University of Patras

School of Medicine

Undergraduate Programme of Studies

Courses outlines

2023-2024

Contents

1st Semester

COURSE OUTLINE MED_111

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MD_111	**SEMESTER OF STUDIES**	1st
COURSE TITLE	BIOLOGY I		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	3	7
Laboratory work/tutorials/small group teaching	3	

COURSE TYPE	· General knowledge · Scientific area
PREREQUISITE COURSES:	None .
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES, with literature support provided by: (a) internationally acclaimed text books, (b) educational material offered at e-class, (c) current review articles on the topics of "small group teaching".
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/modules/course_description/?course=MED800

2. LEARNING OUTCOMES

Learning outcomes
In BIOLOGY I, basic principles of molecular and cellular biology are being taught. The aims of the course are: · To permit an understanding of the central concepts of cellular and molecular biology and of the key experimental findings which support them · To allow students to appreciate the complexity of biological systems and the importance of modern molecular biology technologies for their study

· To underline the importance of the regulation and aberrations of molecular pathways in cells for disease etiology and manifestation
General Abilities
Ability to search, analyze and combine data and information by using available technologies (including practical lab work, analyzing research articles and reviews, resources from the internet and relevant databases, and analyzing biological data using bioinformatics tools). Develop skills for autonomous (independent) work, group work, and learn how to pose scientific questions and critically discuss with peers. Promotion of free, creative and inductive thinking.

3. COURSE CONTENT

The course covers central biological principles and mechanisms which govern cellular function at the molecular level.

Topics include :

- Introduction to molecular and cellular biology.
- Biological macromolecules
- The cell: energy conversions in the cell, cellular compartments and organelles
- Cellular membranes, intra- and extra- cellular transport, the cytoskeleton
- DNA as the genetic material: structure and expression
- DNA replication, DNA damage, repair mechanisms and mutations
- Chromosomes and the regulation of gene expression
- Cell signalling
- Cell division, mitosis-meiosis, cell cycle control

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD.	Lectures, tutorials, laboratory work, small group teaching
USE OF INFORMATION ANDCOMMUNICATIONTECHNOLOGIES	Use of Information and Communication Technologies (ICTs) in teaching, including electronic presentations and notes, use of videos and animations, extensive links to relevant educational and research webpages and videos on e-class, use of e-class for student assignment submission and marking. In addition, through lab work, students familiarize themselves with bioinformatics tools and databases. All course lectures, study material, educational videos and links are uploaded on e-class, from where they are freely available to students.
TEACHING ORGANIZATION	

Activity	**Semester's work load**
Lectures and study	106

	Small group teaching, study and analysis of literature topics, individual essay writing	54
	Laboratory work combining theory and experimental work; written test and extensive report submission for each module.	36
	Total number of hours for the Course (25 hours of work-load per ECTS credit)	***196 (/7 = 28)***
STUDENT ASSESSEMNT	1. Final exams (75%), include: o Multiple choice, matching or true-false tests with short justification o Short Essay questions, including questions of critical thinking o Problem-based questions, including clinically relevant problems 2. Laboratory work evaluation (25%), includes: o A short test taken at the time of the practical. o A lab report on experimental data and evaluation of the results of each practical. o A literature essay relevant to the "small group teaching" topic.	

5. RECOMMENDED LITERATURE

1. Essential Cell Biology, 3rd Edition, by Alberts et al, BROKEN HILL Publishers, Greek translation, ISBN: 978-9963-258-27-7
2. The Cell, a molecular approach, 5th edition, G.M. Cooper, R.E. Hausman, Greek translation, Academic Publishers Basdra and co, ISBN: 978-960-99895-8-9
3. "Laboratory protocols and resources" booklet, authored by faculty members of the Lab. of General Biology, U. of Patras Publications Centre, Patras.

4. “Small group teaching” booklet, authored by faculty members of the Lab. of General Biology, U. of Patras Publications Centre, Patras.

COURSE OUTLINE MED_121

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_121	**SEMESTER OF STUDIES**	1st
COURSE TITLE	BIOCHEMISTRY I		
INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course e.g. lectures laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*		**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures, seminars and laboratory work		8	7
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).			
COURSE TYPE *general background, special background, specialised general knowledge, skills development*	General Background		
PREREQUISITE COURSES:	No		
TEACHING AND ASSESSMENT LANGUAGE:	Greek, English (optional)		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/courses/MED807/ http://www.med.upatras.gr/gr/Pages/undergrad/courses.aspx?IID=5		

2. LEARNING OUTCOMES

Learning outcomes *The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.* *Consult Appendix A* · *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area* · *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B* · *Guidelines for writing Learning Outcomes*
The course is an introduction to Biochemistry and to the fundamental reactions of metabolism that take place inside the cell. It includes the analysis of all basic aspects and methodology of Biochemistry in the study of the basic building blocks, their organization into macromolecules and their involvement in metabolic pathways and

reactions that take place under normal and pathological conditions. The aim of the course is to understand the composition and complexity of the compounds participating in the main metabolic networks, and how these are altered and determined in different conditions, such as the change in enzymes activity or transport proteins.

Upon completion of the course the students should be able to:

1. Understand the basic concepts of biochemistry and use the scientific literature to extract information in order to update their knowledge based on the latest scientific advances.
2. Distinguish biomolecule classes, their structural organization and their intracellular localization and understand the importance of their homeostasis for human health.
3. Understand the structure and function of enzymes, transport proteins and nucleic acids, as well as the genes coding them.
4. Understand the basic motifs of the reactions taking place in a cell, as well as the importance of the enzymes that catalyze them and their potential as therapeutic targets.
5. Recognize the importance of compounds that carry prosthetic groups or are responsible for the creation of redox potential and free radicals and how they relate to proper functioning of the human body, aging and disease
6. Perform experiments in the form of laboratory exercises related to diagnosis and interpret their results
7. Have the ability to collect and interpret relevant data within their knowledge field in order to make decisions on clinical and diagnostic issues as well as on wider scientific issues concerning scientific and ethical aspects
8. Use the knowledge and understanding they have acquired in a way that shows a professional approach to their work or profession and have acquired the skills they typically demonstrate by developing and supporting arguments to solve problems within the field of biochemistry.

5. Communicate information, ideas, problems and solutions to both qualified and non-specialized audiences.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Project planning and management
Decision-making
Team work
Working independently
Working in an interdisciplinary environment
Propose new research ideas
Production of free, creative and inductive thinking
Respect for the natural environment

3. COURSE CONTENT

1. INTRODUCTION TO BIOCHEMISTRY

Aqueous solutions of molecules and ions

Distinction between molecular and colloidal solutions.
Colligative properties of solutions (osmolarity)

Acids, bases, salts

Definitions, properties
Acids-bases titrations, equivalente point, neutral solution.
Water ionization, pH and Ionic strength of solutions

Buffer Solutions

Henderson-Hasselbalch equation
Preparation of buffer solutions

Solutions of chemical complexes

Definition and properties of Coordination compounds
Types of bonds of chemical complexes
Stability and instability constants
Biological significance of chemical complexes

2. STRUCTURE AND FUNCTION OF PROTEINS

Amino Acids and their properties
Peptides and Proteins
Importance of the nature of side chains of the amino acids in the properties of peptides and proteins.
Electrolytic behavior of proteins/ physicochemical properties
Amino acid and peptide bond stereochemistry
Determination of the amino acid sequence of proteins
Levels of organization of protein structure
Denaturation and denaturants. Importance of denaturation in protein's biological activity
Protein purification methods
Structure-function relationships

3. NUCLEIC ACIDS AND FLOW OF THE GENETIC INFORMATION

Primary structure of nucleic acids
Sensitivity of nucleic acids primary structure to acids and bases
Secondary structure of nucleic acids (A, B and Z helices)
Tertiary structure of nucleic acids
DNA denaturation-rearrangement
Genes and genomes
Recombinant DNA technology
DNA sequencing
Bioinformatics
Homologous genes and phylogenetic trees

4. ENZYMES

General properties of enzymes
Enzymes classification
Coenzymes and prosthetic groups
Structure and biological significance of high-energy compounds (ATP, NADH, FADH2)
Kinetic analysis of enzymatic reactions (Activation energy)
Mechanisms of catalysis
Kinetics of first-order reactions
Inhibition of enzymatic reactions

Regulatory mechanisms of enzymatic function
Proteolytic activation of zymogens
Allosteric regulation of enzymes

5. STEREOCHEMISTRY OF BIOMOLECULES AND SUGARS
Enantiomeric and diastereomeric compounds
Stereoisomers D, L, R and S.
Molecular configurations
Chirality and its biological applications
Cis-trans isomerization in molecules with double bonds
Simple monosaccharides, D- and L-Glyceraldehyde derivatives
Physicochemical properties
Ring structure of monosaccharides
Glycosidic bonds, oligosaccharides
Polysaccharides (starch, cellulose, agarose, cell wall polysaccharides, glycogen)

6. **LIPIDS AND BIOLOGICAL MEMBRANES**
Fatty acids, lipids and phospholipids
Composition and structure of membranes
Membrane fluidity and transport
Cell membrane receptors

7. MEMBRANE CHANELS AND PUMPS
Passive and active transport
Membrane transport proteins
Free energy transport and the Nerst potential equilibrium
Sodium-potassium pump ($N\alpha^+/K^+$ATPase)

8. METABOLISM AND BIOENERGETICS
Constitutive thermodynamic equations (enthalpy, entropy, Gibbs free energy)
Characteristics of exergonic and endergonic reactions
Transformation of Gibbs free energy to transportation, mechanical and biosynthetic output
Effects of pH, temperature and ionic strength on the equilibrium constant
High-energy group transfer potential
Basic reactions of metabolic processes (redox, hydrolysis, carboxylation, decarboxylation, isomerisation)
Classification of reactions and reactants (mesomerism and resonance structures, nucleophilic and electrophilic attack, elimination reactions, tautomerization reactions).

LABORATORY CLASSES

6. Becoming familiar with the laboratory space, introduction to health and safety regulations (use of chemical reagents, disposal, transfer of liquids). Learning the concepts of dilutions and preparation of simple aqueous solutions.
7. Spectrophotometry. Theory and practical acquaintance with spectrophotometers. Determination of the optimal wavelength for paranitrophenol absorption, application of the Beer-Lambert law and determination of paranitrophenol concentration in an unknown sample.
3. Kinetic study of the enzymatic activity of wheat acid phosphatase with para-nitro-phenol phosphate ester as the substrate. Study of reaction speed and determination of V_{max} of K_M and enzyme activity (U / L).

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Lectures, group tutorials with PBLs and laboratory exercises

<table>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES
Use of ICT in teaching, laboratory education, communication with students</td><td>Software use: Power Point, videos from scientific webpages and youtube and uploading of lectures to to e-class</td></tr>
<tr><td>The manner and methods of teaching are described in detail.

Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures 3h/week</td><td>39</td></tr>
<tr><td>Tutorials, 2h for every week</td><td>26</td></tr>
<tr><td>Laboratory classes, 3h/week</td><td>39</td></tr>
<tr><td>Data analysis, interpretation and lab report</td><td>13</td></tr>
<tr><td>Home work</td><td>58</td></tr>
<tr><td>Total (hours)</td><td>175</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSEMNT
Description of the evaluation procedure

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other

Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</td><td>Written examination (85% of the final grade) which includes:
8. Multiple choice questions
9. Questions on the analysis of clinical cases
10. Questions combining theory and laboratory data analysis
Reports of laboratory classes (15% of the final grade), evaluation includes:
11. Knowledge of the theory related to the experiments
12. Quality and validity of experimental results.
13. Data interpretation and conclusion</td></tr>
</table>

5. RECOMMENDED LITERATURE

14. Berg J.M., Tymoczko J.L. and Stryer L. Biochemistry 8th edition, 2015 W.H. Freeman and Company.
15. Devlin T.M. Textbook of Biochemistry with Clinical Correlations 7th Edition, Wiley-Liss.

COURSE OUTLINE MED_131

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_131	SEMESTER OF STUDIES	1ο
COURSE TITLE	MEDICAL PHYSICS		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures and Tutorials	6	7

COURSE TYPE	Scientific Course
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBPAGE (URL)	(course) https://eclass.upatras.gr/courses/MED853/ (practical) https://eclass.upatras.gr/courses/MED813/

2. LEARNING OUTCOMES

Learning outcomes
The aim of this course is the comprehension of the physical principles of Radiation Physics (both ionizing and non-ionizing) and Bioelectricity, and their application for the development of methods in diagnosis and therapy in Medicine, as well as the comprehension of functions of the human body, utilizing simulation methods. The course provides the basic background knowledge in atomic and nuclear physics and in radiation-matter interaction, that is necessary for a broad range of diagnostic and therapeutic medical applications, as well as the radiation protection of patients and personnel. The course is being taught through lectures, as well as tutorials and laboratory exercises addressed to small groups. Four (3-hour) tutorials take place addressing case-based learning and three (2-hour) laboratory exercises. In the latter, experimental apparatus is used for data acquisition, while data analysis is performed. By the end of this course the student is expected to:

- comprehend and be familiarized with the basic concepts and principles of Radiation Physics, related to processes and technology of diagnosis and therapy in Medicine.
- comprehend functions of the human body.
- comprehend the concepts of measurement, experimental error and data analysis.
- develop skills in using experimental apparatus.
- develop critical thinking for solving complex problems and familiarize with the use of simulation methods.
- Comprehend the principles and significance of the radiation protection of patients and personnel in the medical environment.

General Abilities

- Search, analysis and synthesis of data and information, using the necessary technologies.
- Team work in a multidisciplinary environment.
- Promotion of f creative and critical thinking.
- Presentation of scientific reports.

3. COURSE CONTENT

- Bioelectricity (the nervous system and the neuron, electrical potential in neurons, electrical signals from muscles, electrical signals from heart, electrical signals from brain).
- Atomic and nuclear physics and radiation-matter interaction (model of Bohr and wave mechanics, excitation and ionization of atoms, constitution of nucleus - nuclear forces - nuclear fission and nuclear fusion, mechanisms and time interrelation of radioactive decay and emission, interaction of charged particles and photons of high energy with matter).
- Physics of Diagnostic Radiology (components of radiation imaging systems, projection and tomographic imaging systems, analog and digital image detectors, medical image quality).
- Physics of Nuclear Medicine (criteria for choosing radioisotopes in the differential diagnosis, basic components of imaging systems, statistics in nuclear medicine).
- Physics of Radiation Therapy (teletherapy and brachytherapy, radiation therapy planning, radiation therapy with charged particles).
- Physics of Ultrasonography (wave characteristics, acoustic impedance, ultrasound-matter interaction, Dobbler effect, production and detection of ultrasound, ultrasound imaging, biological effects).
- Physics of Magnetic Resonance Imaging (nuclear magnetic resonance, relaxation times, gradient fields, magnetic resonance imaging, basic pulse sequences for image acquisition, influence of sequences on image quality).
- Radiation Protection (basic principles of radiation protection, units and methods of dosimetry, radiation protection of patient and personnel, legislation and guidelines of radiation protection).

4. TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<tr><td>TEACHING METHOD</td><td>Lectures and laboratory work, face to face.</td></tr>
<tr><td>USE OF INFORMATION ANDCOMMUNICATIONTECHNOLOGIES</td><td>Specialized software for biomedical data statistical analysis
Use of the e-class platform for the dissemination of class-material and communication with the tutor</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td><table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>39</td></tr>
<tr><td>Tutorials</td><td>12</td></tr>
<tr><td>Practicals</td><td>6</td></tr>
<tr><td>Preparation of practical projects</td><td>45</td></tr>
<tr><td>Self-study</td><td>73</td></tr>
<tr><td>Total</td><td>175</td></tr>
</table></td></tr>
<tr><td>STUDENT ASSESSEMNT</td><td>Written examination
Short response questions
Problem solving
Practical project</td></tr>
</table>

5. RECOMMENDED LITERATURE

(Greek language)

Textbooks:
- "Medical Physics" by Evangelos Georgiou, P.X. Paschalis Publications.
- "Physics in Biology and Medicine" by Paul Davidovits, Parisian Scientific Publications S.A. Athens.

Supplementary educational material:
- Lecture Notes and Presentations
- Study Guides for Laboratory and Tutorial Exercises

COURSE OUTLINE MED_151

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_151	**SEMESTER OF STUDIES**	FIRST
COURSE TITLE	MEDICAL INFOMATICS		
INDEPENDENT TEACHING ACTIVITIES		**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures, seminars and laboratory work		4	5
COURSE TYPE	Background		
PREREQUISITE COURSES:			
TEACHING AND ASSESSMENT LANGUAGE:	Greek. Available also in English for Erasmus+ studies students.		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes		
COURSE WEBPAGE (URL)	http://www.med.upatras.gr/en/Pages/undergrad/courses.aspx?lID=7		

2. LEARNING OUTCOMES

Learning outcomes
The course is the basic introductory one in Medical Informatics. The currently available medical information, to which we now have almost instantaneous and free access, is enormous. This is due to its digital form and the creation of international transport networks. The 'Medical Informatics' course aims to bring students into biomedical information management methods and techniques, to help them identify useful information and combine them to develop knowledge. **Methodology** The lesson is taught through lectures at Amphitheater and small-group tutorials using PCs. The lectures are theoretical and presented concepts are specialized through the tutorials. The following issues are discussed in tutorials: 1. database creation software (Microsoft Access), 2. Medical image processing software (Analyze, Image Pro, ImageJ, Fiji), 3. software for statistical processing of medical & biological data (SPSS, GraphPad Prism), 4. decision tree software (DATA 3.0), and 5. medical decision support software (Iliad).

By the end of this course the student will be able to:

• Understand the concepts of image processing and analysis

• Understand the structure of a database and design simple databases

• Understand the process of making medical decisions under uncertainty

• express clinical problems in the form of decision trees and calculate the expected utility of alternative decisions

• use software for medical image processing and analysis, database developing, and medical decision support

• Understand the importance of Integrated Hospital Information Systems

• distinguish the importance of using Telemedicine to provide health services in under-served areas.

General Abilities

• Adapt to new situations
• Working in an interdisciplinary environment
• Promote free, creative, and inductive thinking

3. COURSE CONTENT

i. Introduction & Nature of Medical Information
ii. Databases
iii. Image processing
iv. Medical Information Systems / Networks
v. Integrated Hospital Information Systems
vi. Clinical Decision Making
vii. Inference - Decision Trees
viii. Telemedicine
ix. Biomedical Informatics

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Lectures and tutorials in a face to face manner.	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Specialized image processing and analysis software, database creation, decision tree creation. Support Learning through the e-class e-class platform	
TEACHING ORGANIZATION	***Activity***	***Semester workload***

	Lectures (2 hours per week x 13 weeks)	26
	Tutorials (2 hours per week x 13 weeks)	26
	Hours for private study of the student and preparation of home-works	73
	Total number of hours for the Course (25 hours of work-load per ECTS credit)	***125 hours (total student work-load)***
STUDENT ASSESSEMNT	Written final exam includes: - Evaluation of theory data - solving problems related to information management issues	

5. RECOMMENDED LITERATURE

1. "MEDICAL INFORMATICS" by Georgios Nikiforidis. Medical Publications LITSAS.
2. "BIOINFORMATICS" by A.D. Baxevanis and B.F.F. Quellette. Parisian Scientific Publications S.A. Athens.

COURSE OUTLINE MED_161

1. GENERAL

SCHOOL	School of Medicine		
DEPARTMENT	Internal Medicine		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_161	**SEMESTER OF STUDIES**	A
COURSE TITLE	Introduction in Clinical care - disease prevention – Primary care - First Aid		
INDEPENDENT TEACHING ACTIVITIES		**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
LECTURES		3	4
COURSE TYPE	Field of Health Sciences		
PREREQUISITE COURSES:	None		
TEACHING AND ASSESSMENT LANGUAGE:	Greek		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES (in English)		
COURSE WEBPAGE (URL)	http://www.med.upatras.gr/en/Pages/undergrad/courses.aspx?lID=6		

2. LEARNING OUTCOMES

Learning outcomes
The course " Introduction in Clinical care - disease prevention – Primary care - First Aid " is the first lesson to introduce the student to issues related to Clinical Medicine and aims its original familiarization and understanding of matters of general health interest in relation to the clinical practice of medicine. The courses are conducted by clinicians in the auditorium and they refer to the organization of medical education, problems in the practice of clinical medicine and the principles underlying it, the modern version of the Hippocratic Oath, the differences between the treatment of patients with acute or chronic diseases, the differences that characterize the woman-patient and the child-patient. The course also refers to modern health systems and especially, primary health system in Greece, the importance of prevention in medicine and the role of the modern doctor in the comprehensive handling of health issues in the family and the community. Several common health issues are discussed, including indications and problems of vaccination, blood transfusion and organ transplantation, how to tackle the terminally ill patient and, finally, the ethical principles that govern contemporary clinical practice. In parallel the course addresses the principles of basic of first aid procedures. Following successful completion of this course the student is expected to:

- Have understood core points in medical history and physical examination and be able to review findings and comprehend the concept of differential diagnosis
- Understand specific needs and required skills in diagnosis and management of oncologic, psychiatric, gynaecologic and paediatric patients
- Distinguish between acute and chronically ill patients
- Understand the principles of health care for the terminally ill, especially at home and the community.
- Understand the importance of interdisciplinary cooperation and appropriate referral of patients.
- Understand the principles underlying vaccination, blood transfusion and transplantation medicine
- Be able to critically appraise and make use of scientific literature search engines and databases
- Be aware of bioethics principles ruling basic science research, clinical trials and every day clinical practice
- Be familiar with contemporary health systems and delivery of health care

General Abilities
Searching, analysis and synthesis of facts and information, as well as using the necessary technologies *Adaptation to new situations* *Decision making* *Autonomous (Independent) work* *Exercise of criticism and self-criticism* *Promotion of free, creative and inductive thinking* *Respect to multiculturalism and diversity* *Exhibiting of social, professional and ethical responsibility and sensitivity to minorities and gender issues*

3. COURSE CONTENT

The course includes:

- Principles of Medical Science / Physician characteristics.
- Principles of medical history / physical examination.
- Characteristics of patients with acute / chronic disease.
- Characteristics of the pediatric patient.
- Characteristics of the female patient.
- Characteristics of the psychiatric patient
- Health systems and Primary care.
- Preventive Medicine.
- Principles of vaccination, transfusion and transplantation.
- Health advance, treatment and supportive/palliative care.
- Oncologic and terminally ill patient.
- Principles of basic First Aid procedures
- Principles of ethics – ethics.
- Evidence Based Medicine – Critical Appraisal

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Lectures

<table>
<tr><td>USE OF INFORMATION ANDCOMMUNICATIONTECHNOLOGIES</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>42</td></tr>
<tr><td>Hours of private study</td><td>70</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td>Total number of hours for the Course</td><td>112 hours (total student work-load)</td></tr>
<tr><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSEMNT</td><td>Written Examination at the End of Semester in Greek with multiple choice or open-type questions</td></tr>
</table>

5. RECOMMENDED LITERATURE

- Bickley, L. S., Szilagyi, P. G., & Bates, B. (2007). *Bates' guide to physical examination and history taking*. Philadelphia: Lippincott Williams & Wilkins.
- Macleod, J., Munro, J. F., Edwards, C. R. W., & University of Edinburgh. (1990). *Macleod's clinical examination*. Edinburgh: Churchill Livingstone.
- Family Medicine: Ambulatory Care and Prevention. MARK B. MENGEL, PETER L. SCHWIEBERT, Parisian Editions.Journal of Family Medicine and Primary Care - https://journals.lww.com/jfmpc/pages/default.aspx
- E learning material / student notes as uploaded in e-class

2nd Semester

COURSE OUTLINE MED_211

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_211	**SEMESTER OF STUDIES**	SECOND
COURSE TITLE	BIOLOGY II		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures,	3	6
Laboratory work/tutorials/teaching in small groups	3	

COURSE TYPE	· General (necessary theoretical) knowledge · Field of Science
PREREQUISITE COURSES:	Typically, there are not prerequisite courses .
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Offered, with literature support provided by: (a) internationally well-known text books, (b) educational material offered at e-class web-page of the course, (c) current review articles relevant to the topics of the "small group teaching" topic(s).
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/modules/course_description/?course=MED802

2. LEARNING OUTCOMES

Learning outcomes
BIOLOGY II is the introductory course on the current concepts of medical genetics in association with data and information recently developed due to the powerful technologies and molecular tools for the analysis of the genetic material and the cell, the high-throughput technologies for genome analysis and the evaluation of omic data by bioinformatics tools. Teaching material aims to introduce students in the basics of medical genetics, in methodologies of analyzing the genetic material (at the gene or chromosome level) and cells, in order the student to understand the structure and function association, the nature of genetic variation, and the patterns

of genetic information transmission and its contribution with the phenotype or the clinical picture of the patient. This course offers an important conceptual framework for understanding in depth the subject of courses and clinical training offered in succeeding semesters dealing with disease pathogenesis, manifestation and treatment.

General Abilities

By the end of this course the students may have developed certain skills:
Ability to search, analyze and put together data and information on current medical molecular genetics issues by using all available resources including research articles and reviews, resources from the internet and relevant databases, and by analyzing genetic data using bioinformatics tools.
Furthermore, the students will have developed the following general abilities: Searching, analyzing and synthesizing data and information; familiarity with the basic principles of medical molecular genetics; ability to understand the molecular basis of a number of inherited and multifactorial disorders and explain the pattern of inheritance of mendelian diseases. Develop skills for autonomous (independent) work, group work, and learn how to put questions and critical discuss relevant issues with peers. Promotion of free, creative and inductive thinking.

3. COURSE CONTENT

The main goals of the course include: (a) understanding of the key concepts of medical molecular genetics and the arguments supporting its fundamental contribution to clinical medicine, (b) understanding, in particular, the concepts of the molecular basis of genetic disease and (c) the value of using advanced molecular genetics, cytogenetics and recombinant DNA technologies for tackling issues on how the human genetic composition causes or is associated with the manifestation of genetic (genic and chromosomal) disorders. The teaching material of the course deals with the basic concepts and processes associated of the molecular genetic background of single-gene and multifactorial pathogenicity, cancer genetics, the patterns of mendelian inheritance, the nature of genetic transmission and predisposition of multifactorial disorders, the genetic variation, population genetics and evolutionary mechanisms.
The following topics are included:

- Introduction to medical genetics
- Recombinant DNA technology
- Patterns of monogenic disease inheritance
- Genetic diversity. Polymorphisms of genomic DNA as disease markers
- Polygenic/multifactorial disorders
- Models of genetic diseases: molecular pathology
- Genomic Medicine: The contribution of human genomics in biomedicine
- Clinical cytogenetics: autosomal-sex chromosome aberrations; methods of analysis
- Regulation of cell proliferation, apoptosis, genetics of cancer
- Genetic evolution
- Population genetics

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD.	Lectures, tutorials, laboratory work face to face and teaching in small groups
USE OF INFORMATION ANDCOMMUNICATIONTECHNOLOGIES	Use of Information and Communication Technologies (ICTs) (e.g. powerpoint) in teaching. The lectures content of the course for

<table>
<tr><td></td><td>each entity are uploaded on the internet, in the form of a series of .ppt files. The students can freely download the material using a password provided at the beginning of their undergraduate studies.</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td>
<table>
<tr><th>Activity</th><th>Semester's work load</th></tr>
<tr><td>Lectures and study</td><td>90</td></tr>
<tr><td>Small group teaching, study and analysis of the literature topic, essay writing of each individual student</td><td>45</td></tr>
<tr><td>Laboratory work to combine theory with experimental work; written test and extensive report submission for each individual student.</td><td>33</td></tr>
<tr><td>Total number of hours for the Course
(25 hours of work-load per ECTS credit)</td><td>168 (/6 = 28)</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSEMNT</td><td>1. Final exams (75%), include:
o Multiple choice or matching tests including a short justification of the student's answer
o Essay questions
o Problem-based questions
2. Laboratory exercise evaluation (25%), include:
o A short test report given by the students concurrently with the laboratory exercise.
o An essay on the experimental data and</td></tr>
</table>

	evaluation of the results of the laboratory work. o A literature essay relevant to the "small group teaching" topic.

5. RECOMMENDED LITERATURE

1. Thompson & Thompson "Genetics in Medicine" RL Nussbaum, RR McInnes, H.F. Willard, 7th Edition, Translation in the Greek language, 2nd Edition, Broken Hill Publications. ISBN: 978-960-489-062-0.
2. Genetics in Medicine, George H. Sack, the Greek language edition, (2002), Editor: Parisianos' Scientific Editions. ISBN:960-394-141-7.
3. "Laboratory protocols and resources" booklet, authored by the faculty members of the Lab. of General Biology, U. of Patras Publications Centre, Patras.
4. "Small group teaching" booklet, authored by the faculty members of the Lab. of General Biology, U. of Patras Publications Centre, Patras.

COURSE OUTLINE MED_221

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_221	**SEMESTER OF STUDIES**	2nd
COURSE TITLE	BIOCHEMISTRY II		
INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*		**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures, seminars and laboratory work		8	6
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).			
COURSE TYPE *general background, special background, specialised general knowledge, skills development*	General Background		
PREREQUISITE COURSES:	No		
TEACHING AND ASSESSMENT LANGUAGE:	Greek, English (optional)		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/courses/MED809/ http://www.med.upatras.gr/gr/Pages/undergrad/courses.aspx?lID=12		

2. LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The course focuses on the basic principles of metabolism and cellular communication via signal transduction pathways and interactions of hormones with their cognate surface receptors. Individual modules include description and analysis of the principles and regulation of metabolic pathways of carbohydrates, lipids and

cholesterol. The course aims to a comprehensive knowledge of the initiation and regulation of metabolic modules, the initiation and regulation of metabolic pathways, recognition of the intermediate and final products and the distinction between physiological and pathological conditions and how the latter can be identified by laboratory based biochemical analyses. Special emphasis is given in nutritional habits and how they affect metabolism under physiological and pathological conditions.

Upon completion of the course, the students should be able to:

1. Understand the basic principles of intermediary metabolism and distinguish between physiological and pathological conditions based on laboratory measurements of metabolites.
2. Comprehend the role of surface receptors in signal transduction, regulation of gene expression and pharmacological targeting.
3. Associate disease with the deregulation of metabolism, seek the etiology and suggest the therapeutic strategies.
4. Understand and evaluate the contribution of nutrition in the homeostasis of intermediary metabolism, both under normal and pathological conditions.
5. Conduct experiments during laboratory classes related to diagnosis and interpret the data.
6. Be kept updated with new developments in the field and the international bibliography.
7. Use the knowledge and understanding they have acquired in a way that demonstrates a professional approach to their work and have skills proven to develop and support arguments to solve problems within their cognitive field.
8. Gather and interpret relevant information within their field of knowledge and to make decisions after consideration of relevant social, scientific and ethical issues.

16. Communicate information, ideas, problems and solutions of both qualified and non-specialized audiences.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Project planning and management
Decision making
Team work
Working independently
Working in an interdisciplinary environment
Propose new research ideas
Production of free, creative and inductive thinking
Respect for the natural environment

3. COURSE CONTENT

1. SIGNAL TRUNSDUCTION PATHWAYS

- Signaling as the major means of intercellular communication of cells and tissues
- Signal transduction and reshaping of the heterotrimeric G proteins
- Insulin signaling: phosphorylation cascades and their significance in signal transduction pathways.
- Signaling pathways downstream the Epidermal Growth Factor Receptor(EGFR)
- Common trends and differences amongst signaling cascades
- Deregulation of signaling pathways in cancer and other diseases.

2. CARBOHYDRATE METABOLISM

- Digestion and absorption of dietary carbohydrates
- Stages and energy production from degradation of dietary macromolecules.
- Anaerobic glycolysis: mechanisms and regulation of the pathway
- Entry of Fructose and Galactose into the glycolytic pathway
- Metabolic fate of pyruvate
- Lactic acid, glycerol and amino acids in Gluconeogenesis: mechanisms and regulation of the pathway- the significance of Cori's cycle
- Pentose phosphate pathway: regulation of the pathway, its significance for the Red Blood Cell.
- Role of the Pentose phosphate pathway in the production of redox potential for biosynthetic pathways, neutralization of reactive oxygen species and biosynthesis of ribonucleotides.
- Biosynthesis and breakdown of Glycogen
- Disorders of glycogen metabolism
- Blood glucose homeostasis. Adaptation of metabolism during prolonged fasting.
- Glycoproteins.

3. THE CITRIC ACID CYCLE

- Conversion of pyruvate to acetyl-coenzyme A.
- Mechanisms and regulation of the reactions in KREBS cycle.
- Entry of amino acids in the cycle and participation in anabolic reactions.
- Regulation of the cycle and its usage as a source of biosynthesis precursors.
- Deregulation of the KREBS cycle in cancer

4. BIOLOGICAL OXIDATION

- Oxygen as an oxidizing agent in biological systems– the role of respiration in humans
- Electron carriers, electron transport through the respiratory chain.
- ATP production in mitochondria and its impact in cardiac function
- Mechanisms and regulation of oxidative phosphorylation.
- Mitochondrial transportation systems
- Mitochondrial diseases
- Neutralization of oxygen's toxic derivatives

5. METABOLISM OF FATTY ACIDS AND MEMBRANE LIPIDS

- Mobilization of adipose tissue's fatty acids
- Oxidation of fatty acids
- Production and utilization of ketone bodies – their role in prolonged fasting
- Fatty acid biosynthesis: Mechanisms and regulation of reactions
- Triglyceride biosynthesis and storage
- Phosphoglycerate and sphingolipid metabolism, their significance in health
- Biosynthesis, regulation and biological role of prostaglandins, prostacyclin and thromboxanes.

6. CHOLESTEROL AND STEROID HORMONE METABOLISM

- Biosynthesis and metabolic regulation of cholesterol
- Inhibition of cholesterol synthesis as a pharmaceutical target
- Biosynthesis and role of bile acids- the significance of human microbiome
- Absorption of dietary fat- metabolism and function of lipoproteins- the importance of nutritional trends

- Mutations of the LDL receptors- hypercholesterolemia- atherosclerosis- coronary heart disease (molecular mechanisms, the role of antioxidants, therapeutic perspectives)
- Steroid hormone biosynthesis – synthesis and significance of vitamin D.

LABORATORY CLASSES

Measurements of glucose and amylase in serum.
Measurement of total cholesterol in serum and lipoprotein electrophoresis.
Measurement of lactate dehydrogenase Vmax and its conversion in enzymatic units (U/L)

4. TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<tr><td>TEACHING METHOD
Face-to-face, Distance learning, etc.</td><td>Lectures, group tutorials with PBLs and laboratory exercises</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES
Use of ICT in teaching, laboratory education, communication with students</td><td>Software use: Power Point, videos from scientific webpages and youtube and uploading of lectures to e-class</td></tr>
<tr><td>TEACHING ORGANIZATION
The manner and methods of teaching are described in detail.

Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures 3h/week</td><td>39</td></tr>
<tr><td>Tutorials, 3h for every week</td><td>39</td></tr>
<tr><td>Laboratory classes</td><td>24</td></tr>
<tr><td>Data analysis, interpretation and lab report</td><td>8</td></tr>
<tr><td>Homework</td><td>40</td></tr>
<tr><td>Total (hours)</td><td>150</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSEMNT
Description of the evaluation procedure

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other

Specifically-defined evaluation criteria are given, and if and where they are accessible to students</td><td>Written examination (85% of the final grade) which includes:
• Multiple choice questions
• Questions on the analysis of clinical cases
• Questions combining theory and laboratory data analysis
• Reports of laboratory classes (15% of the final grade), evaluation includes:
• Knowledge of the theory related to the experiments
• Quality and validity of experimental results
• Data interpretation and conclusion</td></tr>
</table>

5. RECOMMENDED LITERATURE

Berg J.M., Tymoczko J.L. and Stryer L. Biochemistry 8th edition, 2015 W.H. Freeman and Company.
Baynes J.W., Dominiczak M.H. Medical Biochemistry, 4th edition, Saunders (2014).

COURSE OUTLINE MED_231

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	**MED 231**	**SEMESTER OF STUDIES**	SECOND
COURSE TITLE	ANATOMY I		
INDEPENDENT TEACHING ACTIVITIES		**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures, tutorials/laboratory exercises.		3 (lect.) 3(lab.)	6
COURSE TYPE	BASIC KNOWLEDGE		
PREREQUISITE COURSES:	None		
TEACHING AND ASSESSMENT LANGUAGE:	Greek.		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBPAGE (URL)	https://eclass.upatras.gr		

2. LEARNING OUTCOMES

Learning outcomes

•

Introduction to the basics

The student is given all the basic knowledge of Anatomy, which is mandatory for understanding the morphology and the function of the human body

Musculoskeletal system

The student has to study and understand the gross anatomy of the skeletal and muscular system including the vessels and the nerves which are related to these systems.
Emphasis to the functional and clinical anatomy is given in order the student to be able to use all the knowledge to clinical praxis, during the following years of the studies.

General Abilities

Search, analyse and present data and information, using the appropriate technologies.
Decision making
Independent or team work

3. COURSE CONTENT

Introduction to anatomy of the human body

- Principles of morphology and formation of the Human body, Cells- Extracellular matrix, Cell adhesion ,Tissues, Solid and Hollow organs
- Anatomical vocabulary, anatomical descriptive terms, Anatomical position of the human body, planes and axes of the body, Body cavities, epithelial tissue and serous membranes.

