING MODELS WITH MICRO- AND MACRO- SURGICAL METHODS / STRUCTURE AND FUNCTIONING OF THE LABORATORY OF THE MICROSURGERY
7. FIRST AID AND MANAGEMENT OF THE AMPUTATED LIMB
8. FINGER AND LIMB REPLANTATIONS: INDICATIONS-SURGICAL TECHNIQUE-SECONDARY RECOVERY
9. SUTURING TECHNIQUES: MICRO-SURGERY
10. SUTURING TECHNIQUES: MACRO-SURGERY
11. MICROSURGERY APPLICATIONS IN ORTHOPEDICS
12. LATEST DATA AND DEVELOPMENTS IN MICROSURGICAL TECHNIQUES
13. STRUCTURE AND FUNCTION OF THE EMERGENCY DEPARTMENT

4.TEACHING AND LEARNING METHODS-EVALUATION

LEARNING PROCEDURE.	Face to face E-class Preparation for congress participation
USE OF INFORMATION COMMUNICATION TECHNOLOGY	Power point presentations E-class E-book access Pubmed access Posting online information and announcements about the course and other educational activities Students and faculty communications by e-mail
TEACHING STRUCTURE	

Activity	***Semester Workload***
Lectures	23
Practical training	13
Private study	20
Exams	2
Course Summary (30,5 workload hours per credit unit)	61

STUDENTS EVALUATION	1. The student's progress is monitored throughout the semester and the final grade is summed-up by the student's overall image

	throughout the course of teaching and practical course. An evaluation is also being carried out: • Throught courses with questions and clinical scenarios • By laboratory workout - evaluation: ✓ model development ✓ the use of microsurgical, surgical and microscope tools ✓ wound suturing techniques 2. Oral exams
5.RECOMMENDED BIBLIOGRAPHY	
-*Recommended Bibliography:* e-book «MICROSURGERY», data base «ΕΥΔΟΞΟΣ»: 320131 AND COURSE NOTES -*Related Scientific Journals:* ***Journal of Hand Surgery*** ***Microsurgery***	

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
LEVEL OF EDUCATION			
COURSE CODE		**SEMESTER OF STUDIES**	6th
COURSE TITLE	**PRINCIPLES OF CLINICAL EXAMINATION IN CHILDREN**		
COURSE MANAGER	Ioanna Grivea, Associate Professor of Pediatrics and Neonatology		
ASSOCIATES	George Syrogiannopoulos, Professor of Pediatrics Antonios Gounaris, Emeritus Professor of Neonatology Emmanouil Alexopoulos , Assistant Professor of Pediatrics - Pediatric Pulmonology Alexandros Daponte, Professor of Obstetrics and Gynecology		
SEPERATE TEACHINGS ACTIVITIES	**WEEKLY TEACHING HOURS**		**CREDIT UNITS**
	2		2
COURSE TYPE	Scientific Area		
PREREQUISITE COURSES:	NO		
LANGUAGE OF TEACHING AND EXAMS :	English		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO		
COURSE ELECTRONIC PAGE (URL)	Yes. The presentations and the data of the course in general will be gradually posted in the e-class		

2.Learning Outcomes

The aim of the course is to train students in the physical examination of children so that based on the symptom or clinical finding and always in combination with the history they can evaluate the patient's picture and can plan laboratory and/or imaging tests to lead to the

diagnosis.

The clinical symptomatology and pathological findings from the physical examination will be analyzed separately for each system and in combination so that when the student does clinical training in pediatrics, he/she will be able to evaluate and also assess any pathological finding present on physical examination but how it will be evaluated on a case by case basis.

General Abilities

- Search, analysis and synthesis of data and information (practical and theoretical)
- Skills Development
- Decision making
- Work in an interdisciplinary environment

3. COURSE CONTENT

- Assessment of physical growth and nutrition (1 hour)
- Evaluation of psychomotor development (2 hours)
- Examination of the head and neck (1 hour)
- Eye examination in children (1 hour)
- Evaluation of the respiratory system (2 hours)
- Cardiovascular assessment of infant and child (1 hour)
- Gastrointestinal symptoms in children - clinical assessment (1 hour)
- Pediatric examination of the musculoskeletal system (1 hour)
- Clinical skin examination (1 hour)
- Clinical endocrinological examination of the child (1 hour)
- The neurological examination in the child (2 hours)
- Urinary tract symptoms in children - clinical assessment (1 hour)
- Clinical picture of fluid and electrolyte disturbances (1 hour)
- Clinical picture of hematological diseases (1 hour)
- Pediatric gynecological examination (1 hour)
- Abdominal surgical evaluation in children (1 hour)
- Non-specific symptoms in the pediatric patient (2 hours)

4. TEACHING AND LEARNING METHODS - EVALUATION

DELIVERY METHOD	• Lectures • Multimedia file presentations

<table>
<tr><td></td><td>

- Internship that includes physical examination of children who are hospitalized in the Pediatric Clinic or who attend the ICUs of Pediatrics Clinic

</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td>

- Information and communication technologies for the presentation of the material of the lectures, the internet information and the internship of the students
- Use software to present lectures and view slides and videos.
- Study guide that includes presentation files and relevant international bibliography is online available to students through the e-class.
- Information about the course and the teachers is available at the secretariat of the Pediatric Clinic

</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td>
<table>
<tr><th>Activity</th><th></th><th>Semester Workload</th></tr>
<tr><td>Lectures</td><td></td><td>21 hours</td></tr>
<tr><td>Internship</td><td></td><td>14 hours</td></tr>
<tr><td>NUMBER OF TEACHING HOURS / WEEK</td><td>2.5 HOURS (LECTURE AND PRACTICE)</td><td></td></tr>
<tr><td>NUMBER OF EXERCISE PREPARATION HOURS</td><td>0.5</td><td></td></tr>
<tr><td>NUMBER OF WEEKS</td><td>14</td><td></td></tr>
<tr><td>TOTAL NUMBER OF TEACHING HOURS & SEMESTER PREPARATION</td><td>42</td><td></td></tr>
<tr><td>PREPARATION FOR EXAMINATION</td><td>12</td><td></td></tr>
<tr><td>TOTAL TIME</td><td>54</td><td></td></tr>
<tr><td>ECTS</td><td>2</td><td></td></tr>
</table>
</td></tr>
<tr><td>STUDENT EVALUATION</td><td>The examination / evaluation of the student takes place at the end of the course with his / her participation by participating in the physical examination of patients (30%) and written multiple choice questions (70%).</td></tr>
</table>

5. RECOMMENDED-BIBLIOGRAPHY

BOOKS

1. "STRATEGIES FOR DECISION MAKING IN PEDIATRICS", 1st edition 2020, Ioannis Konstantaras Publications

2. "Pediatrics: skills and clinical application" Author: Goldbloom Richard B. 1st edition 2009. Scientific Publications PARISIANOU SA

Journals

1. Pediatrics
2. Pediatrics in Review
3. Journal of Pediatrics

COURSE DESCRIPTIONPRINCIPLES OF SURGICAL ONCOLOGY

1.GENERAL			
SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF EDUCATION	UNDERGRADUATE		
CLASS CODE	**XP0260**	**SEMESTER**	**8th**
COURSE TITLE	**PRINCIPLES OF SURGICAL ONCOLOGY**		
COURSE DIRECTOR	**KonstantinosTepetes, Professor of General Surgery**		
ASSOCIATES	KonstantinosTepetes		

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
	2 hours	2.00

COURSE TYPE	SCIENTIFIC AREA
PREREQUISITE COURSES:	NO
LANGUAGE OF TEACHING AND EXAMS:	English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
LESSON PAGE (URL)	https://www.med.uth.gr/DetailsLesNew.aspx?id=122

2.Learning Outcomes

Training of students in the multimodal approach to surgical oncology cases

---------- -

Exposure in General Principles regarding Surgical Oncology through lectures and group discussions. Active involvement in Cancer patient management in the wards and in the OR. Voluntary involvement in clinical research projects regardingsurgical oncology

General Abilities

- Search, analysis and synthesis of data and information using the necessary new technologies
- Decisionmaking
- Working in an international environment
- Work in an interdisciplinary environment
- Production of new research techniques

GeneralAbilities

3. COURSE CONTENT

A) Theoretical lesson and discussion 2 hours per week covering topics related to:

1. The general principles of Surgical Oncology
2. The importance of multidisciplinary treatment of oncology patients, in collaboration with related specialties
3. Presentation of the most common solid organ neoplasms and their surgical or combined treatment

B) Internship with examination of patients, study of medical records of interesting cases and participation of students in oncological surgeries.

4. TEACHING AND LEARNING METHODS - EVALUATION

Teachingmethod	Lectures / LECTURES-TUTORIAL - WORKSHOPS - CLINICAL STUDIES
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Power point
TEACHING ORGANIZATION	***Activity*** / ***Semester Workload*** 54 Hours
STUDENT EVALUATION	Oral 100% / Oralevaluation
5. RECOMMENDED-BIBLIOGRAPHY	
Handbook of Surgical Oncology MDANDERSON, BARRY W. FEIG, DAVID H. BERGER, GEORGE M. FUHRMAN	

COURSE OUTLINE

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF EDUCATION			
COURSE CODE	PTH1400	**SEMESTER OF STUDY**	Spring
COURSE TITLE	**AUTOIMMUNE DISEASES**		
COURSE RESPONSIBLE	Dimitrios Bogdanos, Associate Professor of Pathology and Autoimmune Diseases		
CO-TEACHERS	Christina Katsiari, Associate Professor of Pathology-Rheumatology		

SELF-ENDED TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
	2	2

COURSE TYPE	Scientific Area
PREREQUISITE COURSES:	NO
LANGUAGE OF TEACHING AND EXAMINATIONS :	ENGLISH
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO
COURSE WEBSITE (URL)	Yes. The presentations and in general the elements of the course are posted in the e - class (and on the page www . autorheumatology.com)

2. Learning Outcomes

The teaching of the course aims to enable students:

- In understanding the role of the immune system in the development of autoimmune diseases and gaining experience in their diagnosis, treatment and treatment
- Understanding the research and clinical dynamics of the cognitive field, which contributes to the thorough understanding of autoimmune diseases
- Acquiring a clear understanding of the diagnostic approaches (clinical, laboratory) of patients with organ-specific or non-autoimmune diseases and their practical value and their application in clinical practice with an emphasis on classical as well as new innovative technologies

- Understanding of direct clinical practices (direct and indirect) that aid in the differential diagnosis and direct clinical management of patients with an underlying autoimmune disease
- necessary to recognize the diseases that require further investigation
- Understanding of practical and research application of diagnostic criteria and diagnostic algorithms approach for valid and timely diagnosis
- Understanding the specific induction and pathophysiological mechanisms associated with the development of organ-specific and non-organ-specific autoimmune diseases with an emphasis on translational research
- Acquiring the knowledge necessary to understand non-organ specific autoimmune diseases (Autoimmune rheumatic diseases e.g. rheumatoid arthritis, systemic lupus erythematosus, systemic sclerosis etc.)
- Understanding organ-specific autoimmune diseases (nervous system, gastrointestinal system, liver, kidney, skin, eye, etc.)
- Understanding the missing knowledge for the clinical implementation of practices in patients with autoinflammatory diseases
- Detailed reference to the mode of action of immunosuppressive and immunomodulatory drugs, biomolecules and biological therapies and their direct correlation with the pathogenesis of diseases
- Understanding of the serious side effects of the drugs used to treat patients with autoimmune diseases
- Acquiring a detailed understanding of the contribution of genetic and epigenetic mechanisms and factors (nutrition, drugs, vaccines, infections) to the development of autoimmunity at experimental level with immediate and ultimate applications in translational research and clinical practice

General Skills

Search, analysis and synthesis of data and information, using both the *Work in an international environment* *Work in an interdisciplinary environment*	Search, if solution and synthesis of cognitive information, with the use of the necessary technologies

3. COURSE CONTENT

1. Introduction to Immunology - (1 hour)
2. Immune system disorders – Autoimmunity (1 hour)

3. Autoreactive immune responses (2 hours)
4. Genetic, Epigenetic and Environmental Mechanisms of Autoimmunity Induction (2 hours)
5. Regulatory lymphocytes –T h17 (1 hour)
6. Autoantigens – Autoantibodies (1 hour)
7. Quantification of autoantibodies – Classical Methods (2 hours)
8. Quantification of autoantibodies – New technologies (2 hours)
9. Diagnostic approach to autoimmune diseases (2 hours)
10. Epidemiology of autoimmune diseases (2 hours)
11. Diagnostic criteria – Applications (2 hours)
12. Diagnostic Algorithms (2 hours)
13. Non-organ-specific autoimmune diseases/Pathogenesis, Clinical practice - therapeutic options (10 hours)
14. Organ-specific autoimmune diseases/ Pathogenesis, Clinical practice - therapeutic options ((10 hours)
15. Experimental Models of Autoimmune Diseases (4 hours)
16. Treatments - Immunosuppressive drugs. Steroids- Action, Clinical Applications, Side Effects (2 hours)
17. Treatments - Immunosuppressive drugs. Disease Immunomodulators/ Action, Clinical Applications, Side Effects (4 hours)
18. Treatments - Immunosuppressive drugs. Monoclonal Antibodies and Other Biological Therapies Immunomodulators of Disease/ Action, Clinical Applications, Side Effects (4 hours)

4. TEACHING AND LEARNING METHODS - ASSESSMENT	
DELIVERY METHOD	Face-to-face deliveries The lectures develop the material described above.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Information Technologies are used and Communications for the preparation of the material of lectures and online information and provision learning aids to students. Specifically: • Common software (eg powerpoint) is used for the preparation of lecture material and slide show and video. • The study guide (analytical material & extra bibliography), clinical records incidents, the theory with the slides of lectures after each lesson as well as videos

<table>
<tr><td></td><td>and scholarly articles on the subject matter
are made electronically and online available to
students through e - class .
• Information about the course, the teacher and the
his research interests and the Rheumatology and Clinical
Immunology Clinic in general are available online on the
Laboratory's website
http :// www . autorheumatology . com
• Announcements, information, etc. are available online
through e - class . Communication is also done via e - mail</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td>
<table>
<tr><th>Activity</th><th>Semester Workload</th></tr>
<tr><td>Lectures</td><td>54 hours</td></tr>
<tr><td>Tutorial exercise</td><td>0 hours</td></tr>
<tr><td colspan="2">
<table>
<tr><td>NUMBER OF TEACHING HOURS/WEEK</td><td>2</td></tr>
<tr><td>NUMBER OF HOURS TO PREPARE THE EXERCISES</td><td>1</td></tr>
<tr><td>NUMBER OF WEEKS</td><td>14</td></tr>
<tr><td>TOTAL NUMBER OF TEACHING HOURS 7 PREPARATION SEMESTER</td><td>42</td></tr>
<tr><td>EXAM PREPARATION</td><td>12</td></tr>
<tr><td>TOTAL TIME</td><td>54</td></tr>
<tr><td>ECTS</td><td>2</td></tr>
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</td></tr>
<tr><td>STUDENT EVALUATION</td><td>- Written exams
(20 multiple choice questions to be answered within 120 minutes)
The general assessment criteria are analyzed during the introductory course.</td></tr>
<tr><td colspan="2">5. RECOMMENDED-BIBLIOGRAPHY
1 . Teacher's Notes
2. Moutsopoulos, Charalambos M. Encyclopedia of Autoimmune Diseases / Charalambos M. Moutsopoulos . - 3rd ed. - Athens: Capon , 2010. - 195p. · 28x21 cm .
3. J. Larry Jameson, Anthony S. Fauci , Dennis L. Kasper, Stephen L. Hauser, Dan L. Longo, Joseph Loscalzo
Harrison's Principles of Internal Medicine, 20e</td></tr>
</table>

4. Carlo Perricone, Yehuda Shoenfeld, Mosaic of Autoimmunity, The Novel Factors of Autoimmune Diseases Revisited, , Elsevier 2019

Journals

1. Journal of Autoimmunity,
2. Autoimmunity Reviews
3. Clinical Immunology
4. Nature Immunology,
5. New England Medical Journal
6. Lancet
7. Mediterranean Journal of Rheumatology
8. Annals of Rheumatic Diseases
9. Arthritis and Rheumatology
10. Nature Reviews of Rheumatology

Sites

1. www.autorheumatology.com

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
STUDY LEVEL	UNDERGRADUATE		
COURSE CODE	XP0711	**Semester**	8th
COURSE TITLE	BASIC PRINCIPLES OF VASCULAR SURGERY AND ANGIOLOGY		
COURSE INSTRUCTOR	Miltiadis Matsagkas, Professor		
CO-INSTRUCTORS	A. Giannoukas, E. Arnaoutoglou, G. Kouvelos, K. Spanos, Ch. Karathanos		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	2	2

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Elective| Scientific Area
PREREQUIRED COURSES	No
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	Yes
WEBSITE (URL)	

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

The course is the main element of education in pathophysiology, diagnosis and treatment of vascular diseases, both conservative and invasive. The coursesyllabus aims to introduce students to acquire the basic knowledge of the main vascular diseases with which the doctor tomorrow will often be

faced. The basic pathophysiology of vascular diseases is analyzed, the basic principles of their diagnosis are given and the therapeutic approach for each of them is reported. Also, the course is an essential complement to the course of Surgery I & II as it refers with emphasis to the surgical treatment of vascular diseases. Within this context, the course is the basis on which the student will build a full understanding of the pathogenesis, diagnosis and surgical treatment of vascular diseases. Finally, the aim of the course is for students to understand the importance of pathogenesis, physical development, diagnosis, prevention and treatment of vascular diseases in a distinct scientific field / profession. Upon successful completion of the course, the student will be able to:

♣Understandthe basic principles of Angiology-Vascular Surgery
♣Acquire knowledge of the pathophysiology of vascular diseases and useit in clinical practice
♣Recognize and diagnose various vascular diseases
♣Suggest treatment depending on the condition
♣Work with his / her classmates to do group work

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

3.Module Content

1. Atherosclerosis: risk factors - natural history of the disease
2. Antithrombotic therapy in vascular diseases
3. Problems in the preoperative preparation and anesthesia of vascular patients
4. Carotid artery and vertebrobasilar disease
5. Acute arterial ischemia and ischemia-reperfusion syndrome
6. Chronic occlusivearterial disease of the lower limbs
7. Complications of diabetes mellitus to the lower limbarteries
8. "Diabetic foot" syndrome
9. Acute and chronic occlusive disease of visceral and renal arteries
10. Abdominal aortic& iliac aneurysmal disease
11. Thoracic aorta diseases
12. Peripheral artery aneurysms. Vascular injuries
13. Aorto-iliacocclusive disease
14. Chronic venous insufficiency of lower limbs
15. Lymphedema - the swollen lower limb

16. Venous thromboembolism
17. Arteriovenous fistulas(congenital and acquired)
18. Vasculitis - Vascular Dysplasias - vascular tumors

4.TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	Face to Face Lectures Microsoft software (PowerPoint) is used to deliver the lessons. The Library has the necessary textbooks for the course. Students also have access to the International Scientific Databases (PubMed) available at the Library. All course deliveries are done by computer projectors using PowerPoint. The above lectures of the courses are uploadedto the websites of the Faculty of Medicine and the University of Thessaly (e-class) with free access by the students of the Faculty of Medicine. Finally, course instructor's and other co-instructors' e-mailscan be used for communication with students and students are encouraged to use this method of communication. Also information or announcements related to the course are posted on the websites of the Faculty of Medicine and the University of Thessaly with free access by the students of the Faculty of Medicine
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Power point
TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.	
STUDENT EVALUATION **Description of the evaluation process**	Multiple Choice Test and Evaluation of their participation in Interactive Teaching

Activity	***Student Workload***
	54 hours

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	

5.Recommended Bibliography

1. ΑΓΓΕΙΑΚΗ ΚΑΙ ΕΝΔΑΓΓΕΙΑΚΗ ΧΕΙΡΟΥΡΓΙΚΗ (κωδ. ΕΥΔΟΞΟΣ: 41959376)
2. ΑΓΓΕΙΑΚΗ ΧΕΙΡΟΥΡΓΙΚΗ (κωδ. ΕΥΔΟΞΟΣ: 41745)

Scientific journals:

1. Journal of Vascular Surgery
2. European Journal of Vascular and Endovascular Surgery

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	Faculty of Medicine		
DEPARTMENT	Neurosurgery		
STUDY LEVEL	Undergraduate		
COURSE CODE		**Semester**	9th
COURSE TITLE	Emergency Neurosurgery		
COURSE INSTRUCTOR	Kostas Fountas		
CO-INSTRUCTORS	N/A		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
Clinical interactive scenarios	2	2

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	This lesson is designed for undergraduate medical students, and is part of the curriculum of the 9th semester, of the Faculty of Medicine, School of Health Sciences of the University of Thessaly. Its purpose is to provide the opportunity to medical students to familiarize themselves with neurological conditions, which require urgent or emergent surgical intervention for their proper management.
PREREQUIRED COURSES	Neuroanatomy, Neurophysiology, Neuroradiology
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	Yes
WEBSITE (URL)	www.neurosurgery-uth.gr

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

The lesson is consisted of a series of ten 90-minute lectures. During each lecture, a clinical scenario

(brief history, symptomatology & semiology, and physical examination info) is given to the participants. In an interactive way, the necessary imaging and laboratory exams are outlined and reviewed for this specific clinical scenario, and the relevant diagnostic algorithm is discussed. Each participant goes through the initial management of this case, as well as the final treatment of this patient, while instructive videos are provided and each intervention is properly justified, and is thoroughly discussed.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

Constructing clinical diagnostic and management algorithms. Decision making ability development. Production of new clinical research ideas.

3.Module Content

The lesson is consisted of a series of ten 90-minute lectures. During each lecture, a clinical scenario (brief history, symptomatology & semiology, and physical examination info) is given to the participants. In an interactive way, the necessary imaging and laboratory exams are outlined and reviewed for this specific clinical scenario, and the relevant diagnostic algorithm is discussed.

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	Interactive clinical scenarios	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	**N/A**	
TEACHING METHODS	***Δραστηριότητα***	***Φόρτος Εργασίας Εξαμήνου***

The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.	**Lecture 1:** Basic neuroanatomy. Neurosurgical terminology. Overview of the basic neurosurgical techniques. **K. Fountas** **Lecture 2:** Diagnosis & management of patients with cauda equina syndrome. **A. Brotis** **Lecture 3:** Diagnosis & management of patients with traumatic brain injuries (Part I). Closed head injury pathophysiology. **Ch. Gatos** **Lecture 4:** Diagnosis & management of patients with traumatic brain injuries (Part II). **Ch. Gatos** **Lecture 5:** Diagnosis & management of patients with subarachnoid hemorrhage (Part I). Pathophysiology & complications of aneurysmal SAH. **A. Tasiou** **Lecture 6:** Diagnosis & management of patients with aneurysmal SAH (Part II). **A. Tasiou** **Lecture 7:** Diagnosis & management of patients with cerebral intraparenchymal hemorrhage. **A. Tasiou** **Lecture 8:** Diagnosis & management of patients with vertebral column injuries. **A. Brotis** **Lecture 9:** Diagnosis & management of patients with intracranial tumors. **K. Fountas** **Lecture 10:** Diagnosis & management of patients with acute hydrocephalus.
STUDENT EVALUATION **Description of the evaluation**	A multiple choice written exam of 25 questions (duration 30 min) is taking place at the end of the lecture cycle. An overall

process Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	evaluation of the lesson by the participants is also required.

5.Recommended Bibliography

Γενικές Αρχές Νευροχειρουργικής

Έκδοση: 1/2017

Συγγραφείς: ΚΩΝΣΤΑΝΤΙΝΟΣ ΦΟΥΝΤΑΣ

Τύπος: Σύγγραμμα

Διαθέτης (Εκδότης): ΙΩΑΝΝΗΣ ΚΩΝΣΤΑΝΤΑΡΑΣ

Atlas of Emergency Neurosurgery

Ullman Raksin
July 2015
Thieme publishers

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	FACULTY OF HEALTH SCIENCES		
DEPARTMENT	DEPARTMENT OF MEDICINE		
STUDY LEVEL	UNDERGRADUATE		
COURSE CODE	NP0900	**Semester**	10 th
COURSE TITLE	Basic principles of Facial and Neck Surgery		
COURSE INSTRUCTOR	IOANNIS CHATZIIOANNOU		
CO-INSTRUCTORS	CHARALAMPOS SKOULAKIS		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	2	2

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	
PREREQUIRED COURSES	Anatomy of Viscera and Vassels Anatomy of nervous system and sensory organs
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	YES
WEBSITE (URL)	

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

• The general purpose of the course is to introduce students to the basic principles of functional, plastic and reconstructive surgery of the head and neck area and to enable them to

diagnose and treat surgical diseases of head and neck skin. Furthermore, the course seeks to provide students with the basic data for the treatment of traumatic injuries of the head and neck.

• The specific objectives of the course are specialized in the following intended learning outcomes:
Upon successful completion of the course the student will be able to:

He will be able to use acquired knowledge in order to:

• Diagnose the most common surgical diseases of neoplastic etiology of the skin of the head and neck.
• Diagnose traumatic injuries of the head and neck
• Get acquainted with the principles of initial treatment of head and neck trauma

• Be trained in suturing wounds and the principles of key skin flaps

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies
Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

Research, analysis and synthesis of data and information, using the necessary technologies
Adaptation to new situations
Decision making
Work in an interdisciplinary environment

3.Module Content

Section 1

Anatomy Skin Physiology Skin Oncology Of Skin & Soft Tissues

Section 2

Trauma - Healing

Basic surgical instruments

Suturing wounds, Types of Sutures and Seams

Section 3

Flap Fundamentals – Main types (Plastic Z, Lindberg Flap, Bilobe Flap)

Section 4

Regional facial flaps - Regional neck flaps

Section 5

Microsurgery Free Flap

Section 6

Airway tract

Tracheotomy

Section 7

Cervical Laryngeal Injuries

Section 8

Jaw - Facial Skull Injuries

Section 9

Functional and cosmetic nasal surgery

Section 10

Practice in the operating room – Emergency Department

Section 11

Practice in the operating room – Emergency Department

Section 12

Practice in the operating room – Emergency Department

4. TEACHING AND LEARNING METHODS - EVALUATION	
Teaching Method (face to face, tutoring, distance learning)	Face to face, hands on practice in the operating room – Emergency Department
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Microsoft Power point Microsoft Teams

TEACHING METHODS
The way and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.

Δραστηριότητα	***Φόρτος Εργασίας Εξαμήνου***
Lectures	18 hours
Hands on	6 hours

STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*

English
Multiple choice questions
Oral examination

5.Recommended Bibliography

1. ΒΑΣΙΚΕΣ ΑΡΧΕΣ ΠΛΑΣΤΙΚΗΣ ΧΕΙΡΟΥΡΓΙΚΗΣ, Τύπος: Σύγγραμμα, Δεμίρη Ε., 2011, ΡΟΤΟΝΤΑ, ISBN: 9789606894329
2. ΤΡΕΧΟΥΣΑ ΠΛΑΣΤΙΚΗ ΧΕΙΡΟΥΡΓΙΚΗ, Τύπος: Σύγγραμμα, ΜΑΝΤΙΝΑΟΣ ΚΩΝΣΤΑΝΤΙΝΟΣ, 2009, ΓΙΑΧΟΥΔΗ, ISBN: 960-7424-12-Χ
3. Local flaps in facial reconstruction Shan R. Baker MD Elsevier Canada; 3 edition (April 4 2014)
4. Cutaneous Flaps in Head and Neck Reconstruction Vasilios K. Thomaidis Springer-Verlag Berlin Heidelberg 2014

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
LEVEL OF EDUCATION			
COURSE CODE		**SEMESTER OF STUDIES**	9o
COURSE TITLE	**BASIC PERINATAL MEDICINE: PBL PRESENTATION**		
COURSE MANAGER	Ioanna Grivea, Associate Professor of Pediatrics and Neonatology		
ASSOCIATES	George Syrogiannopoulos, Professor of Pediatrics Antonios Gounaris, Emeritus Professor of Neonatology Alexandros Daponte, Professor of Obstetrics and Gynecology Antonios Garas, Assistant Professor of Obstetrics and Gynecology		
SEPERATE TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**		**CREDIT UNITS**
	2		2
COURSE TYPE	Scientific Area		
PREREQUISITE COURSES:	NO		
LANGUAGE OF TEACHING AND EXAMS :	English		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO		
COURSE ELECTRONIC PAGE (URL)	Yes. The presentations and the course elements in general will be gradually uploaded to the e-class		

2.Learning Outcomes

The teaching of the course aims at the students:

- Understanding the pathology of pregnancy
- Understanding the complications of pregnancy in the viability and development of the

fetus

- Acquisition of the knowledge necessary for the timely identification of situations that are potentially threatening for the pregnant woman and the fetus
- Present concise up-to-date data from the international literature on perinatal care based on guidelines mainly from Canada, the United Kingdom and the United States
- To reflect the Greek reality and the required differentiations and adaptations of the respective international recommendations in our country
- To highlight good practices in the provision of perinatal care, which are considered by professionals in the field to be able to contribute to the improvement of the services provided
- Identify weaknesses/gaps in the system, but possibly ineffective everyday practices, as pointed out by the professionals in the field themselves

The presentation of the cases will be done simultaneously by a gynecologist - obstetrician and pediatrician-neonatologist and will enable the student to know how to manage cases related to the perinatal period and how the cooperation between these two specialties can lead to an improvement in perinatal mortality and morbidity.

General Abilities

- Adaptation to new situations
- Decision making
- Work in an interdisciplinary environment

3. COURSE CONTENT

- Perinatal mortality and morbidity (1 hour)
- Perinatal Care Organization (1 hour)
- Normal and residual fetal development (2 hours)
- Prenatal diagnosis of genetic diseases (1 hour)
- Fetal monitoring during childbirth (1 hour)
- Abnormally developing childbirth (1 hour)
- Pathology of pregnancy (2 hours)
- Medications and pregnancy (1 hour)
- Normal delivery (1 hour)

- High risk pregnancy (2 hours)
- Premature birth (1 hour)
- Cardiopulmonary resuscitation of the newborn (2 hours)
- Stabilization and transport of premature infants (1 hour)
- Multiple pregnancies (1 hour)
- High risk newborns for immediate and distant complications (2 hours)
- Perinatal asphyxia (1 hour)
- Gestational diabetes mellitus (1 hour)
- Injuries during childbirth (1 hour)
- Congenital infections (1 hour)
- Extension of pregnancy (1 hour)
- Group B streptococcal infection in the newborn (1 hour)
- Ultimate outcome of high-risk neonates (2 hours)

4. TEACHING AND LEARNING METHODS - EVALUATION		
DELIVERY METHOD	• Each issue is presented with an approach by a gynecologist and a pediatrician-neonatologist • Internship that includes participation in the Prenatal Surgery Clinic, monitoring of births in the Maternity Hospital and monitoring in the management of newborns hospitalized in the Neonatal Intensive Care Unit	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	• Information and communication technologies for the presentation of the material of the lectures, the internet information and the internship of the students • Use software to present lectures and view slides and videos. • Study guide that includes presentation files and relevant international bibliography is online available to students through the e-class. • Information about the course, the teachers are available in the secretariats of the Pediatric Clinic and the Obstetrics-Gynecology Clinic of GUHO Larissa	
TEACHING ORGANIZATION	***Activity***	***Semester Workload***

	Lectures		28 hours
	workshop		7 hours
	NUMBER OF TEACHING HOURS / WEEK	2	
	NUMBER OF EXERCISE PREPARATION HOURS	0.5	
	NUMBER OF WEEKS	14	
	TOTAL NUMBER OF HOURS OF TEACHING & PREPARATION FOR THE SEMESTER	42	
	PREPARATION FOR EXAMINATION	12	
	TOTAL TIME	54	
	ECTS	2	
STUDENT EVALUATION	The examination / evaluation of the student takes place at the end of the course with his participation in multiple choice exams		

5. RECOMMENDED-BIBLIOGRAPHY

BOOKS

1. High-risk newborn by Ch. Kostalos, Litsas Medical Publications

2. Obstetric problems and solutions by G. Iatrakis, 1st edition (2016)

Magazines

1. Perinatal Journal
2. Journal of Perinatology
3. Paediatric and Perinatal Epidemiology
4. Journal of Neonatal-Perinatal Medicine

COURSE OUTLINE (model)

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
LEVEL OF EDUCATION	*Undergraduate*		
COURSE CODE	**KI0910**	**SEMESTER OF STUDIES**	4 th
COURSE TITLE	BIOINFORMATICS-BIOMETRY		
COURSE MANAGER	Zintzaras Elias		
ASSOCIATES	Doxani Chrysoula		

SEPERATE TEACHING ACTIVITIES *in case the credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.*	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
Lectures - Laboratory	2	2
Add rows if needed. The teaching organization and teaching methods used are described in detail in 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skills Development*	OPTIONAL
PREREQUISITE COURSES:	NO
LANGUAGE OF TEACHING AND EXAMS :	English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	
COURSE ELECTRONIC PAGE (URL)	http://biomath.med.uth.gr

2.Learning Outcomes

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

- *Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area*
- *Descriptive Indicators Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning*

Consult the concise guide for writing learning outcomes

In this course, Bioinformatics is introduced and with the use of computers, the familiarization of students with the management and analysis of genomic and protein data, and the retrieval of this data from internet databases is achieved.