Introduction to systems of the human body
Introduction to the cardio-vascular system
Introduction to the Nervous System (Part 1)
Introduction to the Nervous System (Part 2)

A. Introduction to musculoskeletal system

- History: From Vesalius up to molecular Anatomy.
- Musculoskeletal system and art
- General principles of the organization of the musculoskeletal system. Muscular and skeletal function
- Structure and function of ligaments, tendons, fascia and aponeurosis. Morphology, types and function ofjoints
- Histology and molecular biology of cartilage and bonny tissue
- Basic principles of radiological imaging of the musculoskeletal system
- Introduction to clinical anatomy - correlation with basic pathology (e.g. arthritis, fractures, osteoporosis)
- Basic principles of molecular mechanisms which are implicated in embryology, development and pathology of common musculoskeletal system disorders

B. Radiological imaging of the musculoskeletal system

- Plain x-rays
- Computed tomography (CT)
- MRI imaging
- Virtual Anatomy
- C. Clinical Anatomy and topography
- Upper limb, Lower limb, skull, spine, anatomy of the body wall

D. CLINICAL AND SURFACE ANATOMY

- Buttock region (hip joint, muscles, vessels, nerves)
- Thigh (femoral bone, muscles, vessels, nerves)
- Knee (knee joint, muscles, vessels, nerves)
- Calf region (bones, anatomical compartments, muscles, vessels, nerves).
- Foot and ankle (ankle joint, small joints of the foot, muscles, vessels, nerves).
- Clinical and imaging correlations
- Surface anatomy of lower limb
- Shoulder region (Joints, muscles, vessels, nerves)
- Arm region (humerus, muscles, vessels, nerves)
- Elbow (Joints, muscles, vessels, nerves)
- Forearm (bones, anatomical compartments, muscles, vessels, nerves)
- Hand and wrist (wrist joint, small joints of the hand, muscles, vessels, nerves)
- Clinical and imaging correlations
- Surface anatomy of upper limb

AXIAL SKELETON

- Skeleton of the skull (Cranial bones-cranium and skeleton of the face, inner and outer surfaces, mandible, articular surfaces for mandible and first cervical vertebra).
- Temporo-Mandibular joint: Articulated bones, articular surfaces, type of joint, ligaments and movements
- Spine: Parts and spinal curves. Anatomy of the vertebra: body, lamina (pedicles, lamina, processes), vertebral foramen. Special characteristics of vertebras according to their position in spine (cervical, thoracic e.t.c.). Sacrum and coccyx. Joints between vertebras, skull and pelvis. Joint type, bones and articular surfaces, movements. Ligaments of the spine. Movements of the spine. Intervertebral discs: structure and function. Imaging of the spine.
- Mimic muscles.
- Masseter muscles.
- Muscles of the back.
- Clinical anatomy of the axial skeleton: (Fractures and dislocations, abnormal spinal curves (scoliosis, lordosis), lumbar puncture, disk hernia.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<tr><td>TEACHING METHOD.</td><td>Lectures, tutorials and laboratory work face to face.</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td>Use of Information and Communication Technologies (ICTs) (e.g. powerpoint, videos, virtual anatomy) in teaching and communicating with students.
All teaching and supplementary files are available in e-class platform.

.</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td>
<table>
<tr><th>Activity</th><th>Work load</th></tr>
<tr><td>Lectures</td><td>42</td></tr>
<tr><td>Tutorials/Laboratory exercises.</td><td>42</td></tr>
<tr><td>Hours of private study</td><td>66</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td>Total number of hours for the Course (25 hours of work-load per ECTS credit)</td><td>150hours (total student work-load)</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSEMNT</td><td>Written examination at the end of the semester (multiple choice questions, true-false, short answers, clinical problem solving)
Minimum passing grade: 5.
The examination documents are retained for 5 years and are available to students.</td></tr>
</table>

5. RECOMMENDED LITERATURE

Clinical Anatomy. Richard Snell
Clinically orientated Anatomy by Moore-Dalley-Agur

COURSE OUTLINE MED_241A

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_241A	**SEMESTER OF STUDIES**	SECOND
COURSE TITLE	HISTOLOGY I		
INDEPENDENT TEACHING ACTIVITIES		**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures, tutorials/laboratory exercises.		1 (lect.) 2(lab.)	2
COURSE TYPE	BASIC KNOWLEDGE		
PREREQUISITE COURSES:	None		
TEACHING AND ASSESSMENT LANGUAGE:	Greek.		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBPAGE (URL)	https://eclass.upatras.gr		

2. LEARNING OUTCOMES

Learning outcomes

By the end of this course the student will have acquired:

1. *Understanding and thorough knowledge of the normal structure of human cells and tissues at the microscopic ultrastructural and molecular level*
2. The *ability to correlate normal structrure and morphology with normal cell and tissue function (physiology)*
3. *The ability to integrate the information and knowledge obtained from the Histology I course with information from other basic scientific fields and courses (biochemistry, human biology and genetics, physiology)*
4. *The ability to apply this knowledge in order to understand mechanisms of human diseases.*
5. *The appropriate background information and knowledge that bridges basic science to clinical science (pathology*
6. The ability t*o analyze and* synthesize acquired knowledge with clinical information in certain clinical problem settings (Problem-Based Learning)

General Abilities

Generally, by the end of this course the student will, furthermore, have develop the following general abilities (from the list above):

Searching, analysis and synthesis of facts and information, as well as using the necessary technologies
Adaptation to new situations
Decision making
Autonomous (Independent) work
Group work
Exercise of criticism and self-criticism
Promotion of free, creative and inductive thinking

3. COURSE CONTENT

HISTOLOGY I - Contents.

1. Methods used in Histology.
- Tissue Preparation.
- Histochemistry, Immunohistochemistry.
- Light and Electron Microscopy.

2. The cell.
- Plasma Membrane.
- Membranous organelles.
- Non membranous organelles (cytoskeleton).
- The cell nucleus.
- Clinical Correlations.

3. Epithelial Tissue.
- Overview of epithelial structure and function.
- Classification of epithelium.
- Histogenesis of epithelium.
- Cell polarity. Apical - lateral and basal domains: Morphological and functional specializations - cell - cell and cell - ECM
- Basement Membrane structure and function.
- Glands.
- Clinical correlations.

4. Connective Tissue.
- General structure and function.
- Connective tissue proper. Lose and dense connective tissue.
- Connective tissue fibers Extracellular matrix.
- Connective tissue cells.
- Clinical Correlations.

5. Cartilage.
- General structure and function. Cells and extracellular matrix.
- Hyaline cartilage.
- Elastic cartilage.
- Fibrocartilage.
- Condrogenesis and cartilage growth.
- Cartilage repair.
- Clinical correlations.

6. Bone.
- Overview of bones and bone tissue.
- General structure and function.
- Cells of bone tissue.
- Bone formation.
- Mineralization.
- Physiologic role in metabolism.
- Bone remodeling.
- Clinical correlations.

7. Adipose tissue.
- Overview.
- Adipocytes differentiation, structure and function.
- White adipose tissue function – regulation.
- Brown adipose tissue - Structure, function, regulation.
- Clinical correlations.

8. Muscle Tissue.
- Overview and classification of muscle.
- Skeletal muscle - structure, types of fibers.
- Skeletal muscle. Myofibrils and myofilaments. Sarcomeres and costameres.
- Skeletal muscle. The contraction cycle.
- Skeletal muscle. Motor and sensory innervation.

- Skeletal muscle. Development, repair, healing and renewal.
- Cardiac muscle. Structure, functional aspects, injury and repair.
- Smooth muscle. Structure, functional aspects, Differentiation, renewal and repair.
- Clinical correlations.

9. Nerve Tissue.

- Overview of the nervous system.
- Composition of the nerve tissue.
- The neuron. Morphology and structure. Types, Synapses, Neurotransmitters, Axonal transport.
- Supporting cells of the nervous system.
- Origin of nerve tissue cells.
- Overview of the Peripheral nervous system.
- Peripheral nerves.
- Spinal Cord.
- Sensory receptors.
- Autonomic nervous system.
- Clinical correlations.

10. Cardiovascular system.

- Overview.
- General features of vessels.
- Arteries.
- Capillaries.
- Veins.
- Lymphatics.
- Arteriovenous shunts.
- Clinical correlations.

11. Blood.

- Plasma.
- Blood cells.
- Haemopoiesis.
- Bone Marrow.
- Clinical correlations.

12. Immune system and lymphatic tissue / organs.

- Overview - General structure and functions.
- Immune responses.
- Cells of the lymphatic system. Lymphocytes (Types, surface markers, development and differentiation, regulation Supporting cells, Antigen - Presenting Cells.
- Lymphatic vessels.
- Diffuse lymphatic tissue and nodules.
- Lymph nodes.
- Thymus.
- Spleen.
- Clinical Correlations

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Lectures, tutorials and laboratory work face to face.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Use of Information and Communication Technologies (ICTs) (e.g. powerpoint, videos, virtual microscopy) in teaching. Use of Information and Communication Technologies (ICTs) (e.g. powerpoint) in teacher-student communication The lectures content of the course for each chapter are uploaded on the internet (e-class) , in the form of a series of ppt files, where from the students can freely download them using a password which is provided to them at the beginning of the course.

<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>14</td></tr>
<tr><td>Tutorials/Laboratory exercises.</td><td>28</td></tr>
<tr><td>Hours of private study</td><td>18</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td>Total number of hours for the Course</td><td>60 hours (total student work-load)</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSEMNT</td><td>Written examination in Greek at the end of the semester (multiple choice questions, true-false, short answers, clinical problem solving, identification of structures in microscopic tissue photos)
Minimum passing grade: 5 .

The examination documents are retained for 5 years and are readily available to students.</td></tr>
</table>

5. RECOMMENDED LITERATURE

1. Histology: Text and Atlas. Ross Michael. First edition. 2011. K & N Litsas.
2. Histology (3d edition). L.Gartner, J. Hiatt. Publisher: Books Parisianou. 2011..

COURSE OUTLINE MED_241B

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_241B	**SEMESTER OF STUDIES**	SECOND
COURSE TITLE	EMBRYOLOGY I		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures, tutorials/laboratory exercises	1(lect.) 2(lab.)	2

COURSE TYPE	BASIC KNOWLEDGE
PREREQUISITE COURSES:	None
TEACHING AND ASSESSMENT LANGUAGE:	Greek.
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No
COURSE WEBPAGE (URL)	https://eclass.upatras.gr

2. LEARNING OUTCOMES

Learning outcomes

By the end of this course the student will have acquired:

1. *Understanding and thorough knowledge of* the morphologic (descriptive), molecular, genetic, cellular and tissue events underlying normal human embryology from the egg stage to birth (how tissue, organs and the body as a whole is assembled from a single cell -the zygote) focusing on the processes of gametogenesis, fertilization, cleavage, gastrulation, formation fa-tube within a tube body plan, structure and function of the placenta.
2. *Understanding and thorough knowledge* of the birth defects/congenital malformations
3. A logical framework for understanding human anatomy
7. *The ability to integrate the information and knowledge obtained from the Embryology I course with information from other basic scientific fields and courses (biochemistry, human biology and genetics, physiology)*
4. *The ability to apply this knowledge in order to understand mechanisms of human disease.*
5. *The appropriate background information and knowledge that bridges basic science to clinical science (obstetrics, pediatrics etc)*
6. The ability to *analyze and* synthesize acquired knowledge with clinical information in certain clinical problem settings (Problem-Based Learning)

General Abilities

Generally, by the end of this course the student will, furthermore, have develop the following general abilities (from the list above):

Searching, analysis and synthesis of facts and information, as well as using the necessary technologies
Adaptation to new situations
Decision making
Autonomous (Independent) work
Group work

Exercise of criticism and self-criticism
Promotion of free, creative and inductive thinking

3. COURSE CONTENT

1. Overview of Human Embryology.
2. Molecular basis of Embryonic Development.
3. Gametogenesis. Conversion of Germ Cells Into Male and Female Gametes.

- Primordial germ cells.
- Mitotic divisions increase the number of primordial stem cells (mitosis).
- Reduction of the number of chromosomes (Meiosis).
- The biological significance of meiosis.
- Meiosis in females and males.
- Structural and functional maturation of gametes.
- Spermatogenesis.
- Spermiogenesis.
- Activation.
- Oogenesis.
- Clinical correlations - Clinical problems to solve.

4. First Week of Development, Ovulation to implantation.

- Ovarian Cycle.
- Ovulation.
- Oocyte Transport.
- Fertilization.
- Cleavage.
- Blastocyst Formation.
- Embryo transport.
- Implantation.
- Uterus at Time of Implantation.
- Clinical correlations - Clinical problems to solve.

5. Second week of development – bilaminar Germ Disk.

- Trophoblast has differentiated in two layers: cytotrophoblast and syncytiotrophoblast.
- Embryoblast has differentiated into two layers: hypoblast and epiblast layer.
- Establishment of the uteroplacenta circulation and primary villi.
- Formatin of extraembryonic mesoderm, connecting stalk, yolk sac, amniotic and chorionic cavity.
- Sites of blastocyst impantation.
- Abnormal implantation sites.
- Clinical correlations - Clinical problems to solve.

6. Third week of development: Trilaminar Germ Disk.

- Gastrulation - formation all three germ layers.
- The formation and the role of the primitive streak and the primitive node.
- The formation and the role of the notochord.
- Establishment of the body axes.
- The prechordal plate, the oropharyngeal and the cloacal membrane.
- The allantois.
- The formation of neural plate and the neural tube.
- The formation of neural crest.
- The first appearance of somites.
- The development of intraembryonic coelom.
- The appearance of vascular system (vasculogenesis).
- Further development of trophoblast and the newly formed structures are known as secondary and tertiary villi.
- Clinical correlations - Clinical problems to solve.

7. Third to Eighth weeks of human development (the embryonic period or period of organogenesis). Phases of embryonic d
(growth, morphogenesis, differentiation).

- Folding of the Embryo in the median plane and in the Horizontal plane.
- Derivates of the Ectodermal Germ Layer, Derivates of the Mesodermal Germ Layer, Derivates of the Endodermal Germ l
- Control of embryonic development.
- Highlights of Fourth to Eight Week.
- Estimation of embryonic Age.
- Clinical correlations - Clinical problems to solve.

8. Third month to birth: The fetus.

- Maturation of tissue and organs and rapid growth of the body.
- During the third month the face becomes more human looking. Primary ossification centres are present in the long bon by the 12^{th} week. Also by the 12^{th} week external genitalia develop to such a degree that the sex of the fetus can be det ultrasound.
- During the fourth and fifth month the fetus lengthens rapidly and is covered with fine hair called lanugo.
- During fifth month movements of the fetus can be felt by the mother.
- Time of Birth.
- Premature and Post mature Fetuses.
- Clinical correlations - Clinical problems to solve.

9. Body Cavities.

Formation of Intaembryonic Cavity.

Serous Membranes.

Diaphragm and Thoracic Cavity.

Formation of the Diaphragm.

Clinical Correlations - Clinical problems to solve.

10. Fetal Membranes and placenta.

- The formation of placenta - changes in the Trophoblast.
- The formation of placenta - changes in the functional layer of the endometrium - Decidua (decidua basalis, decidu decidua capsularis).
- Structure of the placenta (feta portion - maternal portion - chorionic plate - decidual plate -decidual septa).
- Circulation of the placenta - the placental membrane.
- Function of the placenta (1. Exchange of metabolic and gaseous products between maternal and fetal bloodstreams 2. of hormones).
- Amnion and umbilical cord.
- Amniotic fluid.
- Fetal membranes in twins.
- Clinical Correlations - Clinical problems to solve.

11. Birth defects - congenital malformations.

- Type of abnormalities.
- Environmental factors.
- Genetic factors.

12. Prenatal diagnosis.

Ultrasound.

Maternal serum screening.

Amniocentesis.

Chorionic villi sampling

13. . Skeletal System.

- Develops from paraxial, lateral plate mesoderm and from neural crest.
- Paraxial mesoderm – somites.
- Somites - sclerotome – dermatomyotome.
- Bone formation through Intramembranous ossification and endochondral ossification.
- Cartilage formation.
- Development of joints (Fibrous Joints, Cartilaginous Joints, Synovial Joints), Development of Vertebral Column, D of ribs, Development of the Sternum, Development of Cranium.
- Congenital Skeletal System Defects.
- Clinical Correlations - Clinical problems to solve.

Muscular System.

- Development of Skeletal Muscle, Development of Smooth Muscle Development of Cardiac Muscle.

- Molecular regulation of Muscle development.
- Clinical Correlations - Clinical problems to solve.

Development of Limbs.

- Early Stages of Limb development.
- Final stages of Limb Development.
- Cutaneous Innervation of Limbs.
- Blood Supply of Limbs.
- Congenital Limp Development Defects.
- Clinical Correlations - Clinical problems to solve.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Lectures, face to face.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Use of Information and Communication Technologies (ICTs) (e.g. powerpoint, videos, virtual microscopy) in teaching. Use of Information and Communication Technologies (ICTs) (e.g. powerpoint) in teacher-student communication The lectures content of the course for each chapter are uploaded on the internet (e-class) , in the form of a series of ppt files, where from the students can freely download them using a password which is provided to them at the beginning of the course. .
TEACHING ORGANIZATION	

Activity	***Semester workload***
Lectures	14
Laboratory	28
Hours of private study	18
Total number of hours for the Course	***60 hours (total student work-load)***

STUDENT ASSESSEMNT	Embryology I Written examination in Greek at the end of the semester (multiple choice questions, true-false, short answers, clinical problem solving, identification of structures in photos) Minimum passing grade: 5 . The examination documents are retained for 5 years and are readily available to students.

5. RECOMMENDED LITERATURE

1. Developing Human: Clinically oriented embryology. Moore Keith L., Persaud T.V.N**.** Broken Hill Publishers Ltd . First edition, 2009
2. Human Embryology and Developmental Anatomy Carlson. Publisher: Books Parisianou. 4th edition. 2013 .

COURSE OUTLINE MED_251

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICAL SCHOOL		
COURSE LEVEL	BACHELOR OF SCIENCE		
COURSE CODE	MED251	**SEMEMSTER**	second
COURSE TITLE	PHYSIOLOGY I		

INDEPENDENT TEACHING ACTIVITIES	**HOURS OER WEEK**	**ECTS CREDITS**
Lectures	5	6
Practical laboratories, tutorials (clinical problem solving)	3	

COURSE TYPE	Field of science (Physiology) Development of analytical and synthetic cognitive abilities
PREREQUISITES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/courses/MED863/

2. LEARNING OUTCOMES

Learning outcomes

The course aims to confer knowledge, skills and abilities relating to the level 6 of the European Qualifications Framework for Lifelong Learning. In particular, upon the successful completion of the course students must be able to:

•Understand the importance of homeostasis, excitability, cell signaling and physiological functioning of specific human systems (cardiovascular, muscular, respiratory, blood)

• Be acquainted with the basic principles of electrocardiography and understand the measurement of respiratory function

• Acquire solid knowledge and understanding of topics in the scientific field of Human Physiology, based on either Physiology textbooks or on data derived from the latest developments in the field of Physiology.

• Be able to use the knowledge and understanding they have acquired in a way that demonstrates a professional approach based on the analytical and synthetic inductive use of acquired information, combined with other areas of knowledge exposed during their studies (eg Anatomy, Pharmacology)

• Be able to process novel complex problems related to pathophysiological conditions

• Develop skills for acquiring knowledge needed for postgraduate studies with a high degree of autonomy

General abilities

Search, analyze and synthesize data and information, using the necessary technologies.
Adapting to new situations.
Decision making.
Independent work.
Group work.
Work in international environment.
Work in interdisciplinary environment.
Criticism and self-criticism.
Promoting free and creative thinking.

3. COURSE CONTENT

LECTURES: Introduction in Physiology, Homeostasis, Membrane electrophysiology, Autonomic Nervous System, Muscle physiology, Signal transduction, Cardiovascular system, Respiratory system, Blood physiology. LABORATORY PRACTICE: Membrane excitability, Blood physiology, Electrocardiography, Measurements of lung volumes, CLINICAL PROBLEM SOLVING: patient diagnosed with heart failure

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Direct (face to face)
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	1. Use of E-class platform 2. Use of computer software in classroom teaching and in laboratory practice
TEACHING ORGANIZATION	

Activity	***Semester workload***
Lectures	65
Laboratory practice	9
Clinical problem solving	3
Computer simulation	3
Homework	70
Total course hours (25 hours of work-load per ECTS credit)	***150 hours***

STUDENT ASSESSEMNT	Language: Greek Final written examination with multiple choice questions, matching exercises, short answer questions, etc.

5. RECOMMENDED LITERATURE

Berne and Levy Physiology, **by** B.M. Koeppen, B.S. Stanton, 6th edition, Elsevier Inc., 2010
Medical Phsyiology, by Boron W. & Boulpaep E., Broken Hill Publishers Ltd, 2011
Introduction to Human Physiology, 8th Edition, by L. Sherwood, Brooks/Cole, Cengage Learning

Relevant scientific journals: Physiological Reviews, webpages: http://www.the-aps.org/

COURSE OUTLINE MED_261

1. GENERAL

SCHOOL	Medical Sciences		
DEPARTMENT	Medicine		
LEVEL OF COURSE	Pre graduate		
COURSE CODE	MED_261	**SEMESTER OF STUDIES**	2nd
COURSE TITLE	**INTRODUCTION TO CLINICAL SKILLS- FIRST AID**		
INDEPENDENT TEACHING ACTIVITIES		**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
		3	2
COURSE TYPE	Background, Skills development		
PREREQUISITE COURSES:			
TEACHING AND ASSESSMENT LANGUAGE:	Greek		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBPAGE (URL)			

2. LEARNING OUTCOMES

Learning outcomes

The aim of this training module, lasting four semesters, from the 2nd to the 5th semester, is to understand the concept of patient-centered medical care, development of knowledge, skills and attitudes for effective communication with the patient, physical examination, humanitarian and ethical treatment of patient, problem solving, simple medical procedures and first aid. More specifically, the educational objectives are:

1. Acquisition of knowledge – comfort in the professional approach of the patient. Technique of obtaining medical history / physical examination.
2. Recording / Oral presentation of medical history
3. Pediatric / Psychiatric medical history.
4. Understanding the basic core of the commonly used laboratory and other paraclinical tests used in routine clinical practice.
5. Read / evaluation of medical records – medical history / medical records.
6. Knowledge / routine medical operations execution.
7. Medical emergency / first aid.
8. Understanding of social-economic issues related to health care through the acquisition of knowledge and skills in epidemiology, health providing and community medicine.

   Understanding the ways in which the cognitive experience is integrated through the interaction of basic sciences, social medicine and clinical medicine.

MEDICAL HISTORY OBTAINING – PHYSICAL EXAMINATION

At the end of this training module the student should:

- Be able to recognize the essential information needed for recording and be able to obtain them from the patients in the form of questions.
- Be able to evaluate the elements of the medical history that are not normal and put them in a hierarchy.
- Be able to record an organized medical history of a patient based on a proposed model.
- Be able to record a hierarchical list of problems based on the medical history.
- Be able to understand the differences between the written and verbal / analytical and brief presentation of a medical history.
- Be able to understand and be practiced in accessing sensitive issues related to the patient's history (medical history of sex, drug use etc.) and to exam patients with peculiarities.
- Be able to practice communication techniques / behaviors in relation to medical history taking, presentation of the medical history, informing the environment, confidentiality etc.
- Become familiar with taking a pediatric medical history understanding its peculiarities in relation to the medical history of an adult.
- Acquire the skills necessary for taking the medical history from a psychiatric patient.
- Be able to fully examine the patient systemically.
- Record the pathological findings during the examination of the patient and be able to evaluate the differences from normal.
- Understand the meaning and the importance of the presence of the medical history and medical record (access history, studies, and legal problems).
- And finally, be able to provide first aid in emergency medical situations (Cardiopulmonary resuscitation).

General Abilities
• Autonomous work • Search, analyze, and synthesize data and information

3. COURSE CONTENT

Medical history content

- Types of medical history
- Reason for hospital admission - Current disease
- Past medical history
- Family medical history
- Social history
- Medical systems review
- Age specificities
- Getting a child medical history
- Receiving a psychiatric history
- Emergency Medicine
- Cardiopulmonary resuscitation
- Repeat and writing a medical history

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	

TEACHING ORGANIZATION	***Activity***	***Semester workload***
	Lectures	14
	Clinical training	8
	Studying	***28***
	Total course hours (25 hours of work-load per ECTS credit)	***50 hours***
STUDENT ASSESSEMNT	Writing examination	

5. RECOMMENDED LITERATURE

Bates' Guide to Physical Examination and History-Taking.

3rd Semester

COURSE OUTLINE MED_311

1. GENERAL

SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDRGRADUATE		
COURSE CODE	MED311	**SEMESTER OF STUDIES**	3d
COURSE TITLE	ANATOMY II		
INDEPENDENT TEACHING ACTIVITIES		**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
LECTURES (4hrs) AND LABORATORY EXERCISES(3 hrs)		7	8
COURSE TYPE	BASIC KNOWLEDGE		
PREREQUISITE COURSES:	NONE		
TEACHING AND ASSESSMENT LANGUAGE:	GREEK		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO		
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/courses/MED883/		

2. LEARNING OUTCOMES

Learning outcomes
The ANATOMY II course includes teaching of the basic principles of Clinical, Systematic and Topographic Anatomy necessary for Medical Students. At the end of the course the students should be able to use the acquired knowledge in order to: 1. Understand the basic principles of disease related to different systems and regions of the body 2. Combine basic Anatomical knowledge with relevant knowledge of other Clinical topics 3. Analyze and synthesize clinical information through physical examination of the patient in certain clinical problem settings (Problem-Based Learning) 4. Use Surface Anatomy principles and landmarks during physical examination 5. Apply basic Surface Anatomy principles in simple procedures (eg catheterization, paracentesis etc) 6. Understand the principles of basic surgical procedures and be able to participate in hands-on training during Clinical Surgical electives in the future.
General Abilities

Generally, by the end of this course the student will have developed the following general abilities (from the list above):

Search, analysis and synthesis of facts and information, as well as use of the necessary technologies
Decision making
Autonomous (Independent) work
Group work

3. COURSE CONTENT

CLINICAL TOPOGRAPHIC ANATOMY

HEAD AND NECK

- Skull bones and joints. The cranial cavity. Cervical vertebrae.
- Cranial nerves.
- Cervical nerves, the brachial plexus.
- The autonomic system in the head and neck region.
- Muscles, arteries, veins and lymph drainage in the head and neck.
- The scalp (layers, vessels, lymph drainage and innervation).
- The face.
- Parts of the digestive system in the head and neck (oral cavity, tongue, palate, salivary glands, the pharynx, oesophagus).
- Parts of the respiratory system in the head and neck (nose, nasal sinuses, larynx, and trachea).
- Endocrine glands of the head and neck (pituitary gland, thyroid, parathyroids)
- The eye, the ear.
- The temporal fossa, the orbit, the infratemporal fossa, the pterygopalatine fossa, the parotid area, the mandibular joint, the submandibular area.
- Trigones of the neck.
- Surface anatomy of the head and neck.
- The meninges, venous sinuses. Haemorrhages. The brain.

THORAX

- The chest wall, thoracic cavity and diaphragm. Diaphragmatic orifices. The intercostal space (clinical implications on chest drainage). The mediastinum (anatomical structures and organs). Position of the thoracic organs and their relations. Nerve supply and lymphatic's of the thorax. Clinical implications.
- The great vessels (ascending aorta, pulmonary trunk, aortic arch, brachiocephalic and subclavian arteries, superior vena cava, the azygos system).
- The axillary region. The breast. Disposition and relations on the chest wall. The mammary glands. (Blood supply, lymph drainage, clinical importance).
- Surface anatomy of the thorax. Clinical examination of the chest. Surface anatomy landmarks for the lung and heart. Position of heart valves
- Radiological anatomy of the thorax. CT/MRI scans – transverse sections. Virtual anatomy.

ABDOMEN

- Anatomical structures of the posterior abdominal wall. The muscles and fascias. The great vessels (aorta, vena cava). Position of the kidneys, course of the ureters. The retroperitoneal space.
- Anatomical structures of the anterior abdominal wall. The muscles and fascias. The rectus sheath. Surface anatomy and regions. Projection of viscera and organs - anatomical landmarks. The inguinal canal. Testicular descent. Inguinal hernias. Clinical diagnosis and principles of surgical corrections.

PELVIS & PERINEUM ((Clinical and Surgical Anatomy)

- The bony pelvis, pelvic girdle (differences between male and female). The pelvic walls and fascia. The sacral plexus. The contents of the pelvis (male-female). The pelvic diaphragm and perineal body.
- Blood vessels of the pelvis (common/internal/external iliac artery-vein). Course of the pudendal neurovascular bundle, clinical implications in regional anaesthesia/trauma).

- Surface anatomy landmarks for pelvic organs –clinical examination. Clinical implications in trauma /inflammation /malignancy /extrauterine pregnancy).
- Functional anatomy (Incontinence - defaecation, urinary continence, organ prolapse, parturition).
- The perineum. The anal canal. The ischiorectal fossa and the pudendal bundle. The urogenital diaphragm. The female and male urethra. Superficial and deep perineal pouches. Surface anatomy of the perineum –anatomical landmarks. Clinical implications –surgical procedures (e.g. Episiotomy).
- Radiological anatomy of the pelvis. CT/MRI scans – transverse sections. Virtual anatomy.

CLINICAL SYSTEMATIC ANATOMY

RESPIRATORY SYSTEM

- The nose. The nasal cavity. The nasal sinuses (description, relations, blood & nerve supply, lymph drainage).
- The pharynx and larynx. Cartilages and fascia of the pharynx and larynx (description, relations, blood & nerve supply, lymph drainage). The vocal cords and phonation.
- The trachea, the bronchi and lungs (description, relations, blood & nerve supply, lymph drainage). Lobes and bronchopulmonary segments. The bronchial tree. The pleura and the pleural cavity (description, relations, blood & nerve supply, lymph drainage). Respiratory mechanics.

CARDIOVASCULAR AND LYMPHATIC SYSTEM

- The pericardium: fibrous and serous pericardium, the pericardial cavity and sinuses (description, relations, blood & nerve supply, lymph drainage).
- The heart: Surfaces and borders, the chambers of the heart, the fibrous skeleton. Atria and ventricles, the ventricular septum. The conducting system – cardiac autonomic innervation. Blood & nerve supply – the coronary arteries. Clinical implications.
- Structure of the vessels (arteries, veins and lymph vessels). The microcirculation.
- Arteries: aortic arch, descending aorta, thoracic-abdominal aorta –branches. Arteries of the upper/lower limb. Arteries of the head and neck.
- Veins: the vena cava, the azygos system, veins of the upper/lower limb, veins of the head and neck. The portal venous system. Portosystemic anastomoses-clinical cases.
- The great lymph vessels. Cisterna chili- thoracic duct. Distribution of lymph nodes throughout the body. Clinical correlations.

ENDOCRINE SYSTEM

- General principles of the endocrine system. The endocrine glands. The endocrine part of the pancreas/ovary/testis. The placenta. The thymus. Diffuse endocrine system – interrelations between the endocrine and the nervous system.
- Hypothalamus (Description and location, relations, nuclei, the hypothalamic-pituitary system).
- Pituitary gland (anterior – intermediate – posterior lobe: adenohypophysis - neurohypophysis. (Description and location, blood supply, relations, function).
- Pineal gland (epiphysis). (Description and location, blood supply, function).
- Thyroid gland. (Description and location, blood supply, function).
- Parathyroid glands. (Description and location, blood supply, function).
- Adrenal glands (cortex –medulla). (Description and location, blood supply, function).

DIGESTIVE SYSTEM

- The upper digestive system (buccal cavity, tongue, salivary glands, middle and lower part of the pharynx. (Description and location, blood & nerve supply, lymph drainage, function).
- The digestive system in the trunk: oesophagus, stomach, small intestine (duodenum, jejunum, ileum), large intestine (ascending /transverse /descending colon, sigmoid, rectum). The anal canal. (Description, blood & nerve supply, lymph drainage, function).
- The great glands of the digestive system (liver, pancreas).
- Clinical examples and clinical problems.

URINARY SYSTEM

- The kidneys (size, shape and location). The hilum. Holding of the kidneys in the retroperitoneal space – ptosis. Blood & nerve supply, lymph drainage. The pyelocalyceal system. The ureter (position, course, natural stenotic parts, the ureteropelvic junction, the vesico ureteric junction.

- The bladder. The bladder wall (detrusor), ureteral trigone, antireflux mechanisms. Blood & nerve supply, lymph drainage. Mechanism of urine storage – voiding.
- The urethra (male-female). Urethroscopy - cystoscopy (virtual endoscopy).
- Radiological anatomy (KUB, IVU, ultrasound, CT scan – correlation with transverse sections of the retroperitoneal and pelvic space).
- Clinical examples and clinical problems (trauma, inflammation, neoplasm, lithiasis, voiding dysfunction).

GENITAL SYSTEM (male)

- Clinical anatomy of the testis, epididymis, vas deferens. The spermatic cord. Blood & nerve supply, lymph drainage.
- Testicular descend –the undescended testis. Congenital inguinal hernia –hydrocele. The scrotum.
- The prostate gland (morphology, zonal anatomy, clinical correlation with hyperplasia – carcinoma). The seminal vesicles-ejaculatory glands –Cowper glands.
- The penis. The erectile function. Ejaculation. Disorders in erection-ejaculation. Clinical examples and clinical problems.

GENITAL SYSTEM (female)

- Internal genital organs: the ovaries, the fallopian tubes, the uterus, the vagina (Description, blood & nerve supply, lymph drainage, function).
- External genital organs: The outer part of the vagina, the vestibule, the vulva (Description, blood & nerve supply, lymph drainage, function). Clinical examples and clinical problems.

LABORATORY EXERCISES

HEAD AND NECK

- Cranial nerves (nuclei, structure, function).
- The scull – fossas – foramina.
- The scull –the brain.
- The orbit.
- The infratemporal fossa.
- The pterygopalatine fossa.
- The parotid area. The facial nerve.
- The nasal cavity, the paranasal sinuses, the larynx.
- The pharynx, the buccal cavity, the tongue, the palate.
- The mandible, the mandibular joint, the submandibular area.
- The neck (fascias, trigones).
- The eye.
- The ear.

SYSTEMATIC AND TOPOGRAPHIC ANATOMY

1. The thorax.
2. The abdomen.
3. The pelvis –perineum.
4. The cardiovascular system.
5. The respiratory system.
6. The digestive system.
7. The endocrine system.
8. The urinary system. (Clinical and Surgical Anatomy)
9. The male genital system. (Clinical and Surgical Anatomy)
10. The female genital system. (Clinical and Surgical Anatomy)

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Lectures, seminars and laboratory work face to face.

<table>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td>Use of Information and Communication Technologies (ICTs) (e.g. powerpoint presentations) in teaching. The lectures content of the course for each chapter are uploaded on the internet (e-class platform), in the form of a series of ppt files, where from the students can freely download them using a password which is provided to them at the beginning of the course.

Use of instructional Anatomy Videos
Use of digital body slices through Virtual Anatomy</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td><table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>56</td></tr>
<tr><td>Seminars and laboratory exercises.</td><td>42</td></tr>
<tr><td>Review project in Anatomy topics</td><td>optional</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Hours of private study</td><td>102</td></tr>
<tr><td>Total work load</td><td>200 hours</td></tr>
</table></td></tr>
<tr><td>STUDENT ASSESSEMNT</td><td>Written exams at the end of the semester. Examination includes MCQs, short essays and Clinical Problem solving.

Anatomy project (review): optional (+ 0 - 1.5)

Minimum passing grade: 5/10.

The examination documents are retained for 5 years and are readily available to students.</td></tr>
</table>

5. RECOMMENDED LITERATURE

Clinical Anatomy R. Snell

Clinical Anatomy Moore-Dalley-Agur

COURSE OUTLINE MED_321A

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_321A	**SEMESTER OF STUDIES**	THIRD
COURSE TITLE	HISTOLOGY II		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures, tutorials/laboratory exercises.	1(lect.) 3 (lab.)	3

COURSE TYPE	BASIC KNOWLEDGE
PREREQUISITE COURSES:	None
TEACHING AND ASSESSMENT LANGUAGE:	Greek.
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No
COURSE WEBPAGE (URL)	https://eclass.upatras.gr MED943

2. LEARNING OUTCOMES

Learning outcomes

The objective of **Histology II course** is to lead the student to understand the microanatomy of organs and organ systems as a whole and to correlate structure with function.

By the end of this course the student will have acquired:

8. *Understanding and thorough knowledge of the normal structure of human organs tissue components at the microscopic ultrastructural and molecular level*
9. The *ability to correlate normal structrure of human organs and organ systems as a whole with normal function (histophysiology)*
10. *The ability to apply this knowledge in order to understand pathogenetic mechanisms and altered tissue morphology of human diseases (Histopathology)*
11. *The ability to integrate the information and knowledge obtained from the Histology II course with information from other basic scientific fields and courses (biochemistry, human biology and genetics ecc ,).*
12. The ability to *analyze and* synthesize acquired knowledge with clinical information in certain clinical problem settings (Problem-Based Learning)

General Abilities

Generally, by the end of this course the student will, furthermore, have develop the following general abilities (from the list above):

Searching, analysis and synthesis of facts and information, as well as using the necessary technologies
Adaptation to new situations
Decision making
Autonomous (Independent) work
Group work
Excercise of criticism and self-criticism
Promotion of free, creative and inductive thinking

3. COURSE CONTENT

1. Digestive system - oral cavity.
   - Overview of the digestive system.
   - Oral cavity and associated structures.
   - Tongue.
   - Salivary glands.
2. Digestive system - gastrointestinal tract.
   - Overview of the gastrointestinal tract.
   - Esophagus.
   - Stomach. Gastric mucosa. Gastric glands. Epithelial cell renewal.
   - Small intestine. Structure and function. Epithelial cell renewal.
   - Large intestine. Structure and function. Epithelial cell renewal.
   - Rectum and Anal Canal.
   - Clinical correlations.
3. Digestive system - Liver, Gallbladder, Pancreas.
   - Overview.
   - Liver physiology.
   - Blood supply to the liver.
   - Structural organization of the live. Liver lobules.
   - Hepatocytes, biliary tree, perisinusoidal space.
   - Gallbladder.
   - Pancreas. Exocrine pancreas. Duct system.
   - Pancreas. Endocrine pancreas. Pancreatic hormones - function and regulation.
   - Clinical correlations.
4. Respiratory System.
   - Overview.
   - Nasal cavities. Respiratory and olfactory epithelium.
   - Paranasal sinuses.
   - Pharynx.
   - Larynx.
- Trachea. Respiratory epithelium, basement membrane, elastic membrane, cartilages and trachealis muscle.
- Bronchi and Bronchioles. Structure and function.
- Alveoli. Alveolar epithelium. Surfactant. Alveolar septum and air - blood barrier.
- Blood supply, lymphatics and nerves.
- Clinical correlations.