Upon successful completion of the course the student will be able to:

- To retrieve genomic and protein data from internet databases
- Manage and analyze genomic and protein data
- Easily browse the biological and genetic databases on the internet

- to easily refer to the bibliographic databases of biological and medical research
- to select the appropriate basis depending on the research question
- exhaust all the information they can extract from an online database
- to control the relationship between genes and the occurrence of diseases
- to control the relationship between genes and the effectiveness of treatments

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is/are intended for the course ?.

Search, analysis and synthesis of data and information, using the necessary technologies
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

Search, analysis and synthesis of data and information, using the necessary technologies
Decision making
Autonomous work
Teamwork
Working in an international environment
Promoting free, creative and inductive thinking

3. COURSE CONTENT

In this course it is achieved with the help of the computer
- search for bioinformatics websites
- Retrieval of genetic data from databases
- Analysis of nucleotide and amino acid sequences
- Sequence matching analysis by pairs-FASTA
- Multiple sequence analysis-CLUSTAL
- Data sources for proteins - UNI PROT.
- Secondary and complex protein sequence databases – PROSITE and PRINTS.
- Comparison of protein structures with intermolecular and intramolecular methods
- Categorization of protein structures-SSAP, CE and CATH.
- Genetic analysis data.
- Control of the association between genes and diseases.
- Check the correlation between genes and the effectiveness of treatments
- Analysis of genomic scans
- Analysis of gene expression microarrays data

4. TEACHING AND LEARNING METHODS - EVALUATION

METHOD OF DELIVERY *Face to face, Distance education etc.*	Face to face in the IT laboratory of the Department and in the amphitheater.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in Teaching, in Laboratory Education, in*	- In each lesson, laboratory exercises are performed on a computer Use of ICT in communication with students (website, e-mail, etc.)

Communication with students	

TEACHING ORGANIZATION

The way and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive teaching, Educational visits, project assignment, Writing of Thesis, Artistic creation, etc.

The student study hours for each learning activity are indicated as well as the non-guided study hours so that the total workload at the semester level corresponds to the ECTS standards .

Activity	***Semester Workload***
Lectures -Laboratory	26
Independent Study	6
Solving exercises-tasks	6
Course Set (…. Working hours per credit unit)	***38***

STUDENT EVALUATION

Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Thesis/Reporting, Oral Examination, Public Presentation, Laboratory work, Clinical Examination of a Patient, , Artistic Interpretation, Other/Others
Explicitly defined assessment criteria are stated and if and where they are accessible to students.

The evaluation of the students is done in English with a written presentation of laboratory exercises / applications that were presented during the lectures.

5. RECOMMENDED - BIBLIOGRAPHY

The teaching notes are distributed:

- Zintzaras Elias (2008) LABORATORY NOTES OF APPLIED BIOMETRY-BIOINFORMATICS (*available on the course website as well as teaching material*)

In addition, the following bibliography is mentioned

A Practical Guide to Gene and Protein Analysis (3rd edition 2016). Author: Baxevanis AD, Ouellette BFF (Greek Editor: Chamodrakas SI) Publishing House: Parisianou Scientific Publications SA
Introduction to Bioinformatics algorithms Author: NEIL C. JONES, PAVEL A. PEVZNER (1st / 2010) ISBN: 978-960-461-388-5 Publisher: KLEIDARITHMOS

COURSE OUTLINE

1. GENERAL			
SCOOL	OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF EDUCATION	UNDERGRADUATE		
COURSE CODE	**PTH0800**	**SEMESTER OF STUDY**	Spring
COURSE TITLE	CUTANEOUS MANIFESTATIONS IN SYSTEMIC DISEASES		
COURSE RESPONSIBLE	ROUSSAKI-SULCE ANGELIKI-VICTORIA		
CO-TEACHERS	Zafiriou Efterpi, Assistant Professor Gidarokosta Polyxeni, Doctor of Dermatology		

SELF-ENDED TEACHING ACTIVITIES	**WEEKLY HOURS D I ASKALIA**	**CREDIT UNITS**

COURSE TYPE	Scientific Area
PREREQUISITE COURSES:	NO
LANGUAGE OF TEACHING AND EXAMINATIONS :	English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	NO

2. Learning Outcomes

The subject matter of the course aims to introduce students to the scientific field of Dermatology-Venoresiology, in particular to skin manifestations in systemic diseases.
In this sense, the course is the basis on which the student will acquire fundamental knowledge of etiopathogenetic relationship and study of many dermatopathies with diseases and disorders of internal organs and systems.
Finally, the aim of the course is for the students to understand the importance and clinical contribution of Dermatology-Venoresiology as an independent Medical Specialty.

Upon successful completion of the course, the student will be able to:

- Has an understanding of basic principles of skin manifestations in systemic diseases.
- Has knowledge of the main diagnostic and therapeutic applications of skin manifestations in systemic diseases
- He is able to distinguish the main differences between the normal and pathological clinical picture, to describe the cause, pathogenesis, evolution and treatment of the most important skin manifestations .
- Uses the main diagnostic and therapeutic applications in clinical practice.
- Analyzes the data in combination with the patient's history, clinical picture and other clinical laboratory control data.

Can collaborate with fellow students to research and analyze international literature.

General Skills

3. COURSE CONTENT

1. Skin manifestations of collagen diseases (2 hours)

2. Hereditary skin diseases with systemic manifestations (3 hours)
3. Skin diseases due to bacteria (2 hours)
4. Porphyras (2 hours)
5. Vasculitis (2 hours)
6. Cutaneous manifestations from metabolic disorders and diseases of the endocrine glands (3 hours)
7. Malignant lymphomas and skin manifestations (3 hours)
8. Diseases of the organs of the gastrointestinal system and skin manifestations (3 hours)
9. Paraneoplastic manifestations of skin and appendages (3 hours)
10. Cutaneous manifestations of nutritional disorders and hoarding (3 hours)
11. Oral diagnosis of general diseases (2 hours)

4. TEACHING AND LEARNING METHODS - ASSESSMENT

DELIVERY METHOD	Amphitheater lectures
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	PowerPoint
TEACHING ORGANIZATION	***Activity*** / ***Semester Workload*** Lectures / 28
STUDENT EVALUATION	Written exam 10 short answer questions

5. RECOMMENDED - BIBLIOGRAPHY

1. Antoniou X, Katsambas A: Dermatology- Venereology , Broken Hill Publishers LTD 2015.
2. Chrysomallis F. and colleagues: Dermatology- Venereology , Parisianos Publications , 2005.
3. Habift T, Dinulos JGH, Chapman MS, Zug KA: Skin diseases, Diagnosis and Treatment, Parisianos Scientific Publications, Fourth edition, 2018.
4. Rigopoulos D., Stratigos A., Grigoriou S., Katoulis A., Rallis E: Dermatology – Venereology Handbook, NEON Publications 2020.
5. Kouskoukis Konstantinos E., Karpouzis A.: Modern clinical dermatology and aphrodisiology, Paschalidis Publications 2005

-*Related scientific journals:* Hellenic Review of Dermatology and Venereology, Journal of the European Academy of Dermatology and Venereology.

COURSE DESCRIPTION

DIAGNOSIS OF ACUTE ABDOMEN

1.GENERAL			
SCHOOL	School of Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	**XPO601**	**Semester**	7th
COURSE TITLE	Diagnosis of acute abdomen		
COURSE INSTRUCTOR	AntigoniPoultsidi, Assistant Professor of General Surgery		
CO-INSTRUCTORS	AntigoniPoultsidi		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	2	2

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Elective lesson
PREREQUIRED COURSES	None
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	Yes
WEBSITE (URL)	https://www.med.uth.gr/DetailsLesNew.aspx?id=58

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

Learning outcomes, course outline

Acute abdomen is a presenting symptom of many surgical but also medical conditions that requires immediate diagnosis and management. This course intends to provide students with all the necessary information and knowledge to enable them in the diagnostic approach and patient management.Students are trained to develop their clinical skills starting from history and physical,

differential diagnosis, managing the patient in the emergency department, asking for the appropriate diagnostic modality and consulting the appropriate specialty when needed. They are encouraged to develop deductive thinking and implement high and updated level of recommended management in clinical practice.Alternative recommended solutions-for diagnosis and management-depending on availability of means and resources in various occupational environments, are also discussed. Continuous interaction is expected and encouraged throughout the entire course..
Students will be faced with real life scenarios from patients admitted from the Emergency Department the University Surgical Department.

GeneralAbilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment Work in an interdisciplinary environment
Respect for diversity and multiculturalism Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism

3.Module Content

1.Definition of acute abdomen
2Causes of acute abdomen
2.History and physical examination (with links to videos forvarious clinical signs)
3. Laboratory tests and diagnostic modalities.
4.Surgical anatomy of the abdominal area
5.Peritonitis–classifications:localized –generalized. –primary,secondary-tertiary
4 Differential diagnosis of localized acute abdominal pain: right upper quadrant, left upper quadrant, epigastric and periumbilical arearight and left iliac fossa pain, extraabdominal causes of acute abdomen (tables with causes)
6.Commonest surgical diseases presenting with acute abdomen
(surgical anatomy ,cause, pathogenesis, presentation, diagnostic modalities, diagnostic approach/algorithms, management)

Acute appendicitis
Acute diverticulitis (" ……and grading …)
Small bowel obstruction
Large bowel obstruction
Acute megacolon
Acute mesenteric ischemia
Acute cholecystitis
Acute pancreatitis
Peptic ulcer disease
Laparoscopy in the acute abdomen
Endoscopy in the acute abdomen
Acute abdomen and pregnancy
Elderly patients and acute abdomen
7.Extraabdominal causes of acute abdomen
8.Management of patients with acute abdomen in the Emergency Department
9.Patient scenarios: students are asked to perform as if in the emergency department and come up with their diagnostic approach and management in detail

4.TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	Mainly face to face tutoring,but also distance learning can be provided.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	**Power point presentation and links to videos**

TEACHING METHODS
The way and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.

Δραστηριότητα	***Φόρτος Εργασίας Εξαμήνου***
English	27
Interactive teaching	
Updated algorithms and guidelines	
Clinical exercise:discussing cases of patients admitted in Surgery from the Emergency Department and bedside teaching	27

		54 hours
STUDENT EVALUATION **Description of the evaluation process** Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	Final assessment is oral in English. The students' level of participation throughout the entire course is also evaluated	
5.Recommended Bibliography		
The material of the course is handed to the students(power point presentation).The presentation is detailed and bilingual and is updated with new information every year.		

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	FACULTY OF HEALTH SCIENCES		
DEPARTMENT	DEPARTMENT OF MEDICINE		
STUDY LEVEL	UNDERGRADUATE		
COURSE CODE	NP0501	**Semester**	9τη
COURSE TITLE	COMMUNICATION DISORDERS		
COURSE INSTRUCTOR	CHARALAMPOS SKOULAKIS		
CO-INSTRUCTORS	IOANNIS CHATZIIOANNOU		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	2	2

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Understanding: 1. the physiology of hearing, phonation and speech 2. hearing disorders 3. normal speech and language development 4. treatment of speech development disorders and understanding of common ENT diseases
PREREQUIRED COURSES	NO
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	YES
WEBSITE (URL)	«https://drive.google.com/open?id=0B8gInKI6CP7XOEJVbUpNYWo5dGc»

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

The course aims to introduce students to the problems of communication disorders that are

mainly related to the disorders of the sense of hearing (patient - receiver) and speech (patient - transmitter), but also other disorders.
Upon successful completion of the course the student will be able to understand the basic principles
1. the physiology of hearing, phonation of speech and speech
2. treatment of hearing disorders
3. normal development of speech and phonation
4. treatment of speech development disorders and understanding of common ENT diseases

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies
Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

Research, analysis and synthesis of data and information, using the necessary technologies
Adaptation to new situations
Decision making
Work in an interdisciplinary environment

3.Module Content

1. INTRODUCTION TO COMMUNICATION DISORDERS-NONVERBAL COMMUNICATION

a. Definition of communication b. Need to communicate c. Forms of communication

i. Verbaĺ

ii. Non-verbal

d. What is nonverbal communication;

e. Importance of non-verbal communication f. Types of non-verbal communication

i. Voluntary

ii. Involuntary

g. Forms of non-verbal communication

i. Eye contact

ii. Appearance iii.Facial expressions iv.Body posture

v. Physical / tactile contact

vi.Gestures

vii.Personal space-distance

h. Non-verbal communication in the world

i. Nonverbal communication disorders

j. Treating nonverbal communication disorders

2. HEARING LOSS IN CHILDREN

* Anatomy (ear, central auditory tract)

* Physiology of hearing

* Role of hearing in speech and language development

* The importance of early diagnosis i. Brain neuroplasticity ii.Universal Neonatal Screening

* High-risk newborns

* Causes of childhood hearing loss

i. Hereditarý

1. Gjb2 gene (Connexin 26)

ii. Congenitaĺ

1. Torch infections

2. Prematurity

3. Ototoxic drugs-substances 4. Diabetes

iii.Epicenta

1. Secretory otitis

2. Infections (meningitis, mumps) 3. Fractures of the temporal bone

4. Ototoxic drugs

5. Tympanic membrane perforations

g. Diagnostic methods-objective audiometry i. Otoacoustic emissions

ii.Acoustic evoked potentials

h. Treatment of childhood hearing loss i. Cochlear implant

ii.Brain stem implant

3. COCHLEAR IMPLANT

What is a cochlear implant? how does it differ from a simple hearing aid;

* What the cochlear implant consists of and how it works

* Patient selection criteria for cochlear implant placement in children

* Criteria for selecting adult patients for cochlear implant placement

i. Unilateral or bilateral placement

* Factors that influence the success of the intervention

* Classification of patients

i. Congenital or prelingual deaf ii.Metalanguage deaf

* Cochlear implant placement surgery

* Surgery complications

* After surgery

i. Adjustment and adjustment of cochlear implant

ii.Speech therapy intervention

* Benefit of patients on a psychological and social level

* Charge-Benefit

4. HEARING LOSS IN ADULTS

a. Forms of hearing loss

i. Conduction hearing loss ii.Sensorineural hearing loss iii.Mixed type hearing loss

b. Diagnostic methods

i. Tonal audiometry

ii.Speech audiometry

c. Classification of hearing aids according to gravity d. Causes of hearing loss in adults

e. Hearing loss treatment

i. Conservative treatment ii.Surgical treatment

1. Installation of ventilation pipes 2. Tympanoplastic

3. Anabolotomy

4. Cholesteatoma removal

iii.Hearing aids 1. Retrobulbar

2. Intraosseous

3. Intra-channel

4. Fully intracanal

5. Osteo-implanted headphones 6. CROs type headphones

5. VOICE DISORDERS

a. Anatomy-physiology of phonation B. Causes of voice disturbance

i. Organic causes

1. Congenital disorders

2. Inflammations

3. Injuries

4. Tumors

5. Endocrine disorders 6. Neurological causes

ii.Functional disorders

1. Hyperfunctional dysphonia 2. Hypofunctional dysphonia 3. Spastic dysphonia

iii.Psychogenic disorders

c. Examination-investigation of voice disorders

i. Subjective assessment of dysphonia

ii.Indirect laryngoscopy iii.Video-strobe iv.Microlaryngoscopy under general anesthesia V. Acoustic analysis of voice vi.Electrophysiological methods

d. Principles of treating voice disorders i. Conservative treatment

ii. Speech therapy

iii.Surgical treatment

e. Methods of laryngectomy communication i. Laryngophone

ii.Oesophageal speech iii.Phonetic prepositions

6. SMELL DISORDERS

a. Anatomy-Physiology

b. Importance of olfactory ability in communication

i. Olfactory communication of a newborn mother ii.Olfactory memories

iii.Pheromones and sexual attraction

iv.Influence on mood and stress levels c. Olfactory disorders

d. Diagnostic test

e. Treatment of olfactory disorders

i. Conservative treatment ii.Surgical treatment

7. PARALYSIS OF THE PERSONAL NERVE

* The importance of facial movements in our daily lives

i. Normal facial expressions in the context of non-verbal communication

ii. Display

iii.Chew

iv. Speech

v. Eye protection

* Anatomy of the facial nerve i. Facial nerve fibers ii.Facial nerve segments iii.Branches of the facial nerve

c. Classification of facial nerve injuries i. Neuroapraxia

ii. Axonotomy iii.Neurotmesis iv.Full cross section

d. Sort by House-Brackmann E. Causes of personnel paralysis

i. Congenital causes

ii. Infections

iii.Injuries

iv. Neoplasms

v. Neurological diseases

f. Diagnostic test

g. Prognosis depending on the cause of paralysis H. Dealing with staff paralysis

i. Conservative methods 1. Cortisone

2. Acyclovir ii.Surgical methods iii.Eye care

8. IATROGENIC COMMUNICATION DISORDERS

a. Aphonia after laryngectomy

i. Alternative methods of communication

1. Laryngophone

2. Oesophageal speech

3. Phonetic prepositions

b. Hearing Loss-Deafness

i. Surgical procedures that can cause hearing loss or deafness

1. Tympanoplasty

2. Cholesteatoma removal

3. Stapedectomy

4. Deafness after removal of acoustic neuroma

ii. Treatment options for unilateral deafness 1. Baha

2. CROS type hearing aid

iii. Treatment options for bilateral deafness

1. Auditory Implant brainstem

c. Facial nerve cross section

i. Surgical options for restoring facial nerve function

ii.Eye care

* Cross section of laryngeal nerves

i. Treatment of unilateral retrograde laryngeal paralysis

ii.Treatment of bilateral paralysis

* Sublingual nerve cross section

* Chord cross section of the drum

* Smell disorders after endoscopic nasal and paranasal surgery

9. Ophthalmic disorders

a. What parameters of everyday life does low vision affect

i. Independence-self-service ii. Education

iii.Family life

iv.Social life

v. Career

vi.Entertainment activities-sports

* Causes of low vision in children

* Family-parents ' reactions-raising an infant with low vision

* Communication problems of children with low vision

* Education of the visually impaired child i. Writing and reading

1. Braile Writing

2. Speech synthesizers

* Causes of low vision in adults

* Low vision aids

10. NEUROLOGICAL DISEASES

11. OCCURRENCE OF AN INCIDENT

Invitation of patients (deaf or laryngectomized) in order to discuss and analyze the problems he faces in his daily life.

At the same time, reference will be made to the methods that ensure the patient a better quality of life.

Alternativé

Challenge member of the deaf patient environment in order to analyze all of the above.

Alternativé

Invitation of a special education teacher in order to discuss the difficulties related to the education of children with communication disorders and the ways in which they are treated.

12. REPEAT

Within the framework of this course, a summary of all the above topics will be made.

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	Lectures, cases presentations
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Microsoft Power point Microsoft Teams
TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.	

Δραστηριότητα	***Φόρτος Εργασίας Εξαμήνου***
Lectures	13 x 2 hours

STUDENT EVALUATION **Description of the evaluation process** Assessment Language, Assessment Methods,	English The evaluation of students and their final score will be carried out through exams or through the presentation of a thesis. The exam will include multiple choice questions (20-30).

Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	

5.Recommended Bibliography

1) Η ΑΝΘΡΩΠΙΝΗ ΕΠΙΚΟΙΝΩΝΙΑ ΚΑΙ ΟΙ ΔΙΑΤΑΡΑΧΕΣ ΤΗΣ (3Η ΕΚΔ.)

Συγγραφέας ELENA PLANTE , PELAGIE M. BEESON

Επιμέλεια ΗΛΙΑΣ ΠΑΠΑΘΑΝΑΣΙΟΥ , ΛΕΩΝΙΔΑΣ ΜΑΝΩΛΟΠΟΥΛΟΣ

2) Σημειώσεις και διαφάνειες μαθήματος

3) -*Συναφή επιστημονικά περιοδικά: Otolaryngology Head and Neck Surgery, The laryngoscope, Otolaryngology Clinics of North America*

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
LEVEL OF EDUCATION			
COURSE CODE		**SEMESTER OF STUDIES**	5th
COURSE TITLE	**INTRODUCTION TO PEDIATRIC INFECTIONS**		
COURSE MANAGER	Ioanna Grivea, Associate Professor of Pediatrics and Neonatology		
ASSOCIATES	George Syrogiannopoulos, Professor of Pediatrics Emmanouil Alexopoulos, Assistant Professor of Pediatrics - Pediatric Pulmonology		
SEPERATE TEACHINGS ACTIVITIES	**WEEKLY TEACHING HOURS**		**CREDIT UNITS**
	2		2
COURSE TYPE	Scientific Area		
PREREQUISITE COURSES:	NO		
LANGUAGE OF TEACHING AND EXAMS :	English		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO		
COURSE ELECTRONIC PAGE (URL)	Yes. The presentations and in general the elements of the course will be gradually posted in the e-class		

2.Learning Outcomes

The aim of the course is to provide students with their first contact with infections in Pediatrics. Infections are the most common cause of hospital admission in Pediatrics and children are the main source of spread of common infections in the community. Specifically, we will analyze:

- the pharmacokinetics and mechanism of action of antibiotics
- the symptomatology and clinical course of common pediatric infections
- the clinical laboratory test that must be performed in order to document a pathogenic

microorganism

- the spread of infections within the family, infections in kindergartens, schools and camps
- how to choose the antibiotic in common pediatric infections
- consequences of antibiotic abuse

The above will enable students to acquire the necessary knowledge so that they can choose the appropriate antibiotic in common pediatric infections and at the same time understand the consequences of antibiotic abuse. The ultimate goal is the rational use of antibiotics and the reduction of the spread of resistant strains both in the community and in the Hospital.

General Abilities

- Search, analyze and synthesize data and information (practical and theoretical)
- Skills Development
- Decision making
- Work in an interdisciplinary environment

3. COURSE CONTENT

The basic principles of pediatric infections such as

- Groups of antibiotics
- Mechanism of action of antibiotics
- Pharmacokinetics, drug resistance
- Side effects of antibiotics
- Etiology of common pediatric infections
- Viral and microbial infections by systems and anatomical sites
- Fever of unknown etiology
- Emergencies in pediatric infections
- Laboratory investigation of infections
- Policy of use and selection of the appropriate antimicrobial drug
- Source of infection, family dispersal
- Abuse of antibiotics
- Epidemic, pandemic

<table>
<tr><td colspan="4">4. TEACHING AND LEARNING METHODS - EVALUATION</td></tr>
<tr><td>DELIVERY METHOD</td><td colspan="3">• Lectures
• Multimedia file presentations</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td colspan="3">• Information and communication technologies for the presentation of the material of the lectures, the internet information and the internship of the students
• Use software to present lectures and view slides and videos.
• Study guide that includes presentation files and relevant international bibliography is online available to students through the e-class.
• Information about the course and the teachers is available at the secretariat of the Pediatric Clinic</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td colspan="2">Activity</td><td>Semester Workload</td></tr>
<tr><td></td><td colspan="2">Lectures</td><td>28 hours</td></tr>
<tr><td></td><td>NUMBER OF TEACHING HOURS / WEEK</td><td>2 HOURS</td><td></td></tr>
<tr><td></td><td>NUMBER OF WEEKS</td><td>14</td><td></td></tr>
<tr><td></td><td>PREPARATION FOR EXAMINATION</td><td>14</td><td></td></tr>
<tr><td></td><td>TOTAL TIME</td><td>42</td><td></td></tr>
<tr><td></td><td>ECTS</td><td>2</td><td></td></tr>
<tr><td>STUDENT EVALUATION</td><td colspan="3">The examination / evaluation of the student takes place at the end of the course with his / her participation by participating in written multiple choice questions</td></tr>
<tr><td colspan="4">5. RECOMMENDED-BIBLIOGRAPHY
books
1. " Red Book". Authors : American Academy of Pediatrics , 2nd edition 2016, editions BROKEN HILL PUBLISHERS LTD
2. « Nelson Basic Pediatrics 5th edition » Authors : Marcdante J. Karen, Kliegman M. Robert Publishers : Broken Hill Publishers

Journals</td></tr>
</table>

1. Pediatric Infectious Diseases Journal
2. Pediatrics

DIAGRAM OF THE COURSE «Simulation in Advanced Life Support»

1.GENERAL

SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	XP0312	**SEMESTER OF STUDIES**	
COURSE TITLE	**Simulation in Advanced Life Support**		
COURSE DIRECTOR	ELENI ARNAOUTOGLOU		
FACULTY	CHALKIAS ATHANASIOS, BAREKA METAXIA, NTALOUKA MARIA, STAMOULIS KONSTANTINOS		

AUTONOMOUSTEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
LECTURES	2	2
OPERATING ROOM PRACTICE	2	1
TYPE OF COURSE	GENERAL KNOWLEDGE OF SPECIFIC SCIENTIFIC AREA (ANAESTHESIOLOGY) AND SKILL DEVELOPMENT	
PREREQUISITESCOURSES:		
TEACHING LANGUAGE ANDEXAMINATION LANGUAGE:	English	
THE CLASS IS OFFERED TOERASMUS STUDENTS	YES	
COURSE WEBSITE (URL)	NO	

2.LEARNING GOALS

Description of the level of Learning Goals according to the Qualifications Framework of the European Higher Education Area (EHEA): The students, after successful examination, have proven knowledge and understanding of topics of the subject of Simulation in Advanced Life Support. Skills and knowledge acquired are Level 6 (1st Cycle of Studies) of the European Qualifications Framework (EQF).

After successfully completing the course, the student will have knowledge and understanding of the following subjects:

The student should be able to recognize the rhythms of cardiac arrest and distinguish the shockable and non-shockable rhythms, through simulation. Furthermore, the student should assess the deteriorating patient with the ABCDE approach, suspect and confirm cardiac arrest, and apply the advanced life support algorithms. Through simulation the student learns how to be effective in teamwork, acquiring experiencein resuscitation team, as team member or ever as team leader.

The course aims at acquiring the following skills:

Research, analysis and composition of data and information using the necessary technology.
Decision making
Autonomous work
Teamwork
Working in international environment
Design and manage projects
Exhibitsocial, professionalandmoralresponsibilityandsensitivityin gender issues
Practice criticism and self-criticism

3. COURSE CONTENT

Simulations cenarios in life threatening circumstances:
Bronchospasm
Pneumothorax

AcuteCoronary Syndromes
Pulmonary embolism
Air embolism
Intraoperativeobstetrichemorrhage
Hypertensive crisis
Trauma hemorrhage
Drowning
Electrocution
Diabetic Ketoacidosis
Respiratory depression

4.TEACHINGandLEARNING METHODS - EVALUATION

TEACHING METHOD	FACE TO FACE -LECTURES Simulation scenarios
USEOFINFORMATION AND COMMUNICATION TECHNOLOGY	Microsoft software (PowerPoint) is being used,for thecourse's lectures. Simulation software and simulation manikin are being used for simulation scenarios. The Library has all the necessary books and reading material for the course. Additionally, the students have access to international databases (PubMed), through the library. All class lectures are performed by using Power Point presentations. Those lectures are all uploaded to the medical schools' and the University ofT hessaly websites (e-class) with free access to the students. Thee-mail of the course director and the faculty can be used for communication purposes between teachers and students and the students are encouraged to use this method of communication. Also,information or announcements about the course will be posted to the websites of the medical school and the University of Thessaly with free access from the medical school students.
TEACHING PLANNING *Detailed description of teaching methods. Lectures,Seminars, LaboratoryPractice, Field Exercise, Reading&analyzing readingmaterial, Tutorial, Practice, ClinicalPractice, Artistic Laboratory, InteractiveTeaching, Educationalvisits, Project assignment, Writing paper / papers, Artistic Creation, etc.* *The students' study hours arelistedforeverylearning Activityaswell asthehoursofnon-guidedstudy so that the total workload during the semester will correspond to theECTS standards.*	

Activity	***Semester Workload***
LECTURES	14HOURS (14 weeks x 1 hours)
CLINICAL PRACTICE	
TUTORIAL	
ELECTIVE CLINICAL PRACTICE	
SIMULATION SCENARIO	14HOURS (14 weeks x 1 hours)
Course Total (….Workload hours per credit unit)	

STUDENTEVALUATION *Description of the evaluation procedure* *EvaluationLanguage, EvaluationMethods, Formativeorconclusive, MultipleChoiceQuestions, ShortAnswerQuestions, Essay writing questions, Problem solving, Written Assignment, Essay / Report, Oral Examination,*	**LANGUAGE OF EVALUATION:** English **METHODS OF EVALUATION:** Multiple Choice Questions, Short answer questions– Oral examination Right to examinations: 1unjustified absence, 2 justified absences 3 periods, Examinations with 20 MCQ

Public Presentation, Laboratory assignment, Clinical Examination of a patient, Artistic Interpretation, Other/ Others *There are mentioned establishedevaluationcriteriaandif/andwheret hey are accessible by the students.*	Evaluation of student participation to interactive teaching Students are given the evaluation criteria during the first lesson.
5.SUGGESTED READING MATERIAL	
-Suggested Reading Material:-	

COURSE OUTLINE

1. GENERAL			
SCHOOL	OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF EDUCATION	UNDERGRADUATE		
COURSE CODE	PTH0310	**SEMESTER OF STUDY**	SPRING
COURSE TITLE	MEDICAL EMERGENCY		
COURSE RESPONSIBLE	IOANNIS PANTAZOPOULOS		
CO-TEACHERS	ATHANASIOS HALKIAS, ELENI LAOU, KONSTANTINOS STAMOULIS, EFSTRATIOS MANOULAKAS, ANTHI BANIA, ELENI ZACHARI, SMARO SARCHOSI, MARIANTHI PAPANAGIOTOU		

SELF-ENDED TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDIT UNITS
LECTURES	2	2
HANDS-ON SKILL STATIONS – CLINICAL PRACTICE	1	

COURSE TYPE	OF GENERAL KNOWLEDGE OF A SPECIFIC SCIENTIFIC AREA AND DEVELOPMENT OF SKILLS
PREREQUISITE COURSES:	-
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	NO

2. Learning Outcomes

Description of the Level of Learning Outcomes according to the Qualifications Framework of the European Higher Education Area (EHEA): Students, after a successful examination, have proven knowledge and understanding of subjects in the field of Emergency Medicine (PPS level). The knowledge and skills they acquire are at level 6 (1st study cycle) of the European Qualifications Framework (EQF).

The purpose of the course is for students to obtain specialized knowledge on Emergency Medicine issues so that they become fully competent in dealing with sudden and life-threatening situations. The modern physician must possess knowledge and skills that will ensure both the harmonious functioning of the team and the provision of quality care to the seriously ill patient.

Emergency Medicine is one constantly variable field , where the clinical experience with the upgraded knowledge constitute the two important ones poles in which the modern doctor should move . _ Through the emergency medicine course, the student will gain both clinical experience by participating in Clinical Emergency Medicine tasks under the supervision of experienced instructors and upgraded knowledge through high-level lectures. Every single one course will provide a brief review of pathophysiology , physics examination , diagnostics

analyses , of the cooperative treatment and interventions , as well as information regarding the further management of the patient , especially for each disease or coping strategy .

Upon successful completion of the course, students will be able to:

1. become familiar with the organization of the emergency department, as an area for crisis management, triage and reception of patients, initiation of inpatient care, as well as promotion of patients to other Departments,

2. describe and understand the most frequent emergency situations and the importance of the first critical hours, evaluate information about the health status of patients and develop critical thinking in clinical diagnostic and therapeutic matters,

3. to provide timely and personalized care to patients in relation to the needs arising from the main underlying health problem and co-existing diseases,

4. to develop skills of cooperation, coordination and active participation in the interdisciplinary therapeutic team of the Emergency personnel.

General Skills

The course aims to:

- Search, analysis and synthesis of data and information (practical and theoretical)
- Skills Development
- Decision making
- Autonomous work
- Teamwork
- Work in an interdisciplinary environment
- Promotion of free, creative and inductive thinking

3. COURSE CONTENT

Section 1. Initial assessment of a patient in the ED (Primary assessment) – Triage

Section 2. Non-technical skills in ED

Section 3. Basic Life Support and use of an Automated External Defibrillator

Section 4. Specialized Life Support

Section 5. Airway and ventilation management

Section 6. Acid -base balance disorders

Section 7. Treatment of patients with acute dyspnea, chest pain, massive hemoptysis in the ED

Section 8. Acute Coronary Syndromes – Life-Threatening Arrhythmias

Section 9. Shock

Section 10. Recognition and treatment of patients with acute abdomen in the ED

Section 11. Basic principles of multiple trauma treatment

Section 12. Neurosurgical Emergencies

Section 13. Specialized life support in special situations

Hands -on Skills Stations

- Defibrillation – Synchronized cardioversion
- Basic life support and use of an automatic external defibrillator
- Recovery position
- Identification of electrocardiographic rhythms
- Specialized life support
- Screening patients
- Airway management – Ventilation – Foreign body choking
- Taking blood gases - Acid -base balance
- Interactive case presentations

4. TEACHING AND LEARNING METHODS - ASSESSMENT

DELIVERY METHOD	LECTURES – USE OF SIMULATION – HANDS-ON ON CREATURES – CLINICAL PRACTICE
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Microsoft software (PowerPoint) is used to deliver the lessons. The simulation is done with the help of Laerdral programs and special props for hands -on exercises. The Library has the necessary textbooks for the course. Students also have the possibility to access the international scientific databases (PubMed), which the Library has. The above lectures of the courses are posted on the websites of the Department of Medicine of the University of Thessaly (e - class) with free access by the students of the Department of Medicine. Finally, the e - mail of the person in charge of the course as well as the other teachers can be used for communication between students and teachers and students are encouraged to use this method of communication as well. Also information or announcements regarding the course are posted on the websites of the Department of Medicine of the University of Thessaly with free access by the students of the Department of Medicine.

TEACHING ORGANIZATION	<table><tr><th>*Activity*</th><th>*Semester Workload*</th></tr><tr><td>LECTURES: 2 HOURS/WEEK HANDS – ON SKILL STATIONS – CLINICAL PRACTICE: 1 HOUR/WEEK **ALLOWED ABSENCES:**</td><td>LECTURES: 26 hours CLINICAL PRACTICE: 13 hours</td></tr></table>
STUDENT EVALUATION	1 absence unexcused, 2 excused **LANGUAGE OF EVALUATION :** English English in case of participation of ERASMUS students **EVALUATION METHODS:** ▪ Continuous assessment during lessons ▪ Objectively structured examination of clinical skills (objective structured clinical examination , OSCE) ▪ Exams with multiple choice questions **EVALUATION OF TEACHERS** Evaluation of the teachers through a special questionnaire available to the students at the end of the semester of teaching the course. also encouraged to express their opinion on the overall educational process of the course and any proposed changes. The results of the above responses to the questionnaire are used appropriately with the aim of improving the educational process for the specific course.

5. RECOMMENDED-BIBLIOGRAPHY

- **Suggested bibliography**

1. Emergency Medicine (Atkinson Paul , Kendall Richard , Van Rensburg Lee) Parisianou Medical Publications , ISBN 978-960-394-857-5
2. Urgencies and Emergencies in Emergency and Intensive Medicine (Agomachalelis, Ioannis N.) University medical publications Studio Press , ISBN 978-960-12-2279-0
3. Emergency Medicine. Practical guide to dealing with emergencies (Sprigings DC. Chambers JB) Parisianou Medical Publications , ISBN 9789603949725
4. Medical Bibliography on the Internet (PubMed and other bibliographic sources)
5. European Resuscitation Council website

- **Related scientific journals**

1. Resuscitation
2. Annals of Emergency Medicine
3. Academic Emergency Medicine
4. Shock
5. American Journal of Emergency Medicine
6. European Journal of Emergency Medicine
7. Journal of Emergency Medicine

ΠΘ0311_EMERGENCIES IN GASTROENTEROLOGY_COURSE OUTLINE 2021 2022

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF EDUCATION	*Undergraduate*		
COURSE CODE	**PTH0311**	**SEMESTER OF STUDY**	SPRING
COURSE TITLE	EMERGENCIES IN GASTROENTEROLOGY		
COURSE RESPONSIBLE	Kapsoritakis Andreas, Professor		
CO-TEACHERS	Konstantinos Argyriou, Doctor of the University of Thessaly		

SELF-ENDED TEACHING ACTIVITIES *in case the credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the entire course, enter the weekly teaching hours and total credits*	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
LECTURES AND ENDOSCOPIC WORKSHOP	2 hours	2.00
Add rows if necessary. The teaching organization and the teaching methods used are described in detail in 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	SCIENTIFIC AREA
PREREQUISITE COURSES:	NO
LANGUAGE OF TEACHING AND EXAMINATIONS :	English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO
COURSE WEBSITE (URL)	NO

2. Learning Outcomes

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that the students will acquire after the successful completion of the course.

- *Description of the Level of Learning Outcomes for each study cycle according to the Qualifications Framework of the European Higher Education Area*
- *Descriptive Indicators for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning*

The course is the basic tool for the first substantial contact with gastroenterology
The course material aims at understanding basic concepts and introducing students to more specialized issues of pathology-gastroenterology

It also refers to diseases of the gastrointestinal system, giving more specialized knowledge and endoscopic procedures with which students come into contact for the first time. In this sense, the course is the basis on which the student will get to know and understand pathologies of the digestive system and interventional endoscopic procedures.

Finally, the aim of the course is for the students to understand the importance of connecting gastroenterology with other pathological and surgical specialties in a distinct scientific field / profession

Upon successful completion of the course, the student will be able to:

- Has an understanding of diseases of the gastrointestinal system
- Has knowledge of endoscopic operations
- Will be able to distinguish different nosological entities
- Uses the basic knowledge he has already acquired to delve into a more specialized subject
- Analyzes multiple clinical, laboratory and imaging parameters
- He can work with his fellow students to increase his differential diagnosis

General Skills

Taking into account the general skills that the graduate must have acquired (as listed in the Diploma Appendix and listed below) which / which of them is the course aimed at?.

Search, analysis and synthesis of data and information, also using the necessary technologies
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Work in an international environment
Work in an interdisciplinary environment
Generating new research ideas
Project planning and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and ethical responsibility and sensitivity to gender issues
Exercise criticism and self-criticism
Promotion of free, creative and inductive thinking

3. COURSE CONTENT

1. Upper digestive bleeding (Etiology-Diagnosis-Treatment)
2. Lower digestive bleeding (Etiology-Diagnosis-Treatment)
3. Bowel ischemia-Ischemic colitis
4. Idiopathic Inflammatory Enteropathies (Pathophysiology-Diagnosis-Treatment)
5. Acute abdomen (Etiology-Diagnosis-Treatment)
6. Infectious causes of gastrointestinal disorders & Traveller's diarrhea
7. Esophagus motor disorders
8. Liver diseases and hepatitis
9. Imaging investigation of diseases of the gastrointestinal system
10. Neoplasms of the gastrointestinal tract
11. Endoscopies of the upper & lower digestive tract (Explanation of endoscopic tools, monitoring of endoscopic procedures)
12. Endoscopic retrograde cholangiopancreatography (ERCP)

4. TEACHING AND LEARNING METHODS - ASSESSMENT

MODE OF DELIVERY *Face to face, Distance learning etc.*	Face-to-face, whether in an auditorium or in the clinic, outpatient and endoscopic
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of T.P.E. in Teaching, in*	**Presentation of numerous slides, videos , and live endoscopic procedures**

Laboratory Education, in Communication with students	
TEACHING ORGANIZATION *The way and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Literature Study & Analysis, Tutorial, Internship (Placement), Clinical Exercise, Artistic Workshop, Interactive Teaching, Educational Visits, project Preparation, Thesis Writing/Assignments, Artistic Creation, etc. etc.* *The student's study hours for each learning activity as well as the unguided study hours are listed so that the total workload at semester level corresponds to the ECTS standards*	

Activity	***Semester Load Work***
Lectures	40 hours
Endoscopic laboratory _ _	14 hours
Total Course (….workload hours per credit unit)	***…54 hours …..***

STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Deductive, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report/ Report, Oral Examination, Public Presentation, Laboratory Work, Clinical Patient Examination, Artistic Interpretation, Other / Others* *Explicitly defined evaluation criteria are mentioned and if and where they are accessible by students.*	-The assessment is carried out in English, both written with multiple choice questions and orally with questions that practice critical thinking and require the synthesis of the concepts taught to the students

5. RECOMMENDED - BIBLIOGRAPHY

- *Suggested Bibliography:* Gastroenterology and Hepatology Topics. Editor: Dimitrios Christodoulou. Neon Medical Publications

Related scientific journals: GUT JOURNAL , AMERICAN JOURNAL OF GASTROENTEROLOGY , JCC e . t . c .

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
LEVEL OF EDUCATION	*Undergraduate*		
COURSE CODE	AA0 401	**SEMESTER OF STUDIES**	10th
COURSE TITLE	**EMERGENCY NEURORADIOLOGY**		
COURSE MANAGER	Kapsalaki Eftychia , Professor of Radiology		
ASSOCIATES			

SEPARATE TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
	2	2

COURSE TYPE	Scientific Area
PREREQUISITE COURSES:	NO
LANGUAGE OF TEACHING AND EXAMS :	ENGLISH
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE ELECTRONIC PAGE (URL)	NO. The presentations and in general the Elements of the course are posted in the e-class

2.Learning Outcomes

The course aims at understanding the clinical problems of Emergency Neuroradiology and the correct selection of the most appropriate imaging modality for the immediate demonstration of pathology.
Upon successful completion of the course the student will be able to:
1. identify which cases are urgent and need immediate diagnosis
2. determine the election examination for each case
3. determine the further diagnostic and therapeutic approach as well as the prognosis of the patient

General Abilities

3. COURSE CONTENT

1 Introduction

2. Development of issues of emergency neuroradiology

3. Select a topic to present

4. meeting to guide bibliography research and presentation development

5. Presentation of works with answers to questions and discussion of the topic

4. TEACHING AND LEARNING METHODS - EVALUATION

METHOD OF DELIVERY .	Topic development - Commentary on typical patient cases
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Research of the literature and analysis of issues and recent literature on issues related to emergency diagnostic and therapeutic neuroradiology

TEACHING ORGANIZATION

Activity	***Semester Workload***
Lectures	20 hours
Laboratory exercise	34 hours
Course Set (28. hours of workload per credit unit)	***54 hours***

Activity	Total hours per week
Number of teaching hours / week	4
Number of hours of preparation of exercises / laboratories	34
Total number of teaching hours & semester preparation	54
Exam preparation & course examination	12
Total time	54
ECTS	2

STUDENT EVALUATION	-Oral exams with exams with presentation of work by each student.
5. RECOMMENDED - BIBLIOGRAPHY	
-Proposed Bibliography: **-** Students are provided in electronic form Teaching Notes and "PowerPoint'' files	

COURSE OUTLINE

1. GENERAL			
SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
LEVEL OF EDUCATION	UNDERGRADUATE		
COURSE CODE	KI0950	**SEMESTER OF STUDIES**	8th
COURSE TITLE	EPIDEMIOLOGY AND PREVENTION OF INFECTIOUS DISEASES - WORLD PUBLIC HEALTH THREATS		
COURSE MANAGER	BARBARA MOUCHTOURI		
ASSOCIATES	FACULTY MEMBERS: CH. CHATZICHRISTODOULOU, G. RACHIOTIS EDIP: P. MINA SCIENTIFIC ASSOCIATES: M. KOUREAS		

SEPARATE TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
	2	2

COURSE TYPE	SCIENTIFIC AREA
PREREQUISITE COURSES:	NO
LANGUAGE OF TEACHING AND EXAMS :	ENGLISH
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE ELECTRONIC PAGE (URL)	https://www.med.uth.gr/DetailsLes.aspx?id=134

2.Learning Outcomes

The course aims to provide medical students with basic knowledge on the epidemiology and prevention of infectious diseases and the risk of their cross-border spread as well as the role of the International Health Regulations (IHR) in the prevention of infectious diseases at a global level.

Specific objectives

The specific objectives of the course are to provide students with the basic knowledge and in-depth understanding of the epidemiology and prevention of infectious diseases with emphasis on global threats to public health. In particular, knowledge will be sought on the key pathogens, endemicity, mortality, lethality, pathogen sub-pathogen (reservoir), incubation period and prevention and control measures (national and international). In addition, the role of the International Health Regulations in global health security will be analyzed

Students are also required to acquire skills in order to search for and process critical bibliographic data.

An additional specific purpose of the course is -through an optional study visit to a country of the African continent- to enable students to acquire skills and experience in providing supervised medical assistance to residents of developing countries or alternatively, if a visit to a foreign country is not feasible, to special populations.

Upon successful completion of the course the student will be able to:

- Has knowledge of the basics of the epidemiology of infectious diseases, the risk of their cross-border spread, as well as collective and individual prevention and control measures, including the International Health Regulations.
- Apply the principles of prevention and control of infectious diseases and adapt them taking into account given real conditions.
- It is able to distinguish the differences in the ways of transmission of infectious diseases, and the geographical variability in their occurrence and prognosis, while it will be able to distinguish the degrees of effectiveness of the various preventive measures applied.
- Use the knowledge and skills acquired to provide medical and counselling assistance in the context of supervised prevention of infectious diseases (vaccinations) to people in developing countries.
- Critically analyzes the findings of studies on the epidemiology and prevention of infectious diseases with an emphasis on global public health…
- Can search and interpret international literature in the field of epidemiology and prevention of infectious diseases and global public health threats.
- May work with fellow students to provide field-supervised medical and counselling assistance in the context of infectious disease prevention to residents of developing countries.

General Abilities

3. COURSE CONTENT

1. International Health Regulations and Cross-Border Public Health Threats
2. Epidemiological surveillance of infectious diseases
3. Investigation and response to epidemics
4. Vaccines: needs assessment, evaluation of new vaccines, immunization and herd immunity, vaccination strategy, vaccination programs.
5. Vaccination efficiency and field effectiveness.
6. Vaccine logs
7. Occupational infectious diseases - vaccines in health professionals
8. Specific issues of diseases that can be prevented by vaccination (meningitis, rubella, measles, mumps, tetanus, etc.): pathogen, endemicity, mortality, storage, mode of transmission, incubation period, contagious period, susceptibility to infection, control and prevention measures, response to outbreaks, international measures.
10. Sexually transmitted diseases: AIDS, syphilis, gonorrhea: pathogen, endemicity, mortality, storage, mode of transmission, incubation period, susceptibility to infection, prevention and control measures, response to outbreaks, international measures.
11. Airborne diseases (influenza, tuberculosis, etc.): pathogen, endemicity, mortality, reservoir, mode of transmission, incubation period, transmission period, susceptibility to infection, prevention and control measures, response to outbreaks, international measures.
12. Waterborne diseases (cryptosporidiosis, cholera, Legionnaires' disease): pathogen, endemicity, mortality, reservoir, mode of transmission, incubation period, transmission period, susceptibility to infection, prevention and control measures, response to outbreaks, international measures.
13. Food-borne diseases (viral gastroenteritis, food poisoning, etc.): pathogen, endemicity, mortality, reservoir, mode of transmission, incubation period, period of contagiousness, susceptibility to infection, prevention and control measures, response to outbreaks, international measures.
14. Hepatitis A, B, C, D, E: pathogen, endemicity, mortality, storage, mode of transmission, incubation period, period of transmission, susceptibility to infection, prevention and control measures, response to outbreaks, international measures.
15. Diseases transmitted by transmitters (malaria, yellow fever, dengue fever, West Nile fever): pathogen, endemicity, mortality, storage, mode of transmission, incubation period, transmissibility, susceptibility to infection, prevention and control measures, response to outbreaks, international measures.
16. Other diseases of international interest (SARS, etc.): pathogen, endemicity, mortality, storage,

mode of transmission, incubation period, transmission period, susceptibility to infection, prevention and control measures, response to outbreaks, international measures.

4. TEACHING AND LEARNING METHODS - EVALUATION

DELIVERY METHOD	LECTURES
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Learning process support through electronic platform e-class. Course deliveries are made by computer projection. Use of ICT (e mail) in communication with the Students. Showing educational videos on the evolution of infectious diseases in developing countries.
TEACHING ORGANIZATION	***Activity*** | ***Semester Workload*** *LECTURE* | 50
STUDENT EVALUATION	Language of assessment: English Assessment methods: written individual work. Students are assessed by submitting a written paper on international public health issues. The submission of the work is done at the end of the semester. The evaluation of the work determines 100% of the student's grade. The evaluation of the course and the teachers is carried out -at the end of the semester- through the completion of a special questionnaire by the students. Students are encouraged to express their views through the questionnaire both about the educational process of this course, and about any changes that are necessary in their opinion. Students' responses are taken into

5. RECOMMENDED - BIBLIOGRAPHY

-Proposed Bibliography:

1. Tzeni Kourea- Kremastinou. Public Health

2. Control of Communicable Diseases Manual. David L. Heymann. 2015. American Public Health Association.

3. M. Arvanitidou-Bariona. Social and Preventive Medicine. 2009.

4. David L. Heymann. Control of Communicable Disease Manual. 2008.
5. International health regulations (2005) - 3rd ed. World Health Organization. 2016.
6. Norman Noah. Controlling communicable disease. London School of Hygiene and Tropical Medicine. 2011.

- Related scientific journals : Emerging Infectious Diseases, WHO Bulletin, Epidemiology and Infection

COURSE DESCRIPTION

SURFACE AND CLINICALLY SELECTED ANATOMY OF THE HUMAN BODY

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	**MP0110**	**Semester**	4th
COURSE TITLE	SURFACE AND CLINICALLY SELECTED ANATOMY OF THE HUMAN BODY		
COURSE INSTRUCTOR	Zimpis Aristides, Associate Professor		
CO-INSTRUCTORS	A. Zimpis		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	2	2

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	General Knowledge
PREREQUIRED COURSES	no
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	Yes
WEBSITE (URL)	http://eclass.uth.gr/eclass/courses/MED_U_153
2.LEARNING OUTCOMES	

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

This course covers the physiological surface anatomy of the human body, the clinical anatomy mainly of the musculoskeletal system as well as references to clinical situations from the perspective of an anatomical view of the problems.

Upon successful completion of the course the student will be able to:

Has an understanding of anatomy in space

Uses anatomy in clinical practice and differential diagnosis

Analyses clinical findings on the basis of surface anatomy

Can interpret clinical problems on the basis of anatomical relationships

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Research, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3.Module Content

Introduction to clinically oriented anatomy:
Anatomical position, anatomical levels, terms of laterality, terms of kinesiology
Thorax:
Superficial anatomy of the anterior chest wall, pleurae and lungs
Dermatomes - Distribution of peripheral cutaneous nerves, mode of anesthesia of median nerves
Pneumothorax, hydrothorax, haemothorax - Thoracocentesis - Aspiration of foreign objects
Mesothorax:
Surficial anatomy of the viscera of the mediastinum
Coronary atherosclerosis in angina reflection of cardiac pain
Belly:
Abdominal regions, reference levels quarters
Surface anatomy of the anterior abdominal wall
Abdominal wall cilia
Visceral referred pain
Surface anatomy of spleen and liver
Surface anatomy of kidneys and ureters Palpation of kidneys
Surface anatomy of diaphragm reported or reflecting pain
Pelvis:
Pelvic girdle variants of the pelvis of man and woman,pelvic diameters
Surface perineal anatomy
Changes of position of the pelvis during the duration of life
Body :
Surface anatomy of the cervical and thoracic vertebrae
Surface anatomy of lumbar vertebrae of sanctuary bone and of coccyx
Abnormal curves of the spine
Surface anatomy of the muscles of the back
Topography of the spine
Lower limb:
Surface anatomy of the anonymous bone and the femur
Surface projection and palpable features of the bones of the tibia of the hammer and heel
Dermatomes of the lower limbs
Myotomes: segmental neurosis of the material groups and movements of the lower limb
Standing posture in an attentive position
Surface anatomy of the femoral triangle
Surface anatomy of the forefoot and inner thigh
Surface anatomy of the gluteal region
Surface anatomy of the hip
Surface anatomy of the knee, tibia and foot
Posterior tibial pulse - Dorsal artery pulse of the foot
Upper Limb:
Regions of the upper limb
Surficial anatomy of the bones of the upper limb
Surficial anatomy of the shoulder zone
Dermotomes and myotomes of the upper limb.
Surficial anatomy of the arm
Reflexes of the upper limb

Surficial anatomy of the forearm
Surficial anatomy of hand

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	*lectures, face-to-face in the auditorium, one hour* *of laboratory training on volunteers - models or* *using CAL (computer assisted learning)*
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students. Specifically: • Common software (e.g. MS powerpoint) is used to prepare lecture material and display slides and videos. • The study guide (detailed supplementary material & additional bibliography), the tutorial material (clinical cases), the theory and protocols of the laboratory exercises, the slides of each lecture as well as relevant videos and scientific articles made available electronically and online to students through the e-class system of our university. • Information about the course, instructors and their research interests are available online on the Laboratory website• Common software (e.g. MS excel) is used to statistically process student assessment. Announcements, information etc are available online via e-class. Communication is also done via e-mail. Keynote social media three-dimensional anatomical models
TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.	***Learning activity*** ***Total semester workload*** ***about 54*** hours

STUDENT EVALUATION **Description of the evaluation process** Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	The language of assessment is English. **Evaluation methods.Written exams - potentially online exams.** **The general evaluation criteria are analyzed in the introductory lesson.**
5.Recommended Bibliography	
Lecture Material ***Main suggested textbooks:*** ***Anatomy of Human. Anne M. Gilroy , MA 2019*** ***Surface-Clinic Anatomy of Human A.H. ZIMPIS 2018***	

COURSE DESCRIPTION

INITIAL TRAUMA MANAGEMENT FOR MEDICAL STUDENTS

THE ATLS PHILOSOPHY

1.GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
STUDY LEVEL	*Undergraduate*		
COURSE CODE	**XP0250**	**SEMESTER**	**7th**
COURSE TITLE	INITIAL TRAUMA MANAGEMENT FOR MEDICAL STUDENTS. THE ATLS PHILOSOPHY		
COURSE INSTRUCTOR	DIMITRIOS ZACHAROULIS		
CO- INSTRUCTORS	MILTIADISMATSAGKAS, ZOINTAILIANA, ATHANASIOS ATHANASSIOY, KIRIAKOS SPILIOPOULOS, KONSTANTINOS PATERAKIS KONSTANTINOS NTAFOPOULOS, KONSTANTINOS FOUNTAS, ELENIARNAOUTOGLOU, GEORGIOSKOUVELOSMETAJIAMPAREKA, KONSTANTINOSPERIBOLIOTIS		

TEACHING ACTIVITIES *in case the credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.*	**WEEKLY TEACHING HOURS**	**TEACHING CREDIT**
	2	2

COURSE TYPE *Background, General Knowledge, Scientific Area, Skills Development*	Scientificfield
PREREQUISITE COURSES:	NO
LANGUAGE OF TEACHING AND EXAMS:	ENGLISH
AVAILABLE TO ERASMUS STUDENTS	YES
WEBSITE (URL)	http://www.med.uth.gr/DetailsLes.aspx?id=117

2.Learning Outcomes

The learning outcomes of the course, the specific knowledge, skills and appropriate level abilities that students will acquire after the successful completion of the course, are described.

- *Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area*
- *Descriptive Indicators Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning*

The course gives the basic principles of trauma management

The course syllabus aims to familiarize students with the basic principles of multi-trauma patient management

It also refers to the initial approachtoa multi-trauma patient. In this sense the course is the basis on which the student will understand the initial management of trauma.
Finally, the aim of the course is for students to understand the significance of Initial trauma approach in a distinct scientific field.

Upon successful completion of the course the student will be able to:

- Understand the pathophysiology of the multi-trauma patient, as well as the necessary actions that must be completedwithin the first "golden" hour when the trauma patient enters the emergency department.
- Is aware of the basic principles of a multi-trauma patient management with emphasis on the initial actions of the attending physician upon the arrival of the patient in the emergency department.
- Is able to clarify the way of thinking by practical application of the knowledge provided during the course to virtual patients.

GeneralAbilities

Taking into account the general skills that the graduate must acquire (as they are listed in the Diploma Supplement and are listed below), which of them are intended for the course.

Search, analysis and synthesis of data and information, using the necessary technologies
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

3. MODULE CONTENT

1. Principles of multiple injuries and shock management
2. Airway
-3.Shock
-4.Primary and Secondary Assessment
Head, Thorax, Abdominal, Pelvic and Limbs Trauma
-6.Basic principles of burn management
-7.Basic principles of pregnant woman trauma management
-8.Basic clinical skills (insertion of central venous line, intubation tracheostomy, etc)

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching method *Face to face, tutoring, education etc.*	Facetoface
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	**PowerPoint, video usage**
TEACHING ORGANIZATION *The way and methods of teaching are described in detail.*	

Activity	***SemesterWorkload***
Lectures 2	27

Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive teaching, Study visits, Study work, artwork, creation. λπ. *The student study hours for each learning activity are listed as well as the non-guided study hours so that the total workload at the semester level corresponds to the ECTS standards.*		
	Course Set (27 hours of workload per credit unit)	***54***
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, Public Presentation, Others* *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	Mandatory attendance at lectures with the possibility of 2 justified absences Oral exams 100% ENGLISH	

5. RECOMMENDED LITERATURE

-LITERATURE

1. Current Diagnosis and Treatment Surgery, Way L.W., Doherty G.M

2. General Surgery, I. D. Kanelos

3. Surgery D.K. Voros

4. Farquharson's Textbook of Operative General Surgery Farqyuarson M., Moran B

5. General Surgery Textbook Faculty of Surgery, Department of Surgery

COURSE OUTLINE

1. GENERAL			
SCHOOL	OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF EDUCATION	UNDERGRADUATE		
COURSE CODE	ΠΘ 0521	**SEMESTER OF STUDY**	8th
COURSE TITLE	**Electrocardiogram**		
COURSE RESPONSIBLE	Ioannis Skularigis, Professor		
CO-TEACHERS	Filippos Triposkiadis, Professor Grigorios Giamouzis, Assistant Professor Andreas Xanthopoulos, Curator of 2nd Cardiology		

SELF-ENDED TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
	2 hours	2.00

COURSE TYPE	OP | SCIENTIFIC AREA
PREREQUISITE COURSES:	No
LANGUAGE OF TEACHING AND EXAMINATIONS :	English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No
COURSE WEBSITE (URL)	http://www.med.uth.gr/DetailsLes.aspx?id=68

2. Learning Outcomes

The course is the basic tool to acquire knowledge and understand topics in the cognitive field of electrocardiography.
• The course material aims to reinforce knowledge acquired in previous courses, provides the basis for developing, applying ideas and solving problems in a new context related to the knowledge field.
• It also refers to an ability to combine knowledge and handle complex issues, as well as to formulate judgments, linked to the application of knowledge. In this sense, the course is the basis on which the student will be able to clearly and clearly communicate his conclusions, as well as the knowledge and reasoning on which they are based, both to specialized and non-specialized audiences. Finally, the aim of the course is for students to understand the importance of having specialized knowledge, some of which is cutting edge knowledge in a distinct scientific field/profession.

Upon successful completion of the course, the student will be able to:
• Have an understanding of theories and principles.
• He has knowledge of his field of study and its connection with other fields.
• Is able to distinguish study environments that are complex, unpredictable and require a different approach.
• Uses complex technical or professional activities, assuming responsibility for decision-making in unpredictable work environments.
• Analyzes, evaluates and synthesizes new and complex ideas.
• He can collaborate with his fellow students on issues of their scientific fields.

General Skills

3. COURSE CONTENT

- Normal electrocardiogram. Electrophysiological axis and axis deviation.

- Basic electrocardiographic findings. Electrocardiographic leads.

- Swelling of sinuses and abdomens.

- Conduction disorders.

- Supraventricular arrhythmias.

- Ventricular arrhythmias.

- Ischemia and myocardial infarction.

- Various electrocardiographic images.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

DELIVERY METHOD	LECTURES from Amphitheater. Lesson with PC slides, PubMed Literature Search .
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Power point
TEACHING ORGANIZATION	

Activity	***Semester Workload***
	54 hours

STUDENT EVALUATION	WRITTEN AND ORAL EXAMINATIONS.

5. RECOMMENDED - BIBLIOGRAPHY

1. Clinical Electrocardiogram

Edition: 5th/2001

Author: Goldberger Emanuel

Type: Journal

Distributor (Publisher): K. & N. Litsas O.E.

Eudoxos code: 25317

ISBN : 978-960-7875-92-1

2. THE ECG IN PRACTICE

Edition: 5th / 2011

Authors: JR HAMPTON

Type: Journal

Owner (Publisher): PARISIANOU ANONYME PUBLISHING IMPORT TRADING COMPANY OF SCIENTIFIC BOOKS

Eudoxos code: 12832463

ISBN : 9789603948162

3. Analyzing the Electrocardiogram

Edition: 1/2020

Authors: Emmanuel Simantirakis , Marketou Maria

Type: Journal

Owner (Publisher): KOSTAKIS DIM. ATHANASIOS

Eudoxos code: 94644404

ISBN : 978960

-Related scientific journals.

ΠΘ0900_BASIC TOPICS IN HEMATOLOGY_COURSE OUTLINE 2021-2022

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF EDUCATION	*Undergraduate*		
COURSE CODE	ΠΘ 0900	**SEMESTER OF STUDY**	SPRING
COURSE TITLE	BASIC TOPICS OF HEMATOLOGY		
COURSE RESPONSIBLE	G. VASSILOPOULOS		
CO-TEACHERS	N. YIANNAKOULAS		

SELF-ENDED TEACHING ACTIVITIES *in case the credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the entire course, enter the weekly teaching hours and total credits*	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
TEACHING HOURS	**28**	**1**
WORKLOAD	**32**	**1**
total	**60**	**2**
Add rows if necessary. The teaching organization and the teaching methods used are described in detail in 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	**SCIENTIFIC AREA**
PREREQUISITE COURSES:	**ALL OF THE PREVIOUS SEMESTERS**
LANGUAGE OF TEACHING AND EXAMINATIONS :	ENGLISH
THE COURSE IS OFFERED ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	HAS NOT

2. Learning Outcomes

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that the students will acquire after the successful completion of the course.

- *Description of the Level of Learning Outcomes for each study cycle according to the Qualifications Framework of the European Higher Education Area*
- *Descriptive Indicators for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning*

Consult the concise guide to writing learning outcomes

The course is the basic COURSE FOR THE KNOWLEDGE SUBJECT OF HEMATOLOGY
The course material aims to introduce students to PHYSIOLOGICAL AND PATHOLOGICAL HEMOPOIESIS ISSUES.
It also refers to SPECIAL PATHOLOGY OF HEMATOLOGY AND THERAPEUTIC TREATMENTS. In this sense, the course constitutes the basis on which the student will STRUCTURE THEIR DIFFERENTIAL-DIAGNOSTIC THOUGHTS ABOUT THE DISORDERS OF HEMOPOIESIS.
Finally, the aim of the course is for the students to understand the importance of HEMATOLOGY IN the distinct scientific field of PATHOLOGY

Upon successful completion of the course, the student will be able to:

- Has an understanding of HEMATOLOGY
- Has knowledge of PHYSIOLOGICAL HEMOPOISIS AND PATHOLOGICAL ENTITIES
- Will be able to distinguish DISEASES OF THE BLOOD
- USES MICROSCOPY, IMMUNOPHENOTYPE AND MOLECULAR ELEMENTS FOR DIAGNOSIS
- Analyzes ALL BLOOD LABORATORY TESTS
- Can work with fellow students to SOLVE A PROBLEM

General Skills

Taking into account the general skills that the graduate must have acquired (as listed in the Diploma Appendix and listed below) which / which of them is the course aimed at?.

Search, analysis and synthesis of data and information, also using the necessary technologies
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Work in an international environment
Work in an interdisciplinary environment
Generating new research ideas
Project planning and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and ethical responsibility and sensitivity to gender issues
Exercise criticism and self-criticism
Promotion of free, creative and inductive thinking

AFTER COMPLETING THE COURSE, THE STUDENT WILL BE ABLE TO:

1. TO USE LABORATORY EXAMINATIONS TO DIRECT HIS THINKING
2. WILL BE ABLE TO MAKE DIAGNOSTIC AND THERAPEUTIC DECISIONS
3. WILL BE CAPABLE OF INDEPENDENT WORK BUT ALSO TEAMWORK WITH COLLABORATIVE SKILLS
4. WILL BE ABLE TO WORK IN INTERNATIONAL ENVIRONMENTS BECAUSE THE TERMINOLOGY IS ALSO GIVEN IN ENGLISH LANGUAGE
5. TO SEARCH FOR NEW RESEARCH IDEAS THROUGH THE HIGHLIGHT OF KNOWLEDGE GAPS WHILE DELIVERING THE COURSE
6. WILL BE ABLE TO DESIGN A RESEARCH PROPOSAL WITH THE FORMULATION OF THE HYPOTHESIS AND THE EXPERIMENTAL WORK THAT WOULD LEAD HIM TO CONCLUSIONS.