5. Urinary system.
- Overview of the urinary system.
- General structure of the kidney. Cortex and medulla. Kidney lobes and lobules. The nephron.
- Filtration apparatus of the kidney. Renal corpuscle. Glomerular capillaries. Bowman's capsule - podocytes. basement membrane.
- Mesangium.
- Juxtaglomerular apparatus.
- Kidney tubules. Structure and function.
- Histophysiology of the kidney.
- Blood supply, lymphatics and nerves.
- Ureter, urinary bladder and urethra. Transitional epithelium.
- Clinical correlations.

6. Endocrine organs.
- Overview of the endocrine system.
- Hormones and their receptors. Regulation of hormone secretion.
- Pituitary gland (hypophysis). Structure and function. Blood and nerve supply. Anterior lobe (adenohypophysis) ar lobe (neurohypophysis). Hormones of the pituitary gland.
- Hypothalamus.
- Pineal gland.

- Thyroid gland. Thyroid follicle and follicular epithelium. Colloid. Thyroid hormones and calcitonin - production, f regulation.
- Parathyroid glands. Principal and oxyphil cells. PTH function.
- Adrenal glands. Adrenal Cortex - zonation, hormones, function and regulation. Adrenal medulla - cells, fu regulation. Blood supply.

7. Male reproductive system.
   - Overview.
   - Testis. Development. Structure and function.
   - Testis – Spermatogenesis.
   - Testis - seminiferous tubules. Sertoli cells.
   - Testis - Intratesticular ducts.
   - Excurrent duct system. Epididymid. Ductus deferens.
   - Seminal vesicles.
   - Prostate gland.
   - Penis.
   - Clinical correlations.

8. Female reproductive system.
- Overview.
- Ovary. Structure. Follicle development and ovulation, Corpus luteum. Blood Supply and lymphatics.
- Uterine tubes.
- Uterus. General structure. Endometrium and cyclic changes during the menstrual cycle. Implantation. Cervix.
- Vagina.
- External genitalia.
- Mammary glands.
- Placenta.
- Clinical correlations.

9. Eye.
   - General structure of the eye. Layers, chambers and development of the eye.
   - Microscopic structure of the eye. Corneoscleral coat.
   - Microscopic structure of the eye. Vascular coat (Uvea).
   - Microscopic structure of the eye. Retina - layers, specialized regions, vessels.
   - Microscopic structure of the eye. Crystalline lens.
   - Microscopic structure of the eye. Vitreous body.
   - Microscopic structure of the eye. Accessory structures.
   - Clinical correlations.

10. Ear.
    - Overview.
    - External ear.
    - Middle Ear.
- Internal Ear. Bony Labyrinth, Membranous labyrinth. Sensory cells and receptors. Sound perception, blood supply and in
- Clinical correlations.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Lectures, tutorials and laboratory work face to face.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Use of Information and Communication Technologies (ICTs) (e.g. powerpoint, videos, virtual microscopy) in teaching. Use of Information and Communication Technologies (ICTs) (e.g. powerpoint) in teacher-student communication The lectures content of the course for each chapter are uploaded on the internet (e-class) , in the form of a series of ppt files, where from the students can freely download them using a password which is provided to them at the beginning of the course.
TEACHING ORGANIZATION	

Activity	***Semester workload***
Lectures	14

	Tutorials/Laboratory exercises.	42
	Hours of private study	34
	Total number of hours for the Course	***90 hours (total student work-load)***
STUDENT ASSESSEMNT	Written examination in Greek at the end of the semester (multiple choice questions, true-false, short answers, clinical problem solving, identification of structures in microscopic tissue photos) Minimum passing grade: 5 . The examination documents are retained for 5 years and are readily available to students.	

5. RECOMMENDED LITERATURE

1. Histology: Text and Atlas. Ross Michael. First edition. 2011. K & N Litsas.
2. Histology (3d edition). L.Gartner, J. Hiatt. Publisher: Books Parisianou. 2011.

COURSE OUTLINE MED_321B

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_321B	**SEMESTER OF STUDIES**	THIRD
COURSE TITLE	EMBRYOLOGY II		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures, /laboratory tutorials.	1 (lect.), 2 (lab)	2

COURSE TYPE	BASIC KNOWLEDGE
PREREQUISITE COURSES:	None
TEACHING AND ASSESSMENT LANGUAGE:	Greek.
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No
COURSE WEBPAGE (URL)	https://eclass.upatras.gr MED943

2. LEARNING OUTCOMES

Learning outcomes

The objective of **Human Embryology II** course is to help the student understand how the organs are formed.Medical embryology traditionally covers not only the normal human development but also the defects in embryonic development. Is of practical value in helping to understand the causes of variation in Human Structure and contributes to the understanding of Congenital Defects-Malformations.

By the end of this course the student will have acquired:

7. *Understanding and thorough knowledge of the morphogenesis process based on underlying molecular, genetic, cellular and tissue events*
8. *Understanding the structural sequence of development of the body and its various organ systems*
9. *Embryology II is a powerful adjunct to an in-depth understanding of gross anatomical pattern. When the anatomical understanding is combined with the insight gained from molecular and cellular studies, the student can gain a profound knowledge of not only what happens, but why*
10. *A medical embryology course should provide to the student the scientific basis for understanding mechanisms underlying both normal and abnormal development. From the medical perspective, one of the major justifications for studying embryology is to provide a basis for understanding the genesis of birth defects.*
11. *The ability to apply this knowledge in order to understand mechanisms of human disease.*
12. *The appropriate background information and knowledge that bridges basic science to clinical science (obstetrics, pediatrics etc)*
13. *The ability to analyze and synthesize acquired knowledge with clinical information in certain clinical problem settings (Problem-Based Learning)*

General Abilities

Generally, by the end of this course the student will, furthermore, have develop the following general abilities (from the list above):

Searching, analysis and synthesis of facts and information, as well as using the necessary technologies
Adaptation to new situations
Decision making
Autonomous (Independent) work
Group work
Excercise of criticism and self-criticism
Promotion of free, creative and inductive thinking

3. COURSE CONTENT

1 Cardiovascular System.
Formation and establishment of the Cardiogenic Field.
Formation and position of the Heart Tube.
Formation of the cardiac loop.
Molecular regulation of cardiac development.
Development of the Sinus Venosus.
Formation of the cardiac septa (Septum formation of the Common Atrium, Septum formation of the Atrioventricular C
, Septum Formation in the Truncus Arteriosus and Conus Cordis, Septum Formation of the Ventricles).
Formation of Atrioventricular and Semilunar Valves.
Formation of the Conducting System of the Heart.
Vascular Development
Molecular regulation of cardiac and vessels development
Congenital Cardiovascular System Defects.
4.**Respiratory System.**
Tubulogenesis and branching Morphogenesis.
Formation of the Respiratory Primordium (Laryngotracheal Groove, Laryngotracheal Diverticulum, Tracheoesophagea
Tracheoesophageal septum, formation of the Larynx, Trachea, Bronchi and Lungs).
Maturation of the Lungs (Pseudoglandular Period, Canalicular Period, Terminal Sac Period, Alveolar Period)
. Molecular regulation of respiratory system development
Congenital Respiratory System Defects.
Clinical Correlation - Clinical Problems to Solve.
5.Endocrine System Development.
Pharyngeal Arches and Pharyngeal Pouches.
Epithelial Endodermal Lining of the Pouches and their Derivates (Parathyroid Glands, Thymus Gland, Thyroid Gland).
The Formation of Thyroid Gland, Migration of Thyroid bud and Thyroglossal Duct.
Ultimobranchial Bodies and Parafollicular Cells.
The Formation of Thymus Gland.
The Formation of Parathyroid Glands.
Congenital Endocrine System Defects.
Clinical Correlations - Clinical problems to solve.
Suprarenal Glands Development (Mesodermal Portion - Cortex and Ectodermal Portion Medulla).
Fetal Cortex and Definitive Cortex.
Clinical Correlations - Clinical problems to solve.
he development of Hypophysis or Pituitary Gland (from two different parts) 1. Diencephalon extension the Inf
Ectodermal
Outpocheting of Primitive Oral Cavity: the Rathke Pouch.
Clinical Correlations - Clinical problems to solve.
The most caudal part of the Roof Plate of the Diencephalon and the development of Pineal Gland.
Molecular regulation of endocrine system development
Congenital Endocrine System Defects.
Clinical Correlations - Clinical problems to solve.
7. **Digestive System Development.**
Divisions of the Gut Tube.
Foregut: Esophagus, Stomach, Duodenum, Liver and Biliary Apparatus and Pancreas Development.

Clinical Correlations - Clinical problems to solve.
Midgut: Derivates (Small Intestine, Cecum, Appendix, Ascending Colon and the Right one half to two Thirds of the Colon).
Primary Intestinal Loop, Physiological Herniation, Rotation of Midgut, Retraction of Herniated Loops, Mesenteries of th Loops.
Clinical Correlations - Clinical problems to solve.
Hindgut Derivates: the Left One Third to one half of the Tansverse Colon, the Descending Colon, Sigmoid Colon, Rectum and Superior Part of the Anal Canal.
Molecular regulation of Digestive System Development
Congenital Digestive System Defects.
Clinical Correlations - Clinical problems to solve.
8. **Urogenital System Development.**
Kidney Systems Development: Pronephros, Mesonephros and Metanephros.
Interaction of Ureteric bud with Mesenchyma.
Development of Renal Pelvis and the Major and Minor Calyces.
The Weigert – Meyer rule - Mechanisms of Vesicoureteral reflux.
Bladder and Urethra Development.
Congenital Urinary System anomalies.
Gonadal Development: Comparative Embryology: Male - Female.
Gonadal Maturation.
Interaction of Gonads with the Internal Genital Organs.
External Genitalia Development - Influence of Hormonal Factors.
Molecular regulation of Digestive System Development
Congenital Urogenital System Defects.
Clinical Correlations - Clinical problems to solve.

9.Head and Neck Development:

. Pharyngeal Arches, Pharyngeal Clefts, Pharyngeal Pouches and their Derivates.
. Facial Development.
. Molecular regulation of Head and Neck Development
. Congenital Head and Neck Defects.
. Clinical Correlations - Clinical problems to solve.

. 10 Ear Development.

. Internal Ear Development.
. Middle Ear Development.
. External Ear Development.
. Molecular regulation of Ear Development
. Congenital Ear Defects.
. Clinical Correlations - Clinical problems to solve.

. 11. Eye Development:

. Optic Cup and Lens Vesicle.
. Retina, Iris and Ciliary Body Development.
. Lens Development.
. Choroid, Sclera and Cornea Development.
. Vitreous Body Development
. . Molecular regulation Eye Development
. Congenital Eye Defects.
. Clinical Correlations - Clinical problems to solve.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Lectures, face to face.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Use of Information and Communication Technologies (ICTs) (e.g. powerpoint, videos, virtual microscopy) in teaching. Use of Information and Communication Technologies (ICTs) (e.g. powerpoint) in teacher-student communication

	The lectures content of the course for each chapter are uploaded on the internet (e-class) , in the form of a series of ppt files, where from the students can freely download them using a password which is provided to them at the beginning of the course. .
TEACHING ORGANIZATION	

Activity	***Semester workload***
Lectures	14
Lab tutorials	28
Hours of private study	18
Total number of hours for the Course	***60 hours (total student work-load)***

STUDENT ASSESSEMNT	Written examination in Greek at the end of the semester (multiple choice questions, true-false, short answers, clinical problem solving, identification of structures in photos from diagrams and microscopic slides) Minimum passing grade: 5 . The examination documents are retained for 5 years and are readily available to students.

5. RECOMMENDED LITERATURE

1. Developing Human: Clinically oriented embryology. Moore Keith L., Persaud T.V.N**.** Broken Hill Publishers Ltd . First edition, 2009
2. Human Embryology and Developmental Anatomy Carlson. Publisher: Books Parisianou. 4th edition. 2013

COURSE OUTLINE MED_331

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_331	**SEMESTER OF STUDIES**	3ο
COURSE TITLE	BIOCHEMISTRY III		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures, seminars and laboratory work	8	6
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	General Background
PREREQUISITE COURSES:	No
TEACHING AND ASSESSMENT LANGUAGE:	Greek, English (optional)
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/modules/document/?course=MED810

2. LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The course deals with the metabolism of haem and iron, proteins, amino acids and nucleotides. It also deals with the flow of genetic information with particular emphasis on DNA replication, DNA transcription, protein biosynthesis and the regulation of gene expression. The final module of Biochemistry III focuses on the biochemical basis of the immune responses. The course aims to provide an holistic view of metabolism and the mechanisms controlling and coordinate the metabolic pathways, including hormonal regulation.

Following completion of the course, the students should be able to:

1. Comprehend the organization, coordination and regulation of anabolic and catabolic pathways and their deregulation in pathological conditions. Associate laboratory measurements of key biochemical markers, used for the diagnosis and monitoring of diseases, with potential defects in metabolic pathways and utilize them for clinical diagnostic and therapeutic decision making.
2. Recognize fine, yet essential, differences in the process of protein synthesis between bacteria and humans and how widely used antibiotics affect each system.
3. Become familiar with new developments in the field of "gene expression regulation" and the emergence of diseases, with particular focus on the roles of small and large regulatory RNAs.
4. Understand the importance of epigenetic changes in the expression of genes responsible for metabolism
5. Recognize the importance of the immune system and the orchestration of the immune response.
6. Conduct laboratory-based experiments, utilized for diagnoses and interpret the data.
7. Be kept updated with new developments in the field and the international bibliography.
8. To use the knowledge and understanding they acquired for the construction of educated arguments, effective trouble shooting and an overall professional approach towards their respective fields.
9. Be able to gather and interpret relevant information within their field of knowledge and to make decisions after consideration of relevant social, scientific and ethical issues.
10. Be able to communicate information, ideas, problems and solutions of both qualified and non-specialized audiences.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking

Search for, analysis and synthesis of data and information with the use of the necessary technology
Project design and management
Decision making
Team work
Working independently
Working in an interdisciplinary environment
Production of new research ideas
Promote free, creative and inductive thinking
Respect for the natural environment

3. COURSE CONTENT

1. HEME AND IRON METABOLISM

- Heme biosynthesis and degradation
- Disorders of Heme metabolism
- Iron homeostasis

2. PROTEIN DEGRADATION AND AMINO ACID METABOLISM

- Protein degradation. Ubiquitination, proteasome.

- Origin, transportation and amino acid balance. Metabolic fate of the amino group: deamination, transamination, urea cycle.
- Metabolic fate of the carboxyl group and the backbone of the amino acids.
- Biosynthesis of essential and non-essentia amino acids.
- Biochemical basis of genetic disorders of amino acid metabolism.
- Folic acid and co-enzymes: structure and mechanisms of action
- The HS-adenosyl methionine, as a means of methylation.

. NUCLEOTIDE METABOLISM

- Nucleotide biosynthesis and degradation: Mechanisms and regulation.
- Biochemical basis of deregulation of nucleotide metabolism.
- Chemotherapy with nucleotide antimetabolites.

4. FLOW OF THE GENETIC INFORMATION

- DNA replication. Enzymes of replication- mechanisms. Point mutations, transitions, transversions, replication inhibitors.
- DNA transcription. Initiation, elongation and termination. Inhibition of RNA biosynthesis. Post-transcriptional processing. RNA interference. Ribozymes, Riboswitches
- Protein biosynthesis. Activation of amino acids. Transfer RNA. Structure and function of Ribosomes. Initiation, elongation and termination of polypeptide chain biosynthesis. Regulation of protein biosynthesis. Post-translational modifications of polypeptides. Protein-synthesis inhibitors. Protein biosynthesis and cancer.

5. INTEGRATION AND REGULATION OF METABOLISM

- Caloric homeostasis. The key role of the brain in the caloric homeostasis.
- Obesity and diabetes. Exercise and biochemical changes. Metabolic changes originating from nutritional habits.
- The role of ethanol in liver function.

6. REGULATION OF GENE EXPRESSION IN EYKARYOTES

- Regulation of inducible gene expression in eukaryotes (regulatory DNA motifs/chromatin structure and remodeling/ types of transcription factors)
- Epigenetic factors and gene expression.
- The role of RNA in gene expression

7. BIOCHEMISTRY OF THE IMMUNE RESPONSE

- Structure and function of immunoglobulins. Immunoglobulin gene rearrangement and class switch.
- T cell subsets. Surface receptors of phagocytes and lymphocytes.
- Transplantation or histocompatibility reactions (MHC and HLA).
- Monoclonal antibodies. Antibodies that catalyze chemical reactions (catalytic antibodies).

LABORATORY CLASSES

1. Measurement of total and direct bilirubin in serum.
2. Measurement of urea and uric acid in serum.
3. Studying ribosomal biosynthetic capacity of *E.coli* measuring the incorporation of Phenylalanine into Poly(U) programmed ribosomes.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Lectures, group tutorials with PBLs and laboratory exercises	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Software use: Power Point, videos from scientific webpages and youtube and uploading of lectures to e-class	
TEACHING ORGANIZATION	***Activity***	***Semester workload***

The manner and methods of teaching are described in detail. *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	<table><tr><td>Lectures 3h/week</td><td>39</td></tr><tr><td>Tutorials, 2h for every week</td><td>26</td></tr><tr><td>Laboratory classes</td><td>39</td></tr><tr><td>Data analysis, interpretation and lab report</td><td>8</td></tr><tr><td>Home work</td><td>38</td></tr><tr><td>**Total (hours)**</td><td>**150**</td></tr></table>
STUDENT ASSESSEMNT *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	Written examination (85% of the final grade) which includes: 1. Multiple choice questions 2. Questions on the analysis of clinical cases 3. Questions combining theory and laboratory data analysis Reports of laboratory classes (15% of the final grade), evaluation includes: 1. Knowledge of the theory related to the experiments 2. Quality and validity of experimental results 3. Data interpretation and conclusion

5. RECOMMENDED LITERATURE

1. Berg J.M., Tymoczko J.L. and Stryer L. Biochemistry 8th edition, 2015 W.H. Freeman and Company.
2. Baynes J.W., Dominiczak M.H. Medical Biochemistry, 4th edition, Saunders (2014).Βιοχημεία L. Stryer, 8th

COURSE OUTLINE MED_341

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICAL SCHOOL		
COURSE LEVEL	BACHELOR OF SCIENCE		
COURSE CODE	MED341	**SEMEMSTER**	third
COURSE TITLE	PHYSIOLOGY II		

INDEPENDENT TEACHING ACTIVITIES	**HOURS PER WEEK**	**ECTS CREDITS**
Lectures	6	8
Practical laboratories, tutorials (clinical problem solving)	3	

COURSE TYPE	Field of science (Physiology) Development of analytical and synthetic cognitive abilities
PREREQUISITES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/courses/MED847/

2. LEARNING OUTCOMES

Learning outcomes

The course aims to confer knowledge, skills and abilities relating to the level 6 of the European Qualifications Framework for Lifelong Learning. In particular, upon the successful completion of the course students must be able to:

•Understand the importance of physiological functioning of specific human systems (renal, gastrointestinal, endocrine, reproductive)

• Acquire solid knowledge and understanding of topics in the scientific field of Human Physiology, based on either Physiology textbooks or on data derived from the latest developments in the field of Physiology.

• Be able to use the knowledge and understanding they have acquired in a way that demonstrates a professional approach based on the analytical and synthetic inductive use of acquired information, combined with other areas of knowledge exposed during their studies (eg Anatomy, Pharmacology)

• Be able to process novel complex problems related to pathophysiological conditions

• Develop skills for acquiring knowledge needed for postgraduate studies with a high degree of autonomy

General abilities

Search, analyze and synthesize data and information, using the necessary technologies.
Adapting to new situations.
Decision making.
Independent work.
Group work.
Work in international environment.
Work in interdisciplinary environment.
Criticism and self-criticism.
Promoting free and creative thinking.

3. COURSE CONTENT

LECTURES: Physiology of Renal system, Gastrointestinal system, Endocrine system, Reproductive system

CLINICAL PROBLEM SOLVING: 1. Diarrhea caused by vibrio cholera infection, 2. Cushing syndrome, 3. Acid-base balance

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Direct (face to face)
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	3. Use of e-class platform 4. Use of computer software in classroom teaching
TEACHING ORGANIZATION	

Activity	***Semester workload***
Lectures	78
Clinical problem solving	12
Homework	110
Total course hours (25 hours of work-load per ECTS credit)	***200 hours***

STUDENT ASSESSEMNT	Language: Greek Final written examination with multiple choice questions, matching exercises, short answer questions, etc.

5. RECOMMENDED LITERATURE

Berne and Levy Physiology, by B.M. Koeppen, B.S. Stanton, 6th edition, Elsevier Inc., 2010
Medical Phsyiology, by Boron W. & Boulpaep E., Broken Hill Publishers Ltd, 2011
Introduction to Human Physiology, 8th Edition, by L. Sherwood, Brooks/Cole, Cengage Learning

Relevant scientific journals: Physiological Reviews, Endocrine Reviews, Trends in Endocrinology and Metabolism, webpages: http://www.the-aps.org/

COURSE OUTLINE MED_351

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_351	**SEMESTER OF STUDIES**	3rd
COURSE TITLE	CLINICAL SKILLS I		
INDEPENDENT TEACHING ACTIVITIES		**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
TEACHING AND CLINICAL TAINING		3	3
COURSE TYPE	SKILLS DEVELOPMENT		
PREREQUISITE COURSES:	1. INTRODUCTION TO CLINICAL SKILLS – FIRST AID		
TEACHING AND ASSESSMENT LANGUAGE:	GREEK		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBPAGE (URL)	http://www.med.upatras.gr/gr/Pages/undergrad/courses.aspx?lID=19		

2. LEARNING OUTCOMES

Learning outcomes

The aim of this training module is to understand the concept of patient-centered medical care, development of knowledge, skills and attitudes for effective communication with the patient, physical examination, humanitarian and ethical treatment of patient, problem solving, simple medical procedures and first aid. More specifically, the educational objectives are:

1. Acquisition of knowledge – comfort in the professional approach of the patient. Technique of obtaining medical history / physical examination.
2. Recording / Oral presentation of medical history
3. Pediatric / Psychiatric medical history.
4. Understanding the basic core of the commonly used laboratory and other paraclinical tests used in routine clinical practice.
5. Basic differential diagnosis
6. Read / evaluation of medical records – medical history / medical records.
7. Knowledge / routine medical operations execution.
8. Medical emergency / first aid.
9. Understanding of social-economic issues related to health care through the acquisition of knowledge and skills in epidemiology, health providing and community medicine.
10. Understanding the ways in which the cognitive experience is integrated through the interaction of basic sciences, social medicine and clinical medicine.

MEDICAL HISTORY OBTAINING – PHYSICAL EXAMINATION

At the end of this training module the student should:

Be able to recognize the essential information needed for recording and be able to obtain them from the patients in the form of questions.

Be able to evaluate the elements of the medical history that are not normal and put them in a hierarchy.

Be able to record an organized medical history of a patient based on a proposed model.

Be able to record a hierarchical list of problems based on the medical history.

- Be able to understand the differences between the written and verbal / analytical and brief presentation of a medical history.
- Be able to understand and be practiced in accessing sensitive issues related to the patient's history (medical history of sex, drug use etc.) and to exam patients with peculiarities.
- Be able to practice communication techniques / behaviors in relation to medical history taking, presentation of the medical history, informing the environment, confidentiality etc.
- Become familiar with taking a pediatric medical history understanding its peculiarities in relation to the medical history of an adult.
- Acquire the skills necessary for taking the medical history from a psychiatric patient.
- Be able to fully examine the patient systemically.
- Record the pathological findings during the examination of the patient and be able to evaluate the differences from normal.
- Understand the meaning and the importance of the presence of the medical history and medical record (access history, studies, and legal problems).
- And finally, be able to provide first aid in emergency medical situations (Cardiopulmonary resuscitation).

General Abilities

- *Searching, analysis and synthesis of facts and information, as well as using the necessary technologies*
- *Autonomous (Independent) work*
- *Group work*
- *Decision making*
- *Respect to individuality and multiculturalism*
- *Social, occupational and ethical responsibility and sensibility to sex issues*
- *Promotion of free, creative and inductive thinking*

3. COURSE CONTENT

The aim of this training module, is to understand the concept of patient-centered medical care, development of knowledge, skills and attitudes for effective communication with the patient, physical examination, humanitarian and ethical treatment of patient, problem solving, simple medical procedures and first aid. Also, this lesson aims at understanding the social-economic issues related to health care through the acquisition of knowledge and skills in epidemiology, health providing and community medicine and makes clear the ways in which the cognitive experience is integrated through the interaction of basic sciences, social medicine and clinical medicine.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Face to face Lectures and clinical exercise (in teams of 8-10 students).
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Autonomous or group exercises of patient based differential diagnosis search in internet medical databases (PubMed)
TEACHING ORGANIZATION	

Activity	***Semester workload***
Lectures	15
Clinical exercise (history and clinical examination)	27

	Independent study	38
	Sum	***80***
STUDENT ASSESSEMNT	Written or oral test (teacher's decision) including: patient-based history acquisition, clinical examination, clinico-laboratory data evaluation, differential diagnosis, treatment plan and decisions. Knowledge of clinical signs associated with diverse clinical entities.	

5. RECOMMENDED LITERATURE

Barbara Bates: Guide to physical examination and history

4th Semester

COURSE OUTLINE MED_411

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_411	**SEMESTER OF STUDIES**	4th (spring semester)
COURSE TITLE	NEUROSCIENCE		
INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*		**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures, seminars and laboratory work		4 (14 weeks)	6
		3 (14 weeks)	
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		Total: 7 (14 weeks)	6
COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Field of Science		
PREREQUISITE COURSES:	NONE		
TEACHING AND ASSESSMENT LANGUAGE:	Greek		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO		
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/courses/MED845/ https://eclass.upatras.gr/courses/MED906/ https://eclass.upatras.gr/courses/MED840/ https://eclass.upatras.gr/courses/MED843/ https://eclass.upatras.gr/courses/MED870/		

2. LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The lesson is the basic educational activity for students to know the anatomical and functional organization of the nervous system. Students are introduced to the importance of the nervous system. The principles of physiological organization of the nervous system are described and discussed to create the intellectual background for understanding and understanding of major dysfunctions including simple disorders of mobility and sensation, and more complex disorders such as aphasia, amnesia and agnosia.

The course is organized in two parallel but intersecting axes consisting of the study of the anatomical organization and physiology of the nervous system, i.e. in neuroanatomy and neurophysiology, respectively. In general, the subject matter of the course is organized in such a way that students are gradually introduced into the concepts of structural structure and physiology of the neuronal cell (neuron), the functional specialization of neurons (e.g. sensory, motor), the functional organization of simple neural networks (e.g. spinal cord networks) up to the analysis of complex functions such as the various systems of sensorial information analysis, the organization of motor activity, the regulation of the internal environment, the various levels of alertness and the learning/memory. These functions are based on and require the activity of extensive neural networks. These lessons are given in conjunction with the detailed examination of the topography of the different parts and structures of the central nervous system. The teaching includes the basic principles of fetal and post-fetal development of the nervous system as well as its vascularization system and the production and functioning of the cerebrospinal fluid.

With the laboratory and tutorial exercises the students are trained in the anatomical recognition of the structures of the nervous system and theoretically in the analysis of pathological situations with presentation of selected clinical problems and syndromes. These activities are aiming at developing the capacity of the students to identify the kind and the anatomical localization of the underlying pathology based on symptoms and specific clinical measurements.

Upon successful completion of this course the students will acquire new knowledge and specific skills on the following subjects:

• The basic elements of functional organization of the neurons (nerve cells).
• The basic mechanisms and roles of membrane electrical activity of neurons.
• The mechanisms, the role and the regulation of chemical and electrical synaptic transmission.
• Recognize the general anatomical organization of the nervous system as well as the topography of various parts of the central nervous system.
• The basic principles governing the development of the nervous system.
• The mode of vascularization of the central nervous system and cerebrospinal fluid function.
• The principles of anatomical organization of sensory and motor systems.
• The principles of different levels of functional organization of sensory and motor systems.
• The methods used to identify the species and the anatomical localization of the pathology of the nervous system.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking

Search for, analysis and synthesis of data and information with the use of the necessary technology
Team work
Working independently
Promote free, creative and inductive thinking

3. COURSE CONTENT

NEUROANATOMY

INTRODUCTION IN THE STRUCTURE AND FUNCTIONING OF THE NERVOUS SYSTEM

- **Neuron Structure, Glia, Neural Tissue Organization**
- **Structure and Functional Topography of the Central Nervous System: Spinal Cord, Medulla, Pons, Cerebellum,**

Midbrain, Diencephalon, Cerebral hemispheres. Meninges.

• **Organization of the Nervous System in Longitudinal Systems and Horizontal Levels**.

• **Diagnosis of Neurological Diseases: Anatomical Localization**.

DEVELOPMENT OF THE NERVOUS SYSTEM

• **Fetal Development** (Neural tube, Neural crests, Mechanisms of formation of synapses, The role of the microenvironment in the development of the nervous system).

• **Metafetal development**

LONGITUDINAL SYSTEMS

• **Sensory Systems**

Sensory modalities, Sensory receptors, Sensory fibers and paths

Sensory Pathways and Sensory Processing: Somatic sensory system, Pain, Temperature, Non-conscious Sensation (Spino-cerebellar tructs), Vision, The auditory system, The vestibular system, The chemical senses (olfaction and taste), Special Visceral Sensitivity.

• **Motor Systems**

Lower Motor Neurons and Muscles, Reflexes, Muscle Tone, Lower motoneuron Damage and Regeneration.

Pyramid (Limbo), Indirect Floating Cavity Root and control of voluntary movements

Symptoms of Upper Kinetic Neuron Damage

Basic Ganglia (Structure and Connections, Kinetic System Control Circuits, Basic Ganglion Disease)

Cerebellum (Subunits, Feeding and Abduction Fibers, Control Systems of the Kinetic System, Cerebellar Functions and Symptoms in Diseases)

Ophthalmologic System (Eye Movements and Muscles, Control of Eye Movements, Cortical Control of Eye Movements)

- **Regulation of Internal Environment**
  Functional Anatomy
  Sympathetic and Parasympathetic Systems
  Clinical Implications
- **Consciousness**
  Functional Anatomy
  Clinical Implications
- **Ventricular System of the Brain & Cerebrospinal Fluid System**
- **Vascular System of the Brain** (Cerebral Blood Flow and Blood-Brain Barrier, Arterial and Vanous System, Clinical Implications)

HORIZONTAL LEVELS

- **The Peripheral Level**
  Repetition of educational objectives included in matter of Anatomy I.
- **The Spinal Level**
  Anatomy and Functions of Spinal Cord
  Spinal Reflexes
  Clinical Implications
- **The Posterior Fossa (Subtentorial) Level**
  Anatomy and Functions of Brainstem
  Brain Stem & Cranial Nerve Nuclei
  Anatomy and Function of Cerebellum
  Auditory and Vestibular Systems
  Clinical Implications
- **Supratentorial Level**
  Thalamus, Hypothalamus
  Visual System
  Telencephalon (Organization, Connections and Functions of Cerebral Cortex)
  Structures and Functions of the Limbic System, Clinical Implications**)**

NEUROPHYSIOLOGY

A General View of the Nervous System. A brief Historical Overview of the Nervous System Study.

Physiological Function of Nerve Cells

Membrane potential, excitability, mechanisms of action potential conduction. Clinical estimation of action potential conduction velocity in a peripheral nerve. Multiple sclerosis.

Synaptic Transmission

Structure and physiology of electrical and chemical synaptic transmission: processes and mechanisms, functional properties.

Neuromuscular synaptic transmission: An analysis of processes and properties. Toxins and pharmaceutical substances of neuromuscular junction. Myasthenia gravis.

Properties of synaptic transmission in the central nervous system, neurotransmitters and neurotransmitter receptors. Fast and slow synaptic transmission. Functional characteristics of the various neurotransmitter systems in the central nervous system. Plasticity of synaptic transmission.

Principles of Sensory System Organization

Sensory modalities and sensory systems. Sensory stimuli and sensory receptors. Sensation and Perception.

Structure and physiological properties of sensory receptors.

Receptive field. Mechanisms of sensory transduction. Receptor adaptation: mechanisms and functions.

The somatic Sensory System

Structure and function of sensory receptors in the somatic sensory system.

Pain physiology: nociceptors and the transduction of painful stimuli, referred pain, peripheral and central mechanisms of hyperalgesia, central mechanism of pain regulation.

Specific Sensory Systems

The chemical senses (taste and smell), the eye and the visual perception, the hearing, encoding sound intensity and frequency, sound localization.

Spinal control of movement

Proprioception from muscle spindles and Golgi tendon organs.

The myotatic reflex.

Gamma motor neurons: connections and functional roles.

Other spinal cord reflexes.

The roles of interneurons.

Brain control of movement

Neuronal networks of supraspinal motor control. Basal ganglia and cerebellum.

Physiology of ascending activating system

Levels of awareness and electroencephalogram. Sleep: stages, neural mechanism, putative functions and disturbances.

Emotion & Motivation

Structures, Mechanisms and Functions.

Learning and Memory

Categories and cellular mechanisms: long-term synaptic plasticity.

Lateralization of Brain Function

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Short Lectures, tutorials, ppt presentations, face to face
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Use of digital presentations that are uploaded on the e-class electronic platform. Use of fresh preparations, artificial models and tissue sections of human brain.
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements,*	

Activity	***Semester workload***
Lectures in the amphitheater aimed at understanding the neuronal circuits and mechanisms governing the functioning of the human brain under normal conditions. Particular emphasis is placed on clinical	56 hours (4 hours X 14 weeks = 56 hours)

clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS	associations with reference to corresponding brain dysfunctions.	
	Laboratory exercises in small groups of students, which include study of a) Anatomy of spinal cord, brain stem (medulla oblongata, pons, midbrain), diencephalon (thalamus, hypothalamus, epithalamus, suthalamic area) and brain hemispheres (basal ganglia, white matter, cerebral cortex), and b) Topographic Anatomy in the spinal, subtentorial and supratentorial level of ascending and descending bundles. **Tutorials** presenting and discussing selected clinical problems related to the subject of the lectures and the corresponding laboratory exercises of the week and essentially practical applications of the physiological principles of the functional organization of the nervous system aiming at the development of a capacity for diagnosis of the type and diagnosis of the pathological condition include: 1. Anatomical Localization of dysfunction in Central Nervous System. Simple clinical problems in order for students to become familiar with the diagnosis of neurological dysfunctions regarding a) Sensory systems, b) Motor systems (Direct and indirect activation pathways, Control circuits-basal ganglia, cerebellum), c) Vascularization of the brain and spinal cord, d) Vestibular system, Ocular motor system, Visual system, e) Consciousness system. 2. Compound Action Potential (CAP) in a Peripheral Nerve - Physiology, Methodology & Pathology: CAP: mechanism of generation and differences from action potential generated from isolated nerve cells. Properties of CAP. Experimental provocation and recording of CAP in a peripheral nerve. CAP conduction velocity. Role of myelin in the conduction velocity of CAP. Clinical estimation of excitability and measurement of peripheral nerve CAP conduction velocity. Main peripheral nerve pathologies. Diagnostic value of CAP features and measures. 3. Neural Stem Cells Stem cell physiology during embryogenesis and adult life. Role of stem cells in tissue and organ homeostasis with emphasis on neural	42 hours (3 hours X 14 weeks= 42 hours)

	stem cells. Therapeutic perspectives of regenerative medicine with emphasis on the use of neural stem cells in neurodegenerative diseases.	
	Hours of private study	52 hours
	Total number of hours for the Course (25 hours of work-load per ECTS credit)	***150 hours (total student work-load)***

STUDENT ASSESSEMNT *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	Neuroanatomy: Optional ppt presentations and clinical problem solving by the students: +1 in the grade of the final examination The final evaluation takes place during the examination at the end of the lesson: Written examination with multiple choice questions, clinical problem solving and development of specific topics. Minimum passing grade: 5/10 Final Course Grade (FCG) 1. FCG = ($\mathbf{G_{NEUROANATOMY}}$ + $\mathbf{G_{NEUROPHYSIOLOGY}}$) / 2

5. RECOMMENDED LITERATURE

- MAYO CLINIC, MEDICAL NEUROSCIENCES, BENARROCH et al., 1st Greek edition, Gotsis 2015.
- Clinical Neuroanatomy, Waxman St., 2013
- BERNE AND LEVY, Physiology, KOEPPEN, STANTON, 2012
- Concepts in the Science of Memory, Papatheodoropoulos K., Athens: Association of Greek Academic Libraries. http://hdl.handle.net/11419/3244
- Kesner R.P. and Martinez J.L., Neurobiology of Learning and Memory, Elsevier, 2007.

COURSE OUTLINE MED_420

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_420	**SEMESTER OF STUDIES**	FOURTH
COURSE TITLE	HYGIENE		
INDEPENDENT TEACHING ACTIVITIES		**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures, seminars and laboratory work		2 (lect.) 2 (lab.)	4
COURSE TYPE	Field of Science and Skills Development		
PREREQUISITE COURSES:	Typically, there are not prerequisite course. Essentially, the students should possess: (a) knowledge provided through the previously taught Statistics		
TEACHING AND ASSESSMENT LANGUAGE:	Greek. Teaching may be however performed in English in case foreign students attend the course.		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes		
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/courses/MED820/		

2. LEARNING OUTCOMES

Learning outcomes

The course is the basic introductory lesson in the concepts of Hygiene and Epidemiology.
The subject matter of the course is to introduce students to the basic concepts of Hygiene and Epidemiology, to link the concept of Hygiene with the provocation of diseases and epidemics and to understand the overall picture of the different types of epidemics and the requirements for their effective management.
It also refers to introductory concepts in epidemiological investigation methodologies and their role in Public Health so that the student has a comprehensive understanding of processes and methodologies in Public Health. In this sense, the lesson is the basis on which specific epidemiological management methodologies and techniques, as well as the Hygiene Study, are developed in individual specific courses of direction.
Finally, the aim of the course is to understand from the students the importance of Epidemiology and Hygiene in modern medicine and the evolution of medicine in Preventive Medicine which can be a distinct scientific field / occupation
The lesson includes the following sections:
Introduction to the concepts of Public Health, Prevention and Health Promotion. Environmental hygiene. Introduction to environmental toxicology. Hygiene of water. Food hygiene. Pollution of the atmosphere. Climate. Elements of Demographic Medicine (demographic collection, mortality, birth rate, population structure). Introduction to Epidemiology (descriptive Epidemiology, morbidity measurement, general epidemiology of infectious diseases, epidemiological standards, analytical epidemiology, types of epidemiological studies, molecular and genetic epidemiology). Nutrition of man and basic principles of dietetics. Food and health. Epidemiology of infectious diseases. Types of epidemics. Epidemiology of chronic diseases. Special Epidemiology of Heart Diseases and Neoplasms. Modern lifestyle and health. Major risk factors for chronic diseases (smoking, obesity, other factors). Epidemiology and accident prevention. Basic Laboratory of Labor Medicine. Introduction to Health Systems and Health Policies. Sensitive Social Groups and Public Health
Upon successful completion of the course the student will be able to:
• Has comprehended the basic and critical features of Hygiene and Epidemiology, linking them to more general medical objectives and maintaining health
• Is aware of the tools and techniques of epidemiological investigation and how these are used to ensure the successful management of epidemics in time and within the budget

• Can distinguish key roles in a real or case study of an epidemic and assess the role of stakeholders in the investigation. • It uses the risk assessment methodologies to identify key elements such as critical risk factors, correlation, and a realistic timetable. • Analyzes and calculates the basic elements of Hygiene and their connection to disease provocation.
General Abilities
• Autonomous Work • Teamwork • Identification of risk factors • Epidemic Planning and Management

3. COURSE CONTENT

1. Epidemiology: Introduction to Epidemiology (descriptive Epidemiology, morbidity measurement, general epidemiology of infectious diseases, epidemiological standards, analytical epidemiology, types of epidemiological studies, molecular and genetic epidemiology). Epidemiology of infectious diseases. Types of epidemics. Epidemiology of chronic diseases. Special Epidemiology. Clinical epidemiology. Environmental Epidemiology
2. Environmental Health: Introduction to Environmental Toxicology. Hygiene of water. Food hygiene. Pollution of the atmosphere. Climate. Nutrition of man and basic principles of dietetics. Food and health. Modern lifestyle and health. Major risk factors for chronic diseases (smoking, obesity, other factors). Basic Laboratory of Labor Medicine.
3. Demography: Elements of Medical Demography (demographic collection, mortality, birth rate, population structure).

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Lectures, seminars and laboratory work face to face.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Use of Information and Communication Technologies (ICTs) (e.g. powerpoint) in teaching. The lectures content of the course for each chapter are uploaded on the internet, in the form of a series of ppt files, where from the students can freely download them using a password which is provided to them at the beginning of the course.
TEACHING ORGANIZATION	

Activity	***Semester workload***
Lectures (2 conduct hours per week x 13 weeks)	26
Laboratory work (2 conduct hours per week x 13 weeks)	26
Final examination (3 conduct hors for Synthetic Organic Chemistry)	3
Hours for private study of the student and preparation of home-works (3 per semester),	
Total number of hours for the Course (25 hours of work-load per ECTS credit)	***120 hours (total student work-load)***

STUDENT ASSESSEMNT	1. Written examination after the end of the semester - final grade, unless the student participated in the preparation of home-works during the semester. In that case, the 20% of the mean mark of the home-works is added to the final examination mark. Minimum passing grade: 5.

5. RECOMMENDED LITERATURE

3. Hygiene: M. Vayona, 2009, University Studio Press
4. Epidemiology, Gordis, Translation A.Vantarakis, 2017
5. Lecturers Notes. A. Vandarakis, E. Gerastopoulou, M. Leotsinidis

COURSE OUTLINE MED_431

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_431	**SEMESTER OF STUDIES**	4th (spring semester)
COURSE TITLE	PHARMACOLOGY I		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures, seminars and laboratory work	3	6
	2	
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).	Total:	6

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Field of Science
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (to greek speaking students)
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The purpose of this course is to introduce the medical student to the principles of Pharmacology (basic and clinical) and Toxicology.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
	Production of free, creative and inductive thinking

Working in an international environment *Working in an interdisciplinary environment* *Production of new research ideas*
1. Adapting to new situations. 2. Decision making. 3. Independent work. 4. Group work. 5. Work in an interdisciplinary environment. 6. Generating new research ideas. 7. Promoting free and creative thinking.

3. COURSE CONTENT

1. Introduction to the science of Pharmacology.
2. Pharmacokinetics.
3. Pharmacodynamics.
4. Principles of Toxicology.
5. The discovery and development of medicines.
6. Pharmacology of the autonomic nervous system.
7. Central nervous system pharmacology.
8. Pharmacology of inflammation and immune system.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Direct (face to face).
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Specialized software
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	

Activity	***Semester workload***
Lectures	23 h
Tutorials	10 h
Studying	69 h
Total number of hours for the Course (25 hours of work-load per ECTS credit)	***102 hours (total student work-load)***

STUDENT ASSESSEMNT *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work,*	Written final examination (50%) which includes: - Multiple choice questions with a brief explanation.

clinical examination of patient, art interpretation, other *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	

5. RECOMMENDED LITERATURE

Goodman & Gillman's Manual of Pharmacology and Therapeutics, 2nd version, 2014

COURSE OUTLINE MED_441

1. GENERAL

SCHOOL	LIFE SCIENCES		
DEPARTMENT	SCHOOL OF MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED- 441	**SEMESTER OF STUDIES**	4th
COURSE TITLE	MICROBIOLOGY I		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	3	6
Laboratory training	3	

COURSE TYPE	Scientific Area
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Learning outcomes

The course of Microbiology is a link between basic sciences and clinical medicine and deals with the etiology and pathogenesis of infectious diseases and the functioning of the Immune System.

In particular, this course is an introduction to microbiology that provides a strong grounding in fundamental aspects of the basic biology of bacteria as well as a strong grounding in molecular biology and microbial genetics. Emphasis is placed on the study of infectious diseases of humans. Additionally, this course (Microbiology I) is an introduction to the fundamental principles of function of the immune system and the understanding of the mechanisms involved in response to infection, or disorders such as immunodeficiency, malignancy and autoimmunity.

In the laboratory exercises, the students are introduced in a. Basic microbiology techniques (stains, antimicrobial susceptibility testing and b. techniques based on antigen-antibody interaction that are used in the clinical laboratory for diagnosis of infection, autoimmunity or immunodeficiency.

At the end of the educational process the students:

• Understand the role of the immune system in disease protection and pathogenesis of immunodeficiency or autoimmune disorders.

•They are trained to communicate effectively using the correct terms describing the immune response and its mechanisms of regulation.

•They learn about assays and techniques employed in research and clinical laboratories to develop technical understanding and clinical interpretation of results.

• They develop scientific behavior and acquire cognitive skills in solving the clinical problem.

General Abilities

Study, analysis and synthesis of data, with the use of required technologic advances
Decision making
Autonomous task management
Team working
Generation of novel research ideas

3. COURSE CONTENT

GENERAL MICROBIOLOGY

General properties of microorganisms: cytology of prokaryotic cells, nomenclature and classification of bacteria, growth and metabolism of bacteria. General properties of fungi, parasites and viruses

Bacterial Genetics: Plasmids, bacteriophages, transposons, gene transfer**.**
Effects of the environment on microbes: Sterilization, chemotherapeutic agents

BASIC IMMUNOLOGY
Anatomical organization of the immune system: General properties, Cells and tissues of the Immune System.
Innate Immunity: Components: Epithelial Barriers, Phagocytes, Circulating Proteins. Cytokines. Role of Innate Immunity in Local and Systemic Defense Against Microbes, Role in Stimulating Adaptive Immune Response.
Complement: Proteins and activation. Regulation and biological properties.
Antigens - Antibodies: Immunogens - Haptens. Structure and biological properties.
Major histocompatibility system: Structure of MHC Molecules**,** Properties, Genomic Organization of the MHC. Antigen Processing and Presentation of Antigens to T Lymphocytes.
Antigen receptor and Accessory Molecules of T-lymphocytes: TCR: aβ TCR , CD3 and ζ proteins, γδ TCR, Other Accessory Signalling Molecules. Lymphocyte Maturation and Expression of Antigen Receptor Genes. Role of Costimulators in T cell Activation, Signal Transduction by TCR.
T-cell subpopulations: CD4+ / CD8 +, Activation of T Lymphocytes: General Features.
Effector Mechanisms of Cell-Mediated Immunity: Development of Effector T cells, Migration of Effector T cells and other cells to Sites of Antigen. Effector Mechanisms. T-cell memory
Macrophages: Role in T-cell activation and function
B Cell activation: Antigen Recognition and activation. Helper T Cell-Depended Antibody Response. Regulation of Humoral Immune Response.
Immunologic Tolerance: General Features and Mechanisms, T Lymphocyte Tolerance, B Lymphocyte Tolerance, Termination of Normal Immune Response. Cytokines.
Disease Caused by Immune Response: Hypersensitivity Reaction I, II, III, IV. Autoimmunity: Immune tolerance and autoimmunity.
Immune response to : Tumors, Infection- Active-passive immunization, Transplantation Immunology.
Congenital and acquired immunodeficiencies. Primary deficits in B and T lymphocyte function. Combined immunodeficiencies.
During the **laboratory exercises** are developed microbiological techniques: Gram staining, Ziehl-Neelsen staining. Identification of bacteria by biochemical assays, Antimicrobial Susceptibility Testing of bacteria. Principles and applications of immunological techniques applied in the diagnosis of infectious and / or autoimmune diseases: Immunoagglutination, Immunoprecipitations, Immunoelectrophoresis, Nephelometry, Immunofluorescence, ELISA.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Class-room presentations in the amphitheatres and the microscopes' room of the School of Medicine
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Lectures are performed with PowerPoint presentations by using a PC and a projector. Laboratory training is performed in the laboratories of the medical school. Small groups of students perform diagnostic tests, such as: Immunoagglutination, Immunoprecipitation, Immunoelectrophoresis, ELISA
TEACHING ORGANIZATION	

Activity	***Semester workload***
Lectures	42
Laboratory exercises focusing on the understanding of laboratory diagnostic methods	42
Personal Studying	66
Total (25 hours per unit)	150

STUDENT ASSESSEMNT	Assessment is undertaken in the Greek Language with final written exams (100%) and is comprised of: • Clinical problems, justifying the answer chosen. • Multiple choice questions, matching and right/wrong questions in order to evaluate students' knowledge of the theory

5. RECOMMENDED LITERATURE

Greek translation of IMMUNOLOGY 2nd edition, 2012, BY Goldsby R., Kindt T., Osborne B., Kuby J.
ISBN: 978-9963-716-14-2
PUBLISHER: BROKEN HILL PUBLISHERS LTD
NOTES IN «BASIC MICROBIOLOGY AND MICROBIAL GENETICS» by E.D.Anastassiou-I.Spiliopoulou(e-class)

Power point Immunology lectures - e-class

COURSE OUTLINE MED_451

1. GENERAL

SCHOOL	LIFE SCIENCES		
DEPARTMENT	SCHOOL OF MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	**MED451**	**SEMESTER OF STUDIES**	4th
COURSE TITLE	PATHOLOGY I		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	4	6
Laboratory training	3	

COURSE TYPE	Scientific Area
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Learning outcomes

Pathology is the link between basic science and clinical medicine and deals with the pathogenesis and the nature of various diseases, as well as the study of the structural, histologic and functional changes that underlie disease.

Specifically, Pathology I studies the fundamental origin of disease and its causes, examines the mechanisms through which alterations are established, and describes the morphologic and functional changes as well as explains the effects of diseases in various tissues and organs.

Students are introduced in the concept of clinicopathologic correlation by studying characteristic cases.

At the end of the educational process the students:

- Understand the etiology, pathogenesis and clinical symptoms of the disease
- Understand the role of the Pathology Laboratory
    A. In the diagnosis of diseases through analysis and correlation of clinical information with the macroscopic and microscopic changes of the affected tissue.
    B. In the therapy of diseases, especially neoplasia, by the identification of markers related to tumor prognosis or their response in various types of treatments.
- Are introduced in routine and advanced histologic and molecular techniques
- Understand and use medical terminology
- Demonstrate scientific behavior
- Communicate evidence-based knowledge
- Acquire cognitive skills indispensable to medical practice (observation, analysis, clinical problem solving)

General Abilities

Study, analysis and synthesis of data, with the use of required technologic advances
Decision making
Autonomous task management
Team working
Generation of novel research ideas

3. COURSE CONTENT

GENERAL PATHOLOGY

Cell Injury, Cell Death, and Adaptations. Cellular Responses to Stress and Noxious Stimuli. Causes of Cell Injury. Morphologic Manifestations of Cell and Tissue Injury. Mechanisms of Cell Injury. Examples of Cell Injury and Cell Death. Apoptosis. Intracellular Accumulations. Cellular Aging.

Acute and Chronic Inflammation. Acute Inflammation. Morphologic Patterns of Acute Inflammation. Mediators of Inflammation. Chronic Inflammation. Systemic Effects of Inflammation.

Tissue Repair: Regeneration, Healing and Scarring. Control Mechanisms of Cell proliferation. The nature and Mechanisms of Action of Growth Factors. The extracellular Matrix and its Cross-reaction with Cells. Regeneration of Cells and Tissues. Repair by Scarring. Healing of a Skin Wound. Factors that Affect Wound Repair.

Hemodynamic Disorders, Thromboembolism, and Shock. Edema. Hyperemia and Congestion. Hemorrhage. Hemostasis and Thrombosis. Embolism. Infarction. Shock.

Diseases of the Immune System. Innate and Adaptive Immunity. Cells and Tissues of the Immune System. Normal Immune Responses. Hypersensitivity Reactions: Mechanisms of Immune-mediated Injury. Rejection of Transplants. Autoimmune Diseases. Immunodeficiency Syndromes. Amyloidosis.

Neoplasia. Nomenclature. Characteristics of Benign and Malignant Neoplasms. Epidemiology. Carcinogenesis: the Molecular Basis of Cancer. Etiology of Cancer: Carcinogenic Agents. Host Defense against Tumor: Tumor Immunology. Clinical Aspects of Neoplasia.

Genetic and Pediatric Diseases.

Genetic Diseases: Mutations. Mendelian Disorders. Complex Multigenic Disorders. Cytogenetic Disorders. Single-Gene Disorders With Atypical Patterns of Inheritance. The Role of Epigenetics.

Pediatric Diseases. Congenital Anomalies. Perinatal Infections. Prematurity and Fetal Growth Restriction. Respiratory Distress Syndrome of the Newborn. Necrotizing Enterocolitis. Sudden Infant Death Syndrome (SIDS). Fetal Hydrops. Tumors and Tumorlike Lesions of Infancy and Childhood. Molecular Diagnosis of Genetic Disorders.

Environmental and Nutritional Diseases. General Mechanisms of Toxicity. Environmental Pollution. Effects of Tobacco. Effects of Alcohol. Injury by Therapeutic Drugs and Drugs of Abuse. Injury by Physical Agents. Nutritional Diseases.

General Pathology of Infectious Diseases. Newly Emerging and Reemerging Infectious Diseases. Types of Infectious Agents. Transmission and Dissemination of Microbes. Immune Evasion by Microbes. How Microorganisms Cause Disease. Techniques for Identifying Infectious Agents.

SYSTEMIC PATHOLOGY

Blood Vessels. Normal Blood Vessels. Congenital Anomalies. The cells of the Vascular Wall and their Response to Injury. Arteriosclerosis. Atherosclerosis. Hypertensive Vascular Disease. Aneurysms and Dissections. Vasculitis. Raynaud Phenomenon. Veins and Lymphatics. Tumors and Tumor-Like Conditions. Pathology of Vascular Intervention.

Heart. Heart Failure. Congenital Heart Disease. Ischemic Heart Disease. Hypertensive Heart Disease. Valvular Heart Disease. Cardiomyopathies and Myocarditis. Pericardial Disease. Cardiac Tumors. Cardiac Transplantation.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Class-room presentations in the amphitheatres and the microscopes' room of the School of Medicine
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Lectures are performed with PowerPoint presentations by using a PC and a projector. Laboratory training is performed by slide demonstration through Virtual Microscopy and Panoramic Viewer software. Small Group of students review re-cuts of the same slide under an optical microscope. The educational process is supported by e-class platform.
TEACHING ORGANIZATION	

Activity	***Semester workload***
Lectures	56
Laboratory training that focuses on understanding the theoretical background through discussion of clinical cases and demonstration of specimens and histologic slides	42
Personal Studying	52
Total (25 hours per unit)	150

STUDENT ASSESSEMNT	Assessment is undertaken in the Greek Language with final written exams (100%) and is comprised of: • Multiple choice questions based on a short clinical history with short analysis of the given answer in order to evaluate students' ability to integrate data from the theory • Matching and right/wrong questions in order to evaluate students' knowledge of the theory • Short answer questions in order to evaluate student's understanding of the theory

5. RECOMMENDED LITERATURE

- Greek translation of Robbins Basic Pathology, 9th Edition, by V. Kumar, A. Abbas, J. Aster, Parisianou Publishing, 2016, (original edition 2013)
- Greek translation of Robbins and Cotran Atlas of Pathology, 3rd Edition by E. Klatt, Parisianou Publishing, 2018 (original edition 2014)

The PowerPoint presentations of the lectures, and the study guides are uploaded at the eclass platform.

Useful sites

a) https://library.med.utah.edu/WebPath/webpath.html

(Webpath the Internet Pathology Laboratory)

b) http://www.virtualpathology.leeds.ac.uk/ug/

(Leeds University Pathology E-learning)

c) http://zoomify.lumc.edu/path/genpath/genpath.htm

d) http://zoomify.lumc.edu/path/virtualpath.htm

e) http://www.stritch.luc.edu/lumen/lessons.cfm

f) http://www.pathguy.com/

(The Pathology Guy - Online Help)

g) http://www.meddean.luc.edu/lumen/MedEd/Histo/htm

h) http://www.udel.edu/biology/Wags/histopage/histopage.htm

COURSE OUTLINE MED_461

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_461	**SEMESTER OF STUDIES**	4th
COURSE TITLE	CLINICAL SKILLS II		
INDEPENDENT TEACHING ACTIVITIES		**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
TEACHING AND CLINICAL TAINING		3	2
COURSE TYPE	SKILLS DEVELOPMENT		
PREREQUISITE COURSES:	2. INTRODUCTION TO CLINICAL SKILLS – FIRST AID 3. CLINICAL SKILLS I		
TEACHING AND ASSESSMENT LANGUAGE:	GREEK		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBPAGE (URL)	http://www.med.upatras.gr/gr/Pages/undergrad/courses.aspx?lID=21		

2. LEARNING OUTCOMES

Learning outcomes

The aim of this training module is to understand the concept of patient-centered medical care, development of knowledge, skills and attitudes for effective communication with the patient, physical examination, humanitarian and ethical treatment of patient, problem solving, simple medical procedures and first aid. More specifically, the educational objectives are:

11. Acquisition of knowledge – comfort in the professional approach of the patient. Technique of obtaining medical history / physical examination.
12. Recording / Oral presentation of medical history
13. Pediatric / Psychiatric medical history.
14. Understanding the basic core of the commonly used laboratory and other paraclinical tests used in routine clinical practice.
15. Basic differential diagnosis
16. Read / evaluation of medical records – medical history / medical records.
17. Knowledge / routine medical operations execution.
18. Medical emergency / first aid.
19. Understanding of social-economic issues related to health care through the acquisition of knowledge and skills in epidemiology, health providing and community medicine.
20. Understanding the ways in which the cognitive experience is integrated through the interaction of basic sciences, social medicine and clinical medicine.

MEDICAL HISTORY OBTAINING – PHYSICAL EXAMINATION

At the end of this training module the student should:

- Be able to recognize the essential information needed for recording and be able to obtain them from the patients in the form of questions.
- Be able to evaluate the elements of the medical history that are not normal and put them in a hierarchy.

- Be able to record an organized medical history of a patient based on a proposed model.
- Be able to record a hierarchical list of problems based on the medical history.
- Be able to understand the differences between the written and verbal / analytical and brief presentation of a medical history.
- Be able to understand and be practiced in accessing sensitive issues related to the patient's history (medical history of sex, drug use etc.) and to exam patients with peculiarities.
- Be able to practice communication techniques / behaviors in relation to medical history taking, presentation of the medical history, informing the environment, confidentiality etc.
- Become familiar with taking a pediatric medical history understanding its peculiarities in relation to the medical history of an adult.
- Acquire the skills necessary for taking the medical history from a psychiatric patient.
- Be able to fully examine the patient systemically.
- Record the pathological findings during the examination of the patient and be able to evaluate the differences from normal.
- Understand the meaning and the importance of the presence of the medical history and medical record (access history, studies, and legal problems).
- And finally, be able to provide first aid in emergency medical situations (Cardiopulmonary resuscitation).

General Abilities

- *Searching, analysis and synthesis of facts and information, as well as using the necessary technologies*
- *Autonomous (Independent) work*
- *Group work*
- *Decision making*
- *Respect to individuality and multiculturalism*
- *Social, occupational and ethical responsibility and sensibility to sex issues*
- *Promotion of free, creative and inductive thinking*

3. COURSE CONTENT

The aim of this training module, is to understand the concept of patient-centered medical care, development of knowledge, skills and attitudes for effective communication with the patient, physical examination, humanitarian and ethical treatment of patient, problem solving, simple medical procedures and first aid. Also, this lesson aims at understanding the social-economic issues related to health care through the acquisition of knowledge and skills in epidemiology, health providing and community medicine and makes clear the ways in which the cognitive experience is integrated through the interaction of basic sciences, social medicine and clinical medicine.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Face to face Lectures and clinical exercise (in teams of 8-10 students).
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Autonomous or group exercises of patient based differential diagnosis search in internet medical databases (PubMed)
TEACHING ORGANIZATION	

Activity	***Semester workload***
Lectures	12
Clinical exercise (history and clinical examination)	30
Independent study	18
total	***60***

STUDENT ASSESSEMNT	Written or oral test (teacher's decision) including: patient-based history acquisition, clinical examination, clinico-laboratory data evaluation, differential diagnosis, treatment plan and decisions. Knowledge of clinical signs *associated with* diverse clinical entities.

5. RECOMMENDED LITERATURE

Barbara Bates: Guide to physical examination and history

5th Semester

Mandatory courses

COURSE OUTLINE MED_451

1. GENERAL

SCHOOL	LIFE SCIENCES			
DEPARTMENT	SCHOOL OF MEDICINE			
LEVEL OF COURSE	Undergraduate			
COURSE CODE	**MED451**	**SEMESTER OF STUDIES**	5th	
COURSE TITLE	PATHOLOGY II			
INDEPENDENT TEACHING ACTIVITIES			**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures			4	6
Laboratory training			3	
COURSE TYPE	Scientific Area			
PREREQUISITE COURSES:				
TEACHING AND ASSESSMENT LANGUAGE:	Greek			
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO			
COURSE WEBPAGE (URL)				

2. LEARNING OUTCOMES

Learning outcomes
Pathology is the link between basic science and clinical medicine and deals with the pathogenesis and the nature of various diseases, as well as the study of the structural, histologic and functional changes that underlie disease. Specifically, Pathology II studies one by one all organ systems of the human body, describes the etiology, epidemiology, and the signs and symptoms and results of the main laboratory tests of their common diseases, studies their pathogenesis and provides morphologic and functional descriptions of the alterations induced in cells and tissues by these diseases. Students are introduced in the concept of clinicopathologic correlation by studying characteristic cases. At the end of the educational process the students: • Understand the pathogenetic mechanisms of the disease from the molecular to the microscopic and macroscopic level • Understand the importance of the clinicopathologic correlation (correlate the clinical and laboratory findings in order for the student to understand the etiology, pathogenesis and clinical symptoms of the disease). • Understand the role of the clinical laboratory (Pathology incorporates the information they obtain from the gross and microscopic examination of the tissues and attribute in the diagnosis, therapy, observation and understanding of the evolution of the disease process). • Understand and use medical terminology • Demonstrate scientific behavior • Acquire cognitive skills indispensable to medical practice (observation, analysis, clinical problem solving)
General Abilities
Study, analysis and synthesis of data, with the use of required technologic advances Decision making Autonomous task management Team working Generation of novel research ideas

3. COURSE CONTENT

Hematopoietic and Lymphoid Systems. *Red Cell Disorders:* Anemia of Blood Loss: Hemorrhage. Hemolytic Anemia. Anemia of Diminished Erythropoiesis. Laboratory Diagnosis of Anemia. Polycythemia. *White Cell Disorders:* Nonneoplastic Disorders of White Cells. Neoplastic Proliferations of White Cells. *Bleeding Disorders*: Disseminated Intravascular Coagulation (DIC). Coagulation Disorders. *Disorders of the Spleen and Thymus*: Splenomegaly. Disorders of the Thymus

Lung. Acute Respiratory Distress Syndrome. *Obstructive Versus Restrictive Pulmonary Diseases***:** Obstructive Lung (Airway) Diseases. Chronic Interstitial (Restrictive, Infiltrative) Lung Diseases. Pulmonary Diseases of Vascular Origin. Pulmonary Infections. Lung Tumors. Pleural Lesions. Lesions of the Upper Respiratory Tract.

Kidney and Its Collecting System. Glomerular Diseases. Diseases Affecting Tubules and Interstitium. Diseases Involving Blood Vessels. Cystic Diseases of the Kidney. Urinary Outflow Obstruction. Neoplasms.

Oral Cavities and Gastrointestinal Tract *Oral Cavity*: Oral Inflammatory and Ulcerated Lesions. Leukoplakia and Erythroplakia. Tumors of the Oral Cavity and the Tongue. Diseases of Salivary Glands. *Esophagus*: Obstructive and Vascular Diseases. Esophageal Varices. Esophagitis. Barrett Esophagus. Esophageal Vascular Disorders of Bowel Tumors. *Stomach:* Gastritis. Peptic Ulcer Disease. Gastric Tumors. *Small and Large Intestines*: Malformations. Vascular Disorders of Bowel. Intestinal Diverticulitis. Intestinal Obstruction. Enterocolitis (Diarrheal Disease). Inflammatory Bowel Disease. Small and Large Intestinal Tumors. *Appendix*: Acute Appendicitis. Tumors of the Appendix.

Liver and Gallbladder. *The Liver:* Mechanisms of Injury. Clinical Syndromes. Infectious and Inflammatory Disorders. Drug- and Toxin-Induced Liver Injury. Inherited Metabolic Liver Diseases. Disorders of Intrahepatic Bile Ducts. Circulatory Disorders. Nodules and Tumors. *Disorders of the Gallbladder and the Extrahepatic Bile Ducts:* Disorders of the Gallbladderand. Disorders of the Extrahepatic Bile Ducts. Tumors.

Pancreas. Congenital Anomalies. Pancreatitis. Pancreatic Neoplasms. Pancreatic Carcinoma.

Male Genital System and Lower Urinary Tract. *Penis:* Malformations. Inflammatory Lesions. Neoplasms. *Scrotum, Testis, and Epididymis:* Cryptorchidism and Testicular Atrophy. Inflammatory Lesions. Testicular Neoplasms. *Prostate*: Prostatitis. Benign Prostatic Hyperplasia. Carcinoma of the Prostate. Sexually Transmitted Diseases

Female Genital System and Breast. *Vulva:* Contact Dermatitis. Nonneoplastic Epithelial Disorders. Tumors. *Vagina:* Vaginitis. Intraepithelial Vaginal Carcinoma and Squamous Cell Carcinoma. Sarcoma Botryoides. *Cervix*: Cervicitis. Neoplasia of the Cervix. *Uterus*: Endometritis. Adenomyosis. Endometriosis. Abnormal Uterine Bleeding. Proliferative Lesions of the Endometrium. Endometrial and Myometrial Tumors. *Fallopian Tubes*. *Ovaries:* Follicle and Luteal Cysts. Polycystic Ovarian Syndrome. Tumors of the Ovary. *Diseases of Pregnancy*: Placental Inflammations and Infections. Ectopic Pregnancy. Gestational Trophoblastic Disease. Preeclampsia/Eclampsia (Toxemia of Pregnancy)

Breast: Fibrocystic changes. Inflammatory Processes. Breast Tumors. *Male Breast*: Gynecomastia. Carcinoma.

Endocrine System. *Pituitary:* Functioning Adenomas and Hyperpituatarism. Hypopituitarism. Posterior Pituitary Syndromes. *Thyroid*: Hyperthyroidism. Hypothyroidism. Thyroiditis. Graves Disease. Diffuse and Multinodular Goiter. Thyroid Neoplasms. *Parathyroid Glands*: Hyperparathyroidism. Hyperparathyroidism. Hypoparathyroidism. *Endocrine Pancreas*: Diabetes Mellitus. Pancreatic Neuroendocrine Tumors. *Adrenal Cortex*: Adrenocortical Hyperfunction: Hyperadrenalism. Adrenal Insufficiency. Adrenocortical Neoplasms. *Adrenal Medulla:* Pheochromocytoma. Neuroblastoma. Multiple Endocrine Neoplasia (MEN) Syndromes.

Musculoskeletal System. *Bones:* Congenital Bone Disorders. Acquired Bone Disorders. Fractures. Ostenonecrosis. Osteomyelitis. Bone Tumors. *Joints*: Arthritis. Tumors and Tumor-like Lesions of the Joints. Pigmented Villonodular Synovitis. Tenosynovial Giant Cell Tumor. *Skeletal Muscle*: Muscular Atrophy. Muscular Dystrophies. Myopathies. Disorders of the Neuromuscular Junction. Tumors of the Skeletal Muscle. *Soft Tissue Tumors*: Adipose Tissue Tumors. Fibrous Tissue Tumors and Tumor-Like Lesions. Fibrohistiocytic Tumors. Smooth Muscle Tumors. Synovial Sarcoma.

Skin. Acute Inflammatory Dermatoses. Chronic Inflammatory Dermatoses Infectious Dermatoses Blistering (Bullous) Disorders Tumors of the Skin.

Neural System. Types of Injury in the Neural System**.** Edema, Herniation, and Hydrocephalus. Cerebrovascular Diseases. Central Nervous System Trauma. Congenital Malformations and Perinatal Brain Injury. Infections of the Nervous System. Tumors. Primary Diseases of Myelin. Acquired Metabolic and Toxic Disturbances. Neurodegenerative Diseases and Dementia. Disorders of the Peripheral Neural System. Hereditary Cancer Syndromes.

Application of Modern Molecular Techniques in Pathology

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD.	Class-room presentations in the amphitheatres and the microscopes' room of the School of Medicine
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Lectures are performed with PowerPoint presentations by using a PC and a projector. Laboratory training is performed by slide demonstration through Virtual Microscopy and Panoramic Viewer software. Small Group of students

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<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
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Matching and right/wrong questions in order to evaluate students' knowledge of the theory
Short answer questions in order to evaluate student's understanding of the theory</td></tr>
</table>

5. RECOMMENDED LITERATURE

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- Greek translation of Robbins and Cotran Atlas of Pathology, 3rd Edition by E. Klatt, Parisianou Publishing, 2018 (original edition 2014)

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(Webpath the Internet Pathology Laboratory)

d) http://www.virtualpathology.leeds.ac.uk/ug/

(Leeds University Pathology E-learning)

c) http://zoomify.lumc.edu/path/genpath/genpath.htm

d) http://zoomify.lumc.edu/path/virtualpath.htm

e) http://www.stritch.luc.edu/lumen/lessons.cfm

f) http://www.pathguy.com/

(The Pathology Guy - Online Help)

g) http://www.meddean.luc.edu/lumen/MedEd/Histo/htm

h) http://www.udel.edu/biology/Wags/histopage/histopage.htm

COURSE OUTLINE MED_521

1. GENERAL

SCHOOL	Health science		
DEPARTMENT	Medicine		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_521	**SEMESTER OF STUDIES**	5th
COURSE TITLE	Bioethics		
INDEPENDENT TEACHING ACTIVITIES		**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
lectures		1	3
Laboratory		2	
COURSE TYPE	Field of Science		
PREREQUISITE COURSES:	No		
TEACHING AND ASSESSMENT LANGUAGE:	Greek		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (in Greek language)		
COURSE WEBPAGE (URL)			

2. LEARNING OUTCOMES

Learning outcomes

The course of Bioethics includes a general and a specific section. In the general section the concepts and principles of bioethics are described and the context of bioethical considerations is analyzed as plot of legal, ethical, philosophical and biomedical components. Also the historical development of ethical consideration in comparison with contemporary bioethics problematic is considered.

General Abilities

By the end of this course the student will be able to:

- Understand the basic bioethics terminology
- Be aware of the principles of bioethics
- Acquire the up-to-date knowledge necessary for the development of novel research ideas

3. COURSE CONTENT

In the specific section the application of the principles of bioethics is analyzed and topics as follows:

- Assisted reproduction
- In vitro fertilization and other reproductive technologies.
- Banks for storage and use of gametes and embryos.
- Pre-implantation genetic diagnosis. Sex selection. Surrogate motherhood.
- Check on fertility and reproduction
- Contraception, sterilization, abortion. The rights of fetus.
- The management of the dead body and organ donation
- Autopsy, consent and postmortem examination.
- Posthumous DNA Testing.
- Consent for donation of organs and tissues for education and research.
- Brain death, organ donation and transplantation.

- Provision of medical devices and pharmaceutical therapy
- Medicalization, lifestyle drugs.
- Conflict of interest and medical treatment.
- Overlapping (shared) prescribing.
- Distant prescribing.
- New costly drugs, treatment costs, pharmacogenetics.
- Bioethical problems in Intensive Care Units
- Euthanasia and physician-assisted suicide.
- The problem of medical prosthesis as for near-death medical decisions.
- Withdrawal versus retention of the treatment, treatment refusal.
- Care of the terminally ill patients
- Quality of life. Philosophy and principles of palliative care.
- The role of the will of the patient.
- Patients competent for decisions.
- Adults incompetent for decisions / children.
- Medical records
- Registration, transfer, storage and access to medical data. Patient consent.
- Confidentiality and responsibility.
- Doctor –patient relationship
- Patient –physician contact.
- The therapeutic importance of the relationship between the patient and the physician and the medical team.
- Balancing patient autonomy with that of the physician.
- Doctor selection.
- Informing the patients and relatives for unfavorable diagnosis.
- Bioethics of medical research
- Special research fields. Research in fetal tissues or materials (embryos, embryonic stem cells).
- Research in autopsy material.
- Clinical trials, confidentiality and archive-based research, publishing results.
- Emergency care
- The question of saving a patient that attempts to suicide.
- Stated refusal for treatment by the patient in emergency medicine.
- Genetic engineering
- Specificity of bioethical questions arising from the application of genetic (familial character, ability of irreversible modification of genetic makeup). Predisposition testing.
- Problems of implementation of Genetic Engineering in diagnosis and treatment. Predictive testing.
- Pre-symptomatic testing.
- Controversial uses of genetic information:
- Genetics and Insurance
- Genetics and Professional Experience
- Paternity testing
- Gene therapy in somatic and germline cells – Cloning.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Teaching in classroom
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Lectures with the use of PowerPoint slides to highlight the important points. Presentations are available in e-class.
TEACHING ORGANIZATION	

Activity	***Semester workload***
Lectures	14
Laboratory	28

	Total number of hours for the Course	***42***
STUDENT ASSESSMENT	Students are assessed by written exams, after arrangement with Academics (one question by each tutor).	

5. RECOMMENDED LITERATURE

- "Clinical ethics, a practical approach to ethical decisions in clinical medicine", A.R. Jonsen, M. Siegler, W.J. Winslade, Medical Publishing Division, 6th Edition, 2006.
- Medical ethics today, the BMA's handbook of ethics and law, 2nd edition, British Medical Association Ethics Department, 2004.
- Notew of Bioethics, University of Patras, Department of Medicine.

COURSE OUTLINE MED_531

1. GENERAL

SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	**Med-531**	**SEMESTER OF STUDIES**	5th
COURSE TITLE	PHARMACOLOGY II		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	3	6
Seminars and laboratory work	2	
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Field of Science
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (to Greek speaking students)
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The purpose of this course is to familiarize the medical student to the integrated actions of drugs in the organs and various physiological systems.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
	Production of free, creative and inductive thinking

Working in an international environment *Working in an interdisciplinary environment* *Production of new research ideas*
1. Adapting to new situations. 2. Decision making. 3. Independent work. 4. Group work. 5. Work in an interdisciplinary environment. 6. Generating new research ideas. 7. Promoting free and creative thinking.