3. COURSE CONTENT

1. Biology of Hematopoietic Progenitor Cells
2. Fe trafficking, haemochromatosis and haemosiderosis. Hypochromic Anemias
3. B12 & FA trafficking. Megaloblastic anemias
4. Congenital and Acquired Haemolytic Anemias
5. Acute Leukemias. Molecular Pathogenesis, Diagnosis & Treatment
6. Myelodysplastic and Hypoplastic Syndromes.
7. Myeloproliferative Syndromes and Targeted Therapies.
8. HODGKIN Disease and NHL Lymphomas. Treatment strategies.
9. Multiple Myeloma and Amyloidosis
10. Chronic lymphoproliferative syndromes
11. Mechanisms and Coagulation Disorders
12. Platelet Disorders; ITP & TTP
13. Hematological Disorders in Pregnancy & Systemic Diseases
14. Blood Transfusion. Principles and Events.

Translated with www.DeepL.com/Translator (free version)

4. TEACHING AND LEARNING METHODS - ASSESSMENT

MODE OF DELIVERY *Face to face, Distance learning etc.*	LECTURES WITH PROBLEM SOLVING IN SMALL GROUPS (problem based learning)
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	**SLIDES**

TEACHING ORGANIZATION

The way and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Literature Study & Analysis, Tutorial, Internship (Placement), Clinical Exercise, Artistic Workshop, Interactive Teaching, Educational Visits, project writing, Writing of thesis/assignments, Artistic creation, etc.
The student's study hours for each learning activity as well as the unguided study hours are listed so that the total workload at semester level corresponds to the ECTS standards

Activity	*Semester Workload*
LECTURES	**28 HOURS**
PREPARATION	**14 HOURS**
EXAMS	**18 HOURS**
Total Course	***60 HOURS (2 ECTS units)***

STUDENT EVALUATION *Description of the evaluation process*	**MCQ (MULTIPLE CHOICE QUESTIONS) IN ENGLISH**

5. RECOMMENDED - BIBLIOGRAPHY

BASIC HEMATOLOGY Publications: "NEON"
BASIC HEMATOLOGY: EVDOXOS: 86183185
Related scientific journals:
BLOOD , HAEMA

COURSE OUTLINE

1. GENERAL			
SCHOOL	OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF EDUCATION	UNDERGRADUATE		
COURSE CODE	PTHO700	**SEMESTER OF STUDY**	9th
COURSE TITLE	Topics in Oncology		
COURSE RESPONSIBLE	Athanasios Kotsakis, Associate Professor		
CO-TEACHERS	Emmanuel Saloustros, Adjunct Professor Filippos Koinis, Adjunct Professor		

SELF-ENDED TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDIT UNITS
Lectures	2	2

COURSE TYPE	Scientific area, Elective Course of special background
PREREQUISITE COURSES:	Pathology I and II
LANGUAGE OF TEACHING AND EXAMINATIONS :	English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	Currently not available

2. Learning Outcomes

The aim of the course is to introduce students to the basic principles of oncology. In particular, students will learn the biology and epidemiology of neoplastic diseases, the diagnosis and basic principles of treatment of the most common solid tumors. The basic principles of cancer prevention and screening, as well as patient care after the end of antineoplastic therapy will be presented. The course also aims to familiarize students with the importance of genetics in oncology and the principles of palliative care. Finally, students will come into contact with important developments in oncology, the contribution of molecular biology towards personalized treatment of patients with solid neoplasms and the extensive research conducted in the field of oncology in recent years.

Upon successful completion of the course, the student will be able to:

- knows the epidemiology of the most common malignant solid tumors and their prognosis.
- recommends screening tests and cancer prevention guidelines according to gender, age and family history.
- knows the basic principles of treatment of the most common solid malignant neoplasms.
- knows basic principles of patient communication and how to deliver bad news.
- understand the trends of personalization of treatment in oncology patients
- understands the basic genetic tests requested in the daily practice of oncology.
- seeks and knows the treatment of the most frequent adverse effects of antineoplastic treatment.
- is familiar with the principles and goals of palliative care.

General Skills

3. COURSE CONTENT

1. Basic principles and mechanisms of tumorigenesis (2 hours)

2. Cancer genetics – Hereditary cancer (2 hours)
3. Cancer epidemiology, risk factors (1 hour)
4. Prevention and screening (1 hour)
5. Principles of systemic antineoplastic therapy (chemotherapy, hormone therapy, targeted therapy and immunotherapy) (2 hours)
6. Breaking Bad News (1 hour)
7. Contribution to clinical practice of developments in molecular biology and pathological anatomy (2 hours)
8. Precision Medicine - Personalized treatment (1 hour)
9. Emergencies in Oncology (1.5 hours)
10. Lung and head and neck cancer (2 hours)
11. Breast Cancer (1.5 hours)
12. Gastrointestinal cancer (2 hours)
13. Gynecological cancer (1.5 hours)
14. Urinary tract cancer (2 hours)
15. Melanoma-Sarcomas (1.5 hours)
16. Principles of palliative care (2 hours)

4. TEACHING AND LEARNING METHODS - ASSESSMENT

DELIVERY METHOD	Lectures and discussions of patient cases.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	MS Power point
TEACHING ORGANIZATION	***Activity*** | ***Semester Workload*** *Lectures : 26 hours* |
STUDENT EVALUATION	Multiple choice questions.

5. RECOMMENDED - BIBLIOGRAPHY

Students will be provided with notes, journal articles and presentation slides.
In addition:

https://www.esmo.org/Guidelines
https://oncologypro.esmo.org/Education-Library/Handbooks
https://oncologypro.esmo.org/Education-Library/Factsheets-on-Biomarkers
https://oncologypro.esmo.org/Education-Library/Clinical-Trial-Resources
https://oncologypro.esmo.org/Education-Library/ESMO-E-Learning-and-V-Learning

MEDICAL ONCOLOGY
Book Code in Eudoxos: 33155431
Edition: 2017, Authors: H . KANTARJIAN, R. WOLFF, C. KOLLER
ISBN: 978-960-394-607-6, Type: Handbook, Distributor (Publisher): PARISIANOU ANONYME PUBLISHING IMPORTING TRADING COMPANY OF SCIENTIFIC BOOKS

DIAGRAM OF THE COURSE «PAIN THERAPY»

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
FACULTY	MEDICINE		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	XP0301	**SEMESTER OF STUDIES**	8TH SEMESTER
COURSE TITLE	PAIN THERAPY		
COURSE DIRECTOR	ELENI ARNAOUTOGOU		
FACULTY	CHALKIAS ATHANASIOS, BAREKA METAXIA, NTALOUKA MARIA, PETSITI ARGYRO, STAMOULIS KONSTANTINOS, CHARALAMPIDOU ALEXANDRA, BOUZIA AIKATERINI, KORAKIS ALEXANROS		

AUTONOMOUS TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDIT UNITS
LECTURES	2	2
CLINICAL PRACTICE (SKILLS ROOM)	2	1

TYPE OF COURSE	GENERAL KNOWLEDGE OF SPECIFIC SCIENTIFIC AREA (PAIN THERAPY) AND SKILL DEVELOPMENT
PREREQUISITE COURSES:	
TEACHING LANGUAGE AND EXAMINATION LANGUAGE:	English
THE CLASS IS OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	NO

2. LEARNING GOALS

Description of the level of Learning Goals according to the Qualifications Framework of the European Higher Education Area (EHEA): The students, after successful examination, they have proven knowledge and understanding of topics of the subject of Pain Therapy (PGSP). Skills and knowledge acquired are Level 6 (1stCycle of Studies) of the European Qualifications Framework (EQF).

After successfully completing the course the student will have knowledge and understanding of the following subjects:

The student should be able to recognize clinical pain syndromes, approach a patient in pain, suggest simple treatment protocols, know and manage the complications of pain treatment, know alternative pain therapies, know how to prescribe and how to provide palliative care and psychological support to the patient and his/her family.

General Skills

The course aims at acquiring the following skills:

Research, analysis and composition of data and information using the necessary technology.
Decisionmaking
Autonomouswork
Teamwork
Workingininternationalenvironment
Design and manage projects
Exhibit social, professional and moral responsibility and sensitivity in gender issues
Practicecriticismandself-criticism

3. COURSE CONTENT

History
Definition, Pain syndromes, Organization and structure of a pain unit

What do I need to know about the anatomy of pain?
What do I need to know about the physiology of pain?
General principles of pain assessment and management
What I need to know about the pharmacology of pain?
Management of pain treatment complications
Interventional pain management techniques
Alternative pain treatments. Acupuncture. The role of psychologist
Acute pain and its management
Chronic benign pain. Clinical cases and Management
Neuropathic pain. Clinical cases and Management
Cancer pain and its management
Palliative care in patients with end-stage disease. Acute pain scenarios, chronic pain scenarios

4.TEACHING AND LEARNING METHODS - EVALUATION

TEACHING METHOD	FACE TO FACE – LECTURES
USE OF INFORMATION AND COMMUNICATION TECHNOLOGY	Microsoft software (PowerPoint) is being used, for the courses lectures. The Library has all the necessary books and reading material for the course. Additionally, the students have access to international databases (PubMed), through the library. All class lectures are performed by using PowerPoint presentations. Those lectures are all uploaded to the medical schools' and the University of Thessaly websites (e-class) with free access to the students. Thee-mail of the course director and the faculty can be used for communication purposes between teachers and students and the students are encouraged to use this method of communication. Also, information or announcements about the course will be posted to the websites of the medical school and the University of Thessaly with free access from the medical school students.
TEACHING PLANNING *Detailed description of teaching methods.* *Lectures,Seminars, LaboratoryPractice, Field Exercise, Reading&analyzingreadingmaterial, Tutorial, Practice, ClinicalPractice, Artistic Laboratory, InteractiveTeaching, Educationalvisits, Project assignment, Writing paper / papers, Artistic Creation, etc.* *The students' study hours are listed for every learning activity as well as the hours of non-guided study so that the total workload during the semester will correspond to the ECTS standards.*	
STUDENT EVALUATION	**LANGUAGE OF EVALUATION:**

Activity	***Semester Workload***
LECTURES	**28 HOURS**
CLINICAL PRACTICE	**4 HOURS**
CourseTotal (….Workload hours per credit unit)	

Description of the evaluation procedure *Evaluation Language, Evaluation Methods, Formative or conclusive, Multiple Choice Questions, Short Answer Questions, Essay writing questions, Problem solving, Written Assignment, Essay / Report, Oral Examination, Public Presentation, Laboratory assignment, Clinical Examination of a patient, Artistic Interpretation, Other/ Others* *There are mentioned established evaluation criteria and if/and where they are accessible by the students.*	English **METHODS OF EVALUATION:** Multiple Choice Questions, Short answer questions Right to examinations: 1 unjustified absence, 2 justified absences 3 periods, Examinations with 20 MCQ Students are given in writing the evaluation criteria during the first lesson.
5.SUGGESTED READING MATERIAL	
Suggested Reading Material: MANAGEMENT OF ACUTE AND CHRONIC PAIN with code 5948 IASP Guidelines, WHO Treatment Guidelines on Pain Clinical Practice Guidelines-APS **-***Related Scientific magazines:*	

COURSE OUTLINE

1. GENERAL			
SCHOOL	OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF EDUCATION	UNDERGRADUATE		
COURSE CODE	KI 0400	**SEMESTER OF STUDY**	5th
COURSE TITLE	MEDICAL COMMUNICATION		
COURSE RESPONSIBLE	GOURGOULIANIS CON/NOS		
CO-TEACHERS	-		

SELF-ENDED TEACHING ACTIVITIES	WEEKLY HOURS D I ASKALIA	CREDIT UNITS
Lectures	2	2

COURSE TYPE	Scientific Area & Skill Development
PREREQUISITE COURSES:	NO
C LANGUAGE OF TEACHING AND EXAMINATIONS :	English
ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	-

2. Learning Outcomes

The general purpose of the course is to introduce students to the ways of writing and presenting the results of medical research and to enable them to plan, analyze and write a scientific article or speech. Furthermore, the course seeks to provide students with the basic elements for the formation of the theoretical and methodological background for how to write and compose an original paper. The specific objectives of the course are specialized in the following intended learning outcomes:

Upon successful completion of the course, the student will be able to:

He has an understanding and knowledge of the uses and how to search for medical literature (bibliographic update, archiving of articles). He will also have knowledge of the basic principles for the types of medical research (research concept, protocol, ethics) as well as how to read a medical paper. Finally, he will have acquired knowledge of the basic principles for the critical approach of a published medical article.

He/she will be able to use the acquired knowledge in order to:

- to design and perform an original medical research work
- write and present an interesting incident
- to use the foreign language in the medical article
- to have the means to pursue original research (Ph.D. thesis)

- to organize a scientific talk by structuring the slides in the appropriate way
- critically approach published work in digital databases and evaluate its results
- use appropriate scientific style in a medical article

- collaborate with fellow students to search medical literature and to critically evaluate published research papers

General Skills

3. COURSE CONTENT

- Introduction- Ways to search medical literature
- Bibliographic update, archiving of articles
- Types of medical research (research concept, protocol, ethics)
- How to read a medical paper
- How to write the original paper
- How to write and present an interesting incident
- The scientific style of the medical article
- The use of Foreign Language in the medical article
- The structure of the slides
- Organization of a scientific talk
- Publication in digital databases
- Doctoral thesis

4. TEACHING AND LEARNING METHODS - ASSESSMENT

DELIVERY METHOD	LECTURES and tutorial exercises
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	PowerPoint
TEACHING ORGANIZATION	***Activity*** | ***Semester Workload*** *Lectures - Exercises* | 2
STUDENT EVALUATION	Written and oral presentation of laboratory exercises

5. RECOMMENDED - BIBLIOGRAPHY

- Medical Scripture and Discourse. KI Gourgoulianis - V. Tsakraklidis , Beta Publications
- Material from the internet

1. GENERAL			
SCHOOL	HEALTH SCIENCES		
FACULTY	MEDICINE		
LEVEL OF QUALIFICATION	UNDERGRADUATE		
LESSON CODE	**EI0300**	**SEMESTER**	**4º-8º**
COURSE TITLE	TRANSFUSION MEDICINE CELL THERAPIES LABORATORY INVESTIGATION OF HEMATOLOGIC DISEASES		
COURSE HEADER	KOTSI PARASKEVI		
COURSE CO-TEACHERS	TSOURVELOUDIS IOANNIS, GEORGIADI ELENI, SKOURA APOSTOLIA-LEMONIA		
INDEPENDENT TEACHING ACTIVITIES	**WEEKLY EDUCATIONAL HOURS**	**ECTS**	
	2	2.00	
COURSE TYPE	OPTIONAL		
CORE COURSE	NO		
LANGUAGES AVAILABLE FOR LESSONS AND EXAMS	ENGLISH		
AVAILABLE FOR ERASMUS STUDENTS	YES		
WEB ADDRESS (URL)	vkotsis@uth.gr, aimodosia@uhl.gr		

2. LEARNING OBJECTS

The general purpose of the course is to introduce students to the basic principles of Transfusion Medicine. Completing the course, students become able to design, analyze, comprehend, participate in and manage all transfusion-related procedures as well as apply them in clinical practice. Furthermore, the course aims to provide students with the basic knowledge of Immunohematology and Hemostasis Disorders and to stimulate their interest in this specific area. The main objectives of the course are specialized in the following learning goals:

Upon successful completion of the course the student will be able to use the established knowledge to :

- properly manage transfusion therapy
- approach diagnostic problems of Immunohematology
- use the appropriate equipment in the Immunohematology laboratory
- collaborate with fellow students to present and analyze clinical scenarios

General Skills

3. COURSE CONTENTS

UNIT I : BLOOD AND PRODUCTS

- Blood Donation/ Blood Donor selection criteria
- Immunology and Molecular biology of transfusion
- Blood Products and preparation

UNIT II : TRANSFUSION THERAPY

- Blood Transfusion Indications
- Special Blood Types
- Alternative Treatment Methods – Cell Therapies
- Blood Transfusion Financial

UNIT III : BLOOD TRANSFUSION COMPLICATIONS

- Immediate and Late blood transfusion reactions
- Blood Transmitted Diseases
- Hemovigilance and Blood Safety

UNIT IV : HEMOSTASIS DISORDERS

- Bleeding Disorders
- Thrombotic Disorders
- Laboratory Investigation

4. TEACHING AND LEARNING METHODS – EVALUATION

TEACHING METHODS	Lectures-Laboratory exercises- Clinical scenarios presentation- Distance Learning (e-class) Power Point
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Power Point
COURSE METHODS	**Activity** / **Semester Workload**
STUDENT EVALUATION	Evaluation with written exams or essay

5. RECOMMENDED - BIBLIOGRAPHY

BLOOD TRANSFUSION MEDICINE, KALLINIKOU – MANIATI ALIKI
ISBN: 9789603941095

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	**KI0700**	**Semester**	9th (Fall)
COURSE TITLE	Occupational Medicine		
COURSE INSTRUCTOR	GEORGIOS RACHIOTIS		
CO-INSTRUCTORS	Faculty Members: CH. CHATZICHRISTODOULOU, V. MOUCHTOURI, F. MALLI , O. KOTSIOU, D. PAPAGIANNIS, I. Other: I. ANYFANTIS		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	3	2

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Scientific area.
PREREQUIRED COURSES	None
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	No
WEBSITE (URL)	http://www.med.uth.gr/DetailsLes.aspx?id=79

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

Aim of the course

The course aim - in the context of the distinct discipline of occupational medicine - to provide medical students with sufficient knowledge and skills to be able to assess the impact of work on health and interpret the occupational history in the context of differential diagnosis and everyday medical practice.

After the successful completion of this course, the students will be able to:

- Understand the concept of occupational risk, the importance of proper occupational history in the daily diagnostic/clinical practice, the mechanisms by which the various harmful factors of the work environment are harmful to health and the expediency of implementing various preventive measures
- Have knowledge of the main harmful factors of the working environment, their effects on the health of employees as well as the preventive measures that can be taken.
- Use the acquired knowledge in order to use the information of the professional history in the differential diagnosis of the diseases as well as to organize a plan of medical examination of the employees according to the harmful factors to which they are exposed.
- Analyze work processes and harmful work factors in terms of the risk of developing occupational disease.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

	Project design and management
Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations	*Respect for diversity and multiculturalism*
	Respect for the natural environment
	Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Decision making	*Exercise criticism and self-criticism*
Autonomous work Teamwork	*Promoting free, creative and inductive thinking*
Working in an international environment	
Work in an interdisciplinary environment	
Production of new research ideas	

- Decision making
- Autonomous work
- Exercise criticism and self-criticism

3.Module Content

The content of the course includes the following major items:

A. The content of the lectures together with the relevant clinical insights the students need to learn/acquire per chapter.
B. The content of the tutorials/seminars together with the relevant clinical insights the students need to learn/acquire per seminar.
C. The content of the laboratory practical together with the relevant practical & clinical skills the students need to learn/acquire per exercise.

A. Lecture content and relevant clinical insights

Introduction to occupational medicine. Basic concepts

Occupational exposure to natural harmful factors I (Noise)

Occupational exposure to natural harmful factors II (Vibration, radiation, thermal stress)

Principles of occupational epidemiology and toxicology.

Occupational cancer

Basic principles of occupational safety

Specialized occupational toxicology

Occupational diseases of the musculoskeletal system. Principles of ergonomics

Professional exposure to biological harmful factors with emphasis on hospitals Vaccinations of employees with emphasis on hospitals

Psychosocial factors and work. Work stress. Burn out and Mobbing syndromes

Smoking in the work environment.
Introduction to occupational lung diseases

B. Seminar/Tutorial content and relevant clinical insights
Problem-based learning: Presentation, analysis and discussion of clinical cases

In the context of the tutorial, a case study related to occupational lead poisoning is presented to the students. Special emphasis is given to the importance of obtaining the occupational history in the context of the differential diagnosis.

C. Laboratory Practical content. Not applicable.

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	*Face to Face:* Teaching of Occupational Medicine consists of lectures, and seminars/tutorials. Attendance of Seminars/Tutorials is obligatory. The lectures content has been described above. Seminars/Tutorials In the context of the tutorial, a case study related to occupational lead poisoning is presented to the students. Special emphasis is given to the importance of obtaining the occupational history in the context of the differential diagnosis. In this tutorial students prepare answers to the questions related to the examined clinical cases and discuss them with the teachers.

<table>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td>Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students.
Specifically:
• Common software (e.g. MS powerpoint) is used to prepare lecture material and display slides and videos.
• The study guide (detailed supplementary material & additional bibliography), the tutorial material (clinical cases), the theory and protocols of the laboratory exercises, the slides of each lecture as well as relevant videos and scientific articles made available electronically and online to students through the e-class system of the University of Thessaly.
• Information about the course, instructors and their research interests is available online at the website of Medical Faculty (www.med.uth.gr).
• Common software (e.g. MS excel) is used to statistically process student’s assessment.
Announcements, information etc are available online via e-class.
Communication is also possible via e-mail.</td></tr>
<tr><td>TEACHING METHODS
The way and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.</td><td>
<table>
<tr><th>Learning activity</th><th>Total semester workload</th></tr>
<tr><td>Lectures</td><td>30 hours</td></tr>
<tr><td>Tutorials</td><td>3 hours</td></tr>
<tr><td>Educational visit to an Occupational Medicine Unit</td><td>2 hours</td></tr>
<tr><td>Study</td><td>19 hours</td></tr>
<tr><td>SUM
(25 hours per teaching credit)</td><td>54 hours</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
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</td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written</td><td>The language of assessment is English.
Evaluation methods.
A. For the lecture material: Multiple choice and short answer questions are used for the evaluation of the students.
The course exams are written, and have a duration of two hours. The material of the tutorial is examined together with the lecture. In particular, one question related to the case- report of occupational Lead intoxication which has been presented and discussed in the tutorial is incorporated in to the list of the lectures- related questions during the final exam.</td></tr>
</table>

Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	**Final Grade:** The final grade of the course is the Grade of above-mentioned written exam. All of the above are presented in detail in the Course Guide which is distributed in print to all students and is posted electronically in e-class system.

5.Recommended Bibliography

A. Lecture Material

Main suggested textbooks:

1. Practical Occupational Medicine , R. Agius , A. Seaton
2. Health and Work, E. Velonakis, P. Sourtzi

COURSE OUTLINE MEDICAL INFORMATICS I

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	Faculty of Medicine		
LEVEL OF EDUCATION	*Undergraduate*		
COURSE CODE	**BE0901**	**SEMESTER OF STUDIES**	2nd
COURSE TITLE	MEDICAL INFORMATICS I.		
COURSE MANAGER	Theodorou Kyriaki		
ASSOCIATES	Tsougkos Ioannis, Koutsiaris Aristotelis, Karpetas Georgios and Kylindris Thomas		

SEPERATE TEACHING ACTIVITIES *in case the credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.*	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
Lectures and laboratory exercises	2	2
Add rows if needed. The teaching organization and teaching methods used are described in detail in 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skills Development*	Background-Skills Development
PREREQUISITE COURSES:	---
LANGUAGE OF TEACHING AND EXAMS :	English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO
COURSE ELECTRONIC PAGE (URL)	http://eclass.uth.gr/eclass/courses/SEYA1 12 /

2.Learning Outcomes

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

- *Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area*
- *Descriptive Indicators Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning*

Consult the concise guide for writing learning outcomes

The course deepens the use of ICT and their applications in the medical field.
The course aims to understand the methods and schemes of data storage and information in the biomedical sciences. It also refers to the need to adopt standards for the representation and transmission of data and medical information as well as their presentation. The concept of the interaction of this cognitive grid with humans is introduced with the use of natural language but also with machines (PC).

Finally, the aim of the course is the understanding by students of the available possibilities provided by information and communication technology in the creation, storage, dissemination and use of structured medical knowledge as well as in the demonstration of these possibilities in the facilitation of medical work.

Upon successful completion of the course the student will be able to:

- Knows how to compile a patient's electronic medical record.
- Understands the need to use standards to describe diagnostic, therapeutic actions and anatomical information.
- Understands potential security risks arising from the collection of medical data in information systems.
- Has knowledge of the different diagnostic and identification codings used.
- Has knowledge of the need and operation of medical databases.
- Understands the concept of modeling clinical work.
- Uses databases and knowledge to retrieve medical information and data.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course ?.

Search, analysis and synthesis of data and information, using the necessary technologies
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Research, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism

Promoting creative and inductive thinking

3. COURSE CONTENT

1. Paper organization and organization with the help of information systems. Health Management Information Systems (HIS).
2. Electronic patient record management (EHR) systems.
3. Security of medical data during storage and transmission. The need for encryption.
4. Standardization organizations. Operating standards and data encoding. ISO/CEN 13606, HL7, SNOMED CT, MeSH, UMLS, LOINC, ICD-9/10, DICOM, RadLex.
5. Structure and principles of operation of databases.
6. Modeling of clinical practices.
7. Terms, terminology, vocabulary and nomenclature.
8. Implementation of EHR systems with the help of databases (applications in medical data

management).

9. Epidemiological information - optimization - error detection optimization of health services provided.
10. From data to knowledge - Cognitive science and Cognitive bases.
11. Instructions Guidelines and decision making.
12. Technology and architecture of health information systems.
13. Multiple evaluation of integrated information systems.
14. Search for medical information in sources (databases, - knowledge). Systematic review and meta- analysis. Introduction to evidence-based medicine.

4. TEACHING AND LEARNING METHODS - EVALUATION

METHOD OF DELIVERY *Face to face, Distance education etc.*	Lectures in the amphitheater, education and practice in the laboratory.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of personal workstations (PCs) per person. Communication with students through the educational platform e - class for the information of the students, the projection and distribution of the slides of the lectures, the provision of educational material the assignment and the reception of assignments to the students.
TEACHING ORGANIZATION *The way and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive teaching, Educational visits, project assignment, thesis writing, artwork creation,etc.* *The student study hours for each learning activity are indicated as well as the non-guided study hours so that the total workload at the semester level corresponds to the ECTS standards .*	

Activity	***Semester Workload***
Lectures	10
Laboratory Exercise	12
Thesis writing	5
Course Set (…. Working hours per credit unit)	***27***

STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions,*	Short answer questions, Public presentation of work, Problem solving.

Essay Development Questions, Problem Solving, Written Assignment, Thesis/Report, Oral Examination, Public Presentation, Laboratory Assignment, Clinical Examination of Patients, Artistic Interpretation, Other/Others *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	

5. RECOMMENDED - BIBLIOGRAPHY

-Proposed Bibliography:

Alan Evans , Kendall Martin , Mary Anne Poatsy "Introduction to Informatics" Theory and Practice, Critique Publications 2014.

Ed . Shortlife, Cimino J. Bioinformatics Computer applications in healthcare and biomedicine . Broken Hill Publishers 2013.

-Related scientific journals: -

COURSE OUTLINE MEDICAL INFORMATICS II

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
LEVEL OF EDUCATION	*Undergraduate*		
COURSE CODE	**BE0902**	**SEMESTER OF STUDIES**	3 rd
COURSE TITLE	MEDICAL INFORMATICS II		
COURSE MANAGER	Tsougkos Ioannis		
ASSOCIATES	Theodorou Kyriaki, Koutsiaris Aristotelis, Karpetas Georgios and Kylindris Thomas		

SEPERATE TEACHING ACTIVITIES *in case the credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.*	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
Lectures and laboratory exercises	2	2
Add rows if needed. The teaching organization and teaching methods used are described in detail in 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skills Development*	Background-Skills Development
PREREQUISITE COURSES:	---
LANGUAGE OF TEACHING AND EXAMS :	ENGLISH
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
ELECTRONIC COURSE PAGE (URL)	http://eclass.uth.gr/eclass/courses/SEYA 274 /

2.Learning Outcomes

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

- *Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area*
- *Descriptive Indicators Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning*

Consult the concise guide for writing learning outcomes

The course deepens the use of ICT and their applications in the medical industry with an emphasis on decision support technologies.
The course material aims to understand the theory and methods related to the creation and operation of decision support systems with the help of PC. The different illustrative ways of anatomical information are presented. The concepts of remote medical care and practice, real- time

biomedical data monitoring in patients inside and outside the clinic are introduced.
Finally, the aim of the course is the understanding by students of the available possibilities provided by information and communication technology in the creation, storage, dissemination and use of structured medical knowledge as well as in the demonstration of these possibilities in the facilitation of medical work.

Upon successful completion of the course the student will be able to:

- Has knowledge of design parameters and their connection to electronic file systems.
- Understands and distinguishes the limits of decision support systems.
- Has knowledge of medical image archiving systems and their connection to the patient's medical file.
- Understands the ability to automatically extract information from plain text.
- Uses sequence databases found online to search for genes and perform sequence comparisons.
- Understands the individual examinations that can be performed remotely
- He is aware of the functional limitations that limit the application of telemedicine diagnoses.
- Uses software tools available on the internet to train and evaluate his knowledge.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them are intended for the course?

Search, analysis and synthesis of data and information, using the necessary technologies
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Research, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism

Promoting creative and inductive thinking

3. COURSE CONTENT

1. Decision support (documentation) systems - Experienced systems - Artificial intelligence systems.
2. Unstructured text and data extraction. Natural language processing (NLP).
3. Anatomical ontologies, Combined ontologies.
4. Processing of visual data. Fragmentation, extraction of features, localization and identification of possible pathological findings.

5. Introduction to Bioinformatics .
6. Clinical and scientific research.
7. Telemedicine.
8. Real-time patient monitoring - ICU/ECU units.
9. Information technologies in medical education.

4. TEACHING AND LEARNING METHODS - EVALUATION

METHOD OF DELIVERY *Face to face, Distance education etc.*	Lectures in the amphitheater, education and practice in the laboratory.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	Use of personal workstations (PCs) per person. Communication with students through the educational platform e-class for the information of the students, the projection and distribution of the slides of the lectures, the provision of educational material the assignment and the reception of assignments to the students.
TEACHING METHODS *The way and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive teaching, Educational visits, project assignment, Thesis writing, artwork creation, etc.* *The student study hours for each learning activity are indicated as well as the non-guided study hours so that the total workload at the semester level corresponds to the ECTS standards .*	
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Thesis/Reporting, Oral Examination, Public Presentation, Laboratory Assignment, Clinical Examination*	Short answer questions, Public presentation of work, Problem solving.

Activity	***Semester Workload***
Lectures	10
Laboratory Exercise	12
Thesis writing	5
Course Set (…. Working hours per credit unit)	***27***

of Patients, Artistic Interpretation, Other/Others *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	

5. RECOMMENDED - BIBLIOGRAPHY

-Proposed Bibliography:

Alan Evans , Kendall Martin , Mary Anne Poatsy "Introduction to Informatics" Theory and Practice, Critique Publications 2014.

Ed. Shortlife, Cimino J. Bioinformatics Computer applications in healthcare and biomedicine, Broken Hill Publishers 2013.

-Related scientific journals: -

COURSE OUTLINE

1.GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
STUDIES LEVEL	*Undergraduate*		
CODE COURSE	**MP1003**	**STUDIES SEMESTER**	2nd
COURSE TITLE	**HISTORY OF ANATOMY AND OF SURGERY**		
COURSE RESPONSIBLE	Markos Sgantzos, Assoc. Professor		
ASSOCIATES	Invited speaker		

SEPERATE TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDITS UNITS**
	2	2

COURSE TYPE	* Scientific Area * General Knowledge
PREREQUISITES COURSES:	NO
TEACHING and EXAMS LANGUAGE:	English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO
COURSE ELECTRONIC PAGE (URL)	NO

2. Learning Results

The general purpose of the course is to introduce students to the scientific field of the History of Medicine, Anatomy and Surgery.
In this sense, the course is the basis on which the student will acquire fundamental knowledge in the History of Anatomy and Surgery and will study and understand the relationships between them over time, within the most important cultures, through the centuries and the effects of the respective social conditions and beliefs on the development of both Anatomy and Surgery.
Finally, the aim of the course is for students to understand the importance and contribution of the History of Medicine as an independent scientific field.
Finally, the aim of the course is for students to understand the importance and contribution of History of Medicine as independent scientific field.