3. COURSE CONTENT

1. Medicines of the kidney cardiovascular system.
2. Chemotherapeutic drugs.
3. Endocrine system drugs.
4. Specialty Pharmacology.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Direct (face to face).
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Specialized software
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	

Activity	***Semester workload***
Lectures	23 h
Tutorials	10 h
Studying	69 h
Total number of hours for the Course (25 hours of work-load per ECTS credit)	***102 hours (total student work-load)***

STUDENT ASSESSEMNT *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other*	Written final examination (50%) which includes: - Multiple choice questions with a brief explanation.

Specifically-defined evaluation criteria are given, and if and where they are accessible to students	

5. RECOMMENDED LITERATURE

Goodman & Gillman's Manual of Pharmacology and Therapeutics, 2nd version, 2014

COURSE OUTLINE MED_541

1. GENERAL

SCHOOL	LIFE SCIENCES		
DEPARTMENT	SCHOOL OF MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	**MED_541**	**SEMESTER OF STUDIES**	5th
COURSE TITLE	MICROBIOLOGY II		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	3	6
Seminars and laboratory work	3	
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Scientific Area
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area

Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B Guidelines for writing Learning Outcomes

Microbiology is the link between basic science and clinical medicine and deals with the etiology and pathogenesis of infectious disease. Specifically Microbiology II course covers the medical and molecular aspects of bacteriology, virology, and mycology with emphasis on pathogenetic properties of medically important pathogens and the clinical manifestations of infectious diseases. Basic principles of laboratory diagnosis, antibiotic sensitivity and the possible mechanisms of resistance of the bacteria are also described.

At the end of the educational process the students:

- Understand the pathogenetic mechanisms of infectious diseases and the need for targeted treatment for each micro-organism
- Recognize the role of the laboratory in diagnosis, treatment and outcome of an infectious disease.
- Recognize and use medical terms.
- They shape scientific behavior.
- They acquire documented knowledge and cognitive skills necessary for practicing medicine (observation, analysis, resolution of a clinical problem).

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Search for, analysis and synthesis of data and information, with the use of the necessary technology*
Adapting to new situations	*Adapting to new situations*
Decision-making	*Decision-making*
Working independently	*Working independently*
Team work	*Team work*
Working in an international environment	*Working in an international environment*
Working in an interdisciplinary environment	*Working in an interdisciplinary environment*
Production of new research ideas	*Production of new research ideas*

Study, analysis and synthesis of data, with the use of required technologic advances
Decision making
Autonomous task management
Team working
Generation of novel research ideas

3. COURSE CONTENT

Clinical Bacteriology:
Gram (+) cocci: Staphylococci, Streptococci, Enterococci. Gram (+) bacteria: Corynebacteria, Listeria, Bacilli, Clostridium. Gram (-) cocci: Meningococcus, Gonococcus. Gram (-) bacteria: Pseudomonas, Brucella, Bordella, Enterobacteriacae, Vibrio, Haemophilus, Legionella. Spirochaetales: Treponema, Borrelia, Leptospira. Spiroids: Campylobacter, Helicobacter. Mycobacteria: Mycobacterium tuberculosis, Mycobacteria non-tuberculosis, Mycobacterium leprae. Actinomyces. Nocardia. Rickettsia, Chlamydia, Mycolpasma.

Clinical Virology:
RNA viruses: Picornaviruses: Enteroviruses (Polio viruses, Coxsackie A & B viruses, ECHO viruses, Enteroviruses 68-71) and Rhinoviruses. Reoviruses: Reo-viruses, Rota-viruses. Toga-viruses: Rubella virus. Myxoviruses, Orthomyxoviruses,: Influenza viruses. Paramyxoviruses: mumps virus, measles virus, Paramyxoviruses 1, 2, 3 and 4, Respiratory Syncytial Virus. Rabdoviruses: rabies virus. Retroviruses: HTLV I & II, HIV.

DNA viruses: Papovaviruses: Human Papilloma Viruses. Adenoviruses. Herpesviruses: types 1- 8. Varicella zoster virus. Cytomegaloviruses(CMV). Epstein-Barr virus (EBV).
Specific clusters: Arboviruses. Hepatitis viruses: HAV, HBV, HCV, HDV, HEV, GBV-G or HGV. Slow viruses.

Clinical Parasitology:
Introduction to Parasitology - Classification. **Protozoa:** E. histolytica, Naegleria, Acanthamoeba. Giardia lamblia, Trichomonas vaginalis. **Blood and tissue protozoa**: Leishmania donovani, Leishmania tropica, Leishmania mexicana, Leishmania braziliensis complex, Trypanosoma cruzi, T. gambiense, T. rhodesiense. **Apicomplexa** : Toxoplasma gondii, Plasmodium malariae, P. falciparum, P. ovale, P. vivax. **Sarcocystis:** Cryptosporidium parvum. Pneymocystis jirovecii.
Nematodes: Strongyloides stercoralis, Enterobius vermicularis, Ascaris lumbricoides. **Cestodes**- General. Taenia saginata, Taenia solium, Echinococcus granulosus. **Trematodes** - General. Schistosoma mansoni, S. haematobium, S. japonicum.

Clinical Mycology:
Introduction to Clinical Mycology - General characteristics of fungi, pathogenic fungi for humans (pathogenesis, clinical deseases, laboratory diagnosis), antifungal agents. Cutaneous and Subcutaneous Mycoses- Dermatophytes: Microsporum, Trichophyton, Epidermophyton, Non dermatophytes: Malassezia, Scopulariopsis, Fusarium:clinical desease, laboratory diagnosis. Opportunistic Mycoses: Candida, Cryptococcus, Aspergillus, Zygomycetes (pathogenesis, clinical desease, laboratory diagnosis).

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Class-room presentations in the amphitheatres and the microscopes' room of the School of Medicine. Laboratory training is performed by the use of real clinical specimens and cultures of bacteria. Basic methods of identification (staining, biochemical tests) and antimicrobial susceptibility are also performed.

<table>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES
Use of ICT in teaching, laboratory education, communication with students</td><td>Lectures are performed with PowerPoint presentations by using a PC and a projector in laboratory. The educational process is supported by e-class platform.</td></tr>
<tr><td>TEACHING ORGANIZATION
The manner and methods of teaching are described in detail.

Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>42</td></tr>
<tr><td>Laboratory exercises focusing on the understanding of the diagnostic approach of infectious diseases in different clinical settings (infections of blood, respiratory tract, CNS, urinary tract)</td><td>42</td></tr>
<tr><td>Personal Studying</td><td>66</td></tr>
<tr><td>Total (25 hours per unit)</td><td>150</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSEMNT
Description of the evaluation procedure

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other

Specifically-defined evaluation criteria are given, and if and where they are accessible to students</td><td>Assessment is undertaken in the Greek Language with final written exams (100%) and is comprised of:
•Clinical problems, justifying the answer chosen.
•Multiple choice questions, matching and right/wrong questions in order to evaluate students’ knowledge of the theory</td></tr>
<tr><td></td><td></td></tr>
</table>

5. RECOMMENDED LITERATURE

Greek translation of **Medical Microbiology** (9th edition) by Patric Murray, Kens Rosenthal and Michael Pfaller. Parisianou publishing 201 , original

Greek translation of **Review of Medical Microbiology and Immunology** (11th edition) by Warren Levinson

Title: "Introduction to Clinical Microbiology and Infectious Diseases"

Author: Georgios Dimitrakopoulos

Publisher: Paschalidis Medical Publications

Year of Publication: 1998

"Clinical Microbiology"

Author: Georgios Dimitrakopoulos

Publisher: Paschalidis Medical Publications

Year of Publication: 1993

E-class PowerPoint Presentation

COURSE OUTLINE MED_141

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE			
COURSE CODE	MED_141	**SEMESTER OF STUDIES**	5
COURSE TITLE	BIOSTATISTICS		
INDEPENDENT TEACHING ACTIVITIES		**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures and Tutorials		4	3
COURSE TYPE	Field of Science (Biostatistics) and Skills Development (Data analysis)		
PREREQUISITE COURSES:			
TEACHING AND ASSESSMENT LANGUAGE:	Greek		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/courses/MED806/		

2. LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area

Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B Guidelines for writing Learning Outcomes

The aim of this course is to create the basic statistical background for the comprehension of quantitative estimates and analytic methodologies that are being used in medical science.

The course is taught via lectures (in Amphitheatre) and tutorials with the use of personal computers. The lectures have theoretical character and the presented concepts are implemented through exercises within tutorials, using software for statistical analysis of medical and biological data (SPSS, Microsoft Excel, Graphpad Prism) and web pages with related data and methodologies from the Internet.

By the end of this course the student is expected to:

- Comprehend basic concepts of Statistics and the particularities of their implementation in the Biomedical domain
- Understand the possibilities of presenting descriptive statistics and to have the skills to make these presentations
- Have the knowledge of statistical reasoning and the capability of stating null hypotheses for the solution of real problems in the domain of Biostatistics
- Be able to apply biostatistical methods to real problems
- Be able to choose the appropriate statistical tests and perform them
- Be able to combine biostatistical concepts and methods for the solution of real problems
- Have acquired the skills of using specific software for biomedical data statistical analysis
- Be capable of critically assess the results from the application of statistical methods to specific problems and formulate conclusions

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Search for, analysis and synthesis of data and information, with the use of the necessary technology*
Adapting to new situations	*Adapting to new situations*
Decision-making	*Decision-making*
Working independently	*Working independently*
Team work	*Team work*
Working in an international environment	*Working in an international environment*
Working in an interdisciplinary environment	*Working in an interdisciplinary environment*
Production of new research ideas	*Production of new research ideas*

- Searching, analysis and synthesis of facts and information, as well as using the necessary technologies
- Decision making
- Autonomous (Independent) work
- Multidisciplinary work
- Production of novel research ideas
- Promotion of free, creative and inductive thinking

3. COURSE CONTENT

- Introduction to Biostatistics: The purpose of Biostatistics. Content of descriptive statistics and statistical inference. Basic concepts of statistics. Frequency and cumulative frequency. Qualitative results of statistical tests. Quantitative results of statistical experiments. Random variable. Frequency tables. Histograms. Representative values of frequency distribution. Sources of sampling variance and determination of the total standard deviation of the sample. Interpretation of the dispersion of clinical measurements.
- Definition of probability. Calculation of probabilities. The predictive value of the diagnostic test – Bayes Theorem. Medical applications. Generalization of the Bayes Theorem. Definition of random variable. Probabilities distribution of random experimental potential. Characteristic parameters of probability distributions. Probabilities distribution in Health Sciences. Binomial distribution. Normal distribution (Gaussian).
- Central Limit Theorem. Sampling error rate. Sampling error of the difference between two random variables. Standard error of the mean.
- Point estimation. Determination of the statistical parameters' confidence interval. Testing statistical hypotheses. Statistical test of the mean. Statistical comparison of the mean values of two different samples. Types of error in statistical inference. z-test. t-test. Statistical analysis of percentages. Inference for a sample rate. Inference for two sampling rates.
- Statistical power. The validity of the statistical test and its relationship with the sample size.
- Contingency tables and statistical tests based on the x^2 distribution. Applications of x^2 distribution with degrees of freedom more than one. Subdivision of contingency tables. Statistical comparison of two numbers.
- Conceptual difference between dependence and correlation. Least squares method. Use of straight lines of statistical dependence in the clinical forecast. Confidence interval of straight line. Linear factor of correlation.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Lectures and laboratory work, face to face.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory*	Specialized software for Biomedical data statistical analysis

<table>
<tr><td>education, communication with students</td><td>Use of the e-class platform for the dissemination of class-material and communication with the tutor</td></tr>
<tr><td>TEACHING ORGANIZATION
The manner and methods of teaching are described in detail.

Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>26</td></tr>
<tr><td>Tutorials</td><td>18</td></tr>
<tr><td>Practicals</td><td>8</td></tr>
<tr><td>Self-study</td><td>23</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Total</td><td>75</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSEMNT
Description of the evaluation procedure

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other

Specifically-defined evaluation criteria are given, and if and where they are accessible to students</td><td>Written examination
Problem solving</td></tr>
</table>

5. RECOMMENDED LITERATURE

(Greek language)

• "Basic Principles and Methods of Biostatistics" by Georgios Nikiforidis. Medical Publications LITSA.
• "Medical Statistics" by Dim. Trichopoulos. Scientific Publications PARISIANOS S.A. ATHENS.
• Pagano M. and Gauvreau, K. (2000). "Principles of Biostatistics." (translated by R. Dafni) ELLIN Publications. Peristeri.

(English language)

- Wassertheil-Smoller Sylvia, Biostatistics and Epidemiology: A Primer for Health and Biomedical Professionals, Springer 2004
- Armitage, P., Berry, G. and Mathews JNS (2002). Statistical Methods in Medical Research. 4th Edition. Blackwell Science
- Altman DG, Practical Statistics for Medical Research, Chapman & Hall/CRC Texts in Statistical Science 1990
- Bland M, An Introduction to Medical Statistics, Oxford Medical Publications 2000

COURSE OUTLINE MED_551

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_551	**SEMESTER OF STUDIES**	5th
COURSE TITLE	CLINICAL SKILLS III		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
TEACHING AND CLINICAL TAINING	3	2

COURSE TYPE	SKILLS DEVELOPMENT
PREREQUISITE COURSES:	4. INTRODUCTION TO CLINICAL SKILLS – FIRST AID 5. CLINICAL SKILLS I 6. CLINICAL SKILLS II
TEACHING AND ASSESSMENT LANGUAGE:	GREEK
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBPAGE (URL)	http://www.med.upatras.gr/gr/Pages/undergrad/courses.aspx?lID=28

2. LEARNING OUTCOMES

Learning outcomes

The aim of this training module is to understand the concept of patient-centered medical care, development of knowledge, skills and attitudes for effective communication with the patient, physical examination, humanitarian and ethical treatment of patient, problem solving, simple medical procedures and first aid. More specifically, the educational objectives are:

21. Acquisition of knowledge – comfort in the professional approach of the patient. Technique of obtaining medical history / physical examination.
22. Recording / Oral presentation of medical history
23. Pediatric / Psychiatric medical history.
24. Understanding the basic core of the commonly used laboratory and other paraclinical tests used in routine clinical practice.
25. Basic differential diagnosis
26. Read / evaluation of medical records – medical history / medical records.
27. Knowledge / routine medical operations execution.
28. Medical emergency / first aid.
29. Understanding of social-economic issues related to health care through the acquisition of knowledge and skills in epidemiology, health providing and community medicine.
30. Understanding the ways in which the cognitive experience is integrated through the interaction of basic sciences, social medicine and clinical medicine.

MEDICAL HISTORY OBTAINING – PHYSICAL EXAMINATION

At the end of this training module the student should:

- Be able to recognize the essential information needed for recording and be able to obtain them from the patients in the form of questions.
- Be able to evaluate the elements of the medical history that are not normal and put them in a hierarchy.
- Be able to record an organized medical history of a patient based on a proposed model.
- Be able to record a hierarchical list of problems based on the medical history.
- Be able to understand the differences between the written and verbal / analytical and brief presentation of a medical history.
- Be able to understand and be practiced in accessing sensitive issues related to the patient's history (medical history of sex, drug use etc.) and to exam patients with peculiarities.
- Be able to practice communication techniques / behaviors in relation to medical history taking, presentation of the medical history, informing the environment, confidentiality etc.
- Become familiar with taking a pediatric medical history understanding its peculiarities in relation to the medical history of an adult.
- Acquire the skills necessary for taking the medical history from a psychiatric patient.
- Be able to fully examine the patient systemically.
- Record the pathological findings during the examination of the patient and be able to evaluate the differences from normal.
- Understand the meaning and the importance of the presence of the medical history and medical record (access history, studies, and legal problems).
- And finally, be able to provide first aid in emergency medical situations (Cardiopulmonary resuscitation).

General Abilities

- *Searching, analysis and synthesis of facts and information, as well as using the necessary technologies*
- *Autonomous (Independent) work*
- *Group work*
- *Decision making*
- *Respect to individuality and multiculturalism*
- *Social, occupational and ethical responsibility and sensibility to sex issues*
- *Promotion of free, creative and inductive thinking*

3. COURSE CONTENT

The aim of this training module, is to understand the concept of patient-centered medical care, development of knowledge, skills and attitudes for effective communication with the patient, physical examination, humanitarian and ethical treatment of patient, problem solving, simple medical procedures and first aid. Also, this lesson aims at understanding the social-economic issues related to health care through the acquisition of knowledge and skills in epidemiology, health providing and community medicine and makes clear the ways in which the cognitive experience is integrated through the interaction of basic sciences, social medicine and clinical medicine.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Face to face Lectures and clinical exercise (in teams of 8-10 students).
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Autonomous or group exercises of patient based differential diagnosis search in internet medical databases (PubMed)
TEACHING ORGANIZATION	

Activity	***Semester workload***
lectures	12
Clinical exercise (history and clinical examination)	30
Independent study	18

	Total	***60***
STUDENT ASSESSEMNT	Written or oral test (teacher's decision) including: patient-based history acquisition, clinical examination, clinico-laboratory data evaluation, differential diagnosis, treatment plan and decisions. Knowledge of clinical signs associated with diverse clinical entities.	

5. RECOMMENDED LITERATURE

Barbara Bates: Guide to physical examination and history

Optional Courses

COURSE OUTLINE MED_551

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_561	**SEMESTER OF STUDIES**	5th
COURSE TITLE	INTRODUCTION TO LABORATORY HEMATOLOGY		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	4	4

COURSE TYPE	Elective course. Field of Science (Laboratory Hematology) and Skills Development (perform and interpret laboratory hematological tests)
PREREQUISITE COURSES:	-
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Learning outcomes
At the end of the course the students should know: 1. What is the blood test (BT) 1a. What parameters are included in a BT. 1b. Based on which parameters of the BT anemia is diagnosed. 1c. Based on which parameters of the BT anemia is classified. 1d. How do subpopulations of peripheral blood white blood cells are distinguished in BT. 1d. What is the immunophenotype of the blood cells. 2. What are the antigenic systems of red blood cells (RBCs)? 2a. Which characteristics of the antigenic systems of erythrocytes are considered clinically important. 2b. Which antibodies against erythrocyte antigens are called “natural” and what are their characteristics. 2c. Which antibodies against erythrocyte antigens are called “immune” and what are their characteristics.

2d. Which laboratory tests check for the presence of antibodies against RBC antigens.

2e. What is the laboratory process of testing compatibility of the blood to be transfused.

3. Which are the blood clotting mechanisms?

3a. Coagulation factors.

3b. What are the laboratory tests of hemostasis?

3c. Analysis of patients' history and laboratory tests to determine hemostasis problems.

General Abilities

Autonomous work

Teamwork

Work in an international environment

3. COURSE CONTENT

A. THE BLOOD CELLS

Types, morphology, functions

B. INTERPRETATION OF BLOOD TEST (BT) PARAMETERS

Knowledge of the parameters of BT and their interpretation.

Diagnosis of anemia based on BT and its classification based on BT parameters.

Characterization of leukocyte populations from BT and specific staining of blood smears.

Immunophenotyping for characterization of leukocyte subpopulations.

C. ANTIGENIC SYSTEMS OF ERYTHROCYTES

Knowledge of the antigenic systems of erythrocytes. Methods of laboratory detection of the RBC antigenic systems and their interpretation.

D. IDENTIFICATION OF ANTIBODIES AGAINST RBC ANTIGENS

Basic knowledge of the mechanisms of development of IgM and IgG alloantibodies against RBC antigens.

Laboratory procedures to test erythrocyte compatibility for transfusion.

E. Blood coagulation

Mechanisms of blood coagulation.

Coagulation factors.

Laboratory analyses of coagulation factors.

Analysis of historical data and laboratory tests of patients to identify problems with blood coagulation.

The lesson is in the form of lectures, tutorials, tutorial and laboratory exercises.

At the end of each module, students deliver a report based on the results of the laboratory and tutorial exercises that they did and focus on the interpretation of their results.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<tr><td>TEACHING METHOD</td><td>In the classroom and in the lab. Face to face for problem solving.</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td>Lectures and tutorials using ICT.
Support of learning process through the e-class platform.</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>6</td></tr>
<tr><td>Tutorials</td><td>4</td></tr>
<tr><td>Tutorial exercises</td><td>4</td></tr>
<tr><td>Laboratory exercises</td><td>8</td></tr>
<tr><td>Homework for problem-solving and preparation of the reports</td><td>78</td></tr>
<tr><td>Total (25h work per 1 ECTS)</td><td>100</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSEMNT</td><td>I. At the end of each module, students deliver a report based on the results of the laboratory and tutorial exercises that have been done and focus on the interpretation of their results.
II. Students' attendance is taken into account in the final score.</td></tr>
</table>

5. RECOMMENDED LITERATURE

Dacie and Lewis Practical Hematology, 11th ed., Edited by D. Loukopoulos, M. Politou, H. Posiopoulos, Medical Publications, Lagos Dimitrios, 2015, ISBN: 978-960-7875-86-0

COURSE OUTLINE MED_581

1. GENERAL

SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_581	**SEMESTER OF STUDIES**	5th
COURSE TITLE	MOLECULAR ANATOMY		
INDEPENDENT TEACHING ACTIVITIES		**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Tutorials		2	4
COURSE TYPE	SCIENTIFIC FIELD		
PREREQUISITE COURSES:	NONE		
TEACHING AND ASSESSMENT LANGUAGE:	GREEK		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO		
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/courses/MED936		

2. LEARNING OUTCOMES

Learning outcomes

At the end of the course the students will have acquired:

1. in depth knowledge and understanding of the normal structure of human cells-tissues and organs at the macroscopic microscopic, ultrastuctural and molecular levels (level 6)
2. expertise knowledge of the molecular structure of the human cells and tissues, knowledge and information that is on the frontier of basic and translational research and will constitute the basis of original and critical thinking (level 7)
3. the ability to search, analyze, combine and integrate information and knowledge regarding the structure and function of the human body from different sources, courses (physiology, biology, genetics) and levels of analysis (form the molecular level to the level of the whole human body function and behavior)
4. the ability to understand mechanisms of human disease
5. the ability to combine the knowledge with relevant knowledge of other Clinical topics, current diagnostics and therapeutics of human diseases.

General Abilities

Generally, by the end of this course the student will have developed the following general abilities (from the list above):

Searching, analysis and synthesis of facts and information, as well as using the necessary technologies
Decision making
Autonomous (Independent) work
Group work
Production of new ideas
Promotion of free, critical and novel thinking

3. COURSE CONTENT

Course detailed description

The course of Molecular Anatomy focuses on the study of the structure and function of the human body (cells tissues and organs) at the macroscopic, microscopic and particularly the molecular level with emphasis on clinical correlations.

The course of Molecular Anatomy includes tutorials and scientific presentations by the students (small projects/small working groups)

Topics include

1. Molecular Developmental Anatomy. Study of the molecular profile of cells and tissues in the human embryo during histogenesis/organogenesis. Correlation with developmental and adult human diseases
2. Molecular Anatomy of the epithelial cells. Apicobasal polarity, microvilli, cilia, Cell-cell junctions and Basement membrane. Correlation with human diseases (Diseases of Desmosomes, cancer etc)
3. Molecular Anatomy of the endothelial cells. Study of the structure and function of the body barriers with clinical correlations. (e.x Blood-Brain Barrier and Multiple Sclerosis, Alzheimer disease, drug delivery to the brain and brain edema). Endothelium and atherosclerosis.
4. Molecular anatomy of the respiratory system: ciliated cell and clinical correlations (Immotile cilia syndrome, Kartagener syndrome etc), goblet cells and clinical correlations (COP)
5. Molecular anatomy of the urinary system: podocyte and proteinuria, mesangial cell and glomerulopathies, umbrella cells, polycystic kidney disease etc
6. Molecular anatomy of the muscle cells and clinical correlations. Striated muscle cell, cardiomyocyte, sarcomeric and costameric diseases, gap junctions and arrhythmias, myopathies and cardiomyopathies
7. Molecular anatomy of mesenchymal cells, epithelial-mesenchymal transition and cancer
8. Molecular anatomy of glial cells: Schwann cells, oligodendrocytes, myelin and demyelinating diseases, astrocytes and CNS tumors
9. Molecular anatomy of neurons and proteinopathies (e.x Parkinson and Alzheimer disease)

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Tutorials face to face.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Use of Information and Communication Technologies (ICTs) (e.g. powerpoint presentations) in teaching. The content of the course for each chapter are uploaded on the internet (e-class platform), in the form of a series of ppt files, where from the students can freely download them using a password which is provided to them at the beginning of the course.
TEACHING ORGANIZATION	

Activity	***Semester workload***
Tutorials	28

	Interactive teaching	10
	Small review projects (oral presentations) in topics of interest	10
	Study and analysis of the literature	22
	Written assay (review)	30
	Total work load	***100***
STUDENT ASSESSEMNT	Overall assessment of the student participation in the course, participation in interactive teaching and small projects-oral presentations: 30% Written assay: 70% Minimum passing grade: 5/10.	

5. RECOMMENDED LITERATURE

- Histology and cell biology, Kierszenbaum A
- Cell Biology and Histology, Leslie P. Gartner, James L. Hiatt, Judy May Strum
- Histology: Text and atlas, Ross Michael H
- Review scientific papers and notes uploaded on e-class

COURSE OUTLINE MED_591

1. GENERAL

SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	591	**SEMESTER OF STUDIES**	5th
COURSE TITLE	clinical pharmacology and toxicology		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	2	4

COURSE TYPE	Scientific field
PREREQUISITE COURSES:	Pharmacology I & II
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (to Greek speaking students)
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Learning outcomes

The main purpose of the course is to introduce the medical student to the correlation among genotype, pharmacological response and toxicity of drugs. Furthermore, the course focuses on the implication of fundamental principles of genetics in the personalization of drug therapy, prevention of toxicity and development of innovative therapeutics.
Briefly the course covers the following topics:

- Phenotype, genotype, haplotype
- Genetic polymorphisms
- Genetic polymorphisms and pharmacological response
- Correlation between genotype and phenotype
- Genome Wide Strategies
- Candidate gene approaches
- SNPs in personalized medicine
- Toxicogenomics
- Contribution of genomics in Forensic Toxicology

General Abilities

-Adaptation to new situations
-Decision making
-Unsupervised work
-Team work
-Work in the inter-scientific environment
-Production of new research ideas
-Promotion of free, constructive and inductive reasoning

3. COURSE CONTENT

Toxicology in everyday practice. Forensic Toxicology. Postmortem Pharmacokinetics, distribution and drug levels.

ii. Therapeutic Drug Monitoring (TDM). Methods and clinical applications.

iii. Clinical Studies. Planning, bioethics and interpretation

iv. Originals or generics?Bio-equivalence and financial resources conservation

v. Basic principles in prescribing medications. Common mistakes in prescribing. Over the counter medications. The cooperation between doctor and pharmacist.

vi. Drug interactions with clinical significance : The Libby Zion case

viii. Biological compounds. A novel Pharmacology

ix. The significance of Pharmacovigilance in drug safety. The role of the physician.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD.	Lectures in the amphitheater
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Powerpoint slides
TEACHING ORGANIZATION	
STUDENT ASSESSEMNT	I. Written final exam with multiple choice questions with brief explanation II. Homework

Activity	***Work load per semester***
Lectures	
Independent study	46

5. RECOMMENDED LITERATURE

Publications in international peer-reviewed Journals

COURSE OUTLINE MED_592

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF THE COURSE	UNDERGRADUATE		
COURSE CODE	**MED_592**	**SEMESTER**	5th
COURSE TITLE	MEDICAL GENETICS (elective course)		

INDEPENTENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures, Seminars & Laboratory work	**2**	**4**

COURSE TYPE	Field of Science
PREREQUISITE COURSES:	None, However students should possess adequate knowledge provided through the previously taught course on medical genetics ("BIOLOGY II", MED 801).
TEACHING AND ASSESSMENT LANGUAGE:	GREEK
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes, with literature support provided by: (a) internationally well-known text books,(b) current review articles relevant to the topics of the course, and (c) educational material offered at the course e-class web-page.
COURSE WEBPAGE (URL) (URL)	https://eclass.upatras.gr/courses/MED812/

2. LEARNING OUTCOMES

Learning outcomes

This elective course is an advanced course of medical molecular genetics and may be considered as an extension of the "Biology II" course taught in the second semester. Its goal is to present and analyze in some detail, the human genetic variation, the patterns of inheritance and the analysis of the structural and functional characteristics of products encoded by the genetic material, as well as the molecular mechanisms which are causally relevant or associated with disease manifestation or predisposition. The course is focused on the fundamental knowledge and achievements of current medical molecular genetics and genomics; it deals with (a) data and current information produced by either conventional approaches or high-throughput technologies in relation to the architecture of the genetic material in health and disease, (b) big data production, storage and exploitation by using bioinformatics tools, and (c) the annotation of informative biomolecules (genes and proteins).

With the active participation of the students, the instructors discuss issues concerning the determination of the functional role of genes or other elements involved in genetic diseases, their relevance with the clinical features, the methodologies for precise molecular diagnosis, the detection and consequences of chromosome aberrations in human health, the current approaches and knowledge for understanding the molecular basis of cancer, gene therapy methods and achievements, as well as issues of functional genomic and proteomic analysis.

General abilities

By the end of this course the students may have developed certain skills:

- Ability to search, analyze and put together data and information on current medical molecular genetics issues by using all available resources including research articles and reviews, resources from the internet and relevant databases, and by analyzing data using bioinformatics tools.
- Ability to compose essays and reports with clarity and completeness, to be able to present orally a medical genetics issue in brief, and discuss productively, freely and critically in the class.

3. COURSE CONTENT

The "Medical Genetics" elective course is focused on the way genetic factors and inheritance

contribute to the manifestation or predisposition of disease. The fact that more than 30% of the hospitalized children suffer because of the expression of a genetic disorder, suggests the significant contribution of heredity in disease manifestation. Genetic diseases may be expressed in all ages, independently of sex, population group, or geographical descent. Some disorders, like cardiovascular diseases, diabetes, neurological diseases, etc. are expressed in high frequency and are associated with aberrations of the normal spectrum of genetic variation. Recent achievements of molecular biology, genetics and genomics including the Human Genome Project, one of the great feats of exploration in the history of modern biology concerning chromosome mapping and sequencing of the entire human genome, the construction of genic maps and gene annotation, and the rapidly evolving functional analyses of the genetic material, have tremendously increase the rate of determination of numerous genetic factors associated with disease, the investigation of the biological role of genes –one at a time or in the context of gene networks-, and how gene dysfunction contributes to disease manifestation in the context of the inherent genetic variation and environment.

The content of the course is covered by the following topics:

- Introduction to advanced medical molecular genetics and genomic analysis.
- The genetic background of disease.
- Protein structure and function.
- Molecular diagnosis, current advanced in (a) small scale, and (b) high-throughput technologies.
- Chromosomal aberrations: presentation of characteristic cases, application of advanced methods of clinical cytogenetics.
- Integrated approaches for genetic disease analysis with the use and interpretation of high-throughput technologies.
- Cancer genetics, a molecular cell biological approach.
- Introduction to regenerative medicine and gene therapy protocols.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<tr><td>TEACHING METHOD</td><td colspan="2">Lectures, discussions, video lectures in the class, and oral presentations by the students.</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td colspan="2">Use of Information and Communication Technologies (ICTs) (e.g. powerpoint) in teaching. The lectures content of the course for each entity are uploaded on the internet, in the form of a series of .ppt files. The students can freely download the material using a password provided at the beginning of the course.</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td colspan="2"><table>
<tr><th>Activity</th><th>Semester's work load</th></tr>
<tr><td>Lectures and relevant discussions with the students</td><td>50</td></tr>
<tr><td>Critical study of the literature, essay writing and submission , oral presentation of the esaay in each one of the topics of the course.</td><td>62</td></tr>
<tr><td>Total number of hours for the Course (25 hours of work-load per ECTS credit)</td><td>112 : 4 = 28</td></tr>
</table></td></tr>
<tr><td>STUDENT ASSESSEMNT</td><td colspan="2">Essay writing and submission, oral presentation of the essay. Evaluation by each one of the instructors. Criteria: (a) The clarity and completeness of the essay and the relevant oral presentation, (b) The overall participation of the student to the discussions in the class. For the final evaluation of the student, the work load of each topic is taken into consideration.</td></tr>
</table>

5. RECOMMENDED LITERATURE

- Thompson & Thompson "Genetics in Medicine" RL Nussbaum, RR McInnes, H.F. Willard, 7th Edition, Translation in the Greek language, 2nd Edition, Broken Hill Publications. ISBN: 978-960-489-062-0. (suggested as a reference book).
- Scientific review articles from the relevant current international literature.
- Video lectures given by scientists of international caliber in relevant medical molecular genetics and genomics topics.

COURSE OUTLINE MED_593

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_593	**SEMESTER OF STUDIES**	5th
COURSE TITLE	CLINICAL BIOCHEMISTRY		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures, seminars and laboratory work	4	4
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Special Background
PREREQUISITE COURSES:	No
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/courses/MED821/ http://www.med.upatras.gr/gr/Pages/undergrad/courses.aspx?lID=107

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The course deals with the role of biochemical markers in diagnosis and management of diseases. The aim of this course is to introduce the students in the principles of modern analytical methods of clinical biochemistry that can help them to understand the metabolic disorders of human organism.

Upon completion of the course the students should be able to:

11. Comprehend in depth the methodologies employed in clinical biochemistry and be able to choose the appropriate laboratory-based tests for diagnosis and management of disease.
12. Update their background knowledge by following the latest developments in the literature
13. Reach decisions not solely based on the accumulation and interpretation of data, but also after taking under consideration bioethical issues.

14. Utilize the knowledge and understanding they have acquired to form a professional attitude towards their work, develop well-documented arguments and the ability for trouble-shooting.
15. Be able to communicate information, ideas, problems and solutions of both qualified and non-specialized audiences.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Project design and management
Decision-making
Team work
Working independently
Working in an interdisciplinary environment
Production of free, creative and inductive thinking
Promote free, creative and inductive thinking
Respect for the natural environment

3. COURSE CONTENT

LECTURES

1. Introduction to laboratory-based analytical methods.
2. Organization, equipment and safety in a clinical chemistry laboratory. Selection and development of an analytical methods.
3. Principles of analytical methods: spectrophotometry, electrochemistry, electrophoresis, clinical enzymology, immunochemistry, mass spectrometry and microarrays.
4. Enzymatic analytical methods using either endpoint or kinetic method. Coupled reactions and automatic analyzers. Evaluation of laboratory results. Quality control and reference values. Quality control programs.
5. Acid-base homeostasis, homeostasis of water, buffers for the blood and their disorders. Definition of electrolytes, and their disorders.
6. Disorders of carbohydrates, lipids, proteins, nucleotides and haemoprotein (porphyrins) metabolism.
7. Laboratory tests for renal, hepatic, cardiac and gastrointestinal function.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Lectures, group tutorials , preparation and presentation of literature reviews.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Software use: Power Point, videos from scientific webpages and youtube and uploading of lectures to to e-class
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.*	

Activity	***Semester workload***
Lectures, 2h/week	26
Tutorials, 2h/week	24
Laboratory classes	

Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS	<table><tr><td>Data analysis, interpretation and lab report</td><td>10</td></tr><tr><td>Homework</td><td>40</td></tr><tr><td>**Total (hours)**</td><td>**100**</td></tr></table>
STUDENT ASSESSEMNT *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	A. Written examination which includes: 4. Multiple choice questions 5. Questions on the analysis of clinical cases 6. Questions combining theory and laboratory data analysis 7. Interpretation of laboratory data B. *written work* and *public presentation*

5. RECOMMENDED LITERATURE

1. Clinical Chemistry, 3rd Edition, William Marshall, Mosby 2000.
2. Clinical Chemistry, 6th Edition, William Marshall and Stephen Bangert, Mosby, 2008.
3. Clinical Biochemistry, 4th Edition, Allan Gaw, Michael J. Murphy, Robert A. Cowan, Denis St. J. O' Reilly, Michael J. Stewart, James Shepherd, Churcill Livingstone Elsevier 2008.

COURSE OUTLINE MED_594

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_594	**SEMESTER OF STUDIES**	5th
COURSE TITLE	EPIDEMIOLOGY OF INFECTIOUS DISEASES		
INDEPENDENT TEACHING ACTIVITIES		**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures, seminars and laboratory work		2 (lect.)	2
COURSE TYPE	Field of Science and Skills Development		
PREREQUISITE COURSES:	Typically, there are not prerequisite course. Essentially, the students should possess: (a) knowledge provided through the previously taught Statistics		
TEACHING AND ASSESSMENT LANGUAGE:	Greek. Teaching may be however performed in English in case foreign students attend the course.		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes		
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/courses/MED825/		

2. LEARNING OUTCOMES

Learning outcomes

The Epidemiology of Infectious Diseases is concerned with the study of the factors that affect the distribution and dynamics of infectious diseases and their impact on Public Health. The investigation of the effects of these factors is carried out using tools from Molecular Biology, Human Genetics, Epidemiology, Population Genetics and Biostatistics. A large number of infectious diseases occur in humans due to either predisposition or interactions between humans and the environment, giving the clinician and the epidemiologist the opportunity to contribute significantly to the investigation of these diseases. Examples of such diseases and epidemics will be analyzed in the lesson.

The subject matter of the course is to introduce students to the basic concepts of Epidemiology of infectious diseases, to link the concept of Hygiene with the provocation of diseases and epidemics and to understand the overall picture of the different types of epidemics and the requirements for their effective management.