With the successful integration of course The University student will be in a position to:

- Understand the scientific historical field of Anatomy and Surgery.
- Has acquired the necessary fundamental knowledge of the historical development of anatomy and surgery and of medical anatomical imaging
- to understand the influence of the major cultures and beliefs and philosophical currents on the development of both surgery and medical anatomy through centuries

General Abilities

3. COURSE CONTENTS

Anatomy and Surgery:
- in prehistoric times
- in Mesopotamia and ancient Egypt
- in the Far East
- in ancient Greece
- in Roman times
- during the Middle Ages

- during the Renaissance
- in modern times

The milestones in the evolution of surgery
The interactions of anatomy and surgery through the centuries

4. TEACHING and LEARNING METHODS - EVALUATION

DELIVERY METHOD	LECTURES - Development of topics in the History of Medicine - Reference and commentary on biographies and characteristic events - milestones in the course of Medicine - Students' participation in the scientific field of History of Medicine
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	MS Teams Online platform

TEACHING ORGANIZATION

Activity	***Load Working Semester***
Lectures	28 hours
Study Elaboration / Thesis writing	28 hours
Total Course (28. hours of load work per credit unit)	***56 hours***

STUDENT EVALUATION

- Written work
- Evaluation of students' participation in the History of Medicine

The general evaluation criteria are analyzed in the introduction lesson.

5. RECOMMENDED-BIBLIOGRAPHY

-Suggested Bibliography: - Students are provided in electronic form with Teaching Notes and "Power Point" files.

Additional Bibliography:

History of Medicine, Laskaratos I.
History of Medicine, R. MARGOTT
Netter human's Atlas Anatomy 3rd ed., Netter Frank

COURSE OUTLINE

1.GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
STUDIES LEVEL	*Undergraduate*		
COURSE CODE	**KI0100**	**STUDIES SEMESTER**	1st
COURSE TITLE	**HISTORY OF MEDICINE**		
COURSE RESPONSIBLE	Markos Sgantzos, Assoc. Professor		
ASSOCIATES	Invited speakers		

SEPERATE TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDITS UNITS
	2	2
Add rows if needed. The organization teaching and the didactic methods where they are used are described analytically in the 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skills Development*	* Scientific Area * General Knowledge
PREREQUISITES COURSES:	NO
TEACHING and EXAMS LANGUAGE:	English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE ELECTRONIC PAGE (URL)	NO

2. Learning Results

The course aims to introduce students to the scientific field of the History of Medicine.
In this sense, the course is the basis on which the student will acquire fundamental knowledge in the History of Medicine and will study and understand the medicine of the most important cultures, the course of medicine through the centuries and the effects of social conditions and beliefs on the development of medicine.
Finally, the course aims to provide students with an understanding of the importance and contribution of the History of Medicine as an independent scientific field.

Upon the successful integration of course The University student will be in a position to:

- Understand the scientific field of the History of Medicine.
- Has received the necessary fundamentals in the History of Medicine

- Can understand the medicine of the major cultures, the development of medicine over the centuries and the effects of social conditions and beliefs on the development of medicine

General Abilities

3. COURSE CONTENTS

- Medicine in prehistoric times
- Medicine in Mesopotamia and ancient Egypt
- Medicine in the Far East
- Greek Medicine
- Roman Medicine
- Medieval Medicine
- Medicine during the Renaissance
- Modern Medicine
- Modern Medicine

4. TEACHING and LEARNING METHODS - EVALUATION

DELIVERY METHOD	LECTURES. Development of topics in the History of Medicine - Reporting and commenting on biographies and characteristic events - milestones in the course of Medicine - Participation of students in the scientific field of the History of Medicine.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	MS Teams Online platform Power point Projection relevant videos
TEACHING ORGANIZATION	

Activity	***Load Working Semester***
Lectures	28 hours
Study elaboration / Thesis writing	28 hours
Course Set(28. hours load work per credit unit)	***56 hours***

STUDENTS EVALUATION	- Written work - Evaluation of students' participation in Medicine History The general evaluation criteria are analyzed in the introductory lesson.

5. RECOMMENDED-BIBLIOGRAPHY

-Suggested Bibliography : **-** Students are provided in electronic form with Teaching Notes and "Power Point" files

Additional Bibliography:

History of Medicine, Laskaratos I.

History of Medicine, R. MARGOTT

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDIACAL		
STUDY LEVEL	UNDERGRADUATE		
COURSE CODE	**BE2300**	**Semester**	
COURSE TITLE	Smoking		
COURSE INSTRUCTOR			
CO-INSTRUCTORS			

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	2	2

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	General Knowledge Skills Development
PREREQUIRED COURSES	None
LANGUAGE OF TEACHING AND EXAMS	ENGLISH
AVAILABLE TO ERASMUS STUDENTS	Not available
WEBSITE (URL)	https://eclass.uth.gr/courses/MED_U_174/

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

The course provides the background for the understanding of the need for smoking cessation and smoking abstinence given that smoking constitutes the main and one of the most frequent causes of early and reversible morbidity and mortality in the Western societies. The course content aims at providing knowledge for the multi-dimensional issue of nicotine addiction. Furthermore, it addresses

the complexity of the addiction behavior that needs to be approached though different angles, from the biological level to the behavioral level. In this context the course provides the basis for students to develop skills for approaching and communicating with smokers and in providing structured and effective aid in smoking cessation. Finally, one of the learning objectives is to provide students with the understanding of the importance of smoking control as a part of the clinical practice of all medical specialties.

Upon successful completion of the course, the students will be able to:

- Understand the chronic nature of nicotine dependence and main steps of the smoking cessation guidelines.
- Provide effective counseling to smokers, motivated or not, for smoking cessation.
- Develop effective communication skills for interacting with smokers and to use these skills in everyday clinical practice.
- Adopt an attitude of empathy towards the smoker.
- Prepare smokers for smoking cessation, by discussing the main barriers for success and providing aid in organizing a smoking cessation plan.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

Research, analysis and synthesis of data and information.
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Promoting free, creative and inductive thinking

3.Module Content

Section 1: Introduction.

- History of smoking.
- Smoking as a chronic relapsing disease.
- Definition of smoking.
- The magnitude of the problem.
- Epidemiological data on smoking.
- Smoking initiation.

Section 2: Detrimental effects of smoking.

- Smoking-related mortality.
- Smoking and life expectancy.

- Detrimental effects of smoking on health status.

Ενότητα 3: Δευτερογενές και Τριτογενές κάπνισμα
3.1. Passive smoking or Second hand smoking.
- Definition of passive hand smoking.
- Epidemiological data on passive smoking.
- Effects of passive smoking on adults.
- Effects of passive smoking on children.
- The effects of third hand smoking.
- Protection from exposure to passive smoking.

3.2. Third hand smoking.
- Definition of third hand smoking.
- Epidemiological data on third hand smoking.
- Effects of third hand smoking.
- Protection from exposure to third hand smoking.

E Section 4: Neurobiology and physiology of nicotine dependence.
- Nicotine and other additives in tobacco.
- Definition of addiction.
- Mechanisms for nicotine dependence.
- Dopaminergic theory of dependence.
- Systems affected by addictive substances.
- Symptoms of nicotine withdrawal

Section 5: Smoking Cessation
5.1. Smoking cessation benefits.
The short- and long-term health benefits of smoking cessation.
Short- and long-term benefits:
- Cardiovascular system.
- Respiratory system.
- Other body systems.
- Health benefits of smoking cessation during pregnancy.
- Overall survival.
- Quality of life.

5.2. Guidelines for smoking cessation
- Necessity to resolve the smoking issue.
- Effective smoking cessation techniques.
- International guidelines on smoking cessation.
- The 5As Strategy.
- The 5Rs Strategy.

Pharmacological therapy for smoking cessation.
- Need for pharmacotherapy for smoking cessation.
- Approved pharmacotherapy for smoking cessation.
- Nicotine replacement therapy.

- Treatment with varenicline.
- Treatment with bupropion.
- Future directions.

5.4. Other therapies for smoking cessation.

- Non pharmacological therapy for smoking cessation.
- Counseling intervention in smoking cessation.
- Brief advice on smoking cessation.
- Group and individual counseling.
- Other non-pharmacological methods such as active telephone counseling, self-help etc.).
- Management of barriers in the treatment of nicotine dependence.

5.5. Smoking cessation in special populations.

- Smokers with frequent respiratory disorders.
- Smokers with Cardiovascular Diseases.
- Smokers with Psychiatric Diseases.
- Hospitalized smokers.
- Smokers in pregnancy or breast-feeding.
- Smokers under 20 years of age.
- Smokers of a few cigarettes per day.

5.6. Experimental learning on smoking cessation.

Section 6: Smoking relapse and management.

- Definitions of relapse and diversion.
- Frequency of relapse.
- Risk factors for relapse.
- Understanding smoking relapse.
- Relapsing prevention strategies.
- Prevention effectiveness.
- Relapse treatment.

Section 7: Motivation techniques for smoking cessation.

- Behavior change theories.
- Motivational interviewing.
- Video presentation of ineffective and effective smoking cessation interviews.

Section 8: How to organize a smoking cessation clinic.

- Necessity to identify smokers in modern, everyday clinical practice.
- Medical history.
- Clinical examination.
- History of smoking.
- Lab tests when required.
- Determination of degree of dependence and motivation for smoking cessation.
- Criteria for determining *high* baseline *levels of nicotine dependence*.
- Determination of exhaled CO (eCO).
- Indicators of increased monitoring and evaluation

- Follow-up visits.

Section 9: Other tobacco products.

- Electronic nicotine delivery systems (ENDS).
- Definition, classification and ENDS attributes.
- ENDS marketing and promotion.
- Prevalence of ENDS.
- Reasons for starting ENDS.
- Health hazards due to ENDS use.
- Use ENDS for smoking cessation.
- Guidelines from international organizations - legal framework.
- Heat-not-burn Cigarette (ICOS).

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	Face to face lectures, role-playing and real life scenario learning.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Power point presentations and videos are used for lectures. The learning process is supported through the e-Class of the Department of Medicine. The lecture, the role-playing and real life scenario learning programs, the learning objectives - detailed material, the relevant bibliography, the lecture presentation in the form of pdf files and all information related to the course are posted on the e-class page of the course.
TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.	

Δραστηριότητα	***Φόρτος Εργασίας Εξαμήνου***
Lectures (13 weeks / semester)	22 hs
Τεχνικές Βιωματικής Μάθησης: -παιχνίδια ρόλων -debate -μελέτη περίπτωσης	22 hs
Study	10 hs
Total work load (*24,22 work load / ECTS)*	54 hs

STUDENT EVALUATION **Description of the evaluation process**	**Grading:** The final grade is set by the performance of the students in oral examinations as described below.

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	**Examination:** Assessment in oral examination in course topics requiring critical thinking and analysis. Assessment of active participation and answering in real life scenarios during classes.
5.Recommended Bibliography	
Scientific papers published in peer-reviewed international journals. International and European smoking cessation guidelines.	

COURSE OUTLINE

1. GENERAL			
SCHOOL	OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF EDUCATION	UNDERGRADUATE		
COURSE CODE	ΠΘ0710	**SEMESTER OF STUDY**	SPRING
COURSE TITLE	Hereditary Cancer		
COURSE RESPONSIBLE	Emmanuel Saloustros, Adjunct Professor		
CO-TEACHERS	Athanasios Kotsakis Associate Professor and visiting speakers		

SELF-ENDED TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDIT UNITS
Choose	2	2

COURSE TYPE	Scientific area
PREREQUISITE COURSES:	Principles of Medical Genetics
LANGUAGE OF TEACHING AND EXAMINATIONS :	English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	Currently not available

2. Learning Outcomes

The purpose of the course is to introduce students to the basic principles of hereditary cancer. Specifically, students will be taught basic principles of human genetics and genetic counseling. The basic principles of cancer genetics, heredity and the most common syndromes that predispose to cancer development will be presented and discussed. Students will also be taught the basic principles of risk management for people with cancer and their healthy relatives, and how to manage the psychological impact of being diagnosed with a syndrome that predisposes to cancer.

Upon successful completion of the course, the student will be able to:

- knows the molecular basis of the syndromes that predispose to cancer.
- knows basic principles of genetic epidemiology and genetic analysis technologies.
- obtain a complete personal and family cancer history and draw the family tree.
- knows the main syndromes that predispose to solid and pediatric cancers and the genes that should be examined according to individual and family history.
- knows basic principles of genetic counseling.
- knows cancer screening tests and their limitations.
- suggests the basic interventions to manage the increased risk, based on the result of the genetic test.

General Skills

3. COURSE CONTENT

1. Principles of human genetics, methods of genetic analysis (2 hours)
2. Principles of genetic epidemiology and cancer screening (2 hours)
3. Principles of genetic counseling (2 hours).
4. Hereditary Breast Ovarian Cancer Syndromes I (2 hours).
5. Hereditary Breast Ovarian Cancer Syndromes II (2 hours)

6. Polyposis syndromes and hereditary stomach cancer (2 hours).
7. Lynch syndrome (2 hours).
8. Hereditary pancreatic cancer and hereditary melanoma (2 hours).
9. Hereditary syndromes of urinary tract cancer (2 hours).
10. Endocrine neoplasia syndromes (2 hours).
11. Pediatric cancer syndromes (2 hours).
12. Clinical exercise I (2 hours).
13. Clinical exercise II (2 hours).

4. TEACHING AND LEARNING METHODS - ASSESSMENT

DELIVERY METHOD	Lectures, patient case discussions and clinical practice in the office.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	MS Power point and MS Teams
TEACHING ORGANIZATION	***Activity*** / ***Semester Workload*** *Lectures: 22 hours* *Clinical exercise: 4 hours*
STUDENT EVALUATION	Multiple choice questions.

5. RECOMMENDED - BIBLIOGRAPHY

Students will be provided with notes, journal articles and presentation slides.

COURSE DESCRIPTION

Clinical Biochemistry

1.GENERAL			
SCHOOL	School of Health Science		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate Elective Course		
COURSE CODE	BE0711.E	**Semester**	4th
COURSE TITLE	**Clinical Biochemistry**		
COURSE INSTRUCTOR	Prof Panagiotis LIAKOS		
CO-INSTRUCTORS	Prof G. Simos, Assoc Prof I. Mylonis, Assist Prof G. Chachami		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	2	2

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Background and Scientific Area (Laboratory Medicine)
PREREQUIRED COURSES	-
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	Yes
WEBSITE (URL)	http://eclass.uth.gr/eclass/courses/MED_U_177

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

Aims of the course

The course of Clinical Biochemistry is the essential tool for studying the main human organs and systems that every physician needs to know in daily practice. This course presents the practical biochemical tests, how to use and process biochemical data as well as the diagnostic value of the biochemical

analyses in specific clinical situations. Finally, it helps to understand the basic mechanisms of biochemical disorders so that they can be utilized by the physician for diagnosis and treatment.
The course is the main link between the theoretical knowledge acquired by the Student with Biochemistry I and II and the application of his knowledge in clinical practice. It also prepares the student with the knowledge provided in specialties such as Microbiology, Endocrinology, Pathology, Pediatrics and Oncology.

After the successful completion of this course, the students will be able to:

• understand the regulation of the biochemical functions of the human body at the molecular, cellular and systemic level.

• know the biochemical specificity of various tissues and systems.

• distinguish the laboratory pathological picture from the normal one and propose a diagnosis for the treatment of basic metabolic diseases.

• analyzes and processes the results of basic biochemical analyses

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Research, analysis and synthesis of data and information, using the necessary technologies

  Adaptation to new situations
- Decision making
- Autonomous work Teamwork
- Working in an international environment
- Work in an interdisciplinary environment
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3.Module Content

Lecture contents

Lecture 1: Biochemical tests: reliability, diagnostic value, quality control and interpretation (2 hours)
Lecture 2: Enzymes of diagnostic purpose and biochemical control of organ function (2 hour)
Lectures 3: Therapeutic Drug Monitoring and Chemical Aspects of Toxicology (2 hours)
Lectures 4: Inherited Metabolic Diseases (2 hours)
Lectures 5: Disorders of Haemoproteins, Porphyrins and Iron (2 hours)
Lectures 6: Plasma proteins: metabolism, definition, disorders, hereditary diseases (2 hours)
Lecture 7: Biochemical control of hormone function (2 hours)
Lectures 8: Carbohydrates: metabolism, definition, disorders, diabetes mellitus (2 hours)
Lectures 9: Lipids, Lipoproteins: definition, hyperlipoproteinaemia, coronary disease (2 hours)
Lecture 10: Sodium, Potassium-homeostasis and definition (2 hours)
Lecture 11: Biochemical changes of malignant disease: tumour markers (2 hours)
Lectures 12: Biochemical control of kidney function (2 hours)
Lecture 13: Analytical methods and operation of the Biochemistry laboratory
(Visit General University Hospital of Larissa)

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	***Face to Face:*** Teaching of "Clinical Biochemistry" consists of lectures and laboratory practicals.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students. Specifically: • Common software (e.g. MS powerpoint) is used to prepare lecture material and display slides and videos. • The slides of each lecture as well as scientific articles made available electronically and online to students through the e-class system of our university. • Common software (e.g. MS excel) is used to statistically process student assessment. Announcements, information etc are available online via e-class. Communication is also done via e-mail. • Information about the course, instructors and their research interests and in general the Laboratory of Biochemistry of the Faculty of Medicine are available online on the Laboratory website http://www.med.uth.gr/biochemistry/index.html

TEACHING METHODS
The way and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.

Learning activity	*Total semester workload*
Lectures	28
Study	22
SUM (25 hours per teaching credit)	50

STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*

The language of assessment is English.

Evaluation methods.

Lecture material: Written Exams with multiple-choice and short answer questions.
The course exams are written, last 2 hours and consist of multiple-choice questions. The material to be examined is lectures. Only those students who have successfully passed the Laboratory exams have the right to participate in the course exams.
Final Grade:
The final grade of the course is calculated as the sum of 100% of the grade of the written course exams
.

5.Recommended Bibliography

Lecture Material
Main suggested textbooks:

1. Marshall W.J. & S.K. Bangert: **Clinical Chemistry,** Sixth edition Elsevier
2. Gaw Allan, Cowan Robert A., O' Reilly Dennis S. J., Stewart Michael J., Shephard James. **Clinical Biochemistry, an illustrated colour text**
3. Nessar Ahmed: Clinical Biochemistry, Fondamentals of Biomedical Science 2016

Further reading:
Berg, Tymoczko & Stryer: BIOCHEMISTRY (7th Edition)
Ferrier R. D.: Lippincott's Illustrated Reviews: BIOCHEMISTRYm6th edition, Lippincott Williams & Wilkins, USA

Marshall W.J. & S.K. Bangert: Clinical Chemistry
Branden C. & J. Tooze: Introduction to Protein Structure
Devlin T. M.: Biochemistry with Clinical correlations Part I and II
M. A. Lieberman & A. Marks: Marks Basic Medical Biochemistry: A clinical approach (4th Edition)
Koolman J. & K.-H. Roehm: Colour Atlas of Biochemistry

Relevant Scientific Journals:
Annual Review of Biochemistry
Archives of Biochemistry and Biophysics
Biochemical and Biophysical Research Communications
Biochemical Journal
Biochemistry
Biochemistry and Cell Biology
Biochimica et Biophysica Acta
Biochimie
Biological Chemistry
Cell
Cell Metabolism
Cellular Physiology and Biochemistry
Cellular Signalling
Cellular and Molecular Life Sciences
Clinical Biochemistry
Critical Reviews in Biochemistry and Molecular Biology
EMBO Journal
FEBS Letters
Free Radical Biology and Medicine
Free Radical Research
The International Journal of Biochemistry & Cell Biology
Journal of Biochemistry
Journal of Biological Chemistry
Journal of Cell Science
Journal of Cellular Biochemistry
Journal of Lipid Research
Journal of Medical Biochemistry
Journal of Molecular Biology
Journal of Molecular Medicine
Methods in Enzymology
Molecular and Cellular Biology
Molecular Cell
Nucleic Acids Research
Protein Science
RNA
The FEBS Journal
Trends in Biochemical Sciences

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
LEVEL OF EDUCATION	*Undergraduate*		
COURSE CODE	AA0902	**SEMESTER OF STUDIES**	6th
COURSE TITLE	**CLINICAL AND FUNCTIONAL NEUROIMAGING**		
COURSE MANAGER	Kapsalaki Eftychia , Professor of Radiology		
ASSOCIATES	Christos Papatzalas, Speech Therapist Konstantinos Fountas , Professor of Neurosurgery		

SEPERATE TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
	2	2

COURSE TYPE	Scientific Area
PREREQUISITE COURSES:	NO
LANGUAGE OF TEACHING AND EXAMS :	ENGLISH
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE ELECTRONIC PAGE (URL)	NO. The presentations and generally the Course Elements are posted in the e-class

2.Learning Outcomes

The course aims to familiarize students with the imaging of the brain with the MRI method, taking into account specific anatomical structures.

Upon successful completion of the course the student will be able to:

1. identify and describe the anatomical structures of the brain on an MRI
2. identify and describe the functional areas of the brain
3. identify specific MRI methods such as diffusion sequences, functional MRI and blood filtration sequence.
4. identify and describe the clinical applications of these specific methods

5. understand the plasticity of the functional structures of the brain

General Abilities

3. COURSE CONTENT

1.Introduction to MRI (3 hours)

2. MRI Sequences (3 hours)

3. Frontal lobe anatomy on MT imaging (3 hours)

4. Anatomy of the parietal lobe on MT imaging (3 hours)

5. Temporal lobe anatomy on MT imaging (3 hours)

6. Island anatomy on MT imaging (3 hours)

7. Occipital lobe anatomy on MT imaging (3 hours)

8. Anatomy of the basal ganglia and abdominal system on imaging with MT (3 hours)

9. Anatomy of white matter pathways (3 hours)

10. Basic principles of isotropic and anisotropic diffusion sequence (2 hours)

11. Basic principles of functional MRI (2 hours)

12. Imaging of white matter streets with MRI (3 hours)

13. Imaging of functional areas of the brain with MRI (3 Hours)

14. Brain function and speech-related areas (2 hours)

15, Brain plasticity and examples (3 hours)

15. Applications of special MRI methods (4 hours)

16. Clinical applications of functional imaging in neurosurgery (3 hours)

17. Repetition (3 hours)

18. Written Exams of multiple choice (2 hours)

4. TEACHING AND LEARNING METHODS - EVALUATION

METHOD OF DELIVERY.	Topics Development - Commentary on typical patient cases -
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Analysis of clinical cases in digital form with the use of specialized software

<table>
<tr><td></td><td></td></tr>
<tr><td>TEACHING ORGANIZATION</td><td>
<table>
<tr><th>Activity</th><th>Semester Workload</th></tr>
<tr><td>Lectures</td><td>28 hours</td></tr>
<tr><td>Laboratory exercise</td><td>26 hours</td></tr>
<tr><td>Course Set
(28. hours of workload per credit unit)</td><td>54 hours</td></tr>
</table>
<table>
<tr><th>Activity</th><th>Total hours per week</th></tr>
<tr><td>Number of teaching hours / week</td><td>2</td></tr>
<tr><td>Number of hours of exercises preparation / workshops</td><td>1</td></tr>
<tr><td>Total number of teaching hours & semester preparation</td><td>42</td></tr>
<tr><td>Exam preparation & course examination</td><td>12</td></tr>
<tr><td>Total time</td><td>54</td></tr>
<tr><td>ECTS</td><td>2</td></tr>
</table>
</td></tr>
<tr><td>STUDENT EVALUATION</td><td>-Written exams with multiple choice exams</td></tr>
<tr><td colspan="2">5. RECOMMENDED - BIBLIOGRAPHY</td></tr>
<tr><td colspan="2">-Suggested Bibliography: - Students are provided with electronic Teaching Notes</td></tr>
</table>

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
STUDY LEVEL	UNDERGRADUATE		
COURSE CODE	**PSX0300**	**SEMESTER OF STUDIES**	8th
COURSE TITLE	**SOCIAL PSYCHIATRY**		
COURSE INSTRUCTOR	NIKOLAOS CHRISTODOULOU		
CO-INSTRUCTORS	Faculty, associate faculty, and teaching fellows		

TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	TEACHING CREDITS
	2	2

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	
PREREQUIRED COURSES	NO
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	NO
WEBSITE (URL)	

2.Learning Outcomes

The aim of the course of Social Psychiatry is to study and understand the role of social and environmental factors in mental health, and to explore psychiatric theory and philosophy, through contemporary issues in psychiatry.

The course will offer the opportunity for medical students to explore a number of topical issues whose psychosocial effects affect the mental health of the population. Specifically, the psychosocial effects of man-made and natural disasters (e.g. economic crises, pandemics, etc.), and the various ways of managing such disasters will be discussed. We will revisit the ongoing psychiatric reform – that is, the de-institutionalisation and transfer of mental health care to the community. Society's role in shaping the medical profession, medical ethics and professionalism, the role of the environment, interpersonal relationships and sexual health, family and social classe, and others will also be explored. Finally, emphasis will be placed on preventive psychiatry – i.e. the promotion of mental health and the prevention of mental illness – and the great importance of its application for the future of medicine.

Upon successful completion of the course the student will be able to:

- Know what social psychiatry is
- Understand the goals of the psychiatric reform and the advantages of community psychiatry
- Consolidate the relationship of demographic factors, social factors, the family, the cultural

environment, the natural environment, and other psychosocial parameters, with mental health.

- Understand how these factors affect the mental health of the population in normal life and disaster situations.
- Appreciate the importance of preventive psychiatry

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

Search, analysis and synthesis of data and information, using the necessary technologies
Autonomous work
Teamwork
Work in an interdisciplinary environment
Production of new research ideas
Respect for diversity and multiculturalism
Demonstration of social, professional and ethical responsibility and sensitivity to gender issues
Promoting free, creative and inductive thinking

3.COURSE CONTENT

Unit 1: Introduction to Social Psychiatry – Psychiatric Reform

Unit 2: The therapeutic relationship – the example of psychosomatic medicine

Unit 3: The bio-psycho-social model

Unit 4: Socio-economic factors and mental health – The economic crisis

Unit 5: Health crises and mental health – The example of the COVID-19 pandemic

Unit 6: Preventive Psychiatry

Unit 7: Professionalism: the contract of Society with Medicine

Unit 8: Disaster management and mental health

Unit 9: Psychological hardship and mental health

Unit 10: Grief and Death

Unit 11: The overlapping of Culture and Ethics

-

4. TEACHING AND LEARNING METHODS - ASSESSMENT

Teaching Method (face to face, tutoring, distance learning)	Face to face in the auditorium. Power Point presentations and a video projector
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	**Powerpoint**
TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc	***Activity*** / ***semester workload***

Activity	***semester workload***
lectures	

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.		
STUDENT ASSESSMENT **Description of the assessment process** Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	- Oral presentation of assignment - The evaluation criteria are accessible to students	
5.RECOMMENDED-BIBLIOGRAPHY		
• MEDICAL PSYCHOLOGY AND PSYCHOPATHOLOGY – N.V. ANGELOPOULOS • CONTEMPORARY ISSUES OF SOCIAL AND COMMUNITY PSYCHIATRY – S.STYLIANIDIS et al. • PREVENTIVE PSYCHIATRY AND MENTAL HYGIENE – V.P. KONTAXAKIS et al.		

COURSE OUTLINE

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF EDUCATION	*Undergraduate*		
COURSE CODE	MP0600	**SEMESTER OF STUDY**	6 ο
COURSE TITLE	**FUNCTIONAL ANATOMY-EMBIOMECHANICS OF THE MUSCULOSKELETAL**		
COURSE RESPONSIBLE	Theofilos Karahalios, Professor of Orthopaedics		
CO-TEACHERS	K.N. Malizos, Zoe Dailiana, S. Varitimidis, M. Handes, S. Athanaselis, G . Komnos		

SELF-ENDED TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
Tutorials The course is taught once a week and the lecture lasts 2 hours. The total monitoring time is 28 hours. Usually 40 hours of study are required.	2	2.00
Add rows if necessary. The teaching organization and the teaching methods used are described in detail in 4.		

COURSE TYPE	Scientific area
PREREQUISITE COURSES:	There are no prerequisite courses but sufficient knowledge of the anatomy of the musculoskeletal system is essential.
LANGUAGE OF TEACHING AND EXAMINATIONS :	English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	
COURSE WEBSITE (URL)	http://www.med.uth.gr

2. Learning Outcomes

The course consists the basic introduction to the physiology and mechanics of the musculoskeletal system. The course material aims to understand the basic principles of mechanics and biology of the tissues of the musculoskeletal system and is a basic introduction for students to the courses of Orthopedic Traumatology and Orthopedic Pathology.
Also, it refers to basic issues of manufacturing and use of Orthopedic implants. In this sense, the course is the basis on which the student will rely for a full understanding of important topics of the Orthopedic Specialty. Finally, the aim of the course is for the students to understand the importance of communication between the Medical and Biomechanical sciences that work together for the

production and effective use of Orthopedic implants.

Upon successful completion of the course, the student will be able to:

- Has an understanding of the functional principles, both physical and mechanical, that govern the functioning of the musculoskeletal system.
- Has knowledge and understanding of the functional pathology of the musculoskeletal system, the healing mechanism of the tissues of the musculoskeletal system and the mechanism of fracture healing.
- Will be able to distinguish the utility of orthopedic materials and implants.
- Uses materials related to the Orthopedics specialty.
- Analyzes information from the Orthopedic literature about implants.
- Can collaborate with his fellow students to prepare studies related to the cognitive subject of Embiomechanics.

General Skills

3. COURSE CONTENT

1. General principles of the bone remodeling phenomenon
2. Mechanical behavior and strength of articular cartilage, tendons, muscles, ligaments and bones.
3. Mechanics of fracture healing.
4. Mechanical strength and bone adaptation in metabolic bone diseases.
5. Biomechanics of the shoulder, arm, Cervical Fate, hip and knee.
6. Analysis of normal and pathological gait.
7. Systems of embiomechanical study of the tissues of the musculoskeletal system and its practical applications in experimental studies.
8. Automated computing systems.
9. Basic operating principles and applications of implants of the musculoskeletal system (total arthroplasties, plates and screws, intramedullary screws and external osteosyntheses)

4. TEACHING AND LEARNING METHODS - ASSESSMENT

DELIVERY METHOD	Interactive Lectures and Discussion Face to face Distance education (e-class) Preparation for participation in conferences Exclusive distance teaching in conditions of restrictions imposed either by institutional scientific bodies or by health needs
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	PowerPoint presentations Distance education (e - class) Access to e - book Access to international scientific databases (Pubmed)

<table>
<tr><td></td><td>Post of information and announcements about the course and other educational activities
Communication, via email, of students and teachers</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td>
<table>
<tr><th>Activity</th><th>Semester Workload</th></tr>
<tr><td>Lectures</td><td>28 hours</td></tr>
<tr><td>Study</td><td>40 hours</td></tr>
<tr><td>Demonstration of applications in the operating room and in the clinic</td><td>40 hours</td></tr>
<tr><td>Total Course
(54 workload hours per credit unit)</td><td>108 hours</td></tr>
</table>
</td></tr>
<tr><td>STUDENT EVALUATION</td><td>Oral Evaluation. Students are further assessed on the basis of their active participation in the course activities.</td></tr>
<tr><td colspan="2">5. RECOMMENDED - BIBLIOGRAPHY</td></tr>
<tr><td colspan="2">Suggested Bibliography : Presentations in e - class</td></tr>
</table>

COURSE OUTLINE

1. GENERAL			
SCHOOL	OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF EDUCATION	UNDERGRADUATE		
COURSE CODE	ΠΘ0401	**SEMESTER OF STUDY**	WINTER
COURSE TITLE	MECHANICAL VENTILATION		
COURSE RESPONSIBLE	DIMOSTHENES MAKRIS		
CO-TEACHERS	EPAMEINONDAS ZAKYNTHINOS, Professor of Intensive Care IOANNIS PANTAZOPOULOS, Assistant Professor of Emergency Medicine ATHANASIOS HALKIAS - Adjunct Professor of Anesthesiology BASILIKI TSOLAKI – Ed . Intensive Care KONSTANTINOS MANZARLIS - Ed . Intensive Care		

SELF-ENDED TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDIT UNITS
6 2-HOUR LECTURES in an auditorium held throughout the semester (optional attendance) 2 HOURS Presentations of multimedia files 4 HOURS Practical exercise using a mechanical ventilator	2	2

COURSE TYPE	**Scientific Area Course**
PREREQUISITE COURSES:	NO
LANGUAGE OF TEACHING AND EXAMINATIONS :	ENGLISH
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	Yes. The presentations and in general the elements of the course are posted on e - class

2. Learning Outcomes

:

- Understanding the cognitive domain of respiratory failure and the principles of mechanical ventilation
- Understanding the waveforms of mechanical respiration, their practical value and their application in clinical practice

- Understanding the basic models of mechanical ventilation

- Understanding of alternative models of mechanical ventilation and gas exchange systems
- Gaining knowledge regarding non-invasive mechanical ventilation
- Acquiring basic knowledge of handling respirators
- Gain knowledge to solve common mechanical ventilation problems
- Weaning from mechanical ventilation

Upon successful completion of the course, the student will be able to:

searches for, analyzes and synthesizes data and information

works in an international environment

works in an interdisciplinary environment

searches, analyzes and synthesizes cognitive information, using the necessary technologies

General Skills

3. COURSE CONTENT

1. Respiratory failure (2 hours)
2. Basic principles of mechanical ventilation – How a modern ventilator works (2 hours)
3. Mechanical ventilation waveforms and variables (2 hours)
4. Inspiratory pressure – Assessment, management, titration (1 hour)
5. Positive end- expiratory pressure – Assessment, management, titration (2 hours)
6. Classic models of mechanical ventilation (2 hours)
7. Hemodynamic parameters of mechanical ventilation (2 hours)
8. Alternative models of mechanical ventilation (2 hours)
9. Non-invasive mechanical ventilation (3 hours) - Portable ventilator in a Health Center-Rural Clinic
10. Ventilator in ARDS-pneumonia-viruses (flu, COVID) (2 hours)
11. Mechanical ventilation during CPR – Anesthesia (1 hour)
12. Mechanical ventilation weaning (1 hour)
13. Handling respirators (4 hours)
14. Administration of inhaled drugs during mechanical ventilation (1 hour)
15. Common problems during mechanical ventilation (1 hour)

4. TEACHING AND LEARNING METHODS - ASSESSMENT

DELIVERY METHOD	• Lectures • Presentations of multimedia files • Practical exercise with the handling of a mechanical ventilator
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	• IT and media technologies for the presentation of lecture material, online information and student practice • Use software to present lectures and view slides and videos. • Use of positive pressure mechanical ventilator • A study guide that includes presentation files and relevant international bibliography is • online available to students through e - class . • Information about the course, the lecturers is available at the Course Secretariat (ΚΕΘ GUHOLarisa methuth@med.uth.gr) • Communication is also done via e - mail

TEACHING ORGANIZATION

Activity	*Semester Workload*
Lectures	28 hours
Tutorial exercise	7 hours

NUMBER OF TEACHING HOURS/WEEK	2
NUMBER OF HOURS TO PREPARE THE EXERCISES	0.5
NUMBER OF WEEKS	14
TOTAL NUMBER OF TEACHING HOURS 7 PREPARATION SEMESTER	42
EXAM PREPARATION	12
TOTAL TIME	54
ECTS	2

STUDENT EVALUATION

Written exam (10 multiple choice questions to be answered within 30 minutes and commentary on 4 basic mechanical breathing waveforms)
The general assessment criteria are analyzed during the introductory course.

5. RECOMMENDED -BIBLIOGRAPHY

Teacher's Notes

2. Marino's ICU book
3. Mechanical Ventilation: State of the Art Mayo Clinic Proceedings, 2017
4. Ventilator Management. StatPearls Publishing 2020
5. Recent advances in mechanical ventilation in patients with acute respiratory distress syndrome. European Respiratory Review 2015

Journals

1. American Journal of Respiratory and Critical Care Medicine
2. Intensive Care Medicine
3. Critical Care Medicine
4. Annals Intensive Care Medicine
5. European Respiratory Journal
6. Chest

7. Annals Intensive Care Medicine
8. New England Medical Journal
9. Lancet

Sites

1. https://www.atsjournals.org
2. https://academy.esicm.org

COURSE DESCRIPTION

MOLECULAR HISTOPATHOLOGY OF NEOPLASMS

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	MP 2002	**Semester**	SPRING SEMESTER
COURSE TITLE	MOLECULAR HISTOPATHOLOGY OF NEOPLASMS		
COURSE INSTRUCTOR	MARIA SAMARA, ASSISTANT PROFESSOR OF PATHOLOGY WITH EMPHASIS IN MOLECULAR HISTOPATHOLOGY		
CO-INSTRUCTORS	MARIA SAMARA, ASSISTANT PROFESSOR OF PATHOLOGY WITH EMPHASIS ON MOLECULAR HISTOPATHOLOGY AND INVITED SPEAKERS		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	3	2,00

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Background
PREREQUIRED COURSES	NO
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	Yes
WEBSITE (URL)	**https://eclass.uth.gr/courses/MED_U_187/**

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

Aims of the course

The course examines the basic characteristics of cancer cells and the molecular mechanisms that take place during the multistage and multifactorial process of carcinogenesis in humans. The course aims

at understanding of the relationship between the molecular profile of neoplasms (genotype) and the morphological characteristics (phenotype) in humans. Applications of the molecular profile of tumors in clinical practice, i.e. the diagnosis and treatment of the most common solid neoplasms based on the molecular characteristics of the tumor are also presented.

Finally, another aim of the course is to help students acquire a thorough understanding of the diagnostic approach to neoplasms and the necessity of molecular markers with prognostic and predictive value for effective and targeted therapeutic treatment.

After the successful completion of this course, the students will be able to:

- Understand the basic elements of carcinogenesis and their relationship with the morphological characteristics of neoplastic cells in the human body.
- Have knowledge of the basic genetic changes and mechanisms that lead to neoplastic transformation.
- Use and understand basic terms of molecular histopathology.
- Use the basic equipment of a molecular histopathology laboratory and perform basic molecular analyses.
- Analyze and understand the action of the main signaling pathways involved in human carcinogenesis.
- cooperate with their colleagues in the context of a lab environment for the execution of basic laboratory techniques used in molecular histopathology.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Research, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3.Module Content

The content of the course includes the following major items:

A. The content of the lectures together with the relevant clinical insights the students need to learn/acquire per chapter.

B. The content of the tutorials/seminars together with the relevant clinical insights the students need to learn/acquire per seminar.
C. The content of the laboratory practical together with the relevant practical & clinical skills the students need to learn/acquire per exercise.

A. Lecture content and relevant clinical insights

1. The Nature of the Cancer Cell - Biological Characteristics of Cancer Cells (Cloning, Autonomy, Loss of Differentiation)
2. Maintenance of genomic integrity and cancer formation
3. Uncontrolled cell proliferation and oncogenesis – apoptosis
4. Growth factors, growth factor receptors and histogenesis - Stem progenitor cells (Stem Cells)
5. Extracellular - intracellular signaling
6. Transcription factors - regulation of transcription
7. Oncogenes - Tumor suppressor genes
8. Filtration mechanisms - Metastasis – EMT
9. Biology of Angiogenesis
10. Mechanisms of carcinogenesis - Biomarkers - Biologic therapies for common neoplasms (sporadic - familial forms): breast - female genitalia - male genitalia
11. Mechanisms of carcinogenesis - Biomarkers - Biological therapies for common neoplasms (sporadic - familial forms): lung - gastrointestinal system - endocrine glands - liver – pancreas
12. Mechanisms of carcinogenesis - Biomarkers - Biological therapies in common neoplasms (sporadic - familial forms): urinary system - lymphatic system - bones and soft tissues
13. Molecular methods of neoplastic diagnostic approach

B. Seminar/Tutorial content and relevant clinical insights

Theoretical background of basic laboratory techniques

C. Laboratory Practical content

Hands-on learning: Acquisition of general and specific practical & clinical skills:

General Skills

Observing workflow in the laboratory
Operating basic Molecular Histopathology laboratory equipment
Use of standard laboratory techniques
Working as a team
Following instructions
Following safety regulations
Troubleshooting in laboratory results
Clinical significance of lab results

Specific Skills

Familiarity with basic molecular laboratory techniques

Knowledge - Lecture material

1. The Nature of the Cancer Cell - Biological Characteristics of Cancer Cells (Cloning, Autonomy, Loss of Differentiation)
2. Maintenance of genomic integrity and cancer formation
3. Uncontrolled cell proliferation and oncogenesis – apoptosis
4. Growth factors, growth factor receptors and histogenesis - Stem progenitor cells (Stem Cells)
5. Extracellular - intracellular signaling
6. Transcription factors - regulation of transcription
7. Oncogenes - Tumor suppressor genes
8. Filtration mechanisms - Metastasis – EMT

9. Biology of Angiogenesis 10. Mechanisms of carcinogenesis - Biomarkers - Biologic therapies for common neoplasms (sporadic - familial forms): breast - female genitalia - male genitalia 11. Mechanisms of carcinogenesis - Biomarkers - Biological therapies for common neoplasms (sporadic - familial forms): lung - gastrointestinal system - endocrine glands - liver – pancreas 12. Mechanisms of carcinogenesis - Biomarkers - Biological therapies in common neoplasms (sporadic - familial forms): urinary system - lymphatic system - bones and soft tissues 13. Molecular methods of neoplastic diagnostic approach	
4. TEACHING AND LEARNING METHODS - EVALUATION	
Teaching Method (face to face, tutoring, distance learning)	*Face to Face:* Teaching of MOLECULAR HISTOPATHOLOGY OF NEOPLASMS consists of lectures, seminars/tutorials and laboratory practical. Attendance of Laboratory Practical and Seminars/Tutorials is obligatory. The lectures content is described above. Seminars/Tutorials (in 1-2 student groups with 1 instructor per group) review and extend the lectures into knowledge and fundamentals of molecular histopathology methodologies used. Laboratory exercises (in 1-2 student groups of students, 1 instructor per group of 8-10 students) composing the students' practical are complementary to the lectures and they aim to familiarize the student with the application of molecular histopathology techniques, the operation of simple laboratory instruments and the experimental procedures that are often used in Molecular Histopathology of Neoplasms as well as to help the students comprehend concepts that are not easily presented theoretically (learning based on practical experience).
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students. Specifically: • Common software (e.g. MS powerpoint) is used to prepare lecture material and display slides and videos. • The study guide (detailed supplementary material & additional bibliography), the tutorial material (clinical cases), the theory and protocols of the laboratory exercises, the slides of each lecture as well as relevant videos and scientific articles made available electronically and online to students through the e-class system of our university. • Information about the course, instructors and their research interests and in general the Pathology Department of the Faculty of Medicine are available online on the Laboratory website. • Common software (e.g. MS excel) is used to statistically process student assessment.

<table>
<tr><td></td><td>Announcements, information etc are available online and via e-class. Communication is also done via e-mail.</td></tr>
<tr><td>TEACHING METHODS
The way and methods of teaching are described in detail.
Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.</td><td>
<table>
<tr><th>Learning activity</th><th>Total semester workload</th></tr>
<tr><td>Lectures</td><td>20 hours</td></tr>
<tr><td>Lab. Practical (obligatory presence)</td><td>5 hours</td></tr>
<tr><td>Tutorials (obligatory presence)</td><td>5 hours</td></tr>
<tr><td>Study</td><td>10 hours</td></tr>
<tr><td>Preparation for Practical</td><td>6 hours</td></tr>
<tr><td>Preparation for Tutorials</td><td>8 hours</td></tr>
<tr><td>SUM
(25 hours per teaching credit)</td><td>54 hours</td></tr>
</table>
</td></tr>
<tr><td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, Explicitly defined assessment criteria are stated and if and where they are accessible to students.</td><td>The language of assessment is
English. Evaluation methods.
A. For the laboratory practical: Laboratory Assignment Reports, Written Examination with short answer and problem-solving questions. Students' participation in the exercises is mandatory. Successful examination of the Laboratory after presentation of laboratory work.

B. For the Tutorials:
The material of the tutorials is examined together with the lectures.

C. For the lecture material: Written Exams with multiple choice and True/False questions, short questions, oral examination of students with special needs.
The course exams are written, last 2 hours and consist of multiple choice or True/False questions and short questions. The material to be examined is lectures and tutorial material as described above.

Final Grade:
The final grade of the course is calculated as the sum of 60% of the grade of the written course exams and 40% of the grade of the Laboratory work presentation.
All the above are presented in detail to all students and posted electronically in e-class.</td></tr>
<tr><td colspan="2">5.Recommended Bibliography</td></tr>
<tr><td colspan="2">A. Lecture Material
Main suggested textbooks:
1. Molecular Cell Biology, 8th American/1st Greek edition -2018</td></tr>
</table>

Authors: Harvey Lodish, Arnold Berk, Chris Kaiser, Monty Krieger, Anthony Bretscher, Hidde Ploegh, Angelica Amon, Kelsey Martin
ISBN: 978-618-5173-39-5

2. Muir's Pathology, 1st edition-2019
   Authors: Herrington C. Simon
   ISBN: 9789925563166

Further reading:

None

B. Laboratory Practical supplementary Material

None

Relevant Scientific Journals:

None

COURSE OUTLINE

Molecular and Cellular Pharmacology

1. GENERAL			
SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
LEVEL OF EDUCATION	UNDERGRADUATE		
COURSE CODE	BE1200.E	**SEMESTER OF STUDIES**	Spring
COURSE TITLE	Molecular and Cellular Pharmacology		
COURSE MANAGER	Konstantinos Dimas, Professor		
ASSOCIATES	A. Vassilaki, Invited speakers		

SEPERATE TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
	2 hours	**2 ECTS**

COURSE TYPE	Scientific area
PREREQUISITE COURSES:	Pharmacology I
LANGUAGE OF TEACHING AND EXAMS:	English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE ELECTRONIC PAGE (URL)	https://eclass.uth.gr/courses/MED_U_188/

2.Learning Outcomes

Molecular Pharmacology is today the most popular approach to the teaching of Pharmacology and as a basis for the development of drugs. Molecular and Cellular Pharmacology focuses on understanding the molecular mechanisms of action of drugs, as well as on identifying new pharmaceutical targets.

The intended learning outcomes of the course are for the student to deepen the possibilities of pharmacological interventions at the molecular level by targeting molecules at the cellular level that participate in the creation of pathological conditions. In addition to the classical approaches, emphasis is given to newer developments following the dynamic evolution of the scientific field of Pharmacology and especially Molecular Pharmacology.

The final aim of the course is, on top of teaching the effects of drugs at the molecular and cellular level, to provide the students knowledge about key points of the molecular mechanisms governing specific cellular processes, which can be the targets for research and the clinical application of novel therapeutic approaches towards a more precise and efficacious pharmacological intervention.

General Abilities

- Research, analysis and synthesis of data and information, using the necessary technologies.
- Adaptation to new situations
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3. COURSE CONTENT

Indicative topics for discussion/study

1. *Introduction/ Methodology and measurements in pharmacology*
2. *Drug action: cellular processes*
3. *Cell proliferation*
4. *Cell death*
5. *Introduction to receptors*

6. *Basic intracellular signaling pathways.*
7. *Drugs and transcription factors/Gene therapy*
8. *Cellular mechanisms: host defense*
9. *Cytokine's pharmacology*
10. *New therapeutic molecules of low molecular weight (e.g., Tyrosine kinase inhibitors, TKI)*
11. *Therapeutic monoclonal antibodies*
12. *Special subjects of pharmacology*
    1) Pharmacogenetics 2) Nanotechnology and drugs 3) Vaccines 4) Precision medicine

4. TEACHING AND LEARNING METHODS - EVALUATION

DELIVERY METHOD	LECTURES (live/distance)
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students. Specifically: • Common software (e.g., MS powerpoint) is used to prepare lecture material and display slides and videos. • The study guide (detailed supplementary material & additional bibliography), the tutorial material (clinical cases), the theory and protocols of the laboratory exercises, the slides of each lecture as well as relevant videos and scientific articles made available electronically and online to students through the e-class system of our university. • Common software (e.g., MS excel) is used to statistically process student assessment. Announcements, information etc. are available online via e-class. Communication is also done via e-mail.
TEACHING ORGANIZATION *The way and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive teaching, Study visits, project assignment, Thesis writing, Artistic creation, etc.* *The student study hours for each learning activity are indicated as well as the non-guided study hours so that the total workload at the semester level corresponds to the ECTS standards .*	

Activity	***Semester Workload***
Lectures	*26*
Coursework	*4*
Study	*26*
Coursework preparation	*4*
Course Set (Hours of workload per credit unit)	***60 hours/2 ECTS (30 hours/ECTS)***

STUDENT EVALUATION	The language of evaluation is English. **Evaluation method** - Participation 10%, - Coursework (optional) 20% - Final written test (multiple choice) 70%-90% **Final Grade:** The final grade of the course is calculated as the sum of the above.

5. RECOMMENDED - BIBLIOGRAPHY

- Molecular Pharmacology: From DNA to Drug Discovery. Author (s): Dickenson J et al. 2013 John Wiley & Sons, Ltd.
- Basic and Clinical Pharmacology, Bertram Katzung, Susan Masters, Anthony Trevor, McGraw Hill
- Goodman & Gilman's The Pharmacological Basis of Therapeutics
- Web/other resources/pubmed/reviews (***Relevant Scientific Journals:*** Nature drug discovery, Drugs today, European journal of pharmacology, Pharmacology & Therapeutics, Journal of experimental pharmacology, Molecular pharmacology, Biochemical pharmacology etc

9789605831738

- Goodman & Gilman's The Pharmacological Base of Therapeutics, Coordination of the Greek edition Nikolaos Sitaras, Paschalidis Publications, ISBN 9789604890378.
- Web/other resources/pubmed/reviews.

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
STUDY LEVEL	*Undergraduate*		
COURSE CODE	**NP0109**	**Semester**	*Spring semester*
COURSE TITLE	NEUROGENETICS: THEORY AND PRACTICE		
COURSE INSTRUCTOR	Dardiotis Efthimios, Associate Professor of Neurology		
CO-INSTRUCTORS	Siokas V.		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	2	2

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Scientific Area
PREREQUIRED COURSES	No PREREQUISITES
LANGUAGE OF TEACHING AND EXAMS	English for ERASMUS and HELMISIC students
AVAILABLE TO ERASMUS STUDENTS	Yes
WEBSITE (URL)	No

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

The material of the course aims to introduce students to the scientific field of Neurogenetics.
The aim of this course is for the student to understand the genetic basis of various neurological diseases and the methodology for its detection.

This course emphasizes that the decipherment of the identity of genetic factors in various neurological diseases contributes to the understanding of the underlying pathophysiology and leads to a definite diagnosis, focused treatment, but also to a safe prognosis and targeted genetic counseling.

Upon successful completion of the course the student will be able to:

• Understand that genetic studies are conducted to investigate possible causal or modifying genes involved in the pathogenesis of various neurological diseases.
• Be aware that the etiology of most neurological diseases remains a complex interaction between genetic and environmental factors.
• Be able to distinguish the modes of inheriting various neurological diseases and the complex patterns of transmission of mitochondrial diseases.
• Use Molecular Biology and Genetics methods to conduct genetic tests aimed at specialized genetic counseling.
• Analyze data from genetic studies linking and correlating causal or modifying genes with the pathogenesis of various neurological diseases.
• Collaborate with his fellow students to research and analyze the international literature.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

3.Module Content

General Principles of Neurogenetics

- General principles and applications of Molecular biology in neurologic diseases
- Introduction to DNA, RNA structure and function
- Polymorphisms, mutations chromosomal anomalies
- Classic Mendelian Genetics (Patterns of Inheritance)
- Mitochondrial Inheritance
- Genetics of multifactorial diseases
- Genetic association studies

Genetics of strokes

- Introduction to strokes
- Evidence for genetic factors that influence lipid metabolism, coagulation, inflammation, and arterial hypertension
- Genetic association studies for ischemic stroke
- Genetic association studies for Hemorrhagic stroke

Genetics of Amyotrophic lateral sclerosis (ALS)

- Introduction to pathophysiology and clinical types of ALS
- Familial ALS
- Sporadic ALS
- Environmental, epigenetic factors, epistasis for ALS

Genetics of Parkinson's and Parkinson-plus diseases

- Introduction to movement disorders (Parkinson's Disease, Corticobasal degeneration, Progressive supranuclear palsy, Lewy body dementia, Huntington's chorea, Multiple System Atrophy)
- Monogenic causes of Parkinson's disease (SNCA, LRRK2, Parkin, PINK1, DJ-1, ATP13A2, UCHL1, GIGYF2, HTRA,VPS35, EIF4G1, TMEM230, CHCHD2, RIC3, PRKN, SYNJ1, VPS13C, MART genes)
- Genetic risk factors of Parkinson's disease (evidence from case-control studies, GWASs)
- Genetic architecture of Corticobasal degeneration
- Genetics of Progressive supranuclear palsy (role of MAPT and LRRK2 genes)
- Genetics of Lewy body dementia
    - Role of PD – associated genes (SNCA, LRRK2, GBA),
    - Role of AD - associated genes (PSEN1, PSEN2, APP, APOE, MAPT)
    - Genetic risk factors (GBA and APOE genes)
- Genetics Huntington's disease (HTT gene)
- Genetics of Multiple System Atrophy:
    - 1) Role of coenzyme Q2,
    - 2) Evidence from GWAS for SNCA, FBXO47, ELOVL7, EDN1 and MAPT genes
    - 3) Role of genes associated with ataxia, PD, oxidative stress and neuroinflammation

Genetics of polyneuropathies

- Introduction to hereditary polyneuropathies
- Genetic architecture of Charcot-Marie-Tooth (CMT)
- Other hereditary polyneuropathies (Hereditary sensory neuropathy, Distal hereditary motor neuropathy, Leukodystrophy Familial amyloidosis, Fabry disease, Refsum disease, Tangier disease, Mitochondrial disorders)

Genetics of Multiple Sclerosis

- Introduction to multiple sclerosis
- Environmental, genetic and epigenetic factors
- The importance of HLA locus in multiple sclerosis
- Data from GWASs, association studies, meta-analyses
- Polymorphisms in SELP, ITGA4, ITGB1, ITGB7, ICAM1, VCAM1, MADCAM-1, FN1) και

SPP1 genes

Genetics of Dystonia

- Dystonia-introduction
- Monogenic forms of Dystonia (TOR1A, HPCA, TAF1, TUBB4A, TH, GCH1, THAP1, MR1, PRRT2, SGCE, ATP1A3, GCH1, PRKRA, SLC2A1, CACNA1B, ANO3, GNAL, KCTD17, COL6A3, KMT2B, MECR genes)
- Genetic risk factors for dystonia (TOR1A, BDNF, DRD5, APOE, ARSG, NALC, OR4X2, COL4A1, TH, DDC, DBH, MAO, COMT, DAT, GCH1, PRKRA, MR-1, SGCE, ATP1A3, TAF1, THAP1, GNAL, DRD2, HLA-DRB, CBS, MTHFR, and MS genes)
- Evidence from genetic case-control studies
- Evidence for GWASs WES studies

Genetics of essential tremor and ataxias

- Essential tremor-introduction
- ETM1, ETM2, ETM3 genetic loci
- Role of LINGO1, LINGO2, LINGO4, SLC1A2, DRD3, ALAD, VDR, HMOX1, HMOX2, LRRK1, LRRK2, GBA, SNCA, MAPT, FUS, CYPs IL17A, IL1B, NOS1, ADH1B, MTHFR, GABAAR, GABA transporter, HNMT, ADH2, TREM2, PPARGC1A, RIT2, CTNNA3, STK32B, TREM2, HS1BP3, CACNL1A4, PPP2R2B genes
- Data from GWASs
- Genetics of SCAs
- Genetics of Friedreich ataxia

Genetics of Hereditary Spastic paraplegias

- Introduction to hereditary spastic paraplegias (HSP)
- Genes and genetic loci associated with dominant and recessive HPS
- SPG4 Locus

Genetics of Dementia

- Introduction to dementias
- Alzheimer's Disease
- Environmental, genetics and epigenetics factors for Dementia
- Monogenic types of Alzheimer's Disease (APP1, PSEN1, PSEN2 genes)
- Genetic risks factors for Alzheimer's Disease, Role of APOE and TREM2 genes

Genetics of Mitochondrial disorders

- Mitochondrial disorders Νοσήματα
- Mutations in mitochondrial DNA

Genetics of Neuromuscular disorders

- Introduction to genetic neuromyscular disorders
- Myotonic dystrophy type 1 (DM1)
- Myotonic dystrophy type 2 (DM2)
- Genetics of spinal muscular atrophy (SMA)

Laboratory Techniques

- DNA isolation
- Polymerase Chain Reaction (PCR)
- Restriction fragment length polymorphism(RFLP)
- Real-Time PCR
- DNA sequencing

- Fragment analysis
- Multiplex Ligation-dependent Probe Amplification (MLPA)
- MS-MLPA (Methylation Status-MLPA)

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	Face to face Lectures
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Microsoft (Power Point) software is used during the delivery of the courses. Ability to communicate with the course supervisor via email
TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.	

Activity	***Semester Workload***
Lectures	24
2 hours weekly	
	24 ***Working hours per credit unit*** ***24:2=12***

STUDENT EVALUATION **Description of the evaluation process** Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation,	WRITTEN AND ORAL EXAMINATION Assessment of the acquired knowledge (skills) at the end of the course by the course supervisor in order to summarize the knowledge and skills (this assessment is not included in the final grade)

Explicitly defined assessment criteria are stated and if and where they are accessible to students.	

5.Recommended Bibliography

1. Neurogenetics, Part I (Volume 147) (Handbook of Clinical Neurology, Volume 147) 1st Edition by Daniel H. Geschwind (Editor), Henry L. Paulson (Editor), Christine Klein (Editor)
ISBN-13: 978-0444632333
ISBN-10: 0444632336
2. Neurogenetics, Part II (Volume 148) (Handbook of Clinical Neurology, Volume 148) 1st Edition by Daniel H. Geschwind (Editor), Henry L. Paulson (Editor), Christine Klein (Editor)
ISBN-13: 978-0444640765
ISBN-10: 0444640762

COURSE OUTLINE: KIDNEY- PBL PRESENTATION (ΠΘ 1300)

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF EDUCATION	*OPTIONAL*		
COURSE CODE	**ΠΘ 1301**	**SEMESTER OF STUDY**	**WINTER**
COURSE TITLE	**NEPHROLOGY- PBL**		
COURSE RESPONSIBLE	**IOANNIS STEFANIDIS** PROFESSOR OF PATHOLOGY-NEPHROLOGY		
CO-TEACHERS			

SELF-ENDED TEACHING ACTIVITIES *in case the credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the entire course, enter the weekly teaching hours and total credits*	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
	2 (two)	
Add rows if necessary. The teaching organization and the teaching methods used are described in detail in 4.	**1. LECTURES FROM AMPHITHEATER** (2 hours per week)	

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	***Scientific Area***
PREREQUISITE COURSES:	Based on the Study Guide of the Medical Department of the University of Thessaly.
LANGUAGE OF TEACHING AND EXAMINATIONS :	**English**
THE COURSE IS OFFERED TO ERASMUS STUDENTS	**YES**
COURSE WEBSITE (URL)	- i

2. Learning Outcomes

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that the students will acquire after the successful completion of the course.

- *Description of the Level of Learning Outcomes for each study cycle according to the Qualifications Framework of the European Higher Education Area*
- *Descriptive Indicators for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning*

Consult the concise guide to writing learning outcomes

The overall aim of the course is: to introduce students to nephrology and specifically to the presentation of nephrology cases and patients with arterial hypertension and to enable them to plan and analyze each case using medical and problem-based learning (PBL) methods. Further, the course seeks to provide students with the basic skills to understand these cases independently.
The objectives of the course are specified in the following intended learning outcomes:
To enable the student to understand how, through independent literature research and study of basic knowledge, mainly from the "pre-clinical" specialties (anatomy, physiology, biochemistry and genetics), we are led to an understanding of the clinical picture and the correct management and treatment, of a nephrological case.
For the student to understand the collaborative process of problem solving while simultaneously and individually developing his creativity.
To prepare individual or group assignments related to each presented case.
Upon successful completion of the course, the student will be able to:
He/she will be able to use the acquired knowledge in order to:
• to approach the (nephrological) problem through discussion in the group, while flexibly activating his previous knowledge
• make use of the internet for a documented literature study
• write and present review papers on a topic individually and in groups • collaborate with fellow students to investigate a specific topic arising from the original problem in the literature
• To have the resources to assimilate the basic principles of clinical nephrology.
• To combine manifestations with laboratory and imaging findings to diagnose kidney diseases.

General Skills

Taking into account the general skills that the graduate must have acquired (as listed in the Diploma Appendix and listed below) which / which of them is the course aimed at?.

Search, analysis and synthesis of data and information, also using the necessary technologies
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Work in an international environment
Work in an interdisciplinary environment
Generating new research ideas
Project planning and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and ethical responsibility and sensitivity to gender issues
Exercise criticism and self-criticism
Promotion of free, creative and inductive thinking

3. COURSE CONTENT

Incident CKD
Discussion, problem identification, Task Assignment
Presentation of work, Discussion
Lecture on CKD, Final Case Analysis

Incident Edema
Discussion, problem identification, Task Assignment
Presentation of work, Discussion
Lecture on Generalized Edemas, Renal Syndrome , Final analysis of the Incident

Case of renal AV
Discussion, problem identification, Task Assignment
Presentation of work, Discussion
Lecture on Arterial Hypertension, Final analysis of the Case

A case of DM with nephropathy
Discussion, problem identification, Task Assignment
Presentation of work, Discussion
Lecture on Diabetic Nephropathy, Final Analysis of the Case Polyuria Polydipsia Hypercalcemia

Discussion, problem identification, Task Assignment
Presentation of work, Discussion
Lecture for central nephrogenic diabetes insipidus , Lecture Hypercalcemia ,
Final analysis of the Incident

4. TEACHING AND LEARNING METHODS - ASSESSMENT

MODE OF DELIVERY *Face to face, Distance learning etc.*	***Face to face***
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of T.P.E. in Teaching, in Laboratory Education, in Communication with students*	Access to research material of the digital services of the University of Thessaly library (scientific journals, books, conference proceedings). Microsoft software is used (Power Point) through which the courses are delivered. The course is done with PPT presentations (theory) and with computer projection using Power Points . Finally, the email of the person in charge of the course can be used for communication between students and teachers and students are encouraged to use this method of communication as well.
TEACHING ORGANIZATION *The way and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Literature Study & Analysis, Tutorial, Practice (Placement), Clinical Exercise, Artistic Workshop, Interactive Teaching, Educational Visits, project writing, thesis writing/Assignments, Artistic Creation, etc.* *The student's study hours for each learning activity as well as the unguided study hours are listed so that the total workload at semester level corresponds to the ECTS standards*	

Activity	***Semester Workload***
1. LECTURES FROM AMPHITHEATER (2 hours per week) The classrooms of the School of Medicine of the University of Thessaly are used	
Total Course (….workload hours per credit unit)	***Workload hours per credit unit:***

Total time (Teaching hours + Student Workload) 54 hours

STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Deductive, Multiple Choice Test,*	Assessment: Final written exam with short development and multiple choice questions (50-100%). Participation in tasks (0-50%). Finally, a special questionnaire is available to the students at the end of the semester of teaching the course, so that there is an evaluation by the students of each of the teachers, on the one hand, for each of the 2-hour lessons delivered (1 time/week).

Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, thesis/Report, Oral Examination, Public Presentation, Laboratory Work, Clinical Patient Examination, Artistic Interpretation, Other / Others *Explicitly defined evaluation criteria are mentioned and if and where they are accessible by students.*	Students are also encouraged to express their opinion on the overall educational process of the course and any proposed changes. The results of the above responses to the questionnaire are used appropriately with the aim of improving the educational process for the specific course.

5. RECOMMENDED - BIBLIOGRAPHY

- ***Suggested Bibliography*** *:*

Topics in Nephrology, Ioannis Stefanidis, ISBN 978-618-84150-4-1.

- Relevant scientific magazines :

1. The New England Journal of Medicine
2. The Lancet
3. Annals of Internal Medicine
4. JAMA Internal Medicine

COURSE OUTLINE: KIDNEY- PBL PRESENTATION (ΠΘ 1300)

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF EDUCATION	*SELECTED*		
COURSE CODE	**ΠΘ 1300**	**SEMESTER OF STUDY**	**SPRING**
COURSE TITLE	**KIDNEY- PBL PRESENTATION**		
COURSE RESPONSIBLE	**THEODOROS ELEFTHERIADIS** ASSISTANT PROFESSOR OF NEPHROLOGY		
CO-TEACHERS			

SELF-ENDED TEACHING ACTIVITIES *in case the credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the entire course, enter the weekly teaching hours and total credits*	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
	2 (two)	2
Add rows if necessary. The teaching organization and the teaching methods used are described in detail in 4.	**1. LECTURES FROM AMPHITHEATER** (2 hours per week)	

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	***Scientific Area***
PREREQUISITE COURSES:	Based on the Study Guide of the Medical Department of the University of Thessaly.
C LANGUAGE OF TEACHING AND EXAMINATIONS :	**English**
THE COURSE IS OFFERED TO ERASMUS STUDENTS	**YES**
COURSE WEBSITE (URL)	- i

2. Learning Outcomes

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that the students will acquire after the successful completion of the course.