It also refers to introductory concepts in epidemiological investigation methodologies and their role in Public Health so that the student has a comprehensive understanding of processes and methodologies in Public Health. In this sense, the lesson is the basis on which specific epidemiological management methodologies and techniques, as well as the Hygiene Study, are developed in individual specific courses of direction.

Finally, the aim of the course is to understand from the students the importance of Epidemiology of infectious diseases in modern medicine and the evolution of medicine in Preventive Medicine which can be a distinct scientific field / occupation

General Abilities

- Autonomous Work
- Teamwork
- Identification of risk factors
- Epidemic Planning and Management

3. COURSE CONTENT

1. Epidemiology: Introduction to Epidemiology (descriptive Epidemiology, morbidity measurement, general epidemiology of infectious diseases, epidemiological standards, analytical epidemiology, types of epidemiological studies, molecular and genetic epidemiology). Epidemiology of infectious diseases. Types of epidemics. Epidemiology of chronic diseases. Special Epidemiology. Clinical epidemiology. Environmental Epidemiology

2. Environmental Health: Introduction to Environmental Toxicology. Hygiene of water. Food hygiene. Pollution of the atmosphere. Climate. Nutrition of man and basic principles of dietetics. Food and health. Modern lifestyle and health. Major risk factors for chronic diseases (smoking, obesity, other factors). Basic Laboratory of Labor Medicine.
3. Demography: Elements of Medical Demography (demographic collection, mortality, birth rate, population structure).

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Lectures, seminars and laboratory work face to face.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Use of Information and Communication Technologies (ICTs) (e.g. powerpoint) in teaching. The lectures content of the course for each chapter are uploaded on the internet, in the form of a series of ppt files, where from the students can freely download them using a password which is provided to them at the beginning of the course.
TEACHING ORGANIZATION	

Activity	***Semester workload***
Lectures (2 conduct hours per week x 13 weeks)	13
Final examination (3 conduct hors for Synthetic Organic Chemistry)	3
Hours for private study of the student and preparation of home-works (3 per semester),	37
Total number of hours for the Course (25 hours of work-load per ECTS credit)	***50 hours (total student work-load)***

STUDENT ASSESSEMNT	2. Written examination after the end of the semester - final grade, unless the student participated in the preparation of home-works during the semester. In that case, the 20% of the mean mark of the home-works is added to the final examination mark. Minimum passing grade: 5.

5. RECOMMENDED LITERATURE

Epidemiology, Gordis, Translation A.Vantarakis, 2017

Notes of lecturers in Greek

COURSE OUTLINE MED_595

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_595	**SEMESTER OF STUDIES**	5th
COURSE TITLE	CLINICAL BIOCHEMISTRY		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	2	4
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).	Total: 2 (13 weeks)	4

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Physiology and Biology
PREREQUISITE COURSES:	No
TEACHING AND ASSESSMENT LANGUAGE:	Greek and English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/courses/MED876/

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

Introduction - Purpose of the Course

The study of embryonic stem cells, the identification of stem cells in tissues and organs of adults, and the discovery of induced pluripotent stem cells have contributed to the understanding of mechanisms controlling homeostasis and the identification of molecular pathways of human diseases. Additionally, it represents a cutting-edge field in biomedical research for the development of new therapies.

The aim of the course is to study populations of stem cells during embryogenesis and adult life, as well as to understand the involvement of embryonic and adult stem cells in homeostasis and the pathogenesis of human diseases.

This course aims to expand students' existing knowledge and incorporate knowledge about stem cells into the normal functioning of the organism. Furthermore, modern approaches to the use of cell replacement methods for the treatment of human diseases will be developed. Ethical issues arising from the use of stem cells in Regenerative Medicine will also be discussed during the lectures.

Educational Objectives The objectives of the course are:
a) to provide basic knowledge about different categories of stem cells,
b) to cover the basic molecular and genetic mechanisms regulating their self-renewal and differentiation,
c) to highlight therapeutic possibilities arising from their use,
d) to discuss ethical and legal issues related to their use in Regenerative Medicine.
After the completion of the course, students are expected to know:

1. Basic knowledge of types of stem cells. 1.1) embryonic stem cells 1.2) adult stem cells 1.3) Cancer stem cells 1.4) Induced pluripotent stem cells (iPS)
2. Basic molecular mechanisms of stem cells contributing to: 2.1) self-renewal 2.2) determination of differentiation fate 2.3) differentiation
3. Reprogramming and cloning processes
4. Emerging research in stem cells and future prospects for Regenerative Medicine
5. Diseases that can benefit from regenerative medicine 4.1) neurodegenerative diseases 4.2) cancer 4.3) diabetes
6. Organoids and three-dimensional organ creation
7. Medical ethics and certain legal issues related to the use of stem cells in medicine.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
Working in an international environment	*Production of free, creative and inductive thinking*
Working in an interdisciplinary environment	
Production of new research ideas	

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Team work
Working independently
Production of free, creative and inductive thinking

3. COURSE CONTENT

1. Basic knowledge of types of stem cells.

   1.1) Embryonic stem cells

   1.2) Adult stem cells

   1.3) Cancer stem cells

   1.4) Induced pluripotent stem cells (iPS)

2. Basic molecular mechanisms of stem cells contributing to:

2.1) Self-renewal

2.2) Determination of differentiation fate

2.3) Differentiation

3. Reprogramming and cloning processes
4. Emerging research in stem cells and future prospects for Regenerative Medicine
5. Diseases that can benefit from regenerative medicine

4.1) Neurodegenerative diseases

4.2) Cancer

4.3) Diabetes

6. Organoids and three-dimensional organ creation
7. Medical ethics and certain legal issues related to the use of stem cells in medicine.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	• Lectures aimed at understanding the biology and physiology of stem cells and their applications in regenerative medicine. • Small group meetings of students with the instructor for the presentation and discussion of specific topics related to the subject of the lectures, focusing on the themes that the students have to present.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	• Use of electronic presentations posted on the e-class platform and relevant literature.
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	

Activity	***Semester workload***
Lectures in the amphitheater and tutorial rooms.	28 h (2 h X 14 weeks = 28 h)
Small group meetings of students with the instructor, which include the targeting and delineation of the topic they have to present.	6 (2 h X 3 weeks= 6 h)
Small group meetings of students with the aim of coordinating and organizing the topic they have to present.	6 (2 h X 3 weeks= 6 h)
Independent Study	60
Total (hours)	**100**

STUDENT ASSESSEMNT *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	Students will be required to study and present selected topics, which will have been previously discussed with the instructor in the form of Problem-Based Learning (PBL), and the key questions that students should focus on will have been defined. These selected topics will be presented both in written and oral form. Student assessment will be based on the quality, understanding of the presentation, as well as the overall participation of students during the lectures. Minimum passing grade: 5/10

5. RECOMMENDED LITERATURE

•"Stem Cells," Efyra Publications 2008, Authors: S. Georgatos, P. Kouklis, G. Lazaridis, A. Melidoni • Alan Trounson and Courtney McDonald, "Stem Cell Therapies in Clinical Trials: Progress and Challenges," Cell Stem Cell 17, July 2, 2015, ª2015 Elsevier Inc • Kazutoshi Takahashi and Shinya Yamanaka, "Development 140, 2457-2461 (2013) doi:10.1242/dev.092551 2013.

• J. B. GURDON, "The Developmental Capacity of Nuclei taken from Intestinal Epithelium Cells of Feeding Tadpoles," J Exp. Morph., Vol. 10, Part 4, pp. 622-40, December 1962

• P. Karagiannis et al., "New Models for Therapeutic Innovation from Japan," EBioMedicine 18 (2017) 3–4

COURSE OUTLINE MED_596

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_596	**SEMESTER OF STUDIES**	5th
COURSE TITLE	NEUROBIOLOGY OF LEARNING AND MEMORY		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	2	4
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).	Total: 2 (13 weeks)	4

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Field of Science
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/courses/MED845/

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The course aims at: a) creating a general frame of knowledge of the memory functions at the different levels of organization, from behavior to the cellular level; b) consolidating the knowledge of important memorial functions using specific examples and clinical cases.

After the completion of the course the student is expected to know:

- The framework of modern ideas for mnemonic operation.
- The general, basic classification of memory.
- The basic molecular and cellular mechanisms of simple memory forms.
- The different features between declarative and non-declarative memory forms.
- The characteristics of experiential memory and the proposed neuronal mechanisms.
- The theories of memory consolidation and the formation of long-lasting memory.
- The basic principles and general mechanisms of synaptic plasticity.
- The general mechanisms of long-term synaptic potentiation.
- The functional role of NMDA receptor and calcium channels in synaptic plasticity and memory.
- The role of protein synthesis in memory and synaptic plasticity.
- The role of neuromodulation in synaptic plasticity and mnemonic consolidation.

• The general mechanisms of brain aging and the consequent changes in synaptic and memory functions in old individuals. The characteristics, the neurobiological background and the possible approaches to the treatment of Alzheimer's disease.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
Working in an international environment	*Production of free, creative and inductive thinking*
Working in an interdisciplinary environment	
Production of new research ideas	

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Team work
Working independently
Production of free, creative and inductive thinking

3. COURSE CONTENT

1. Definitions of learning and memory functions.
2. Categorization and definitions of different types of memory.
3. Distinctions between declarative and non-declarative learning and memory.
4. The basic molecular and cellular mechanisms of simple memory forms.
5. Definition and characteristics of episodic memory.
6. Brain mechanisms for the consolidation of episodic memory.
7. Basic principles and mechanisms of synaptic plasticity.
8. Characteristics of long-term synaptic potentiation and the role of the NMDA receptor.
9. The role of calcium, post-translational modifications and protein synthesis in synaptic plasticity.
10. Mechanics of synaptic plasticity modulation.
11. Characteristics and mechanisms of brain aging.
12. Characteristics, methods of diagnosis and ways of possible treatment of Alzheimer's disease.
13. Presentation of work by students.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	In the amphitheater and in the field of experimental research face-to-face. Alternatively, distance learning through videoconferencing lectures at a special online platform of the University of Patras.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Use of electronic presentations and video presentations posted on the e-class electronic platform.
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.*	

Activity	***Semester workload***
Lectures and discussions in a tutorial room.	26 (2 hours X 13 weeks = 26)

Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS	Demonstration of an in vitro experimental study of synaptic transmission, synaptic plasticity and organization of spontaneous network neuronal activity in a specific experimental neurophysiology room.	4
	Estimated hours for the preparation of oral presentations or written assignments of students.	40
	Total (hours)	***70***
STUDENT ASSESSEMNT *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	The assessment is based on student participation during lectures and discussions, but mainly based on the quality of the presentation or work presented or delivered during or usually at the end of the semester. Topics to be developed may come from a list of suggested topics or be free personal choices for students. The general writing guidelines have been posted on the e-class platform. Also, due to the increasing participation of students in the course in the last years, quantitatively assessed criteria for student assessment and graduation will be created and posted in e-class.	

5. RECOMMENDED LITERATURE

- "Concepts in the Science of Memory," K. Papatheodoropoulos, 2015, Athens: Hellenic Academic Libraries. (http://hdl.handle.net/11419/3244)
- Rudy, J.W. "The Neurobiology of Learning and Memory," Ed. Sinauer, 2008.
- "Amnesias," A. K. Papanikolaou, University of Crete Publications, 2007.

COURSE OUTLINE MED_597

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_597	**SEMESTER OF STUDIES**	5th
COURSE TITLE	PATHOBIOLOGY OF BONE DISEASES		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures,laboratory work	2 (lectures/tutorials)	4
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).	Total: 2 (13 weeks)	4

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	SCIENTIFIC FIELD
PREREQUISITE COURSES:	ANATOMY I, HSITOLOGY I
TEACHING AND ASSESSMENT LANGUAGE:	Greek.
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

By the end of this course the student will have acquired:

1. Appreciation of the molecular, microscopical, radiological and clinical characteristics of bone, cartilage and related tissues
2. *Understanding and thorough knowledge of the molecular mechanisms that highlight the pathobiology of common metabolic and degenerative bone diseases, such as osteoporosis and osteoarthritis*
3. *Appreciation of the pathology, radiology and pathogenesis of bone tumors primary tumors (e.g. osteosarcoma, chondrosarcoma, Ewing's sarcoma) and metastatic bone disease.*
4. *First encounter with the novel therapeutic approaches towards neoplastic, metabolic and traumatic bone pathologies*
5. *The appropriate background information and knowledge that bridges basic science to clinical science (pathology*
6. The ability to *analyze and* synthesize acquired knowledge with clinical information in certain clinical problem settings (Problem-Based Learning)

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
Working in an international environment	*Production of free, creative and inductive thinking*
Working in an interdisciplinary environment	
Production of new research ideas	

Generally, by the end of this course the student will, furthermore, have develop the following general abilities (from the list above):

Searching, analysis and synthesis of facts and information, as well as using the necessary technologies
Analysis and ppt presentation of current original and review articles
Adaptation to new situations
Decision making
Autonomous (Independent) work
Group work
Excercise of criticism and self-criticism
Promotion of free, creative and inductive thinking

3. COURSE CONTENT

1. Basic histology and molecular biology/pathology of bone , cartilage and related tissues
2. Molecular mechanisms of endochondral and membranous ossification
3. Histochemical, molecular and biochemical methods for studying bone and cartilage diseases
4. Signaling cascades and transcription factors that regulate mechanotranduction in skeleton
5. Biology of fracture healing
6. Osteoporosis: from molecular diagnosis to novel treatments and personalized therapy
7. Hematopoietic stem cells and bone: friends or foes
8. Bone metastases: from cells and molecules paths to targeted therapy
9. Pathogenesis and pathobiology of sarcomas
10. Patobiolopgy, molecular pathogeneneis and treatment of osteoarthritis
11. Bone and eating disorders (obesity and anorexia nervosa):current and promising therapeutic approaches

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Short Lectures, tutorials, ppt presentations, face to face.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Use of Information and Communication Technologies (ICTs) (e.g. powerpoint, videos, android and iOS applications) in teaching. Use of Information and Communication Technologies (ICTs) (e.g. powerpoint) in teacher-student communication The lectures content of the course for each chapter are uploaded on the internet (e-class) , in the form of a series of ppt files, where from the students can freely download them using a password which is provided to them at the beginning of the course. Creation of study groups in facebook. .

<table>
<tr>
<td>TEACHING ORGANIZATION
The manner and methods of teaching are described in detail.

Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</td>
<td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>28</td></tr>
<tr><td>Interactive teaching/learning</td><td>28</td></tr>
<tr><td>Student projects:</td><td>2 for 2-3 students groups</td></tr>
<tr><td>Analysis of current bibliography / Hours for private study of the student</td><td>28</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Total (hours)</td><td>100</td></tr>
</table>
</td>
</tr>
<tr>
<td>STUDENT ASSESSEMNT
Description of the evaluation procedure

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other

Specifically-defined evaluation criteria are given, and if and where they are accessible to students</td>
<td>Language: Greek

Student evaluation: ppt presentations, clinical and research problem solving, level of interest and critical involvement in the works of the class.</td>
</tr>
</table>

5. RECOMMENDED LITERATURE

- Cell Biology and Histology, Leslie P. Gartner, James L. Hiatt, Judy May Strum
- Colour Atlasoϕ Histology, Ross Michael H
- Primer on the Metabolic Bone Diseases and Disorders of Mineral Metabolism, 8th Edition, Clifford J. Rosen (Editor-in-Chief), Wiley-Blackwell

Related Journals:

1. *Bone*
2. *Journal of Bone and Mineral Research*
3. *Lab Investigation*
4. *Journal of Endocrinology*
5. *Osteoarthritis and Cartilage*

COURSE OUTLINE MED_598

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_598	**SEMESTER OF STUDIES**	5th
COURSE TITLE	Tropical Medicine and Emerging Infectious Disease		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures,laboratory work	2 (lectures/tutorials)	4
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).	Total: 2 (13 weeks)	4

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Field of Health Sciences
PREREQUISITE COURSES:	None
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES (in English)
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The course "Travel Medicine and Emerging Infectious Diseases" is a 3rd year optional course that aims to introduce the student to issues related to emerging infectious pathogens, tropical disease and travel medicine.
The courses are lectured by infectious diseases or public health specialists by auditorium and are mostly presented in form of clinical cases. They aim to familiarize students with the issues of imported infection, principles of travel medicine, tropical and emerging pathogens, bioterrorism and bioethics.
Following successful completion of this course the student is expected to:

- Obtain understanding of epidemiology of emerging infectious diseases in developing and modern world
- To achieve a level of competence in the diagnosis, investigation and management of imported infection and in the provision of advice in relation to travel medicine
- Understand specific needs and required skills in diagnosis and management of mosquito, tick and food borne diseases
- To achieve a level of competence in the assessment of the returning traveler presenting with fever or diarrheic disease
- Obtain an understanding of infectious diseases as biological warfare

- Understand the principles underlying emerging epidemics and bioethics

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
Working in an international environment	*Production of free, creative and inductive thinking*
Working in an interdisciplinary environment	
Production of new research ideas	

Searching, analysis and synthesis of facts and information, as well as using the necessary technologies
Adaptation to new situations
Decision making
Autonomous (Independent) work
Exercise of criticism and self-criticism
Promotion of free, creative and inductive thinking
Respect to multiculturalism and diversity
Exhibiting of social, professional and ethical responsibility and sensitivity to minorities and gender issues
Group work

3. COURSE CONTENT

The course includes:

- Introduction, Epidemiology and Management of Emerging Pathogens in developing and modern world (Challenges and Perspectives).
- Principles of Travel medicine (risk assessment, provision of advice, prophylaxis).
- Assessment of Fever in the returning traveller (Malaria, Leishmania, Trypanosoma, Chaga's, Hepatitis A).
- Assessment of Diarrhoea in the returning traveller and food borne diseases (Entamoeba, Salmonella, Shigella, Typhoid and Paratyphoid , Trichinella, Listeria, Giardia).
- Clinical Cases of mosquito borne diseases (Clinical Manifestations, Diagnosis and Management of Malaria, Dengue fever, Yellow fever, Zika, West Nile Virus, Chikungunya).
- Clinical Cases of tick borne diseases (Clinical Manifestations, Diagnosis and Management of Lyme disease, Relapsing fever, Rocky Mountain Spotted fever, Babesia, Erlichiosis, Fransicella tularensis) .
- Clinical Cases of Eosinophilia and Parasitic Infections of the lung and central nervous system (Clinical Manifestations, Diagnosis and Management of Taenia solium, Schistosomiasis, Toxoplasmosis, Strongyloides)
- Principles of Bioethics in Infectious Diseases
- Biological Warfare, Preparation plans and Management (Clinical Manifestations, Diagnosis and Management of Antrax, Ebola, Chicken Pox)
- Clinical Cases of tropical skin conditions (Tropical ulcers, Buruli,)
- Clinical Manifestations, Diagnosis and Management of HIV and Tuberculosis in the tropics

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Lectures
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory*	Use of Information and Communication Technologies (ICTs) in teaching.

<table>
<tr><td>education, communication with students</td><td></td></tr>
<tr><td>TEACHING ORGANIZATION
The manner and methods of teaching are described in detail.

Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>26</td></tr>
<tr><td>Written Assignment in Small Study Groups</td><td>14</td></tr>
<tr><td>Analysis of current bibliography / Hours for private study of the student</td><td>60</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Total (hours)</td><td>100</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSEMNT
Description of the evaluation procedure:

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other

Specifically-defined evaluation criteria are given, and if and where they are accessible to students</td><td>Written assignment conducted in groups.</td></tr>
</table>

5. RECOMMENDED LITERATURE

- Travel Medicine, Jay S. Keystone, Phyllis E. Kozarsky, David O. Freedman, Hans D. Nothdurft, Bradley A. Connor editors Elsevier, Philadelphia, Pennsylvania,
- Oxford Handbook of Tropical Medicine, Michael Eddleston, Robert Davidson, Robert Wilkinson and Stephen Pierini Oxford University Press, Oxford
- Manson's Tropical Disease, Saunders Ltd. by Jeremy Farrar, Peter J Hotez, Thomas Junghanss, Gagandeep Kang, David Lalloo, Nicholas J. White
- E learning material / student notes as uploaded in e-class

COURSE OUTLINE MED_599

1. GENERAL

SCHOOL	SCIENCES OF HEALTH, SCHOOL OF MEDICINE		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	**MED_599**	**SEMESTER OF STUDIES**	5th
COURSE TITLE	ROBOTICS IN MEDICINE		
INDEPENDENT TEACHING ACTIVITIES		**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures, seminars and laboratory work		2 (lect.)	4
COURSE TYPE	Field of Science		
PREREQUISITE COURSES:	Medical Informatics		
TEACHING AND ASSESSMENT LANGUAGE:	Greek. Teaching may be however performed in English in case of foreign students attendind the course.		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes		
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/modules/auth/opencourses.php?fc=80		

2. LEARNING OUTCOMES

Learning outcomes

The use of robotics in medicine is a challenging innovation, as its advantages for both the modern physician and the patients are multiple. Consequently, it becomes necessary to teach the basic theoretical principles of robotics in medicine and its practical applications in modern medical practice during undergraduate medical studies.

On this basis, the aim of the course is to understand the basic principles of robotics as well as to categorize and analyze the existing robotic systems that are suitable for application per medical specialty and in particular in surgical interventions as well as the role of "modern" physician ahead of the swift evolution of the two disciplines, medicine and robotics.

The course aims at creating a general framework of knowledge of the basic principles governing modern robotic systems in medicine. It also aims at embedding the applications and functions of robotic optimization systems for diagnostic and invasive procedures using specific examples and clinical cases.

Upon successful completion of the course, the student will:

- Exhibit proven knowledge and understanding of the basic and critical features of robotic systems and their connection to the requirements of each medical specialty.
- Understand the basic principles governing robotic medical systems, subsystems and their management techniques, and how they are used to ensure the successful completion of medical, interventional and surgical operations.
- Be able to co-operate with their colleagues to create and present an academic work related to robotics in any of the specialties of choice.

General Abilities

Understanding the new research fields

- Search, analyze and synthesize data and information, using the necessary technologies
- Adapt to new situations
- Decision making
- Teamwork
- Working in an interdisciplinary environment
- Production of new research ideas
- Exercise of criticism and self-criticism

3. COURSE CONTENT

- Basic principles of medical informatics governing robotic systems. Organization and operation of a robotic system. Mechanical Part. Degrees of freedom.
- Basic principles governing robotic systems and classifications of applications in the fields of modern medicine.
- In the field of diagnosis bio-sensors, micro-robots etc. In the field of surgical specialties, laparoscopic and thoracoscopic surgery. In the field of treatment robotic aid after stroke, artificial members, artificial skin etc.
- Applications of robotics in modern clinical practice. Applications in neurosurgery. Applications in cardiac surgery. Applications in orthopedic surgery. Applications in General Surgery. Applications in urological surgery. Surgical Robotic Systems. Surgery Assistance Systems. Robotic introspection systems. Robotic radiosurgery systems. Robotic master-slave systems.
- Theory and Basic Principles of Telesurgery.
- Robotic systems and the role of the modern Doctor

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD.	• Live in the amphitheater using Power Point Presentations • Cooperative web conferences with hospitals and robotics specialists • Channel on Youtube presentations of lectures and sub-group works • Video Presentations
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	• Power Point Presentations • Specialized Interpretation Simulation Software • Video Presentations • Cooperative web conferences with hospitals and robotics specialists • Support Learning through the e-class platform • Channel on Youtube presentations of lectures and sub-group works • Facebook Group for direct communication (400 members)
TEACHING ORGANIZATION	
STUDENT ASSESSEMNT	

Activity	***Semester workload***
Lectures (2 conduct hours per week x 13 weeks)	26
Research work and Presentation by small Teams as a Final examination	20
Hours for private study of the student	54
Total number of hours for the Course (25 hours of work-load per ECTS credit)	***100 hours (total student work-load)***

	Research work and Presentation by small Teams as a Final examination (100%)

5. RECOMMENDED LITERATURE

6. Notes of lecturers in Greek.
7. Lefteris G. Gortzis, Medical Informatics and Telesurgery Theory, Disigma ISBN13- 978-960-9495-31-8
8. Power Point Presentations (e-Class)

6th Semester

COURSE OUTLINE MED_681

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_681	**SEMESTER OF STUDIES**	6th
COURSE TITLE	INTRODUCTION TO RADIOLOGY		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	25x1	2
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Field of Sciences
PREREQUISITE COURSES:	None
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (in greek)
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/courses/MED1061/

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

Aim of this teaching course is to make students familiar with basic imaging studies, relevant to clinical praxis. Moreover students will understand the indications, diagnostic approach and pathologic entities that will be taught in the future semesters.

By the end of this introductory course on Radiology, the student must have knowledge and skills in order to be familiar with:

- The basic principles of medical imaging

- The main medical imaging modalities used in clinical practice
- How to perform radiological examinations
- The basic indications of radiological examinations
- The basic radiological anatomy by system
- The basic biological effects of medical imaging modalities
- The dangers about unjustified exposure to radiological examinations

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking

- Searching, analysis and synthesis of facts and information, as well as using the necessary technologies
- Adaptation to new situations
- Decision making
- Work in a interdisciplinary environment
- Demonstration of social, professional and ethical responsibility

3. COURSE CONTENT

The study material comprises:

- Principles of physics in Radiology, production of medical image, -principles of operation of medical imaging modalities (X-ray tube- computed tomography-ultrasound-MRI),
- Principles of radiobiology, with emphasis on the mechanisms of cell death, apoptosis and means of protection of the cell,
- Application of special radiological techniques with emphasis in modern imaging modalities,
- Radiologic anatomy of organs and systems (CNS-respiratory-gastrointestinal- urogenital-musculoskeletal-cardiovascular system and vessels)

4. TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<tr><td>TEACHING METHOD
Face-to-face, Distance learning, etc.</td><td>Lectures</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES
Use of ICT in teaching, laboratory education, communication with students</td><td>Multimedia presentations in lectures

Support of the Learning process by means of the e-class electronic platform</td></tr>
<tr><td>TEACHING ORGANIZATION
The manner and methods of teaching are described in detail.

Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>25</td></tr>
<tr><td>Private Study</td><td>10</td></tr>
<tr><td>Lectures</td><td>25</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Total (hours)</td><td>60</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSEMNT
Description of the evaluation procedure:

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other

Specifically-defined evaluation criteria are given, and if and where they are accessible to students</td><td>Written final multiple-choice examination (in greek)</td></tr>
</table>

5. RECOMMENDED LITERATURE

FIRST RECOMMENDATION

Book Title: "Anatomy of Diagnostic Imaging"

Author: Fleckenstein P.

Publisher: PARISIANOS S.A.

Year of publication: 2015

SECOND RECOMMENDATION

Book Title: "Imaging Anatomy"

Authors: Ryan S, McNicholas M, Eustace S.

Greek Editor: Petsas

Publisher: KONSTANTARAS, MEDICAL PUBLICATION

Year of publication: 2013

COURSE OUTLINE MED_621

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_621	**SEMESTER OF STUDIES**	6th
COURSE TITLE	PULMONARY MEDICINE		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	45 hours / 2 weeks	4
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Field of Sciences
PREREQUISITE COURSES:	Typically, there are not prerequisite course.
TEACHING AND ASSESSMENT LANGUAGE:	Greek. Teaching may be performed in English in case foreign students also attend the course.
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/courses/MED1040/

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

Pulmonary Medicine is taught during the second semester in the Auditorium. The aim of the course is to provide the student with essential knowledge in the field of pulmonary medicine. Pulmonary medicine is the science of respiratory system and its systematic study is essential for every medical student and medical doctor.

The lung participates in the exchange of respiratory gases, which is a critical procedure. Moreover, they play a role in human defense, as the airways lead the air inside the lung and may allow viruses and other microbes enter the bronchial tree. Finally, they allow waste substances to be excreted, while facilitating some other functions of human metabolism.

Symptoms of the respiratory system are quite frequent, and they are a leading cause of submissions to the emergency room.

The aim of the unit “Signs and symptoms” is to understand the main respiratory symptoms, namely cough, haemoptysis, chest pain and dyspnea.

The aim of the unit “Physical examination and history” is to analyze the methods of physical examination that can be used for the respiratory system. More specifically a careful medical history is needed, together with patient review, palpation, palpation, touch, and auscultation.

In the unit “Laboratory tests” the student understands spirometry, plethysmography, lung diffusion capacity test, cardiopulmonary exercise testing, arterial blood gases analysis, bronchoscopy, aspiration of pleural effusion and polysomnography. Moreover, more recent imaging techniques of the lung are analyzed, such as chest radiography and computed tomography.

The unit “Lung diseases” is dedicated to the most common respiratory diseases: Bronchial asthma, Chronic Obstructive Pulmonary Disease, Lower respiratory tract infections, Interstitial lung diseases, Lung cancer, Pulmonary embolism, Sleep apnoea, Acid-Base Balace, Pleural effusion, Tuberculosis.

Generally, by the end of this course the student will, furthermore, have developed the following general abilities:

- Understanding of the main principles of the respiratory system, the main symptoms and the correlation of the lungs to the other systems of the human body.
- Knowledge of the most important diagnostic tests, as well as their importance in the diagnosis and staging of lung diseases.
- Ability to take a complete patient history and reach a differential diagnosis.
- Knowledge of the therapeutic approach in emergency and chronic lung diseases.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
Working in an international environment	*Production of free, creative and inductive thinking*
Working in an interdisciplinary environment	
Production of new research ideas	

Search, analysis and synthesis of information, using new technologies, Individual work, Team work, Development of new

scientific ideas, Promotion of free, creative and inductive thinking.

3. COURSE CONTENT

- Introduction
    - Principles of physiology of the respiratory system 1
    - Principles of physiology of the respiratory system 2
    - Principles of physiology of the respiratory system 3
    - Principles of physiology of the respiratory system 4
    - Cough
    - Sputum
    - Haemoptysis
    - Chest pain
    - Dyspnoea
- Medical history and physical examination
    - Medical history
    - Physical examination
- Diagnostic tests
    - Pulmonary Function Tests
    - Radiology of chest diseases
- Obstructive Lung Diseases
- Bronchial asrhma
- Chronic Obstructive Lung Disease
- Oxygen therapy
- Interstitial lung diseases
- Lower respiratory tract infections
- Pleural effusion
- Tuberculosis
- Lung cancer
- Pulmonary embolism

- Sleep apnoea

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Auditorium Lectures
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Auditorium lectures. Use of electronic platform of University
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	

Activity	***Semester workload***
Lectures	45
Written Assignment in Small Study Groups	10
Analysis of current bibliography / Hours for private study of the student	45
Total (hours)	**100**

STUDENT ASSESSEMNT *Description of the evaluation procedure:* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	Written exam at the end of the lectures with multiple choice and questions.

5. RECOMMENDED LITERATURE

ERS handbook, Respiratory Medicine. Paolo Palange, Anita Simonds. 2013. European Respiratory Society. ISBN: 978-1-84984-040-8

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_631	**SEMESTER OF STUDIES**	6th
COURSE TITLE	INTEGRATED HEMATOLOGY		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	25	4
2 WEEKS DURATION, INCLUDING ONE DAY OF WRITTEN EXAMINATIONS	45 TEACHING OURS OR 58 LECTURES/PRESENTATIONS	
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	SPECIFIED AREA OF INTERNAL MEDICINE, DISEASES OF THE HEMATOPOIETIC TISSUE. INTEGRATES KNOWLEDGE OF GENERAL BIOLOGY, BIOCHEMISTRY, PHYSIOLOGY AND PHARMACOLOGY AND INCORPORATES THEM IN THE EVERYDAY CLINICAL PRACTICE
PREREQUISITE COURSES:	GENERAL BIOLOGY, BIOCHEMISTRY
TEACHING AND ASSESSMENT LANGUAGE:	GREEK
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/courses/MED1176

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

This course makes an initial description of the diseases of the hematopoietic tissue, starting from the normal structure and function of the hematopoietic cells. It analyzes the pathogenesis, epidemiology, clinical manifestations, prognosis and the current therapeutic approaches of blood disorders, starting from diagnostic approach of typical clinical cases or clinical scenarios. There are specified tasks for each educational area and description of the various disease entities is relied on the currently used classification schemes. The course spend more time on the most commonly and epidemiologically more frequent diseases / disease groups, which are described in depth to the point of molecular pathology/pathophysiology.

On the contraire, precise therapeutic options are not described in detail, but emphasis is given in understanding the principles of therapeutics and the general concepts of treatment strategies.
After fulfilling this course the student should know:

- The principles of normal hematopoiesis and its derrangements
- The basis disease entities and disease groups of blood disorders
- The epidemiology, classification, etiopathogenesis, pathophysiology, clinical manifestations, prognosis and treatment approaches of the congenital and the acquired disorders of the hematopoietic tissue.
- The principles of transfusion therapy and the indications for supportive transfusion of the various blood products.

The basic aspects of the current treatment approaches, such as immunotherapy, targeted biological • treatments, stem cell transplantation and cell therapies.
The students should realize that this is a rapidly expanding area of the Internal Medicine, with fast development of knowledge and understanding of the pathogenesis of blood diseases, as well as in the design and incorporation of novel treatment strategies and perspectives, resulting in continuous reconstruction and re-identification of the diagnostic criteria and disease management.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
Working in an international environment	*Production of free, creative and inductive thinking*
Working in an interdisciplinary environment	
Production of new research ideas	

- *Description of the various disease entities starting from diagnostic approach of clinical cases*
- *Incorporation of core knowledge of physiology/pathophysiology of hematopoiesis*
- *Offering of opportunities and incentives for further reading and studying specific tasks and pieces of knowledge*
- *Overview and emphasis on the most important / core knowledge and diseases*
- *Continuous discussion with the students and answer to questions. Inducing or provoking questions to reconstruct the framework of every disease entity by the students*
- *Interactive communication upon realistic clinical scenarios and generation of discussion on the recognition and comprehension of the correct diagnostic and therapeutic approaches*

Encouragement of the students to read detailed review articles upon specified areas of interest, selected by themselves, and thus further understand the current development of the hematology in practice and of the hematopoietic tissue's biology.

3. COURSE CONTENT

Description of the disease entities and disease groups of the hematopoietic tissue, with their currently used nomenclature and the latest classification systems.
Presentation of the basic physiology of the hematopoietic tissue / pathophysiology of abnormal hematopoiesis, by incorporating the background knowledge of cellular and molecular biology and biochemistry
Description of the epidemiology and the clinical features of the hematological disorders, both inherited and acquired, benign and malignant.
Presentation of the applied clinical diagnostic approach of the patients, based on the principle of {problem-oriented medical diagnosis".
Description of 7-8 typical clinical cases from the various disease entities and processing to state of the art differential diagnosis till the confirmation of the final diagnosis.
Demonstration of typical peripheral blood, bone marrow and lymph node smear and histologic pictures, as well as imaging techniques findings for each disease entity.

The educational program in particular consists of:

- Classification and diagnostic approach of anemia and description of the various etiologic groups of anemia.
- Anemia of chronic diseases and congenital types of anemias/hemoglobinopathies.
- Principles of transfusion medicine and indications of supporting transfusions with the various blood products.
- Classification, pathogenesis and treatment of the congenital and acquired bone marrow failure syndromes.
- Classification, pathogenesis, clinical manifestations and treatment of acute leukemias.
- Chronic myeloproliferative neoplasms, myelodysplastic syndromes and overlapping disorders.
- Epidemiology, classification, pathogenesis, clinical manifestations and treatment of the lymphoproliferative disorders.
- Multiple myeloma and other plasma cell dyscrasias.
- Autoimmune blood cytopenias and lysosomal storage disorders.
- Basic principles of the novel therapeutic approaches, such as immunotherapies, biological treatments on specific molecular targets, hematopoietic stem cell transplantation and cell therapies.
- Physiology and pathophysiology of blood coagulation, common disorders of hemostasis and thrombosis and their diagnostic approach.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<tr><td>TEACHING METHOD
Face-to-face, Distance learning, etc.</td><td>EDUCATIONAL LECTURES WITH PRESENTATIONS IN AUDITORIUM</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES
Use of ICT in teaching, laboratory education, communication with students</td><td>All presentations of the educational program, after their perfor-mance in the auditorium are uploaded on the School website, at the site of the Course. Students, who might have specific interest, besides personal discussion and queries' resolution, further learning possibilities are provided through selected literature references. These students have the opportunity to elect Clinical Hematology during their clinical practice in later stages of their undergraduate education.</td></tr>
<tr><td>TEACHING ORGANIZATION
The manner and methods of teaching are described in detail.

Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures of 30-45 min duration Interruption every 45-60 min</td><td>58 lectures scheduled on 45 educational hours</td></tr>
<tr><td>Interactive teaching</td><td>At the end of each learning entity, 6 times during the 2-week course</td></tr>
<tr><td>Further reading / Homework</td><td>The average home-spent time for the comprehension of the day's educational material is estimated to be 3 hours per day</td></tr>
<tr><td>Duration of the course</td><td>45 hours</td></tr>
<tr><td>Home-spent reading time</td><td>25 hours</td></tr>
<tr><td>Preparation for examinations</td><td>12 hours</td></tr>
<tr><td>Total (hours)</td><td>85</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSEMNT
Description of the evaluation procedure:

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended</td><td>Student evaluation is performed in Greek language and results from the ranking of written examination, which includes 4 or 5 topics for free description and 40 multiple choice questions, with 5 possible answers, and among them the one and only correct one. Examination is scored with 10 degrees as excellent and with 5 as minimum degree for passing. The final rank is calculated from the equal contribution of the complete and correct descriptive topics and from the degree of success of the 40 multiple choice questions. Students have the right to inspect</td></tr>
</table>

questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	the results of their evaluation up to one month following the announcement of the ranking of their examination.

5. RECOMMENDED LITERATURE

- Recommended basic literature: Williams Hematology 9th Edition 2016 Mc Graw-Hill, Harrison's Principles of Internal Medicine 19th Edition. *- Area scientific Journals: Blood, Haematologica, Leukemia, Bone Marrow Transplantation, Transfusion, Journal of Thrombosis and Hemostasis.*

COURSE OUTLINE MED_611

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_611	**SEMESTER OF STUDIES**	6th
COURSE TITLE	CARDIOLOGY		
INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*		**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
LECTURES AND CLINICAL PRACTICE		40	4
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).			
COURSE TYPE *general background, special background, specialised general knowledge, skills development*	SCIENTIFIC FIELD		
PREREQUISITE COURSES:	YES		
TEACHING AND ASSESSMENT LANGUAGE:	Greek		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO		
COURSE WEBPAGE (URL)			

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

UNDERSTAND BASIC CARDIOLOGY INCLUDING PHYSIOLOGIC FUNCTION OF THE HEART, PATHOLOGY OF THE HEART, PATHOPYSIOLOGY OF CARDIAC DISEASES, CLINICAL EXPRESSION, AND BASIC THERAPEUTIC STRATEGIES AND PHARMACOLOGICAL/INTERVENTIONAL/SURGICAL THERAPIES.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and *Project planning and management*

information, with the use of the necessary technology *Adapting to new situations* *Decision-making* *Working independently* *Team work* *Working in an international environment* *Working in an interdisciplinary environment* *Production of new research ideas*	*Respect for difference and multiculturalism* *Respect for the natural environment* *Showing social, professional and ethical responsibility and sensitivity to gender issues* *Criticism and self-criticism* *Production of free, creative and inductive thinking*
TEAM WORK (COOPERATING IN MANAGEMENT OF ACUTE CARDIAC PROBLEMS)	

3. COURSE CONTENT

BASIC CARDIOLOGY INCLUDING PHYSIOLOGIC FUNCTION OF THE HEART, NORMAL ECG, PATHOLOGY OF THE HEART, PATHOPYSIOLOGY OF CARDIAC DISEASES, CLINICAL EXPRESSION, DIAGNOSTIC MODALITIES, AND BASIC THERAPEUTIC STRATEGIES AND PHARMACOLOGICAL/INTERVENTIONAL/SURGICAL THERAPIES.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Lectures
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	NO
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	

Activity	***Semester workload***
Lectures	56
Hours for private study of the student	44
Total (hours)	**100**

STUDENT ASSESSEMNT *Description of the evaluation procedure:* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other*	WRITTEN EXAMS

Specifically-defined evaluation criteria are given, and if and where they are accessible to students	

5. RECOMMENDED LITERATURE

SCIENTIFIC DOCUMENTS PRODUCED BY THE CARDIOLOGY DEPARTMENT AND BOOKS PROVIDED BY SCHOOL OF MEDICINE

COURSE OUTLINE MED_641

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_641	**SEMESTER OF STUDIES**	6th
COURSE TITLE	GASTROENTEROLOGY - HEPATOLOGY		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	25	4
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Field of Sciences
PREREQUISITE COURSES:	None
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (in greek)
COURSE WEBPAGE (URL)	http://www.med.upatras.gr/gr/Pages/undergrad/courses.aspx?lID=39

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The educational objectives in Gastroenterology and Hepatology course intend to teach the student the proper medical history taking, etiopathogenesis, differential diagnosis, symptoms, diagnosis, complications and therapeutic approach of digestive disorders.

By the end of this course the students will be able to be aware of:
1) the proper and complete clinical examination of the digestive system
2) the definitions

3) the diagnostic algorithms
4) the available treatments, their indications and the relevant algorithms

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking

Generally, by the end of this course the student will have developed the following general abilities (from the list above):

- *Decision making*
- *Autonomous (Independent) work*
- *Working in an interdisciplinary environment*
- *Production of innovative research ideas*
- *Promotion of free, creative and inductive thinking*

3. COURSE CONTENT

The content of integrated study in Gastroenterology-Hepatology concerns the main and most representative disorders of the digestive system. The educational units that are taught include:

CLINICAL EXAMINATION OF DIGESTIVE SYSTEM - DIAGNOSTIC ACCESS OF DIGESTIVE DISORDERS - DYSPHAGIA - DYSPEPSIA - ESOPHAGEAL CANCER - PEPTIC ULCER - STOMACH CANCER - UPPER GASTROINTESTINAL BLEEDING - ACUTE KAI CHRONIC DIARRHEA - MALABSORPTION SYNDROMES - IDIOPATHIC INFLAMMATORY BOWEL DISEASES - COLITIS - DIVERTICULITIS - LOWER GASTROINTESTINAL BLEEDING - COLORECTAL CANCER - ACUTE ABDOMEN - BENIGN BILIARY DISORDERS - PANCREATOBILIARY MALIGNANCIES - JAUNDICE - ACUTE AND CHRONIC PANCREATITIS - EMBOLISM - MESENTERIC VENOUS THROMBOSIS - ANEURYSM - ABDOMINAL PAIN IN GYNECOLOGICAL DISORDERS - LIVER ANATOMY AND PHYSIOLOGY – DIFFERENTIAL DIAGNOSIS OF LIVER DISEASES - ACUTE AND CHRONIC LIVER FAILURE - CHRONIC LIVER DISEASES - BILIARY DISEASES - LIVER CIRRHOSIS - PORTAL HYPERTENSION - VARICES - VARICEAL BLEEDING - ASCITES - SPONTANEOUS BACTERIAL PERITONITIS - HEPATORENAL SYNDROME - HEPATIC ENCEPHALOPATHY - HEPATOCELLULAR CARCINOMA - LIVER TRANSPLANTATION

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Teaching face to face.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Use of Information and Communication Technologies (ICTs) (PowerPoint slides) in teaching. The lectures' content of the course will be uploaded on the internet, through the e-class electronic platform.
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.*	

Activity	***Semester workload***
Lectures	50
Hours for private study of the student	50

Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS	**Total (hours)**	**100**
STUDENT ASSESSEMNT *Description of the evaluation procedure:* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	Written final examination with multiple choice questions and short answers	

5. RECOMMENDED LITERATURE

Bates' Guide to Physical Examination and History Taking
Harrison's Principles of Internal Medicine
Kumar and Clark's Clinical Medicine,
Davidson's Principles and Practice of Medicine
CURRENT Medical Diagnosis and Treatment 2018

Related scientific journals:
Gastroenterology, Gut, Hepatology, J Hepatology

COURSE OUTLINE MED_651

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_651	**SEMESTER OF STUDIES**	6th
COURSE TITLE	MUSCULOSKELETAL SYSTEM – CONNECTIVE TISSUE DISEASES		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	30/week	4
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Field of Sciences
PREREQUISITE COURSES:	None
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The Rheumatology course lasts 7 days during the 6th semester. The course focuses on the six more common rheumatic diseases

1) RA
2) SLE
3) Spondyloarthropathies
4) Systemic Sclerosis/inflammatory myositis
5) Systemic vasculitides

6) Acute monoarthritis (crystal-induced and septic arthritis)

Teaching is based on a patient-based approach. Each clinical entity is presented and discussed via a prototype patient. At the beginning, a prototype patient suffering from one of the above mentioned rheumatic diseases is presented (medical history, physical examination findings, lab tests etc). The students first familiarize with each clinical entity by discussing in detail the prototype patient. Later on, basic pathogenesis, epidemiology, prognosis and treatment is presented and discussed

At the end of the course students will be able to recognize patients with the most common rheumatic diseases and will have the basic knowledge related to the pathogenesis and treatment of systemic rheumatic diseases

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking

Autonomous work
Group work
Working in an interdisciplinary enviroment

3. COURSE CONTENT

Students are tought the following most common rheumatic diseases using a patient-centered approach

1) RA
2) SLE
3) Spondyloarthropathies
4) Systemic Sclerosis/inflammatory myositis
5) Systemic vasculitides
6) Acute monoarthritis (crystal-induced and septic arthritis)

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Lecture at the Amphitheatre
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	The electronic platform “eclass” is freely available to all students
TEACHING ORGANIZATION	

Activity	***Semester workload***
Lectures	42

<table>
<tr>
<td>The manner and methods of teaching are described in detail.

Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</td>
<td>
<table>
<tr><td>Analysis of current bibliography / Hours for private study of the student</td><td>58</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Total (hours)</td><td>100</td></tr>
</table>
</td>
</tr>
<tr>
<td>STUDENT ASSESSEMNT
Description of the evaluation procedure:

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other

Specifically-defined evaluation criteria are given, and if and where they are accessible to students</td>
<td>Written exams at the end of the course consisted of 40 multiple choice questions (50% of the final mark) and 4 general knowledge questions (50% of the final mark)</td>
</tr>
</table>

5. RECOMMENDED LITERATURE

7th Semester

COURSE OUTLINE MED_722

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_722	**SEMESTER OF STUDIES**	6th
COURSE TITLE	Psychiatry		
INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*		**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures		35	4
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).			
COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Field of Sciences		
PREREQUISITE COURSES:	None		
TEACHING AND ASSESSMENT LANGUAGE:	Greek		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (in greek)		
COURSE WEBPAGE (URL)			

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The course provides knowledge and understanding of psychiatric principles considering common and mild psychiatric disorders, which are mainly addressed in primary health care, but also, the rarest and more serious mental disorders, which need hospitalization in psychiatric clinics. More specifically, the aim is the student to be familiarized with the diagnosis, pharmacotherapy and psychotherapy of neurocognitive disorders, disorders that are associated with the use of psychoactive substances, schizophrenia and related disorders, emotional disorders, anxiety and related disorders, psychosomatic disorders, personality and behavior disorders, syndromes associated with disorders of normal functions,

as well as complications of mental disorders. The course is emphasized in the use of knowledge and understanding of the above issues in addressing common mental disorders at the primary level, as well as the acquisition of the necessary clinical skills and attitudes for the effective approach of patients with mental illness and their relatives/caregivers, as well as overcoming of the stigma of mental illness. Development of skills in order to acquire the necessary knowledge for further studies with a high degree of autonomy.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking

By the end of this course the student will be able to:

- *Understand the basic psychiatric and psychotherapy terminology*
- *Obtain the full psychiatric examination in a theoretical level*
- *Be aware of the basic categories of psychiatric disorders*
- *Describe the differences and similarities of psychiatric disorders*
- *Be aware of the main components of the imaging and laboratory diagnostic workup of the psychiatric clinical care*
- *Develop techniques of investigation and synthesis of data (information and clinical signs) in order to reach to a correct diagnosis and therapeutic approach of psychiatric disorders*
- *Acquire the up-to-date knowledge necessary for the development of novel research ideas*

3. COURSE CONTENT

The curriculum of the course corresponding to the subjects as recorded in the text of the Agreement for the Interuniversity Harmonization of Psychiatric Education in our country, prepared by the Hellenic College of Academic Psychiatry, includes the following:

I. General part

1. Object of Psychiatry: General Consideration
2. Mental Functions and Disturbances
3. Psychiatric examination and patient's psychiatric history
4. Psychiatric diagnosis and modern taxonomic and diagnostic systems
5. Developmental stages and psychological defense mechanisms
6. Psychiatry and biological sciences
7. Psychiatry, Psychology, Sociology and other Humanities7.

II. Psychiatric Nursing

8. Organic psychiatric disorders
9. Substance use disorders
10. Schizophrenia and other psychotic disorders
11. Depression, dysthymia, bipolar disorder, cyclothymia
12. Anxiety disorders
13. Obsessive compulsive disorder
14. Stress-related and other related disorders
15. Mental disorders in somatic diseases and somatic-related disorders
16. Food intake disorders

17. Sleep disorders
18. Sexual dysfunctions and psychosexual disorders
19. Personality and impulse-control disorders
20. General psychopathology of childhood (mental health limits, anxiety, emotional, psychotic and other disorders)
21. Developmental disorders of childhood and mental retardation
22. Psychiatric disorders of adolescence

III. Psychiatric Therapeutics

21. Biological therapies
22. Psychotherapy
23. Psychosocial interventions

IV. Special Issues

24. Emergency Psychiatry
25. Liaison-Counseling Psychiatry
26. Psychogeriatrics
27. Intercultural Psychiatry
28. Social Psychiatry and Epidemiology of Mental Disorders
29. Public health and psychiatry, a system of mental health services (Psychiatry in primary health care, secondary and tertiary mental health care, psychiatric prevention)
30. Forensic psychiatry
31. Violence and self-destructive behavior
32. Psychological tests, imaging methods and laboratory tests in Psychiatry
33. Research Documentation in Psychiatry

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Teaching in classroom
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Lectures with the use of PowerPoint slides to highlight the important points. Presentations are available in e-class.
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	
STUDENT ASSESSEMNT *Description of the evaluation procedure:* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended*	Final written 2-hour test, which consists of 4 short- answer questions of equal value (40% of the final grade) and 60, also of equal value, multiple choice questions (60% of the final grade). The answer to each topic is graded on a scale from 0 to 10 and the examination is considered successful when the total grade is ≥ 45. Assessment language is Greek.

Activity	***Semester workload***
Lectures	30
Hours for private study of the student	70
Total (hours)	**100**

questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	On particular occasions (for example for medical reasons) the exam could be oral, provided that the faculty members agree.

5. RECOMMENDED LITERATURE

1. TITLE: "Modern Psychiatry", AUTHORS: G. Papadimitriou, J. Liappas, L. Lykouras ISBN : 978-9604-521-623 EDITION: 2012 CODE EVDOXOS: 22771928 PUBLISHER: BITA MEDICAL PUBLICATIONS M.E.P.E.
2. TITLE: "Textbook of Psychiatry", AUTHORS: K. Soldatos, L. Lykouras, ISBN : 978-9604-520-084 EDITION: 2006 CODE EVDOXOS: 12950003 PUBLISHER: BITA MEDICAL PUBLICATIONS M.E.P.E

-recommended scientific journals:
General hospital psychiatry
Schizophrenia bulletin
American journal of psychiatry
Affective disorders
Alzheimer's and dementia
Psychosomatic medicine

COURSE OUTLINE MED_741

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_741	**SEMESTER OF STUDIES**	6th
COURSE TITLE	SURGERY-TRAUMA		
INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*		**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures and practical work		25	4
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).			
COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Field of Sciences		
PREREQUISITE COURSES:			
TEACHING AND ASSESSMENT LANGUAGE:	Greek		
THE COURSE IS OFFERED TO ERASMUS STUDENTS			
COURSE WEBPAGE (URL)			

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

EDUCATIONAL GOALS ON TRAUMA- EVALUATION OF MULTIPLE INJURIES

Severe trauma is the leading cause of death among people aged 1-44, while it is the third in line cause of death in all ages after cardiovascular diseases and cancer. It has been estimated that every death due to trauma corresponds to three permanently disabled individuals, whilst a significant percentage of these deaths and disabilities could have been avoided by early intervention. Because trauma adversely affects a young population, it results in the loss of more working years therefore social and economic cost is astounding. Knowledge and application of resuscitation and the handling of a multiple injury diminishes complications and decreases mortality rate and disabilities.

EDUCATIONAL GOALS REGARDING THORACIC TRAUMA

Thoracic trauma accounts directly for 25% of deaths due to injury, but it is also a contribution factor in other causes of death. The majority of these deaths occur after the patient's arrival in the ER, many of which could have been avoided by immediate diagnosis and treatment. Treatment of a thoracic injury is generally a straight forward procedure if the correct diagnosis has been made. Meanwhile a thoracic trauma that has not been diagnosed or handled in the right way can lead to a quick death. Typically less than 10% of blunt trauma and about 15-30% of penetrating thoracic injuries require surgical treatment (thoracotomy). Most patient with a thoracic trauma are in need of simple interventions (ie tube thoracostomy), that are in the acquired abilities of any medical doctor. In total the mortality rate due to a thoracic trauma is less than 10%

EDUCATIONAL GOALS REGARDING ABDOMINAL INJURIES

Based on the injury mechanism, abdominal trauma is distinguished between a blunt trauma, which is caused by direct percussion, steep deceleration or shear forces and penetrating trauma, more often caused by a knife or a bullet.

The evaluation of the abdomen is of great significance to the first diagnosis, while a blunt injury meets more complications when diagnosing than a penetrating one. The goal is to evaluate if there is an abdominal cavity injury, that needs surgical treatment and not which organ may be injured specifically.

An undiagnosed abdominal injury, comprises a significant cause of death, following trauma.

EDUCATIONAL GOALS REGARDING HEAD INJURIES

Head injury, is the fourth most common cause of death and at the same time the leading one during the first four decades of life. The leading causes of head injuries are car accidents, falls and criminal actions, while fewer are caused by work accidents, sports, hobbies and other recreational activities. Head injuries, depending their severity, may be life threatening, moreover they can get worse due to other injuries. Early head injury evaluation which requires knowledge on the pathophysiology of the trauma and right treatment can greatly improve a patient's condition.

EDUCATIONAL GOALS REGARDING INJURIES OF THE SPINAL CORD

Trauma of the spine is very common nowadays and can lead to severe permanent disabilities. For every individual that an injury has occurred anywhere above the clavicles or one with multiple injuries, it must be taken into consideration that the probability of a spinal injury is high, therefore the patient must be handled with great care even if symptoms are absent. Around 55% of spinal trauma is a cervical spinal cord injury, 15% thoracic, 15% thoracic-lumbar, 15% in the sacral vertebrates. 5% of head injuries are accompanied by a spinal injury while 25% of spinal injuries come with a head injury.

EDUCATIONAL GOALS REGARDING MUSCULOSKELETAL TRAUMA

Musculoskeletal trauma despite occurring in 85% of patients who have suffered a blunt trauma, is rarely life threatening or threatens the livability of a body part, if evaluation and treatment has been made promptly. For this reason, patients having a single musculoskeletal trauma must be cared for in the same way as a patient with a multisystemic trauma.

EDUCATIONAL GOALS REGARDING BURNS AND COLD INJURIES

Burns are frequent injuries, that are often caused by exposure to high temperature (thermal burns) or rarely to chemical substances (chemical burns) or after body connection to an electrical source of high voltage (electrical burns). On the opposite, cold injuries are less frequent in our country, because of the climate. They are distinguished in local burns (frostbite) and systemic (hypothermia). On 85% of incidents, burns are simple (low severity) and can be treated in an outpatient clinic. Extensive burns and hypothermia are a significant cause of morbidity and mortality. Knowledge and practice of the principals of resuscitation and the final treatment of these injuries minimizes complications and mortality.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
	Respect for difference and multiculturalism
	Respect for the natural environment
Adapting to new situations	*Showing social, professional and ethical responsibility and sensitivity to*

Decision-making	*gender issues*
Working independently	*Criticism and self-criticism*
Team work	*Production of free, creative and inductive thinking*
Working in an international environment	
Working in an interdisciplinary environment	
Production of new research ideas	
Search, analysis and synthesis of data with the use of appropriate technologies	

3. COURSE CONTENT

Trauma epidemiology
Laws of energy on trauma
Airway and respiration
Shock
Thoracic trauma
Head injuries
Spinal cord and vertebrate injuries
Hot and cold burn injuries
Musculoskeletal trauma
Fractures in childhood
Post-traumatic distending osteogenesis
Long bone fractures
Hip fractures
Open fractures
Fractures of the lower radius
Upper arm brace fractures
Patient transportation
Practical application

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Face to face, e-class.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Use of I.C.T (eg Powerpoint) in lectures. The lectures are uploaded on the Internet (e-class).
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	
STUDENT ASSESSEMNT *Description of the evaluation procedure:*	Written assessment Multiple choice exams

Teaching Method	***Semester Workload***
Lectures	60
practical work	40
Total number of hours for the Course	***100***

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	Minimum passing grade: 5

5. RECOMMENDED LITERATURE

ATLS: Advanced Trauma Life: Support for Doctors *Litera - John Boukouvalas 2010 ISBN: 9789605444716*

COURSE OUTLINE MED_751

1. GENERAL

SCHOOL	HEALTH SCIENCE		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_751	**SEMESTER OF STUDIES**	SEVENTH
COURSE TITLE	HEALTH PROMOTION/PREVENTIVE MEDICINE		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	25	2

COURSE TYPE	Field of Science
PREREQUISITE COURSES:	Typically, there are not prerequisite courses
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Leraning outcomes

The course is the main introductory course in the concepts of Health Promotion, Disease Prevention and Community Medicine.
The subject matter of the course is to introduce students to the basic principles of preventive medicine, to make them understand the levels of prevention, i.e. primary and secondary levels. The value of systematic screening and of diagnostic tests are analyzed with emphasis on its implementation regarding Preventive Medicine. Methods to prevent heart disease and malignant neoplasms in the community are shown and discussed.
The methods of infectious diseases control in the Community and the methodology of epidemiological observation are shown and analyzed.
The subject matter of the course includes furthermore basic principles of Health Promotion, Organization and Evaluation of Health Promotion programs, focusing on Health Promotion in the community, at work and at school.
Finally, part of the subject matter of the course is the introduction in concepts of Public Health, Health Systems and Health Policies.

By the end of this course the student will be able to :

- understand the principles of Preventive Medicine
- gain knowledge about the levels of prevention
- gain knowledge about diagnostic tests and when they should be used in the context of screening
- gain knowledge of the methods of preventing heart disease, malignant neoplasms and other chronic diseases in the community
- use the techniques and methods of epidemiological observation
- organize Health Promotion programs in the community, at workplace, in schools and evaluate them
- understand the concept of Public Health, the way in which Health Systems are operated and organized, and the Health Policy Strategies

General Abilities

- Searching, analyzing and synthesizing facts and information, as well as using necessary technologies
- Decision making
- Autonomous working
- Group working

3. COURSE CONTENT

i. Basic Principles of Preventive Medicine
ii. Prevention levels
iii. Primary and secondary prevention
iv. Systematic screening
v. Evaluation of diagnostic tests, implementation in Preventive Medicine
vi. Prevention of heart disease, malignant neoplasia and other chronic diseases in the community
vii. Control of infectious diseases in the community
viii. Epidemiological Surveillance
ix. Basic Principles of Health Promotion
x. Health Promotion Programs
xi. Promoting Health in the community, workplace, school
xii. Public health
xiii. Health Systems and Health Policies

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD.	Lectures, comprehension exercises
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	The learning process is supporting by the e-class platform
TEACHING ORGANIZATION	

Teaching Method	***Semester Workload***
Lectures	25
Comprehension exercises, Hours for private study of the student	10
Final examination	3
Hours for private study of the student	12
Total number of hours for the Course	***100***

STUDENT ASSESSMENT	Written examination including: • Multiple choice questions • Exercises Minimum passing grade: 5

5. RECOMMENDED LITERATURE

1. M. Arvanitidou Vagiona. Social and Preventive Medicine. University Press, Thessaloniki 2009.
2. D. Trichopoulos, V. Kalapothaki, E. Petridou. Preventive Medicine & Public Health. ZETA Pub., Athens 2000
3. Notes of lecturers. A. Vandarakis, E. Gerastopoulou, M. Leotsinidis

COURSE OUTLINE MED_761

1. GENERAL

SCHOOL	Medical Sciences		
DEPARTMENT	Medicine		
LEVEL OF COURSE	Pre graduate		
COURSE CODE	MED_761	**SEMESTER OF STUDIES**	7th (mandatory)
COURSE TITLE	Oncology – Infections Deseases		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	21	4

COURSE TYPE	Background, Scientific area
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Learning outcomes

•

Teaching is performed through lectures in the auditorium.
Students are taught all aspects of Oncology as well as principles of the management of the terminal patient with cancer. Special attention is given to certain topics and with the successful completion of the course, the student will be able to describe the following

- Principles of oncogenesis
- Diagnostic and therapeutic approach of cancer patients
- Clinical problems of cancer patients
    - Abdominal pain, cachexia, anemia, abdominal mass
    - Hemoptysis, hoarseness, chest pain, epilepsy
- Diagnostic approach of the patient with abdominal mass, management of jaundice, ERCP
- Management of ascites and electrolyte disturbances
- The role of tumor markers in the diagnosis of malignant diseases. Imaging methods in Nuclear Medicine
- Radiologic diagnosis of the oncologic patient
- Dyspnea – Hemoptysis in cancer patients: diagnostic approach – supportive measures
- Breast mass: diagnostic approach-staging-clinical features of breast cancer
- Pathogenesis of breast cancer – prognostic factors
- Principles of radiation therapy of breast cancer
- Principles of systemic therapy of breast cancer
- Tumors of the endocrine system
- Psychiatric disorders of cancer patients: prevention, diagnosis, management
- Communication and counselling of the cancer patient

- Emergencies in Oncology – Management of cancer pain
- Gastrointestinal tumors: diagnostic approach, clinical features
- Pathogenesis and prognostic factors of gastric and large bowel tumors
- Surgical approach of gastrointestinal tumors
- Metastasectomies in cancer patients
- Gastrointestinal tumors: systemic treatments
- Gynecologic tumors: diagnostic and therapeutic approach
- Paraneoplastic syndromes
- Pathogenesis – histologic subtypes and prognostic factors of lung cancer
- Tumors of the chest: surgical staging and management
- Systemic treatment of chest tumors
- Principles of radiation therapy of genito-urinary tumors and of bone metastases
- Neurologic problems of cancer patients
- Holistic approach of the cancer patient

General Abilities

Identification, analysis and synthesis of data and information with the use of necessary technologies
Decision making
Autonomous work
Teamwork
Work in an international environment
Multidisciplinary work
Production of new research questions

3. COURSE CONTENT

- Oncogenesis
- Clinical features of the oncologic patient
- Symptom management of the cancer patient
- Diagnostic and therapeutic approach of patients with cancer
- Diagnosis and management of breast cancer
- Diagnosis and management of gastrointestinal cancer
- Diagnosis and management of chest tumors
- Gynecologic cancer
- Radiation therapy of cancer
- Paraneoplastic syndromes
- Emergencies in oncology
- Neurologic effects of cancer
- Psychiatric disturbances of oncologic patients
- Communication and counselling of cancer patients
- Holistic approach of the cancer patient

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD.	Teaching is performed through lectures in the auditorium

<table>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td>Support Learning through the e-class platform</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td>
<table>
<tr><th>Teaching Method</th><th>Semester Workload</th></tr>
<tr><td>Lectures</td><td>48</td></tr>
<tr><td>Hours for private study of the student</td><td>52</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td>Total number of hours for the Course</td><td>100</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSMENT</td><td>Written final exam (100%) including:
Multiple choice questions (50%)
Questions concerning the clinical features, diagnosis and management of oncologic patients</td></tr>
</table>

5. RECOMMENDED LITERATURE

COURSE OUTLINE MED_721

1. GENERAL

SCHOOL	OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED721	**SEMESTER OF STUDIES**	7th
COURSE TITLE	Neurology - Neurosurgery		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
lectures	30	4

COURSE TYPE	Field of science
PREREQUISITE COURSES:	No
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No
COURSE WEBPAGE (URL)	-

2. LEARNING OUTCOMES

Leraning outcomes

The course provides basic knowledge for the examination of the nervous system and the recognition of relevant diseases. The aim of this course is to describe the clinical picture, investigations and therapeutic intervention of the main categories of neurological and neuromuscular diseases and syndromes. To achieve this goal, firstly, the common terms, the signs and symptoms are explained. Consequently, the basic laboratory investigations are discussed; these include CSF analysis, CT/MRI of brain and spinal cord, electroencephalography, electromyography, ultrasound and biopsy of muscle/nerve. Particular emphasis is given in differential diagnosis of common diseases and the description of certain typical pathognomonic features which could eventually lead through the diagnostic reasoning from the symptom to the disease. Finally, the core disorders, the most common and the treatable ones are emphasized.

Many examples are provided from real life help understand the concepts. Students are encouraged to actively participate in the lesson by posing questions.

In the context of the integration teaching, professors from departments and laboratories other than Neurology and Neurosurgery also intervene with short lectures that either recall knowledge of neuroanatomy, physiology, or provide specialized knowledge such as neuro-radiology in order to gain a holistic understanding of the subject.

Given the recent developments in the fields of neuroimmunology and genetics of neurological diseases, each year, the subject curriculum is enriched with new information on both novel categories of drugs (such as for multiple sclerosis) and gene treatment (such as for muscular dystrophies).

General Abilities

By the end of this course the student will be able to:

- Understand the basic neurological and neurosurgical terminology
- Develop the theoretical background of a typical neurological examination
- Have the basic knowledge for all main categories of nervous system diseases
- Describe the differences and similarities of diseases concerning a particular function such as motor or sensory
- Be aware of the main laboratory examinations relevant to the nervous system, when should be used, why and what is expected of them
- Adopt techniques of investigation and synthesis of data (information and clinical signs) in order to reach to a correct diagnosis for nervous system and muscle diseases
- Acquire the up-to-date knowledge necessary for the development of novel research ideas

3. COURSE CONTENT

1. Introduction, basic concepts, specific investigations
2. Neurological symptoms (N & N/S)
3. Neurological clinical examination
4. Headaches
5. Epilepsies
6. Dementia
7. Cerebrovascular diseases
8. Movement disorders
9. Demyelinating diseases of CNS
10. Head injury – impairment of consciousness – subarachnoid hemorrhage (aneurysms, agiomas) (N/S)
11. Intracranial tumors –intracranial hypertension (N/S)
12. Cerebellar ataxias
13. Spinal disease (N & N/S)
14. Cranial nerve syndromes
15. Peripheral neuropathies (diseases of neurons, nerves and roots)
16. Diseases of muscles and neuromuscular junction
17. Infections of CNS
18. Neurological complications of medical disorders

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Teaching in classroom
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Lectures with the use of PowerPoint slides to highlight the important points. Presentations are available in e-class.
TEACHING ORGANIZATION	

Activity	***Semester workload***
Lectures	30
Hours for private study	70
Total hours for the course	***100***

STUDENT ASSESSEMNT	Final written 2-hour test, which consisted of 10 topics (questions) of equal value; 8 of them are obtained from the neurological chapters and 2 from the neurosurgical chapters. The answer to each topic is graded on a scale from 0 to 10 and the total minimum passing grade is ≥ 45. Assessment language is Greek.

	On particular occasions (for example for medical reasons) the exam could be oral, provided that the faculty members agree.

5. RECOMMENDED LITERATURE

1. **NEUROLOGY** "Vasilopoulos"
Scientific Editor: Ioannis Evdokimidis, Konstantinos Potagas
ISBN: 978-9963-258-67-3
CODE. EYDOXOS: 50659046
Pages: 631
Publisher: P. PASHALIDIS

2. **NEUROLOGY AND NEUROSURGERY ILLUSTRATED** *FIFTH VERSION*
AUTHORS: Kenneth Lindsay-Ian Bone-Geraint Fuller
Scientific Editing: D. Konstantinou - Th. Birbilis
ISBN: 978-960-394-9336
CODE. EYDOXOS: 33155295
Pages: 589
Publisher: Parisianos S.A.

COURSE OUTLINE MED_711

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	**MED_711**	**SEMESTER OF STUDIES**	7th
COURSE TITLE	ENDOCRINE SYSTEM		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	25	4

COURSE TYPE	SCIENTIFIC AREA
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	GREEK
THE COURSE IS OFFERED TO ERASMUS STUDENTS	
COURSE WEBPAGE (URL)	eclass.upatras.gr

2. LEARNING OUTCOMES

Leraning outcomes

Knowledge of Basic Sciences

1. Anatomy of the endocrine glands
2. Physiology
   - -Hormone synthesis and metabolism
   - -Regulation of hormone secretion
   - -Hormone action – Receptors – Types of Receptors – Receptor signaling – intracellular signal transmission
   - -Axes: Hypothalamus-Pituitary-Thyroid
     - Hypothalamus-Pituitary -Gonads
     - Hypothalamus-Pituitary - Adrenals
     - GH-RH-Growth Hormone-IGF-I
   - -The concept of feed-back regulation of hormone secretion
   - -Principles of hormone assays
3. Histology and pathology of the endocrine glands

Learning outcomes

Disease definition

Pathogenesis

Clinical signs and symptoms

Laboratory work-up

Diagnosis

Differential diagnosis

Therapy

General Abilities

Data and information gathering, analysis and synthesis
Decision making
Autonomic and team work
Working in an international environment

3. COURSE CONTENT

Hypothalamus – Pituitary

Clinical case (headache, hemi-anopsia, reduced libido)

Anatomy

Hypothalamus – Nuclei

Pituitary

General

Neuro-hormones (releasing hormones)

Pituitary hormones

Receptors

GnRH – Pulsatile secretion-circadian rhythms

The concept of feed-back regulation of hormone secretion

Growth Hormone (GH)

Acromegaly

GH deficiency

Prolactin

Tumors

Pituitary adenomas

Hypothalamic and paraselar tumors

Pituitary Failure

Adenohypophysis

Introduction-Etiology-Therapy

Hypophysitis

Posterior Lobe (Neurohypophysis)

Diabetes insipidus

Syndrome of Inappropriate ADH secretion (SIADH)

Hypogonadism

Hypogonatrophic

Hypergonadotropic

Disorders of Menstrual Period

Menopause

Diabetes Mellitus

Clinical Case: (polyuria, polydipsia, weight loss, muscle weakness)

Diabetes mellitus

Epidemiology

Diagnosis

Types of Diabetes

Pancreas (anatomy, islets, physiology, hormones)

Insulin (Secretion, Action)

Glucagon (Secretion, Action)

Type 2 Diabetes Mellitus

Pathogenesis

Clinical presentation

Metabolic syndrome

Therapy

MODY

Gestational Diabetes

Type 1 Diabetes Mellitus – LADA

Pathogenesis

Clinical presentation

Therapy

Complications

Acute: Ketosis

Hyperosmosis

Chronic:

Pathogenesis (general)

Retinopathy

Neuropathy

Nephropathy

Atherosclerosis

Diabetic foot

Hypoglycemia

General

In diabetes

In non-diabetic

Lipids

Introduction

Lipoproteins

Lipoprotein metabolism

Primary dyslipidemias

Secondary dyslipidemia

Therapy

Obesity

Etiology

Complications

Treatment

Thyroid

Embryology

Anatomy

Physiology

Hypothalamic-Pituitary-Thyroid axis

Synthesis and secretion of thyroid hormones

Thyroid hormone transport and action

Iodine deficiency

Goiter

Thyroid nodule

Evaluation of thyroid function

Hyperthyroidism

Hypothyroidism

Thyroiditides

Thyroid disorders in pregnancy

Thyroid cancer

Mineral Metabolism - Hormones and disorders

Structure and Function of the Skeleton

Bone remodeling and its regulation

Calcium and phosphorus homeostasis

The system of vitamin D

Hypercalcemia

Hyperparathyroidism

Hypocalcemia

Hypoparatyroidism

Pseudo-hypoparathyroidism

Pagets disease

Osteoporosis

Epidimiology

Pathogenesis

Prevention

Treatment

Adrenals

Clinical case: A patient with orthostatic hypotension and skin pigmentation

Anatomy- Histology

Hormones: Glucocorticoids

Mineralocorticoids

Catecholamines

Hypothalamic-Pituitary-Adrenal axis

CRH-ACTH

Hormone action

Adrenal Insufficiency

ADDISON's disease

Etiology

Clinical presentation

Diagnosis

Differential diagnosis

Treatment

Acute adrenal insuficiency

Glucocorticoid Hypersecretion (CUSHING's syndrome)

Etiology

Clinical presentation

Laboratory findings

Diagnosis

Treatment

Adrenal incidentalomas

Endocrine Hypertension

Regulation of aldosterone secretion

Primary aldosteronism

Clinical presentation

Diagnosis

Treatment

Catecholamines

Pheochromocytoma- Paragangliomas

Clinical presentation

Diagnosis

Treatment

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Face to face in the amphitheater
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Power point presentations
TEACHING ORGANIZATION	

Activity	***Semester workload***
Lectures	26
Written Assignment in Small Study Groups	14
Analysis of current bibliography / Hours for private study of the student	60
Total (hours)	**100**

STUDENT ASSESSEMNT	Greek language Multiple choice questions Short essays

5. RECOMMENDED LITERATURE

Harrison's Principles of Internal Medicine

Davidson's Internal Medicine,

The Endocrine System at a Glance (Ben Greenstein, Diana Wood)

COURSE OUTLINE MED_771

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_771	**SEMESTER OF STUDIES**	7th
COURSE TITLE	PAEDIATRICS (4th YEAR – Integrated Teaching II)		
INDEPENDENT TEACHING ACTIVITIES		**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures		**25**	**4**
COURSE TYPE	Field of Science and Skills Development		
PREREQUISITE COURSES:			
TEACHING AND ASSESSMENT LANGUAGE:	Greek. Teaching may be however performed in English in case foreign students attend the course.		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (in English)		
COURSE WEBPAGE (URL)	http://www.med.upatras.gr/gr/Pages/undergrad/courses.aspx?lID=64		

2. LEARNING OUTCOMES

Leraning outcomes

The **aim** of the course is the **theoretical training of medicine students in Paediatrics**.

In their fourth year of studies, medical students attend Paediatrics lectures for **two (2) weeks per year** in the context of Compiled Teaching II activities.

Aim: Acquiring theoretical knowledge in General Paediatrics.