- *Description of the Level of Learning Outcomes for each study cycle according to the Qualifications Framework of the European Higher Education Area*
- *Descriptive Indicators for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning*

Consult the concise guide to writing learning outcomes

The general aim of the course is to introduce students to the knowledge of the physiology of the kidney and the pathophysiology of nephrological diseases. The aim of the course is to familiarize students with the basic principles of renal function, the pathogenetic mechanisms of acute or chronic renal failure, diseases of the renal parenchyma, renal manifestations in systemic diseases and congenital nephropathies. At the same time there will be a presentation of nephrological cases or cases with hypertension with presentation of the data by the students with individual or group work and analysis based on the problem posed in each case. The specific objective is to enable students to synthesize and analyze each case using medical and problem-based learning (PBL) methods.

The course objectives are specified in the following intended learning outcomes:

For the student to understand the way in which through independent bibliographic research and study of basic knowledge, mainly from the "preclinical" specialties (anatomy, physiology, biochemistry and genetics), we are led to the understanding of the physiological functions and the pathophysiology underlying each nephrological case. For the student to understand the collaborative process of problem solving while simultaneously and individually developing his creativity.

To prepare individual or group assignments related to each presented case.

Upon successful completion of the course, the student will be able to:

Uses acquired knowledge in order to:

- To approach the (nephrological) problem through discussion in the group, while flexibly activating his previous knowledge
- To make use of the internet for a documented bibliographic study
- Write and present review papers on a topic individually and in groups
- Collaborate with fellow students to bibliographically investigate a specific topic arising from the initial problem
- Be equipped to assimilate the basic principles of kidney physiology and pathophysiology in nephrology.
- To combine manifestations with laboratory and imaging findings to understand the pathogenesis of renal diseases.

General Skills

Taking into account the general skills that the graduate must have acquired (as listed in the Diploma Appendix and listed below) which / which of them is the course aimed at?.

Search, analysis and synthesis of data and information, also using the necessary technologies
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Work in an international environment
Work in an interdisciplinary environment
Generating new research ideas
Project planning and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and ethical responsibility and sensitivity to gender issues
Exercise criticism and self-criticism
Promotion of free, creative and inductive thinking

3. COURSE CONTENT

AKI INCIDENT
Discussion, problem identification, Task Assignment
WORK (group), Kidney Perfusion, RAA System
LECTURE: ACUTE KIDNEY INJURY - AKI
Definition - Etiology - Pathogenic mechanisms - Pathological anatomy - Clinical picture and course - Complications - Treatment - Prognosis

CRF INCIDENT
Discussion, problem identification, Task Assignment
ASSIGNMENTS (group), Creatinine , Urea, Measurement of glomerular filtration rate
LECTURE: CHRONIC RENAL FAILURE - CRF
Definition - Etiology - Pathogenetic mechanisms - Clinical picture and course - Treatment -
Basic principles of extrarenal clearance methods

Case of primary glomerulopathy, Microscopic hematuria (1)
Discussion, problem identification
LECTURE: PRIMARY GLOMERULOPATHIES II
Classification of primary glomerulopathies - Pathogenetic mechanisms - Clinical
Clinical manifestations of glomerulopathies - Asymptomatic albuminuria
glomerular hematuria - lgA nephropathy (Maladie de Berger) - Thin cell nephropathy
Basement membrane thin-membrane nephropathy - Acute nephritic syndrome.
Final analysis of the case

Case with primary glomerulopathy , Leukomauria (2)
Discussion, problem identification
LECTURE: PRIMARY GLIEROMATOPATHIES II
Nephrotic syndrome - Etiological classification of nephrotic syndrome - Glomerulopathy of minor lesions - Mesangiohyperplastic glomerulonephritis (idiopathic) - Focal and segmental glomerulosclerosis, Membranous glomerulonephritis, Chronic glomerulonephritis syndrome
Final analysis of the Incident
2019-2020 AE Spring Semester Exams

4. TEACHING AND LEARNING METHODS - ASSESSMENT

MODE OF DELIVERY *Face to face, Distance learning etc.*	***Face to face***
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of T.P.E. in Teaching, in Laboratory Education, in Communication with students*	Access to research material of the digital services of the University of Thessaly library (scientific journals, books, conference proceedings). Microsoft software is used (Power Point) through which the courses are delivered. The course is done with PPT presentations (theory) and with computer projection using Power Points . Finally, the email of the person in charge of the course as well as the other teachers can be used for communication between students and teachers and students are encouraged to use this method of communication as well.
TEACHING ORGANIZATION *The way and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Literature Study & Analysis, Tutorial, Practice (Placement), Clinical Exercise, Artistic Workshop, Interactive Teaching, Educational Visits, project writing, Thesis*	

Activity	***Semester Workload***
1. LECTURES FROM AMPHITHEATER (2 hours per week) The classrooms of the School of Medicine of the University of Thessaly are used	

Writing/Assignments, Artistic Creation, etc. etc. *The student's study hours for each learning activity as well as the unguided study hours are listed so that the total workload at semester level corresponds to the ECTS standards*	<table><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td>***Total Course (….workload hours per credit unit)***</td><td>***Workload hours per credit unit:***</td></tr></table>Total time (Teaching hours + Student Workload) 54 hours
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Deductive, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Thesis/Report, Oral Examination, Public Presentation, Laboratory Work, Clinical Patient Examination, Artistic Interpretation, Other / Others* *Explicitly defined evaluation criteria are mentioned and if and where they are accessible by students.*	Assessment: Final written exam with short development and multiple choice questions (50-100%). Participation in tasks (0-50%) Finally, a special questionnaire is available to the students at the end of the semester of teaching the course, so that there is an evaluation by the students of each of the teachers, on the one hand, for each of the 2-hour lessons delivered (1 time/week). Students are also encouraged to express their opinion on the overall educational process of the course and any proposed changes. The results of the above responses to the questionnaire are used appropriately with the aim of improving the educational process for the specific course.

5. RECOMMENDED - BIBLIOGRAPHY

- ***Suggested Bibliography*** *:*

Topics in Nephrology, Ioannis Stefanidis, ISBN 978-618-84150-4-1.

- Relevant scientific journals:

1. The New England Journal of Medicine
2. The Lancet
3. Annals of Internal Medicine
4. JAMA Internal Medicine

COURSE OUTLINE

1.GENERAL			
SCHOOL	OFHEALTHSCIENCES		
DEPARTMENT	OFMEDICINE		
LEVELOFEDUCATION	UNDERGRADUATE		
COURSECODE	XP0511	**SEMESTER OFSTUDY**	**10^{o}**
COURSETITLE	UROGENITAL ONCOLOGY		
COURSERESPONSIBLE	Karatzas Anastasios, Ass Professor of Urology		
CO-TEACHERS	Tzortzis Vassilios, Professor of Urology, Vlachostergios Panagiotis Medical Oncologist		

SELF-ENDEDTEACHINGACTIVITIES	**WEEKLYT EACHING HOURS**	**CREDITUNITS**
(Medical Students who select the lesson are obliged to attend 11 out of 13 lectures)	2Hours	2.00

	• Lectures at the amphitheater • Tutorials o Clinic • Practical training: o clinic o emergency department o operating room
COURSETYPE	ELECTIVE
PREREQUISITECOURSES:	NO
LANGUAGEOFTEACHINGAND EXAMINATIONS:	English
THECOURSEIS OFFEREDTO ERASMUSSTUDENTS	YES
COURSEWEBSITE(URL)	http://www.med.uth.gr/DetailsLes.aspx?id=101

2.LearningOutcomes

The course material aims to introduce students to the scientific field of Genitourinary Oncology and consists the basis on which the student will acquire fundamental knowledge in the relevant subject.

Uponsuccessfulcompletionofthecourse,thestudentwillbeableto:

- Understand the etiopathogenesis,molecular mechanisms of development and progression of neoplasms of the urogenital
- Describe primaryandsecondarypreventionmethodsofurogenitalneoplasms
- Be familiar with the modern diagnostic and the rapeutic treatment of neoplasms of the urogenital organs ,adapted to the new data and the newest therapeutic developments.

3.COURSECONTENT

- Carcinogenesisandbiologicalbehaviorofurogenitalneoplasms
- Epidemiology,etiologyofprostate cancer
- Masspopulationscreeninginprostate cancer
- Cancermarkersandtheirapplicationinclinicalpractice
- Modern imaging methods in the diagnosis, staging and monitoring of treatment in prostatecancer
- Therapeuticapproachestoclinicallylocalizedprostatecancer
- Treatmentofadvancedprostatecancer
- Treatmentofhormone-refractoryprostatecancer
- Modernimagingmethodsforthediagnosisandstagingofrenalparenchymaltumors
- Prognosticfactorsandhistopathologyofrenalcancer
- Surgicaltreatmentofkidneycancer
- Treatmentofmetastaticcancer
- Epidemiology,etiologyandpreventionofbladdercancer
- Diagnosticmethodsofbladdercancer
- Prognosticfactorsofbladdercancer
- Treatmentofnon-muscle invasivebladdertumors
- Treatmentofmuscle-infiltratingtumorsofthebladder
- Epidemiology,etiologyandriskfactorsoftesticulartumors
- Histopathologyoftesticulartumors
- Diagnosticapproachandstagingoftesticulartumors
- Predictorsoftesticulartumors
- Treatmentoftesticulartumors
- Epidemiology,etiologyofpenilecancer
- Therapeutictreatmentofpeniletumors

4.TEACHING AND LEARNING METHODS-EVALUATION	
LEARNING PROCEDURE	Face-to-face with presentations from an amphitheater and withclinical exercises on models and patients except in special cases(pandemic etc.) Use of electronic media using Microsoft software(PowerPoint) through which the courses are delivered, e- class ,Analysisofclinicalcasesindigitalformatusingspecialized software.
USE OF INFORMATION COMMUNICATION TECHNOLOGY	• Power point presentations • E-class • E-book access • Pubmed access • Posting online information and announcements about the course and other educational activities • Students and teachers communications by e-mail
TEACHINGORGANIZATION	***Activity*** / ***SemesterWorkload*** 54 Hours
STUDENTEVALUATION	Testwithwritten exams
5.RECOMMENDED-BIBLIOGRAPHY	
SuggestedBibliography: 1. UrologicalCancers(e-book) 2. UrologicalCancersinClinicalPractice(e-book)	

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICJNE		
STUDY LEVEL	UG		
COURSE CODE	MP0600	**Semester**	WINTER
COURSE TITLE	CHILD PSYCHIATRY		
COURSE INSTRUCTOR	NIKOLAOS CHRISTODOULOU		
CO-INSTRUCTORS	Faculty, associate faculty and teaching fellows		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	2	2

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Theory of child and adolexcent psychiatry
PREREQUIRED COURSES	NO
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	NO
WEBSITE (URL)	

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

The purpose of the course is to familiarize medical students with the recognition, understanding and treatment of mental health issues in children and adolescents.
The course begins with the description of Child Psychiatry and the operation of the child psychiatric team. It covers the diagnostic assessment, the use of games and painting as diagnostic tools and the

classification of childhood mental disorders. Clinical entities are revisited according to the latest classification principles and are divided into neurodevelopmental, psychosomatic, emotional and behavioral disorders. The course covers the clinical picture, epidemiological data, etiology, prognosis and treatment options. The interdependence and interaction of biological, psychological and psychosocial causes for the manifestation of each disorder are emphasized. Finally, child psychiatric services and their preventive and therapeutic interventions are described, with special reference to psychotherapies and pharmacotherapy. The main purpose of the subject is the recognition of mental disorders of childhood and adolescence and familiarity with the work of child psychiatrists. At the end of the course, medical students will be able to recognize the basic clinical features of child and adolescent psychopathology and the need to refer children to child psychiatric services.

Upon successful completion of the course, the student will be able to:

• recognize the basic clinical symptoms and signs of child and adolescent psychopathology
• recognize and differentially diagnose the main mental disorders of children and adolescents.
• be familiar with the way Child Psychiatrists work and to recognize the necessity of referring minors to Child Psychiatry services
• reach out to children and teenagers with mental health problems
• organize and present autonomous scientific work

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

3.Module Content

Unit 1: Introduction to Child Psychiatry: definition, historical development, the subject of Child Psychiatry, the normal and the pathological in the mental health of the child, Interdisciplinary psychosocial Team

Unit 2: Diagnostic assessment, classification in Child Psychiatry: Child Psychiatry examination, Play, Painting, classification in child psychiatry

Unit 3: Neurodevelopmental Disorders I: Speech and language disorders and psychological effects, Specific Developmental Disorders of Motor Function, Written word, learning disorders Developmental Issues of Children with Chronic Conditions & Therapies: (Prematurity, Prenatal effects, Chromosomal and Genetic Disorders, Metabolic Disorders, Infections, Neurological problems, Sensory Deprivation, Other)

Unit 4: Neurodevelopmental Disorders II: Learning disability, Autistic spectrum disorders, attention deficit hyperactivity disorder

Unit 5: Psychosomatic disorders of childhood: Psychosomatic problems, eating disorders (anorexia – bulimia), sleep disorders

Unit 6: Anxiety-phobic disorders- obsessive-compulsive disorder : Anxiety disorders, post-traumatic stress disorder, childhood fears - School phobia, selective mutism, obsessive-compulsive disorder

Unit 7: Emotional disorders: Depression, dysthymia, suicidal behavior in children and adolescents, self-harm in adolescence

Unit 8 : Childhood Psychoses: Childhood Psychoses – Childhood Schizophrenia, Autism and Schizophrenia

Unit 9: Behavioral disorders: Excretory disorders. Clamp control, Myospasms (tics), Tourette syndrome

Unit 10: Addictive behaviors: Smoking, alcohol, Gaming Disorder, Internet addiction effects on the daily life of children and adolescents – Prevention-Ways of Treatment

Unit 11: Conduct disorders: Conduct disorders and therapeutic interventions, Bullying and Cyberbullying in Greece - Ways to prevent and treat

Unit 12: Forensic Child Psychiatry: Emergencies in Child Psychiatry, Abuse – Neglect-Abuse Prevention and therapeutic interventions, Psychosocial Problems, Issues of custody and parental responsibility

Unit 13: Prevention and treatment: Basic principles of prevention in the mental health of children and adolescents, Hospitalization, Day Hospital, Community Child Psychiatry, Pharmacotherapy: Antidepressants, Neuroleptics, Amphetamine derivatives, Psychotherapies

4. TEACHING AND LEARNING METHODS - ASSESSMENT

Teaching Method (face to face, tutoring, distance learning)	Face to face in the auditorium. Power Point presentations and a video projector
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	**Powerpoint**
TEACHING METHODS The way and methods of teaching are described in detail.	***Activity*** / ***semester workload*** 2hrs/week / 54hrs/6 months

Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.		
STUDENT ASSESSMENT **Description of the assessment process** Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	Written and oral presentation of assignment. The evaluation criteria are accessible to students. Attendance at the courses is mandatory. The grade will be calculated according to the performance of each student in the presentation of the assignment.	
5.Recommended Bibliography		
Moden Psychiatry of the Child and Adolescent. Kolaitis et al 2020		

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
LEVEL OF EDUCATION			
COURSE CODE		**SEMESTER OF STUDIES**	7th
COURSE TITLE	**CHILDREN'S PNEUMONOLOGY & URGENT CHILDREN'S PNEUMONOLOGICAL PROBLEMS**		
COURSE MANAGER	Emmanouil Alexopoulos, Assistant Professor of Pediatrics - Child Pulmonology		
ASSOCIATES	George Syrogiannopoulos , Professor of Pediatrics Ioanna Grivea, Associate Professor of Pediatrics and Neonatology		
SEPERATE TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**		**CREDIT UNITS**
	2		2
COURSE TYPE	Scientific Area		
PREREQUISITE COURSES:	NO		
LANGUAGE OF TEACHING AND EXAMS :	English		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO		
COURSE ELECTRONIC PAGE (URL)	Yes. The lessons will be posted gradually.		

2.Learning Outcomes

The aim of the course is:

- Educating students to acquire the necessary skills so that they can diagnose and treat Lung diseases and urgent and life-threatening Respiratory diseases in children.
- Presentation of Respiratory system diseases in children, analysis of their pathophysiology, their clinical presentation and their treatment.
- Presentation of acute and life-threatening symptoms and diseases of the Respiratory

system, analysis of their pathophysiology and listing of treatment options that must be applied immediately to prevent danger to the life of the child.

- Students, by utilizing the knowledge they will receive from attending the course, will gain the ability to evaluate and deal with these diseases, to avoid risks to the lives of children and to avoid their potential complications.

General Abilities

- Search, analysis and synthesis of data and information (practical and theoretical)
- Skills Development
- Decision making

3. COURSE CONTENT

- Embryology, anatomy and histology of the respiratory tree, history and physical examination
- Pathophysiology of respiratory diseases and functional tests of the lungs
- Congenital anomalies of the respiratory system
- Laryngitis - Epiglottitis - Tracheitis
- Foreign Body Aspiration
- Bronchitis - Bronchiolitis
- Bronchial pulmonary dysplasia
- Recurrent episodes of wheezing in preschool children - Inhaled drug delivery devices
- Childhood asthma - Asthmatic exacerbation
- Pneumonia -Complicated pneumonia
- Breathing disorders in sleep
- Cystic fibrosis - Primary fringe dyskinesia
- Lung imaging - Respiratory failure

4. TEACHING AND LEARNING METHODS - EVALUATION

DELIVERY METHOD	• Lectures • Multimedia file presentations • Practical training in children who are hospitalized in the Pediatric Clinic or who come to the ED of the

<table>
<tr><td></td><td colspan="3">Pediatric Clinic</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td colspan="3">• Information and communication technologies for the presentation of the material of the lectures, the internet information and the internship of the students
• Use of software for presenting lectures and viewing slides and videos.
• A study guide that includes the presentation files and relevant international bibliography will be gradually available online to students through the e-class.
• Information about the course and the teachers is available at the secretariat of the Pediatric Clinic</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td colspan="2">Activity</td><td>Semester Workload</td></tr>
<tr><td></td><td colspan="2">Lectures</td><td>21 hours</td></tr>
<tr><td></td><td colspan="2">Internship</td><td>14 hours</td></tr>
<tr><td></td><td>NUMBER OF TEACHING HOURS / WEEK</td><td>2.5 HOURS (LECTURE AND PRACTICE)</td><td></td></tr>
<tr><td></td><td>NUMBER OF EXERCISE PREPARATION HOURS</td><td>0.5</td><td></td></tr>
<tr><td></td><td>NUMBER OF WEEKS</td><td>14</td><td></td></tr>
<tr><td></td><td>TOTAL NUMBER OF TEACHING & SEMESTER PREPARATION</td><td>42</td><td></td></tr>
<tr><td></td><td>PREPARATION FOR EXAMINATION</td><td>12</td><td></td></tr>
<tr><td></td><td>TOTAL TIME</td><td>54</td><td></td></tr>
<tr><td></td><td>ECTS</td><td>2</td><td></td></tr>
<tr><td>STUDENT EVALUATION</td><td colspan="3">The examination/assessment of the student takes place at the end of the course with his participation in written multiple choice questions.</td></tr>
<tr><td colspan="4">5. RECOMMENDED-BIBLIOGRAPHY
BOOKS</td></tr>
</table>

1. **" Epitome Pediatric Pulmonology "**

   Authors: K. Priftis, A. Kaditis, M. Anthrakopoulos. Published by: Stefanakis EMM. and Co. SP, 1st EDITION 2013

2. **"Physiology of respiration" 8th edition**

   Authors: J. WEST

   Publishers: PARISIANOU SOLE PROPRIETORSHIP INC. PUBLISHING IMPORTER AND TRADING COMPANY FOR SCIENTIFIC BOOKS

Journals

1. Pediatric Pulmonology

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
STUDY LEVEL	UNDERGRADUATE		
COURSE CODE	**NP0401**	**Semester**	8th
COURSE TITLE	SPINAL COLUMN PATHOLOGY		
COURSE INSTRUCTOR	PATERAKIS KONSTANTINOS		
CO-INSTRUCTORS	FOUNTAS K		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	2	2

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	
PREREQUIRED COURSES	ANATOMY OF THE MUSCULOSKELETAL AND NERVOUS SYSTEM
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	YES
WEBSITE (URL)	

2.LEARNING OUTCOMES

Upon completion of the course the student will be able to:

1) Understand basic biomechanics and cell biology and their impact on spinal column integrity
2) Apply anatomic and physiologic principles to a variety of conservative and surgical approaches available to treat all regions of the spine
3) Understand pathophysiology and treat conservatively spinal column pathology.
4) Utilize problem-based decision-making to develop logical algorithms for solving simple and more complex problems.
5) Cooperate efficiently with the other specialties in treating spinal column pathology and suggesting the best physiotherapy treatment aiming to a more efficient rehabilitation

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

Research, analysis and synthesis of data and information, using the necessary technologies
Adaptation to new situations
Decision making

Work in an interdisciplinary environment

3.Module Content

Section 1

Spinal column anatomy

- Cervical spine
- Thoracic spine
- Lumbosacral spine and pelvis

Section 2

Principles of biomechanics, biology and sagittal balance

- Biomechanics
- Cellular biology of the spinal column
- Sagittal balance

Section 3

History taking and clinical examinations

- History taking
- Clinical assessment of the cervical spine
- Clinical assessment of the thoracic spine
- Clinical assessment of the lumbosacral spine
- Imaging

Section 4

Rheumatic diseases affecting spinal column

- Rheumatoid arthritis
- Atlant-axial subluxation
- Basilar invagination
- Subaxial subluxation
- Ankylosing spondylitis B
- Spondylarthropathies
- Diffuse idiopathic spinal hyperostosis (DISH)

Section 5

Metabolic diseases of the spinal column

- Osteoporosis
- Paget Disease

Section 6

. Conservative treatment of spinal column diseases

- Conservative treatment of axial cervical pain
- Conservative treatment of cervical radiculopathy
- Natural history and conservative treatment of cervical myelopathy
- Natural History and conservative treatment of thoracic disc herniation, radiculopathy and myelopathy
- Conservative treatment of lumbar disc herniation
- Conservative treatment of lumbar spondylosis
- Sacroiliac joint pain, assessment and treatment
- Treatment of non-specific lumbar pain

Section 7

Spinal column trauma

-Upper cervical spine trauma
-Subaxial cervical spine trauma
-Thoracolumbar spine trauma
-Spinal cord injury

Section 8

Spinal column deformities

- Adult scoliosis, assessment and treatment
- Degenerative scoliosis: symptoms, signs and diagnostic work-up
- Scheurman disease and idiopathic kyphsosis treatment and outcome
- Idiopathic scoliosis and natural history
- Indications for the use of braces and orthosis

Section 9

Psychosomatic expression of spinal column pain

- Phychosocial and work-related factors associated with spinal column pain
- The flag system

Section 10

Surgical indications

- Cervical spine indications and techniques
- Thoracic spine indications and techniques
- Lumbar spine indications and techniques

Section 11

Evidence-based guidelines in the treatment of spinal pathology

Section 12

Case-based discussion

4. TEACHING AND LEARNING METHODS – EVALUATION

Face to face, Clinical exercise, Operating room

Teaching Method (face to face, tutoring, distance learning)	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	**Microsoft Power point, Microsoft Teams**
TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis,	

Δραστηριότητα	*Φόρτος Εργασίας Εξαμήνου*
Lectures	18
Interactive Teaching	2
Clinical exercise	4

Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.	
STUDENT EVALUATION **Description of the evaluation process** Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	Multiple choice test, Short Answer questions, Oral examination

5.Recommended Bibliography

1. Κ. Φουντάς. Βασικές αρχές Νευροχειρουργικής, Εκδόσεις Κωνσταντάρας 2017, ISBN 978-960-680-276-8
2. Bartleson JD-Gordon Deen H. Παθήσεις της Σπονδυλικής Στήλης: Συντηρητική και Χειρουργική Θεραπεία. Εκδόσεις Κωνσταντάρας 2011 ISBN: 978-960-6802-32-4
3. Power Point presentations and instructor's notes

COURSE DESCRIPTION

Haematopathology

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	MP2001	**Semester**	FALL SEMESTER
COURSE TITLE	Haematopathology		
COURSE INSTRUCTOR	MARIA IOANNOU, PROFESSOR OF PATHOLOGY		
CO-INSTRUCTORS	INVITED SPEAKERS		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	2	2,00

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	SCIENTIFIC AREA
PREREQUIRED COURSES	NO
LANGUAGE OF TEACHING AND EXAMS	ENGLISH
AVAILABLE TO ERASMUS STUDENTS	YES
WEBSITE (URL)	**http://eclass.uth.gr/eclass/courses/.....**

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

Aims of the course

The aim of the course is for the student to acquire modern knowledge in the field of Hematopathology and to become familiar with the diagnostic approach of hematological diseases.

After the successful completion of this course, the students will be able to:

- Understand the classification of hematopoietic and lymphatic tissue neoplasms.
- Have knowledge of the methods and techniques used in their diagnosis.
- Distinguish the distinct clinical pathological entities in hematopathology.
- Use the microscopic image to diagnose lymphomas and hematopoietic diseases.
- Organize and analyze data from immunohistochemistry and molecular techniques for hematological diagnosis.
- Use scientific books and publications to be informed about the new knowledge related to hematology/pathological hematopoietic anatomy.
- Collaborate with his classmates in the study, presentation of clinical cases.
- Collaborate with his classmates to present a work / bibliographic review on a given topic.
- Collaborate with his fellow students in the search for bibliography and in the writing of scientific articles - of interesting clinical cases.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Research, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting free, creative, and inductive thinking

3.Module Content

The content of the course includes the content of the lectures together with the relevant clinical insights the students need to learn/acquire per chapter.

Lecture content and relevant clinical insights

1 Physiological structure of lymph node, handling of lymph node biopsy.
2 Reactive lymphadenitis and lymphadenopathies
3 Hodgkin's lymphoma
4 Small B cell lymphomas
5 Aggressive B lymphomas
6 T/NK non-Hodgkin's lymphomas
7 Cutaneous lymphomas
8 Gastrointestinal lymphomas

9 Introduction to osteomyeloid biopsy Myeloproliferative neoplasms
10 Myelodysplastic syndromes, Mixed myeloproliferative-myelodysplastic syndromes, Acute leukaemias
11 Plasma cell neoplasms
12 Diseases of histiocytes-dendritic cells

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	*Face to Face:* Teaching of **Haematopathology** consists of lectures. The lectures content is described above.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students. Specifically: • Common software (e.g. MS powerpoint) is used to prepare lecture material and display slides and videos. • The study guide (detailed supplementary material & additional bibliography), the slides of each lecture as well as relevant videos and scientific articles made available electronically and online to students through the e-class system of our university. • Information about the course, instructors and their research interests and in general the Pathology Department of the Faculty of Medicine are available online on the Laboratory website. • Common software (e.g. MS excel) is used to statistically process student assessment. Announcements, information etc are available online and via e-class. Communication is also done via e-mail.
TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.	

Learning activity	***Total semester workload***
Lectures	24 hours
Bibliography Study	20 hours
Thesis preparation	10 hours
SUM ***(25 hours per teaching credit)***	**54** hours

STUDENT EVALUATION **Description of the evaluation process** Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	The language of assessment is English. **Evaluation methods.** Participation of students at the lectures is mandatory. Presentation of work/literature review by students in small groups. The topics are proposed by the teacher at the beginning of the semester and the students undertake the study, analysis, and presentation of a topic of their choice. **C. For the lecture material:** The course exams are written, last 2 hours and consist of consist of development questions and/or multiple-choice questions. Oral examination for students with special needs. **Final Grade:** The final grade of the course is calculated as the sum of 100% of the grade of the written course exams. All the above are presented in detail in the Course Guide which is posted electronically in e-class.

5.Recommended Bibliography

A. Lecture Material

Main suggested textbooks:

1. M Ioannou, P. Korkolopoulou. Issues of Pathological Anatomy of the Hematopoietic System. NEON Publications 2021.
2. AV Hoffbrandt, PAH Moss Basic Hematology, Parisianou Publications 2014.
3 SH Swerdlow, E Campo, NL Harris, et al (Eds): WHO Classification of Tumors of Haematopoietic and Lymphoid Tissues. (2016) IARC: Lyon

Further reading:

NONE

B. Laboratory Practical supplementary Material

NONE

Relevant Scientific Journals:

NONE

COURSE OUTLINE

1.GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
STUDIES LEVEL	*Undergraduate*		
COURSE CODE	**MP1005**	**STUDIES SEMESTER**	5th
COURSE TITLE	**DESCRIPTIVE AND TOPOGRAPHICAL ANATOMY**		
COURSE RESPONSIBLE	Markos Sgantzos, Assoc. Professor		
ASSOCIATES	Vassiou Aikaterini, Assoc. Professor, Zimpis Aristides Assistant Professor		

SEPERATE TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDITS UNITS**
	2	2
	Additional participation in Laboratory Anatomy (2 Hours)	

COURSE TYPE *Background, General Knowledge,Scientific Area,Development Skills*	* Background
PREREQUISITE COURSES:	NO
TEACHING LANGUAGE and EXAMS:	English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO
COURSE ELECTRONIC PAGE (URL)	NO

2. Learning Results

The curriculum of the course includes the study of all systems of Systemic Anatomy by countries of the human body and surface anatomy with references and examples in clinical daily practice. Extensive references are made to the structure, topography and relationships in the various anatomical regions of the body so that the student will gain a comprehensive theoretical and practical overview of anatomical topography

Upon successful completion of the course the student will be able to:
Synthesize systematic anatomy in situ with a clear orientation towards clinical practice.

General Abilities

3. COURSE CONTENTS

1st Unit: Anterolateral Thoracic Wall. Ohmic zone

Skeleton and Joints of the chest and shoulder girdle. Spinal nerves. Muscles, Vessels and Nervesof the anterior and lateral chest wall. Shoulder girdle muscles (I). Surface, descriptive and applied clinic anatomy.

2nd Unit: Masseteric cavity and arm

Brachial bone. Structure of the shoulder. Muscles of the shoulder girdle (II). Brachial plexus. Masseteric cavity. Muscles of the humerus. Axillary and brachial vessels and nerves. Superficial, descriptive and applied clinical anatomy.

3rd Unit: Forearm and Hand (anterior and posterior surface)

Bones, Joints, Muscles, Peritoneum, Vessels and Nerves of the forearm and hand. Superficial, descriptive and applied clinical anatomy.

Unit 4: Cervix (I)

Cervical spine. Occipital bone. Vertebral and craniovertebral structures. Neck muscles (I).

Unit 5: Cervix (II)

Cervical areas. Cervical Muscles (II), Vessels and Nerves of the Cervix. Cervical Fossa of the Sympathetic Stem. Superficial, descriptive and applied clinical anatomy.

Unit 6: Head (I)

Bones of the Visceral Skull. Ocular orbit. Bony nasal cavity. Bony wall of the oral cavity.
Temporomandibular structure - Mimic and masseter muscles. Parotid gland.
Vessels and Nerves of the Head. Superficial, descriptive and applied clinical anatomy.

Unit 7: Head (II)
Cerebral Skull - Orifices - Cerebral nerves (conjugations). Sections of the brain. Superficial, descriptive and applied clinical anatomy.

Unit 8: Abdominal wall

Lumbar vertebrae. Lumbar plexus. Muscles. Vessels and nerves of anterior and lateral abdominal wall. Superficial, descriptive and applied clinical anatomy.

Unit 9: Lower Limb: Thigh (anterior and posterior surface)

Bones, Joints, Muscles, Vessels and Nerves of the Thigh (anterior and posterior surface). Sacral plexus and its branches.

Superficial, descriptive and applied clinical anatomy

Unit 10: Tibia and Leg (anterior and posterior surface)
Bones, Joints, Muscles, Vessels and Nerves of the Shin and Foot (anterior and posterior surface)
Superficial, descriptive and applied clinical anatomy.

11th Unit: Back Surface Trunk, Gluteal Country.

Inner and Outer Muscles of the Pelvis. Vessels and Trunk Nerves. Muscles of the dorsal surface of the trunk. Vessels and nerves. Superficial, descriptive and applied clinical anatomy.

12th Unit: Hull of Chest.

Hull of the Chest. Vesicles and spaces and spatial arrangement of the organs, vessels and nerves of the thoracic hull. Diaphragm. Vessels and nerves of the thorax. System of the veins of the thorax. Large thoracic duct. Thoracic fossa of the sympathetic trunk. Superficial, descriptive and applied clinical anatomy.

13th Unit: Hull of Belly

Hull of the abdomen. Spaces and Spatial arrangement of the organs of the abdomen. Peritoneum - Peritoneal Cavity - Peritoneal spaces - Posterior peritoneal space. Arteries and Veinshulls of the abdomen hull. The portal venous system. Lumbar and Sacred fate of the autonomic nerve systemic. Surface, descriptive and applied clinic anatomy.

4. TEACHING and LEARNING METHODS - EVALUATION

DELIVERY METHOD	Lectures
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Power point Projection Videos - animations - Quiz programs in PC or tablet MS Teams Online platform relevant video Projection

TEACHING ORGANIZATION

Activity	***Load Working Semester***
Lectures	28 hours
Laboratory exercise	28 hours
Total Course (28. hours of load work per creditunit)	***56 hours Workload hours per credit unit: 56: 6 = 9.6***

STUDENTS EVALUATION

- Written work

The general evaluation criteria are analyzed in the introductory lesson.

5. RECOMMENDED-BIBLIOGRAPHY

-Suggested Bibliography: **-** Students are provided in electronic form with Teaching Notes and "Power Point" files.

Additional Bibliography:

Handbook Descriptive Anatomical, 2nd ed. / 2011, Platzer, Fritsch, Kuhnel, Kahle, Frotscher
Anatomy of Human Body - Short, 2nd ed., 2011, Tortora Gerard
Anatomy of Human, 2019, Anne M. Gilroy

COURSE OUTLINE

1. GENERAL			
SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
LEVEL OF EDUCATION	UNDERGRADUATE		
COURSE CODE	AA0700	**SEMESTER OF STUDIES**	9 (NINTH)
COURSE TITLE	DATA OF NUCLEAR MEDICINE		
COURSE MANAGER	P. GEORGOULIAS (PROFESSOR OF NUCLEAR MEDICINE)		
ASSOCIATES	V. VALOTASIOU (Assistant Professor of NUCLEAR MEDICINE) I. TSOUGOS (Associate PROFESSOR OF MEDICAL PHYSICS)		

SEPERATE TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDIT UNITS**
	2 (TWO)	2 (TWO)

COURSE TYPE	OPTIONAL MANDATORY
PREREQUISITE COURSES:	NO
LANGUAGE OF TEACHING AND EXAMS :	ENGLISH
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE ELECTRONIC PAGE (URL)	https://eclass.uth.gr/courses/MED_U_217/

2.Learning Outcomes

The general purpose of the course is to introduce students to the principles of Nuclear Medicine. Furthermore, the course seeks to provide students with the basic information about the diagnostic and therapeutic applications of Nuclear Medicine, applying a "hands on" educational process. The specific objectives of the course are specialized in the following intended learning outcomes:

Upon successful completion of the course the student will be able to:

• Has understood the basic principles of Nuclear Medicine.

• Has knowledge of the main diagnostic and therapeutic applications of Nuclear Medicine.

• Distinguishes the main differences between the normal and pathological radioisotope imaging of the main organs and systems.

• Uses the main diagnostic and therapeutic radioisotope applications in clinical practice.

• Analyzes the scintigraphic data in combination with the history, the clinical picture and the data of the other clinical laboratory examination of the patients.

• Can collaborate with his fellow students to research and analyze the international literature.

General Abilities

- **Search, analysis and synthesis of data and information, using the necessary technology**
- **Working in an international environment**

- **Work in an interdisciplinary environment**

3. COURSE CONTENT

Unit 1. Introduction to Nuclear Medicine (2 hours)

Section 2. Principles of Radiation Protection in Nuclear Medicine (4 hours)

Section 3. Bone scintigraphy (2 hours)

Section 4. Endocrine gland scintigraphy (2 hours)

Section 5. Lung scintigraphy (2 hours)

Section 6. Kidney-urogenital scintigraphy (2 hours)

Section 7. Brain scintigraphy - CNS (2 hours)

Section 8. Scintigraphy of the hepato-spleen-gastrointestinal system (2 hours)

Unit 9. Nuclear Cardiology (4 hours)

Section 10. Therapeutic Applications (2 hours)

Section 11. Introduction to PET/CT Imaging (4 hours)

4. TEACHING AND LEARNING METHODS - EVALUATION

DELIVERY METHOD	Development of Nuclear Medicine topics - Commentary on typical cases of patients - Participation of students in the Nuclear Medicine Laboratory - Analysis of clinical cases in digital format using specialized software. Powerpoint
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Power point . “Hands on” in specialized workstations.
TEACHING ORGANIZATION	***Activity*** / ***Semester Workload*** *Total teaching time: 28 hours* / *Total workload: 54 hours.*
STUDENT EVALUATION	• Oral examinations. • Evaluation of students' participation in the Nuclear Medicine Laboratory. • The general evaluation criteria are analyzed during the introductory course.

5. RECOMMENDED - BIBLIOGRAPHY

Students are provided with electronic Teaching Notes and “PowerPoint” files.

Additional Bibliography:

1. Apostolopoulos D "Nuclear Medicine", "Kostakis Athanasios" Publications, 2019.
2. JFA Mettler - MJ Guiberteau, “Essentials of Nuclear Medicine Imaging” (6th ed), Philadelphia: Elsevier Health Sciences Division, 2012.

3. I. Fogelman - SEM Clarke - G. Cook - G. Gnanasegaran , “An Atlas of Clinical Nuclear Medicine” (3d ed), London: CRC Press (Taylor & Francis), 2014.
4. PA Georgoulias - N.S. Karkavitsas, "Nuclear Medicine and Coronary Heart Disease", Athens: Parisianou Scientific Publications SA, 2004.

- Related scientific Journal : European Journal of Nuclear Medicine and Molecular Imaging, Journal of Nuclear Medicine, Nuclear Medicine Communications

COURSE DESCRIPTION

TOPOGRAPHICAL - FUNCTIONAL ANATOMY OF HUMAN

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	**MP01002**	**Semester**	3rd
COURSE TITLE	TOPOGRAPHICAL - FUNCTIONAL ANATOMY OF HUMAN		
COURSE INSTRUCTOR	Zimpis Aristides, Associate Professor		
CO-INSTRUCTORS	A. Zimpis		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	2	2

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	General Knowledge
PREREQUIRED COURSES	no
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	Yes
WEBSITE (URL)	http://eclass.uth.gr/eclass/courses/MED_U_218
2.LEARNING OUTCOMES	

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

The aim of the course is to study and understand the interdependencies of the systems of the human body. In this sense the course is the basis on which the student will build his clinical thinking and approach to the patient.

Upon successful completion of the course the student will be

able to: Have an understanding of anatomy in space

Have knowledge of functional anatomy

Be able to distinguish topographical anatomy

Use anatomy in clinical practice and differential diagnosis

Analyse clinical findings on the basis of topographical anatomy

Can collaborate with fellow students to interpret clinical problems on

the basis of anatomical relationships

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Research, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3.Module Content

Topographical anatomy focuses on the 'region of the body' and deals with what anatomical elements are contained within it. Topographical anatomy does not make a strict separation of systems, but studies all the systems together which are located in the anatomical region in question. In functional anatomy, the anatomy is studied from the point of view of the function of a particular structure or organ (i.e. by studying the shoulder region, for example, we will be concerned with which anatomical elements perform the abduction of the shoulder). In this way, the aim is to emphasize the relationships between the anatomical structures, their proximity and their cooperation in the functioning of the human body. The most important advantage is that the student will learn anatomy from a different perspective, focusing on the three-dimensional correlation of structures from the surface to the deeper layers.
According to this approach, anatomical study is based on the regions or parts into which the human body is divided, emphasizing the relationships and function of the various systemic structures (muscles, nerves and arteries, etc.) within the region in question.
The human body is divided into regions as shown externally into: head, neck, upper limb, torso, lower limb. It is also divided into smaller parts such as the anterior cervical triangle, the abdominal cavity, the groin, the iliac crest, etc.

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	*Courses will include lectures and/or laboratory exercises of 2 hours duration. During the laboratory exercises, anatomical preparation of the structures taught will be carried out on cadaveric preparations.*

USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students. Specifically: • Common software (e.g. MS powerpoint, keynote) is used to prepare lecture material and display slides and videos. • The study guide (detailed supplementary material & additional bibliography), the tutorial material (clinical cases), the theory and protocols of the laboratory exercises, the slides of each lecture as well as relevant videos and scientific articles made available electronically and online to students through the e-class system of our university. • Information about the course, instructors and their research interests are available online on the Laboratory website• Common software (e.g. MS excel) is used to statistically process student assessment. Announcements, information etc are available online via e-class. Communication is also done via e-mail and social media. • Use of three-dimensional anatomical models
TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.	***Learning activity*** ***Total semester workload*** ***about 54*** hours

STUDENT EVALUATION **Description of the evaluation process** Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	The language of assessment is English. **Evaluation methods.Written exams - potentially online exams.** **The general evaluation criteria are analyzed in the introductory lesson.**
5.Recommended Bibliography	
Lecture Material ***Main suggested textbooks:*** ***Functional anatomy of kinetic system. Jutta Hochschild 2019*** ***Clinical anatomy of the shoulder, Type: Book A.H. Zimpis, 1st ed./2017***	

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
LEVEL OF EDUCATION			
COURSE CODE		**SEMESTER OF STUDIES**	4th
COURSE TITLE	**THE NORMAL CHILD**		
COURSE MANAGER	Ioanna Grivea, Associate Professor of Pediatrics and Neonatology		
ASSOCIATES	George Syrogiannopoulos, Professor of Pediatrics Antonios Gounaris, Emeritus Professor of Neonatology Emmanouil Alexopoulos , Assistant Professor of Pediatrics - Pediatric Pulmonology		
SEPERATE TEACHINGS ACTIVITIES	**WEEKLY TEACHING HOURS**		**CREDIT UNITS**
	2		2
COURSE TYPE	Scientific Area		
PREREQUISITE COURSES:	NO		
LANGUAGE OF TEACHING AND EXAMS :	English		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO		
COURSE ELECTRONIC PAGE (URL)	Yes. The presentations and the data of the course in general will be gradually posted in the e - class		

2.Learning Outcomes

The aims of the course are

- Familiarization of students with the approach of the child in all age groups (newborn, infant, toddler and adolescent) either as a patient or as part of a preventive examination.
- The training in receiving the history in Pediatrics as well as in the recording of the individual and family history. They will be involved in the collection of information

regarding the present disease but also how this information will be evaluated and will guide us in the management of the incident.

- The knowledge of the differences that the child has from the adult and how his physical development and psychomotor development are assessed.
- The analysis of conditions such as the transition to ectopic life as a newborn, the value of screening in childhood and adolescence, the prevention of infections through vaccinations and the role of nutrition in relation to the ultimate health of children.

In addition, the physiology of all systems of the human body (respiratory, cardiovascular, urinary, hematopoietic, immune, endocrine, nervous) will be analyzed as they work in all age groups of Pediatrics in order to enable the student to better approach the pathophysiology of pediatric diseases.

General Abilities

- Search, analysis and synthesis of data and information (practical and theoretical)
- Skills Development
- Decision making
- Work in an interdisciplinary environment

3. COURSE CONTENT

- Obtaining a pediatric medical history (1 hour)
- Clinical examination of a newborn (2 hours)
- Clinical examination of infant and child (2 hours)
- The normal full-term newborn (2 hours)
- Adaptation to ectopic life (1 hour)
- Physical growth-normal adolescence (2 hours)
- Earlyness (1 hour)
- Development - psychomotor development (2 hours)
- Periodic screening in childhood (2 hours)
- Nutrition - breastfeeding (1 hour)
- Fluids and electrolytes in infants and children and intake of nutrients, minerals and trace elements and metabolism of vitamin D (1 hour)

- Immune System Physiology - Vaccines (1 hour)
- Respiratory and cardiovascular physiology in children (1 hour)
- Hematopoietic and endocrine system physiology in children (1 hour)
- Urinary and nervous system physiology in children (1 hour)

4. TEACHING AND LEARNING METHODS - EVALUATION

DELIVERY METHOD	• Lectures • Multimedia file presentations • Internship that includes taking a history from children who are hospitalized in the Pediatric Clinic or who attend the ICUs of Pediatrics Clinic
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	• Information and communication technologies for the presentation of the material of the lectures, the internet information and the internship of the students • Use software to present lectures and view slides and videos. • Study guide that includes presentation files and relevant international bibliography are online available to students through the e-class. • Information about the course and the teachers is available at the secretariat of the Pediatric Clinic

TEACHING ORGANIZATION

Activity		***Semester Workload***
Lectures		21 hours
Internship		14 hours
NUMBER OF TEACHING HOURS / WEEK	2.5 HOURS (LECTURE AND PRACTICE)	
NUMBER OF HOURS OF PREPARATION OF EXERCISES	0.5	
NUMBER OF WEEKS	14	
TOTAL NUMBER OF TEACHING &	42	

	PREPARATION FOR SEMESTER		
	PREPARATION FOR EXAMINATION	12	
	TOTAL TIME	54	
	ECTS	2	
STUDENT EVALUATION	The examination / evaluation of the student takes place at the end of the course with their participation by taking a history (30%) and written multiple choice questions (70%).		

5. RECOMMENDED-BIBLIOGRAPHY

BOOKS

1. "The Normal Child". Authors: Faculty Members - Department of Child Health, University of Ioannina, NEON PUBLICATIONS, 2020 edition

2. "Handbook of Pediatrics" Authors: N. THALANGE, P. HOLMES, R. BEACH, T KINNAIRD, 1st edition 2012 Scientific Publications PARISIANOU SA

Journals

1. Pediatrics
2. JAMA Pediatrics
3. Journal of Pediatrics

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
STUDY LEVEL	Undergraduate		
COURSE CODE	**MP0800**	**Semester**	7th
COURSE TITLE	Physical and Rehabilitation Medicine		
COURSE INSTRUCTOR	Sgantzos Markos, Associate Professor		
CO-INSTRUCTORS			

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	2	2
	Additional training in assessing the needs of a Rehabilitation patient and prescribing a Rehabilitation program	

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	* Scientific Area
PREREQUIRED COURSES	None
LANGUAGE OF TEACHING AND EXAMS	English In English for foreign students (Erasmus, HelMSIC)
AVAILABLE TO ERASMUS STUDENTS	Yes
WEBSITE (URL)	No

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• *Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning*

The aim of the course is for students to understand the importance and clinical contribution of Physical and Rehabilitation Medicine as an independent Medical Specialty. Physical and Rehabilitation Medicine has the ability, by using physical agents εδώ ίσως ήταν καλύτερα να είναι ευρύτερο* (πχ rehabilitation interventions), to help the patient to reduce the incapacity that may be caused by some damage to his health. Also, through the operation of the Rehabilitation team, it is possible to break the close relationship that exists between the incapacity and the disability that can be caused in case of permanent damage, so as to enable the person to fulfill his role within the family and the community.
Through the teaching of the course, the student will become more familiar with the necessity and application of physical agents* as well as with the function of the Rehabilitation team and the special role that each member has, such as the Physiotherapist, Occupational Therapist, Speech Therapist, Psychologist, the Orthotics and Prosthetics Technician. This gives him the opportunity to get to know an object that complements the other Medical Specialties and is encountered very often in daily practice.

Upon successful completion of the course, the student will be able to:

• understands the basic principles of Physical and Rehabilitation Medicine(PRM)
• understands the main diagnostic and therapeutic applications of PRM
• Knows the members and operation of the Rehabilitation team
• Can assess the patient's needs in Activities of Daily Living and self-care.
• Analyzes the needs of the patient in combination with the history, the clinical picture and the data of the other clinical laboratory control and designs an individualized program of Rehabilitation.
• Can collaborate with fellow students to research and analyze international literature.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

3.Module Content

1. Physical and Rehabilitation Medicine (PRM): introduction, definitions, international and Greek data, measurement tools, the role of Rehabilitation. Physical history and physical examination, (adult and child).
2. Gait analysis and clinical applications. Electrodiagnosis (basic principles, clinical evaluation)
3. Outcome and quality of life measurements in Medical Rehabilitation
4. Wheelchair, Prostheses and Orthotics. Personalization to the patient.
5. Therapeutic exercise, physical agents, electrical stimulation

Common clinical problems in Rehabilitation (treatment, prevention) such as:

1. Spasticity and its treatment
2. Rehabilitation of orthopedic and rheumatological diseases
3. Respiratory Rehabilitation
4. Cardiac Rehabilitation
5. Rehabilitation of patients with Spinal Cord Injury
6. Rehabilitation of patients with Brain Injury
7. Rehabilitation of stroke patients
8. Rehabilitation of the patient with amputation
9. Geriatric Rehabilitation
10. Rehabilitation in cancer patients
11. Burn rehabilitation

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	Topics in Physical and Rehabilitation Medicine – Annotating patient case reports – Participation of students in the approach to the patient with disability and design of the Rehabilitation Program
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	**No**
TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.	

Activity	***Semester Workload***
Lectures 28 hoursς	Lectures 28 hours
Seminars 6 hours	Seminars 6 hours
Educational visits 4 hours	*Educational visits 4 hours*
Educational writing 14 hours	*Educational writing* 14 hours
Clinical Practice: 4 hours	*Clinical Practice:* 4 hours
Course Summary (28 workload hours per credit unit)	***56 hours***

STUDENT EVALUATION **Description of the evaluation process** Assessment Language, Assessment Methods, Formative	- Written Assignment The general evaluation criteria are analyzed in the introductory lesson.

or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	

5.Recommended Bibliography

-Suggested Bibliography: - Students are provided with Teaching Notes and “Power Point” files in electronic format

Additional Bibliography:

Physical and Rehabilitation Medicine for Medical Students Edi.Ermes - Milan (Italy) 2018

ISBN 978-88-7051-636-4 - Digital edition

COURSE DESCRIPTION

Physiology of Behavior

1.GENERAL			
SCHOOL	School of Health Sciences		
DEPARTMENT	Faculty of Medicine		
STUDY LEVEL	Undergraduate		
COURSE CODE	**BE0811.E**	**Semester**	Optional courses Winter
COURSE TITLE	Physiology of Behavior		
COURSE INSTRUCTOR			
CO-INSTRUCTORS	Efrosyni Parakeva Anna Vasilaki		

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	2	2

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Scientific area (Neuroscience)
PREREQUIRED COURSES	None
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	No
WEBSITE (URL)	**https://eclass.uth.gr/courses/MED_U_225/**

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

Aims of the course

The aim of the course is the presentation of the higher functions of the brain (perception, memory, learning, emotion, motivation) as well as some basic principles governing them at the cellular level. The course material aims to familiarize students with terms and concepts related to higher functions and introduce them to disorders of these functions. It also refers to experimental

approaches to the study of higher human brain functions. Therefore, students will be able to understand the importance of comprehensive and in-depth knowledge of the function of the nervous system for the scientific field of Neuroscience as well as the Neurology and Psychiatry specialists.

The specific objectives of the course are specialized in the following intended learning outcomes:
After the successful completion of this course, the student will be able to:

- Recognize and describe the higher human brain (cognitive) functions and acquire a critical attitude towards the scientific knowledge related to them.
- Assess the limits within which the mechanisms related to the higher brain functions operate and possible disturbances that will occur in cases of deviations from these limits.
- Study with critical disposition scientific studies (articles) that investigate the higher (cognitive) functions.
- Collaborate with his classmates to study, organize and present a scientific topic.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

- Research, analysis and synthesis of data and information, using the necessary technologies
- Decision making
- Autonomous work
- Teamwork
- Exercise criticism and self-criticism
- Promoting free, creative and inductive thinking

3.Module Content

The content of the course includes the following major items:

A. The content of the lectures together with the relevant clinical insights the students need to learn/acquire per chapter.

COURSE CONTENT

Section 1: History of Mind Mapping

- ✓ From antiquity to the 18th century AD
- ✓ Albrecht Von Haller- the equipotential view
- ✓ Franz Joseph Gall – Phrenology-
- ✓ Localization of brain functions

Section 2: Brain and Behavior - Cognitive Function and Cortex

The enigma of consciousness

- ✓ The Phi phenomenon
- ✓ Daniel Dennett: «Multiple drafts model»
- ✓ The Neuroscience of Consciousness: Bridging the gulf between brain and consciousness

The biological basis of behavior

- ✓ Behavioral Disorders
- ✓ The relationship between brain and behavior
- ✓ Methods of Studying the Brain- Brain Imaging Techniques

Cognitive function and brain cortex

- ✓ Hierarchical organization of brain
- ✓ Functional specificity in the human brain

Section 3: Genes and Behavior: The Biological Basis of Behavioral Disorders

- ✓ The genetic element in human behavior
- ✓ Studing the effect of genes on behavior
- ✓ Human behavior is shaped by both genetic and environmental factors
- ✓ Most complex behavioral features are controlled by multiple genes
- ✓ Biological basis of behavioral disorders

Section 4: The evolution of the brain and behavior throughout life

- ✓ Experiences have a major impact on brain development
- ✓ Visual deprivation can lead to blindness
- ✓ The brain is still changing as we grow older
- ✓ Theories of "aging"

Section 5: Perception

General principles -Definitions

Auditory perception

- ✓ Audiogram
- ✓ Audio Frequency Separation
- ✓ Psychoacoustics
- ✓ Experience has an impact on auditory perception and auditory pathways

Visual perception

- ✓ Face and object recognition
- ✓ Theories of visual perception
- ✓ Depth perception- Perceptual Stability
- ✓ Gestalt Theory and Its Legacy: Organization in Eye and Brain, in Attention and Mental Representation
- ✓ Other theories of visual perception
- ✓ Visual perceptual deficiencies

Section 6: Emotion & social brain

- ✓ General principles -Definitions
- ✓ Components of emotion
- ✓ Emotional brain
- ✓ Neuropsychological theories about emotion
- ✓ Production of emotional behavior
- ✓ Empathy : mirror neurons

Section 7: The Neurophysiology of Speech-Hemispheric Specialization and Cognition

- ✓ Cerebral hemisphere asymmetry
- ✓ Language Evolution and Human Development
- ✓ The FOXP2 gene
- ✓ The cortical organization of speech processing
- ✓ The role of Broca’s area in speech
- ✓ Speech Disorders
- ✓ Types of Aphasia
- ✓ Brain Lateralization
- ✓ Split brain - the corpus callosum
- ✓ Corpus callosum abnormalities

Section 8: Gender and brain

- ✓ Genger dimorphism
- ✓ Gender definition
- ✓ The Influence of Sex Hormones on the Nervous System
- ✓ The effect of sex hormones on the developing brain
- ✓ Masculinization of the brain
- ✓ Male and Female Brain Differentiation
- ✓ Parental Behavior
- ✓ Non-chromosomal gender disorders - Gender change in puberty

Section 9: Neurogenesis

Section 10: Learning and memory- Cellular mechanisms

- ✓ The relationship between Learning and Memory
- ✓ Memory problems after brain injuries
- ✓ Patient HM
- ✓ Amnesia: Types, Symptoms, and Causes
- ✓ The Korsakoff syndrome
- ✓ Types of memory
- ✓ Habituation and sensitization
- ✓ Sensory, short and long term memory
- ✓ Parts of the Brain Involved in short and long term memory formation
- ✓ The main components of human memory and the brain areas involved
- ✓ Hippocampus and spatial memory
- ✓ Alzheimer's disease
- ✓ Neural mechanisms of learning and memory
- ✓ Plasticity
- ✓ Aplysia as a model organism for the study of memory
- ✓ Mechanisms of short-term and long-term potentiation
- ✓ Mechanisms involved in age-related memory impairment

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	*Face to Face:* Teaching of "Physiology of Behavior" consists of lectures. Attendance of lectures is obligatory. The lectures content is described above.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Information and Communication Technologies are used for the preparation of the lecture material, the online information and provision of supplementary learning material to students. Specifically: • Common software (e.g. MS powerpoint) is used to prepare lecture material and display slides and videos. • Announcements, information etc are available online via e-class. Communication is also done via e-mail.
TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement),	

Learning activity	***Total semester workload***
Lectures	28 hours
Lab. Practical (obligatory presence)	
Tutorials (obligatory presence)	
Study	22 hours

<table>
<tr>
<td>Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc

The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.</td>
<td>
<table>
<tr><td>Preparation for Practical</td><td></td></tr>
<tr><td>Preparation for Tutorials</td><td></td></tr>
<tr><td>SUM
(25 hours per teaching credit)</td><td>50 hours</td></tr>
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<tr>
<td>STUDENT EVALUATION
Description of the evaluation process

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, Explicitly defined assessment criteria are stated and if and where they are accessible to students.</td>
<td>The language of assessment is English.
Evaluation methods.
At the end of the semester, students present a paper with a theme similar to these lectures and submit (electronically) a written paper on a topic similar to that of their presentation. Student presentations are posted in the e- class.
Final Grade:
The final grade of the course is based on students’ oral presentations
All of the above are presented in detail in the Course Guide which is distributed in print to all students and is posted electronically in e-class.</td>
</tr>
<tr><td colspan="2">5.Recommended Bibliography</td></tr>
<tr>
<td colspan="2">A. Lecture Material
Main suggested textbooks:
1. Brain & Behavior: An Introduction to Behavioral Neuroscience Sixth Edition by Bob Garrett (Author), Gerald Hough (Author)
Publisher: SAGE Publications, Inc, ISBN-13: 978-1071839935
2. Behavioral Neuroscience 9th Edition, by S. Marc Breedlove (Author), Neil V. Watson (Author)
Publisher: Sinauer Associates (imprint of Oxford University Press), ISBN-13 : 978-1605359076
3. Fundamentals of Human Neuropsychology 8th Edition by Bryan Kolb (Author)
Publisher: Worth Publishers, ISBN-13 : 978-1319247164

Relevant Scientific Journals:
Neuron
Consciousness and Cognition
Neuroscience Letters
Neuroscience Research
Current Biology
Social Psychiatry and Psychiatric Epidemiology
PLoS ONE
Journal of Learning Disabilities</td>
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COURSE DESCRIPTION

1.GENERAL			
SCHOOL	HEALTH SCIENCES		
FACULTY	MEDICINE		
ACADEMIC DEGREE	BACHELOR/UNDERGRADUATE		
LESSON CODE	XP0750	**SEMESTER**	SPRING
LESSON	SESSION OF THE THORACIC AND CARDIO-VASCULAR SURGERY		
COURSE RESPONSIBLE	PROFESSOR ATHANASIOS ATHANASIOU		
OTHER TEACHING- ACADEMIC STAFF	ASSISTANT PROFESSOR KYRIAKOS SPILIOPOULOS		

INDEPENDENT TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	ECTS
	2	2.00

COURSE TYPE	ELECTIVE
PREREQUISITE COURSES	NO
COURSE AND EXAMINATION LANGUAGE	ENGLISH
COURSE AVAILABLE FOR ERASMUS STUDENTS	YES
COURSE SITE (URL)	

2.COURSE OBJECTIVES/ DESCRIPTION:

The general purpose of the course is to introduce students to the scientific field of Cardiovascular-Thoracic Surgery and to enable them to design, analyze and compile algorithmic assessment and treatment of cardiothoracic surgerydiseases.

Furthermore, the course seeks to provide students with the basics for acquiring basic knowledge of Cardio-Thoracic-VascularSurgery and understanding the importance and clinical contribution of Cardiovascular-Thoracic Surgery as an independent Medical Specialty.

The objectives of the course are specialized in the following intended learning outcomes:

Upon successful completion of the course the student will be able to:

Will be able to use the acquired knowledge in order to:

- design a diagnostic approach for Cardiothoracic surgery patients
- record diagnostic examination findings of the above patients
- organize the treatment of these patients
- approach the clinical and diagnostic examination of patients
- use the appropriate diagnostic and therapeutic algorithm depending on the condition
- collaborate with his classmates to evaluate and analyze the findings

General Skills

3.COURSE DESCRIPTION

1: Introduction to Cardio and Thoracic Surgery

2: Cardio-VascularSurgicaldiseases in the Adult

3: ThoracicSurgicaldiseases in the Adult

4: The specialty in Cardiothoracic Surgery / Examinations

4.TEACHING AND LEARNING METHODS - EVALUATION

TEACHING	LECTURES / CLINIC
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Power point
TEACHING ORGANIZATION	

Activity	***Semester Workload***
Lectures and Observation / participation in 2 (at least) field surgeries	

STUDENT EVALUATION	Oral exams after the lectures

5.RECOMMENDED-BIBLIOGRAPHY

Students are provided with teaching notes.
Additional Bibliography:
INTRODUCTION TO THORACIC AND CARDIO-VASCULAR SURGERY, Handbook for students & young doctors. (Published by the University Clinic of Cardio-Vascular-Thoracic Surgery)

COURSE DESCRIPTION

1.GENERAL			
SCHOOL	FACULTY OF HEALTH SCIENCES		
DEPARTMENT	DEPARTMENT OF MEDICINE		
STUDY LEVEL	UNDERGRADUATE		
COURSE CODE	**ΨX0200**	**Semester**	5 th
COURSE TITLE	Psychosomatic Medicine		
COURSE INSTRUCTOR	Konstantinos S. Bonotis		
CO-INSTRUCTORS			

TEACHING ACTIVITIES in case credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the whole course, indicate the weekly teaching hours and the total number of credits.	**WEEKLY TEACHING HOURS**	**TEACHING CREDITS**
	2	2

COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	
PREREQUIRED COURSES	
LANGUAGE OF TEACHING AND EXAMS	English
AVAILABLE TO ERASMUS STUDENTS	NO
WEBSITE (URL)	

2.LEARNING OUTCOMES

The learning outcomes of the course are described, the specific knowledge, skills and abilities of an appropriate level that students will acquire after the successful completion of the course.

• Description of the Level of Learning Outcomes for each course according to the Qualifications Framework of the European Higher Education Area

• Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning

The general purpose of the course is to introduce students to the Psychosomatic theory and practice and the modern psychosomatic perception. Furthermore, the course seeks to provide students with the concept of cycling relationship and the complex interplay between psychological, behavioral and biological factors in medicine as well as the biopsychosocial model of patient care. Finally, a main

purpose of the course is the awareness concerning the psychological reaction of patient in clinical practice.

General Abilities

Taking into account the general skills that the graduate must have acquired (as they are listed in the Diploma Supplement and are listed below), which of them is intended for the course?

Research, analysis and synthesis of data and information, using the necessary technologies Adaptation to new situations
Decision making
Autonomous work Teamwork
Working in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity in gender issues
Exercise criticism and self-criticism
Promoting free, creative and inductive thinking

Research, analysis and synthesis of data and information, using the necessary technologies, Autonomous work Teamwork, Work in an interdisciplinary environment, Production of new research ideas, Respect for diversity and multiculturalism, Respect for the natural environment, Demonstration of social, professional and moral responsibility and sensitivity in gender issues, Promoting free, creative and inductive thinking

The specific objectives of the course are specialized in the following intended learning outcomes:
Upon successful completion of the course the student will be able to use acquired knowledge in order to:
Be sensible of the psychological factors' influence on disease onset, course and treatment.
Recognize and interpret the adjustment reaction of patient.
Be trained in the holistic care and support.
Collaborate in the performance and presentation of coursework.

3.Module Content

1. Body and soul in medical practice - Historical retrospection
2. The developing of Psychosomatic Medicine
3. Comorbidity of mental and body disease
4. The Psychiatric Department in General Hospital
5. Implications of psychiatric disorders to body health
6. Psychological reaction and adjustment in the disease
7. Psycho-oncology
8. Psychosomatic disorders
9. Psychoneuroimmunology
10. Pain experience
11. Doctor-patient relationship
12. Alternative and Complementary medicine

4. TEACHING AND LEARNING METHODS - EVALUATION

Teaching Method (face to face, tutoring, distance learning)	Face to face
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Microsoft Power point
TEACHING METHODS The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliography study & analysis, Tutoring, Internship (Placement), Clinical Exercise, Workshop, Interactive teaching, Study visits, Study work, project. etc The student study hours as well as the non-guided study hours for each learning activity are indicated so that the total workload at the semester level corresponds to the ECTS standards.	

Δραστηριότητα	***Φόρτος Εργασίας Εξαμήνου***
Lectures	20 hours
Public Presentation	4 hours

STUDENT EVALUATION **Description of the evaluation process** Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Report / Report, Oral Examination, Public Presentation, *Explicitly defined assessment criteria are stated and if and where they are accessible to students.*	English Coursework Public Presentation Assessment criteria are stated and accessible to students

5.Recommended Bibliography

ΙΑΤΡΙΚΗ ΨΥΧΟΛΟΓΙΑ & ΨΥΧΟΠΑΘΟΛΟΓΙΑ, ΔΙΑΣΥΝΔΕΤΙΚΗ ΨΥΧΙΑΤΡΙΚΗ, ΕΙΣΑΓΩΓΗ ΣΤΗΝ ΨΥΧΟΛΟΓΙΑ ΤΗΣ ΥΓΕΙΑ