By the end of this course the student is expected to develop the following abilities:

- To acquire critical knowledge on the most common pediatric disorders
- To understand the pathophysiology of selected pediatric diseases
- To compile and analyze the above information for obtaining differential diagnosis

General Abilities

By the end of this course the student will, furthermore, have develop the following general abilities:

- Searching, analysis and synthesis of facts and information
- Decision making
- Promotion of free, creative and inductive thinking

3. COURSE CONTENT

1. Infectious diseases
    - Vaccines
    - Fever (differential diagnosis, laboratory work-up, treatment), Bacteremia, Septicemia, Meningitis
    - Infections (viral, bacterial, etc.)
    - Upper Respiratory Tract infections
    - Lower Respiratory Tract infections
    - Gastroenteritis
    - Tuberculosis
    - Immunodeficiency

2. Neonatology
- Neonatal physical examination
- Neonatal resuscitation, perinatal asphyxia, birth injuries
- Respiratory distress syndrome
- Air leak syndrome
- Meconium aspiration syndrome and diaphragmatic hernia
- Early and late neonatal septicemia, congenital infections
- Pulmonary hypertension
- Neonatal jaundice, anemia
- Nutrition
- Metabolic disorders, convulsions

3. Endocrinology
- Physiological and pathological psychomotor development
- Chromosomal anomalies
- Physiological and pathological growth: Part A
- Physiological and pathological growth: Part B
- Calcium metabolism
- Diabetes mellitus type I and type II, Diabetic ketoacidosis
- Physiological and pathological puberty
- Normal and abnormal adrenal function
- Physiological and pathological function of thyroid and parathyroid glands
- Physiological and pathological function of the pituitary gland
- Metabolic disorders

4. Neurology
- Coma
- Febrile and non-febrile seizures
- Poisoning

5. Pulmonology and Allergic diseases
- Asthma
- Croup, Bronchiolitis
- Foreign body aspiration
- Cystic fibrosis

6. Cardiology
- Physical examination
- Cardiac insufficiency
- Congenital heart diseases

7. Gastroenterology
- Acute abdominal pain
- Congenital abnormalities

8. Urinary system
- Pyouria, Haematuria, Albuminuria
- Urinary tract infections
- Congenital abnormalities

9. Hematology - Oncology
- Small-cell anemias
- Thalassemias, sickle cell anemia
- Haemolytic anemias, Aplastic anemia
- Thrombocytopenia, Leukemias, Lymphomas

10. Rheumatic Diseases
- Arthralgia - Arthritis

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Face to face (lectures)

USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Communication Technologies in teaching (PowerPoint)	
TEACHING ORGANIZATION	***Activity***	***Semester work-load***
	Lectures (25 hours per week x 2 weeks)	50
	Total number of work-load hours	**50 hours = 4 ECTS credits** (12.5 hours of work-load per ECTS credit)
STUDENT ASSESSEMNT	Written final examination with multiple choice questions	

5. RECOMMENDED LITERATURE

Nelson Textbook of Pediatrics, 20th ed. Elsevier, 2016

COURSE OUTLINE MED_781

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_781	**SEMESTER OF STUDIES**	6th
COURSE TITLE	OBSTETRICS AND GYNAECOLOGY		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	20	4
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Field of Sciences
PREREQUISITE COURSES:	None
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The aim of this module is to introduce medical students to the basic principles of Obstetrics and Gynaecology which are necessary for every medical doctor. Starting from the basic knowledge of Physiology, Embryology and Anatomy, topics that will be taught include normal pregnancy, the mechanism of normal delivery, menstrual cycle and menopause but also pregnancy complications, cycle irregularities and malignancies of the female reproductive tract. Students will also be exposed to specialized topics such as Fetal Medicine and Prenatal Diagnosis, Infertility and cervical screening and pathology. After the completion of this module, students will be able to recognize and treat obstetric and gynaecological emergencies. They will also familiarize with standard prenatal care, normal delivery and the puerperium and their complications. Finally, they will be able to describe the pathogenesis, treatment principles and differential diagnosis of common obstetric pathologies including pre-eclampsia, gestational diabetes as well as the indications for caesarean section and instrumental deliveries.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking

Promoting free and creative thinking.
Search, analyze and synthesize data and information, using the necessary technologies.

3. COURSE CONTENT

- Female reproductive system physiology
- Contraception, menopause
- Amenorrhoea, oligomenorrhoea
- Acute and chronic pelvic pain
- Pelvic mass
- Vaginal bleeding during the first and third trimester of pregnancy, ectopic pregnancy, miscarriage
- Urinary incontinence
- Uterine prolapse
- Abnormal uterine bleeding
- Female infertility
- Assisted conception techniques
- Normal pregnancy and embryology
- Prenatal care
- Lower genital tract disease
- Preterm premature rupture of membranes, preterm delivery
- Post-term pregnancy
- Fetal surveillance
- Post-partum pregnancy
- Maternal and neonatal morbidity and mortality
- Instrumental deliveries, caesarean section and the puerperium
- Fetal abnormalities
- Intrauterine growth restriction
- Pregnancy induced hypertension and pre-eclampsia
- Hydramnios, oligamnios

4. TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<tr><td>TEACHING METHOD
Face-to-face, Distance learning, etc.</td><td>Face to face lectures</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES
Use of ICT in teaching, laboratory education, communication with students</td><td>Specialized on line platform, e-class</td></tr>
<tr><td>TEACHING ORGANIZATION
The manner and methods of teaching are described in detail.

Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>40</td></tr>
<tr><td>Analysis of current bibliography / Hours for private study of the student</td><td>60</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Total (hours)</td><td>100</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSEMNT
Description of the evaluation procedure:

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other

Specifically-defined evaluation criteria are given, and if and where they are accessible to students</td><td>Multiple choice questions – written exams

Class participation</td></tr>
</table>

5. RECOMMENDED LITERATURE

1. *Obstetrics and Gynaecology, Antsaklis, Parisianos Editions, 2010 edition*
2. *Principles of Obstetrics and Gynaecology, Messinis, Parisianos Ediitions, ,2010 edition*
3. *Obstetrics and Gynaecology, Looytradis D, Deligeoroglou E, Papantoniou N, Paschalidis (Ed.), 2018*

8th Semester

COURSE OUTLINE MED_887

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_887	**SEMESTER OF STUDIES**	8th
COURSE TITLE	**Fluid, electrolyte and acid-base disorders and basic principle for their correction.**		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	2	2
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Background, Skills development
PREREQUISITE COURSES:	None
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

Students with the successful completion of the course will be able to evaluate the need for fluid delivery in stable and pathological conditions. They will also be in position of evaluating and preventing possible complications and effects of different kinds of fluids administration on the intravascular and extravascular volume and the acid-base balance.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology *Adapting to new situations* *Decision-making* *Working independently* *Team work* *Working in an international environment* *Working in an interdisciplinary environment* *Production of new research ideas*	*Project planning and management* *Respect for difference and multiculturalism* *Respect for the natural environment* *Showing social, professional and ethical responsibility and sensitivity to gender issues* *Criticism and self-criticism* *Production of free, creative and inductive thinking*

Search, analyze and synthesize data and information, using the necessary technologies
Autonomous work
Decision making

3. COURSE CONTENT

• Introduction and basic principles of solutions
o Solvent measurement units
o Movement of solvents
o Water movement
o Osmotic pressure - Solutions tonicity
• Distribution and composition of body fluids
o Volume and distribution of body fluids
o Composition of body fluids. Intracellular and extracellular space
• Water balance - Dehydration - Hydratation
o Daily requirements and mandatory fluid losses
o Water balance
o Losses of fluids from various systems - clinical picture and laboratory findings
o Causes - Clinical picture - Laboratory findings of overhydration
• Effect of pathological conditions on fluid balance
o Non-specific effects of trauma and acute conditions on fluid balance
o Capillary escape of albumin
o Effect of acid states on potassium balance
o Organ disorders affecting fluid balance
• Types of intravenous solutions
o Sodium chloride solutions
o Glucose solutions
o Balanced solutions
o Colloid solutions
o Mannitol
• Estimation and monitoring of patients receiving intravenous solutions
o Clinical parameters for assessing the administration of fluids
o Laboratory parameters for assessing fluid delivery
o Monitoring of body weight
o Monitor urinary excretion
o Importance of measurement of serum chloride
• Administration of maintenance fluids
o Intravenous fluid types for maintenance
o Choosing a rate of fluid delivery
o Administration of maintenance fluids to groups of patients with special characteristics (elderly - obese)
• Administration of fluids to patients with sodium homeostasis disorders
o Liquid administration to patients with hyponatraemia
o Liquid administration in patients with hypernatremia
• Fluid delivery during the recovery phase
o Types of intravenous fluids given during the resuscitation phase. Advantages and complications

o Volume of intravenous fluids and clinical targets
• Fluid delivery to sepsis
Systemic Inflammatory Reaction Syndrome (SIRS) - Seizure - Severe Heart Attack - Septic Stroke - Diarrheaal Escape
o Comparison of administration of crystalline and colloidal solutions. Advantages and disadvantages
Volume of administration of intravenous solutions and clinical targets
• Administration of fluids to patients with volume loss or fluid distribution disorders
o Fluid administration principles to restore volume and ongoing losses
o Administration of fluids to patients with fluid loss from the gastrointestinal tract
o Administration of fluids to patients with pancreatitis
o Administration of fluids to patients with fluid management disorders
• Fluids administration to the surgical patient
o Pre-operative and intraoperative administration of intravenous solutions to the patient undergoing intra-abdominal surgery
o Administration of intravenous solutions to the patient with regional / senile anesthesia
o Administration of intravenous solutions to neurosurgery and gynecological patients
o Administration of intravenous solutions to the patient with a burn
• Complications of fluid administration
o Effect of crystalline and colloidal solutions on coagulation
o Volume disorders
o Electrolyte disturbances
o Acid-base balance disorders
• Clinical examples of fluid administration
• Clinical examples of fluid administration

4. TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<tr><td>TEACHING METHOD
Face-to-face, Distance learning, etc.</td><td>Lectures</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES
Use of ICT in teaching, laboratory education, communication with students</td><td>Use of Information and Communication Technologies (ICTs) in teaching.</td></tr>
<tr><td>TEACHING ORGANIZATION
The manner and methods of teaching are described in detail.

Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>25</td></tr>
<tr><td>Analysis of current bibliography / Hours for private study of the student</td><td>100</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Total (hours)</td><td>125</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSEMNT
Description of the evaluation procedure:

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended</td><td>Written multiple choice examination</td></tr>
</table>

questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	

5. RECOMMENDED LITERATURE

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_886	**SEMESTER OF STUDIES**	6th
COURSE TITLE	**Anesthesiology, perioperative and emergency medicine**		
INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*		**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures		14	5
Participation in educational clinical visits		5	
Clinical Exercise (ICU and Anesthesiology)		5	
Study and analysis of bibliography, writing of scientific papers		1	
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		25 hours (total)	
COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Field of Sciences		
PREREQUISITE COURSES:	None		
TEACHING AND ASSESSMENT LANGUAGE:	Greek		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes		
COURSE WEBPAGE (URL)	https://www.dropbox.com/sh/v8uugt2bd9mkh8e/AABLuEQrrFqZnP2POSJE7XgRa?dl=0		

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

Course Objectives:
Knowledge, understanding, implementation, synthesis and evaluation of anesthesiology, perioperative and emergency medicine issues.

In the anesthesiology, perioperative and emergency medicine course, the above goals are summarized in 3 categories

1. - **Knowledge** of anesthesiology, perioperative and emergency medicine

2. - A combination of understanding and clinical / practical application of anesthesiology, perioperative and emergency medicine (**skill)**

3. - The ability to solve problems, transferring existing knowledge and acquired skills to new situations (**ability**)

<u>More specifically:</u>
The final level of knowledge allows students to know the basic theories of anesthesia and its components and to understand their application to general anesthesia. Plan the pre-operative-pre-anesthetic preparation and assessment of patients. To be familiar with the basic pharmacology of anesthetic drugs, the basic principles of monitoring the patient's vital functions perioperatively (monitoring) and to be able to apply the basic ventilation techniques. Be aware of the basic principles of regional anesthesia techniques and the medicines used in it. To effectively deal with postoperative pain. Be aware of the principles of dealing with a polytrauma and other life threatening emergencies. At the end of the semester, students are assessed by their participation in the course deliveries in the Anesthesiology Department and the results of oral examinations.

General Abilities
Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking

• Search, analyze, and synthesize data and information

• Adapt to new situations

•Decision making

• Autonomous work

•Teamwork

• Work in an international and interdisciplinary environment

• Production of new research ideas

3. COURSE CONTENT

- Types of Anesthesia,
- General anesthesia,
- Patient information-consent for anesthesia, preoperative preparation,
- General Anesthesia - case reporting, safe anesthesia,
- Venous access,
- Maintenance of airway duct, ventilation with AMBU, laryngeal mask (LMA), intratracheal intubation,
- Anesthetic drugs, post-operative complications (PONV, awareness, nerve injury, airway injury),
- Patient monitoring - medical simulation.
- Regional anesthesia,
- Post-operative pain, chronic pain.
- Basic life support and automatic external defibrillation.
- Specialized support for life.
- Polytrauma, fluid administration, transfusion, patient screening.
- Emergency treatment,
  Medical simulation on prototypes.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Face to face
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Use of information and communication teaching technologies
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	

Activity	***Semester Workload***
Lectures	20
Participation in educational clinical visits	10
Clinical Exercise (ICU and Anesthesiology)	10
Study and analysis of bibliography, writing of scientific papers	2
Total number of hours for the Course	**42 hours**

STUDENT ASSESSEMNT *Description of the evaluation procedure:* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended*	**Assessment Language: Greek** **Assessment methods:** • Multiple Choice Test • Short answer questions • Oral case discussions

questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	The evaluation criteria are explicitly specified for the students. Both the multiple-choice test and the short answer questions are based on the content of the lessons (lectures) to the students. Courses are accessible to students. Oral case discussions and clinical exercises are complementary / auxiliary.

5. RECOMMENDED LITERATURE

Morgan & Mikhail's Clinical Anesthesiology

Anesthesiology, European Journal of Anaesthesiology, British Journal of Anaesthesia

COURSE OUTLINE MED_885

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_885	**SEMESTER OF STUDIES**	6th
COURSE TITLE	Athletic injuries – Arthroscopic Surgery		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	2	5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Scientific area, expertise
PREREQUISITE COURSES:	ANATOMY, (ORTHOPAEDICS)
TEACHING AND ASSESSMENT LANGUAGE:	Greek, English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBPAGE (URL)	e-class (to be uploaded)

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

This lesson is a specific sub-specialty of Orthopaedics & Traumatology mainly concerning athletic injuries and their modern therapy with the innovative techniques of arthroscopic surgery.

Purpose: The familiarity of the student with the field of Sports Medicine: The nature of acute athletic injuries and chronic overuse syndromes, conservative and surgical treatment as well as physiotherapy and rehabilitation. Introduction and principles of arthroscopic surgery (shoulder injuries, meniscus and cruciate ligaments injuries, ankle, hip, tendinitis in various ligaments stress fractures, overuse injuries, cartilage injuries, chronic compartment syndromes etc). The role of new biological therapies (cartilage transplantation, hyaluronic acid, PRPs, κα).

GENERAL EDUCATIONAL GOALS

Upon completition of studentship the student would be able to:

1. Identify and manage basic athletic injuries who would face during his/her general practice or general surgical training

(type III ankle sprains, knee effusion, shoulder or patella dislocation etc).

2. Identify and analyze basic radiological imaging of athletic injuries (x-rays, MRI) and to prescribe appropriate investigations as part of his/her referrals.

3. Know and apply basic clinical examination of athletic injuries.

4. Identify and understand basic anatomical landmarks and also arthroscopic video-anatomy, as well as basic joint biomechanics.

5. Know and understand as possible would be the principles and basic steps of arthroscopic techniques of athletic injuries (mainly in the knee, shoulder and ankle).

6. Identify possible complications for his/her practice and manage them accordingly.

7. Identify new experimental pathways through the understanding of cartilage degeneration and remodeling, the use of biological therapies in young osteoarthritis and also to investigate indications and results of these new but very promising treatments.

7 Identify the principles of physiotherapy and rehabilitation.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
Working in an international environment	*Production of free, creative and inductive thinking*
Working in an interdisciplinary environment	
Production of new research ideas	

- *Searching, interpretation and synthesis of data and information.*
- *Adaptation in new environment*
- *Decision making*
- *Individual work-up*
- *Team work*

3. COURSE CONTENT

Introduction to Sports Medicine, basic joint anatomy, arthroscopic anatomy, athletic injuries, , first aid in the field, basic biomechanics of the knee and shoulder joint, pathophysiology of acute and chronic injuries, overuse syndromes, clinical examination of the injured athlete, basic imagine and classification, indication for surgical treatment and basic approaches and techniques, basic principles of physiotherapy and rehabilitation.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Face to face
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	e-class
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.*	

Teaching Method	***Semester Workload***
Lectures	20
practicals	8

Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS	Video-presentations 4 Stimulation 4 Reference review 14 Independent study *75* Total ***125***
STUDENT ASSESSEMNT *Description of the evaluation procedure:* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	Written examination (multiple choice questions) Presentation Review article

5. RECOMMENDED LITERATURE

COURSE OUTLINE MED_882

1. GENERAL

SCHOOL	Health Sciences		
DEPARTMENT	Medical school		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_882	**SEMESTER OF STUDIES**	11th-12th/ 6TH year
COURSE TITLE	Functional Urology (elective clinical training)		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	2	4
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Scientific field
PREREQUISITE COURSES:	Urology
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (English)
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

Level Index 6

The main objective of this course is the exposure of medical students to the entire spectrum of conditions of the fields of functional urology and the understanding of diagnostic techniques as well as basic principles of treatment approaches

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking

Clinical decision making, Working in an international setting, Development of research ideas

3. COURSE CONTENT

The significant evolution of Urologic subspecialties and the accumulation of knowledge through the contemporary scientific progress led to the need for setting-up the elective course of Functional Urology.
Functional Urology focuses on the diagnosis and treatment of conditions that disturb the dynamic balance of the urinary tract, and in particular of the lower urinary tract. Voiding dysfunctions are related to either urine storage (e.g. urinary incontinence) or bladder emptying (e.g. voiding difficulty or urinary retention).
The term functional urology is contemporary, up-to –date, term, used in the fields formerly known as neurourology, urodynamics and female urology.
Deep knowledge of lower urinary tract physiology and functional anatomy is a prerequisite for the understanding of lower urinary tract dysfunctions. Moreover, the principles of urodynamics both as a concept as well as a laboratory test for the investigation of lower urinary tract dynamic disturbances are essential for the understanding of the topic of functional urology.

The agenda of teaching andrology and functional urology includes:
1. Introduction- Physiology of urine storage and voiding
2. Urodynamic testing principles and techniques
3. Urinary incontinence, stress urinary incontinence
4. Urgency urinary incontinence, overactive bladder, mixed urinary incontinence
5. Pelvic organ prolapse
6. Urethral syndrome, urethral diverticulae
7. Fowler's syndrome, interstitial cystitis
8. Urologic complication of gynecologic surgery
9. Recurrent cystitis in women
10. Neurogenic bladder dysfunction
11. Benign Prostate Hyperplasia
12. Pathophysiology of male bladder outflow obstruction
13. Urethral stricture, enuresis
14. Nocturnal polyuria, Metabolic Syndrome and LUTS (Lower Urinary Tract Symptoms)

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Lectures
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Audiovisual (PowerPoint)

<table>
<tr>
<td>TEACHING ORGANIZATION
The manner and methods of teaching are described in detail.

Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</td>
<td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>20</td></tr>
<tr><td>Seminars</td><td>3</td></tr>
<tr><td>Review of bibliography</td><td>17</td></tr>
<tr><td>Analysis of current bibliography / Hours for private study of the student</td><td>60</td></tr>
<tr><td>Total (hours)</td><td>100</td></tr>
</table>
</td>
</tr>
<tr>
<td>STUDENT ASSESSEMNT
Description of the evaluation procedure:

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other

Specifically-defined evaluation criteria are given, and if and where they are accessible to students</td>
<td>Oral exam in Greek and English</td>
</tr>
</table>

5. RECOMMENDED LITERATURE

Introduction to Functional Urology, A. Athanasopoulos, Patras 2015(Greek)
https://www.ics.org/education/icspublications
-Journals: Neurourology & Urodynamics

COURSE OUTLINE MED_878

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_878	**SEMESTER OF STUDIES**	8th
COURSE TITLE	VASCULAR SURGERY		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	25	5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Scientific area
PREREQUISITE COURSES:	None
TEACHING AND ASSESSMENT LANGUAGE:	Greek. Teaching may be however performed in English in case foreign students attend the course.
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

Learning of vascular disease affecting arterial, venous and lymphatic system, including venous trauma and diabetic foot.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
	Criticism and self-criticism

Team work *Working in an international environment* *Working in an interdisciplinary environment* *Production of new research ideas*	*Production of free, creative and inductive thinking*
Adaptability in a new environment *Decision making* *Autonomous work*	

3. COURSE CONTENT

Diseases of arteries, veins and lymphatic vessels. Diabetic foot.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Face to face
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	
STUDENT ASSESSEMNT *Description of the evaluation procedure:* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	Verbal examination

Activity	***Semester workload***
Tutorials and educational ward rounds	25 hours
Analysis of current bibliography	40
Hours for private study of the student	60
Total (hours)	**125**

5. RECOMMENDED LITERATURE

European Journal of Vascular and Endovascular Surgery, Journal of Vascular Surgery

COURSE OUTLINE MED_873

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_873	**SEMESTER OF STUDIES**	8th
COURSE TITLE	Transplant		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	12,5	5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Field of Science
PREREQUISITE COURSES:	Typically, there are no prerequisite courses. Essentially, the student should possess knowledge of basic Anatomy, Physiology and Surgery
TEACHING AND ASSESSMENT LANGUAGE:	Greek. Teaching may be performed in English, in case foreign students attend the course.
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
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- *Guidelines for writing Learning Outcomes*

Understanding of the immunological mechanisms of transplants
Understanding of the rejection mechanisms
Understanding of the anatomy and physiology of organ transplants
Understanding of brain death and organ donation

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and *Project planning and management*

information, with the use of the necessary technology *Adapting to new situations* *Decision-making* *Working independently* *Team work* *Working in an international environment* *Working in an interdisciplinary environment* *Production of new research ideas*	*Respect for difference and multiculturalism* *Respect for the natural environment* *Showing social, professional and ethical responsibility and sensitivity to gender issues* *Criticism and self-criticism* *Production of free, creative and inductive thinking*
Search, analysis and synthesis of data with the use of appropriate technologies *Decision making* *Working alone and as part of a team*	

3. COURSE CONTENT

Immunology of transplants
Organ removal and preservation
Kidney transplant
Liver transplant
Pancreas transplant
Multiorgan transplant

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Face to face, e-class.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Use of I.C.T (eg Powerpoint) in teaching. The lectures are uploaded on the Internet (e-class).
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	
STUDENT ASSESSEMNT *Description of the evaluation procedure:* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination,*	Written assessment, lasting 1 hour. Minimum passing grade: 5. Possibility of writing an assignment ~5-10 pages long, towards improving the final grade, provided that the student has reached the minimum passing grade.

Activity	***Semester workload***
Lectures (12,5 hours/week x 2 weeks)	25
Participation in the OR (after consulting the Professor)	Optional
Analysis of current bibliography	30
Hours for private study of the student	60
Total (hours)	**125**

public presentation, laboratory work, clinical examination of patient, art interpretation, other *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	

5. RECOMMENDED LITERATURE

D. Voros, Surgery, 2nd edition, Parisianou A.E. 2014

E-class notes

COURSE OUTLINE MED_839

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_839	**SEMESTER OF STUDIES**	8th
COURSE TITLE	ORTHOPEDICS		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
LECTURES	25 (2 weeks in 8th semester)	5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).	Total of 50 h of lectures	5

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Scientific area, expertise
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek, English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	yes
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/main/portfolio.php

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

This course is an introduction to General Orthopaedics & Traumatology

Basic knowledge of Orthopaedics is offered to Medical students that can be applied in their future practice as general doctors in:

1. Health centers
2. Small provincial offices
3. Regional hospitals as on call doctors of the surgical department
4. Private offices

General Educational Goals

Upon completition of studentship the students would be able to:

1. Identify and manage life-threatening injuries (i.e. pelvic fractures, multi-trauma patients)
2. Identify and manage various orthopaedic emergencies (i.e. Cauda equina syndrome, amputations, open fractures, compartment syndromes).
3. Identify and manage various acute (non-urgent) orthopaedic injuries (fractures, dislocations, infections) and provide initial stabilization (plaster cast, bracing).
4. Identify and apply primary care in chronic orthopaedic diseases, (sciatica, back pain, arthritis, tendinitis) and proceed to initial radiological and biochemical investigation before referral to appropriate doctors.
5. Identify possible complications for his/her practice and manage them accordingly.
6. To communicate with his/her colleagues describing the problem.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking

- Searching, interpretation and synthesis of data and information.
- Adaptation in new environment
- Decision making
- Individual work-up
- Team work

3. COURSE CONTENT

Lectures

- Bone metabolism: micro-anatomy and physiology
- Osteoporosis – metabolic diseases
- Fractures of pelvis & acetabulum
- Bone & Joint infections
- Inflammatory & degenerate arthritis
- injuries & diseases of the Shoulder
- injuries & diseases of the Elbow
- Injuries & diseases of wrist and hand
- Injuries & diseases of the hip
- Injuries & diseases of the knee
- Injuries & diseases of the foot and ankle
- Injuries & diseases of the spine
- Soft tissue tumors
- Bone tumors
- Paediatric Orthopaedics (injuries and diseases in children)
- Peripheral nerve compression syndromes
- Peripheral Nerve and brachial plexus injuries

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Class, ward rounds, operation theater, A & E department, Rehabilitation center
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	e-class platform
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	
STUDENT ASSESSEMNT *Description of the evaluation procedure:* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	. Written examination [multiple choice or full text]

Activity	***Semester workload***
Lectures	50
Analysis of current bibliography / Hours for private study of the student	75
Total (hours)	**125**

5. RECOMMENDED LITERATURE

Orthopedics and Traumatology, Elias E. Lampiris, Medical Publications P. H. Paschalidis, 2007

Miller's Review of Orthopaedics, Book by Assistant Professor of Psychiatry Mark D Miller, MD

Apley's System of Orthopaedics and Fractures. Textbook by Alan Graham Apley and Louis Solomon

Essential Orthopaedics and Trauma Textbook by David J Dandy

Clinical orthopaedic examination Textbook by Ronald McRae

McRae's Orthopaedic Trauma and Emergency Fracture Management Book by Alasdair J Gray, Samuel P. Mackenzie, and Timothy O. White

COURSE OUTLINE MED_872

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_872	**SEMESTER OF STUDIES**	8th
COURSE TITLE	Introduction to Cardiothoracic surgery		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	2	
Other activities	9	
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		5

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	SCIENTIFIC AREA
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	GREEK
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES (IN ENGLISH LANGUAGE)
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

Educational Objectives

At the end of the course the student is expected to be able to understand the pathophysiology of the diseases of the chest and heart, to describe the diagnostic work up needed and to discuss the therapeutic management of the patients weather it is conservative or surgical.

Annual Scientific Seminar

At the end of the course and at the initiative of the students and the coordination of the teaching professors, an Annual Scientific Seminar is organized. This includes two conference tables. where state of the art topics is presented by the four-year medical students

The teaching professors are always available to assist students wishing to participate in clinical and research studies. Finally, students are encouraged to present the aforementioned studies at the Annual Congress of Medical Students.

Importance of the Course
The frequency of lung and heart diseases is rapidly increasing in our country and it is estimated that thoracic and cardiac operations have been doubled within the last 10 years.
Ischemic heart disease and lung cancer still rise, especially in the geographic area covered by the University Hospital of Patras.
Both the respiratory and cardiovascular systems collectively support life and thus the study of the surgical pathology of the diseases of the chest and heart becomes crucial in the integrated part of a medical student's education.

Teaching
The teaching procedure is gradual/staged with intent to provide messages and directories on the management of the patients and basic information about the surgical techniques used.
At the third-year courses of the integrated teaching on diseases and symptoms short lectures on pertinent to cardiothoracic surgery issues represent the first step of the teaching procedure in this field. However, a more thorough knowledge is achieved during the course entitled "Introduction to Cardiothoracic Surgery".
Additionally, the optional clinical practice of 2 weeks in Cardiothoracic Surgery allows students to participate in the daily clinical and surgical practice of our department so as to come closer to the diseases and clinical problems discussed during the theoretical courses.
The teaching professors are responsible for the teaching procedure which is additionally assisted by doctors/consultants of the National Health System.
The total number of teaching hours is 24 equally divided between General Thoracic Surgery and Cardiac Surgery
The teaching includes lectures with Microsoft Power Point and video presentations and participation as observers in the Operation Room. The students are also encouraged to work in the Experimental Surgery Room whenever there are is an active experimental protocol.

General Abilities
Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking

- **Autonomous Work Study**
- **Team Work Study**
- **Planning and Organizing of the Annual Scientific Seminar**

Multidisciplinary Team Work

3. COURSE CONTENT

- **<u>Introduction in Cardiothoracic Surgery</u>**
- **<u>Lung Cancer</u>**
- **<u>Diseases of the Mediastinum and trachea. Superior Vena Cava Syndrome</u>**
- **<u>Thoracic Trauma</u>**

- **Emergencies in Cardiothoracic Surgery**
- **Spontaneous pneumothorax, Surgical management of Pulmonary Emphysema, Hemoptysis**
- **Diseases of the thoracic wall, Mesothelioma, Diseases of the diaphragm.**
- **Surgical diseases of the esophagus**

- **Introduction in Cardiac Surgery, Cardiopulmonary Bypass, Ischemic Heart Disease**
- **Heart Valve Disease I**
- **Heart Valve Disease II**
- **Surgical diseases of the thoracic aorta and endovascular Surgery**

- **Tutorial Course**

4. TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<tr><td>TEACHING METHOD
Face-to-face, Distance learning, etc.</td><td>Lectures</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES
Use of ICT in teaching, laboratory education, communication with students</td><td>Use of Information and Communication Technologies (ICTs) in teaching.</td></tr>
<tr><td>TEACHING ORGANIZATION
The manner and methods of teaching are described in detail.

Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>25</td></tr>
<tr><td>Team work study, Scientific papers, Power Point Presentations</td><td>36</td></tr>
<tr><td>Organizing Annual Seminar</td><td>10</td></tr>
<tr><td>Autonomous Study Work</td><td>38</td></tr>
<tr><td>Hands on clinical practice</td><td>2</td></tr>
<tr><td>Annual Scientific Seminar</td><td>4</td></tr>
<tr><td>Tutorials related to the Annual Seminar</td><td>10</td></tr>
<tr><td>Total number of hours for the Course</td><td>125</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSEMNT
Description of the evaluation procedure:

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work,</td><td>1. Written exams which include
• Multiple choice questions
• Patient and problem management in different clinical scenarios

2. Expert lecture in Cardiothoracic Surgery Topics at the Annual Scientific Seminar</td></tr>
</table>

clinical examination of patient, art interpretation, other *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	

5. RECOMMENDED LITERATURE

- **Thoracic Surgery Notes. Apostolakis E, Koletsis E, Dougenis D**
- **Cardiac Surgery. Spanos P et al. University Studio press 1999**
- **http://www.ctsnet.org**

COURSE OUTLINE MED_877

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_877	**SEMESTER OF STUDIES**	8th
COURSE TITLE	Maternal Fetal Medicine		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	3	5
Laboratory	3	
Clinical	2	
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Scientific area
PREREQUISITE COURSES:	Obstetrics and Gynecology
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

In depth knowledge regarding:
- maternal physiology (adaptation mecanisms)
- fetal physiology
- diseases in pregnancy (recognition and management)
- following – up a pregnancy
- recognition and management of fetal problems
- organizing prenatal screening
- basic knowledge in ultrasound in obstetrics

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking

Decision making
Working (collaborating) in a scientific environment
Autonomous work

3. COURSE CONTENT

Maternal – fetal physiology

Prenatal screening

Follow-up of normal and complicated pregnancies

Ultrasound examination of normal and high-risk pregnancies

Surgical interventions in pregnancy

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Lectures – examining patients
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Use of Information and Communication Technologies (ICTs) in teaching.
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	
STUDENT ASSESSEMNT *Description of the evaluation procedure:*	Language: Greek Method: Multiple choice + patient assessment

Activity	***Semester workload***
Lectures	10
Clinical assessment	16
Analysis of current bibliography / Hours for private study of the student	100
Total (hours)	**125**

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	

5. RECOMMENDED LITERATURE

Creasy and Resnik's Maternal-Fetal Medicine: Principles and Practice, 7th Edition

Loutradis D, Papantoniou N.: Obstetrics and Gynecology (In Greek)

Ultrasound in Obstetrics and Gynecology

COURSE OUTLINE MED_879

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_879	**SEMESTER OF STUDIES**	8th
COURSE TITLE	The Pharmacological basis of Therapeutics.Contribution to the preparation of the new doctor		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	25	5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Scientific field, skills development
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (to Greek speaking students)
COURSE WEBPAGE (URL)	https://www.facebook.com/groups/405801169846103/ For registered users only

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
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The aim of the lectures is familiarization with the relation between clinical pharmacology and therapeutics via the comprehension of the underlying pharmacological basis. Through a Problem based learning process (Case studies either of everyday practice or of particular interest) the students become capable of getting in touch with the basic principles of medical history, clinical examination, laboratory and imaging tests and their combination in order to reach a diagnosis and perform informed decision making. Particular emphasis is given to emergencies and situations that a young doctor is expected to encounter at the beginning of his/her career. The pharmacological and mechanistic basis of therapeutic decisions as well as common therapeutic protocols are analyzed and explained. Apart from the PBL sessions there is a number of lectures designed to present common medical conditions and their management (i.e respiratory tract infections, diabetic ketoacidosis, status epilepticus, acute coronary syndrome etc). Invited speakers on 'hot' topics may also participate depending on their availability.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
Working in an international environment	*Production of free, creative and inductive thinking*
Working in an interdisciplinary environment	
Production of new research ideas	

Adaptation to new situations
-Decision making
-Unsupervised work
-Team work
-Work in the inter-scientific environment
-Promotion of free, constructive and inductive reasoning
Demonstration of social, professional and moral responsibility
Development of judgement/self-judgement

3. COURSE CONTENT

i. Introduction to Therapeutics.

ii. Acute Coronary syndromes-Acute pulmonary oedema

iii. PBL (Acute Neuroborreliosis:The dilemmas in clinical practice)

iv. Central Nervous System Infections.The paradigm of acute bacterial meningitis

v. Upper and lower respiratory tract infections. New molecular diagnostic methods in Infectious Diseases

vi. Management of the patient with dyslipidaemia/metabolic syndrome

viii. Crisis management in the A+E department

ix. PBL (Burkitt's lymphoma with autoimmune hemolytic anemia: Introduction to the clinical pharmacology of autoimmune and hematological disorders)

x. PBL (Acute fulminant hepatitis with liver failure and transplantation: Clinical pharmacology of liver diseases and principles of transplantation)

xi. Diabetes Mellitus.Diabetc ketoacidosis.Hyperosmotic coma.

xii. PBL (Visceral Leishmaniasis on the top of Ischemic heart disease/Insulin dependent DM/Psoriatic arthritis/Chronic renal failure: Balancing between opposing decisions)

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Lectures

<table>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES
Use of ICT in teaching, laboratory education, communication with students</td><td>Use of Information and Communication Technologies (ICTs) in teaching.</td></tr>
<tr><td>TEACHING ORGANIZATION
The manner and methods of teaching are described in detail.

Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>25</td></tr>
<tr><td>Analysis of current bibliography</td><td>40</td></tr>
<tr><td>Hours for private study of the student</td><td>60</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Total (hours)</td><td>125</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSEMNT
Description of the evaluation procedure:

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other

Specifically-defined evaluation criteria are given, and if and where they are accessible to students</td><td>Oral/written Structured Clinical Examinations on a PBL basis (Modified OSCE)</td></tr>
</table>

5. RECOMMENDED LITERATURE

COURSE OUTLINE MED_884

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_884	**SEMESTER OF STUDIES**	8th
COURSE TITLE	Neuropsychiatry		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	25	5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Field of Science
PREREQUISITE COURSES:	No
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (in Greek language)
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
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- *Guidelines for writing Learning Outcomes*

Neuropsychiatry is an evolving science dedicated to understanding the behavioral consequences of brain dysfunction and their use to improve patient care. The development of neuropsychiatry is driven by the aging of the population and the resulting neuropsychiatric morbidity, the rapid improvement of neuroimaging techniques, the emergence of new therapies and the significant development of neurosciences, with a possible application to understanding the neurobiological basis of human behavior. The psychiatric image of structural or neurophysiological brain disorders due to systemic diseases affecting the brain is rarely specific to the type of underlying pathology but is more affected by the area of the brain involved and the course of the disease. Usually, the clinical picture appears as a change in personality and behavior as cognitive decline and emotional states, emotional disturbances and/or psychoses. The aim of the course is to bring together and understand the range of systemic illnesses with psychiatric symptomatology, to teach the diagnostic techniques and the basic principles of therapeutic approaches.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
Working in an international environment	*Production of free, creative and inductive thinking*
Working in an interdisciplinary environment	
Production of new research ideas	

By the end of this course the student will be able to:

- Understand the basic neuropsychiatric terminology
- Obtain the neuropsychiatric examination in a theoretical level
- Be aware of the categories of neuropsychiatric disorders
- Understand the differences and similarities of neuropsychiatric and psychiatric disorders
- Be aware of the basic neuropsychiatric assessment
- Develop skills concerning differential diagnosis of neuropsychiatric and psychiatric disorders
- Acquire the up-to-date knowledge necessary for the development of novel research ideas

3. COURSE CONTENT

1. Basic concepts of neuropsychiatry
2. Clinical evaluation
3. Neuropsychiatric Symptoms and Syndromes
4. Traumatic brain injury
5. Brain tumors
6. Epilepsy
7. Intracranial infections
8. Vascular brain disorders
9. Alzheimer's and other dementias
10. Endocrine and metabolic disorders
11. Drug use disorders and intoxication disorders
12. Kinetic disorders
13. Sleep Disorders
14. Other disorders of the nervous system

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Teaching in classroom
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Lectures with the use of PowerPoint slides to highlight the important points. Presentations are available in e-class.
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational*	

Activity	***Semester workload***
Lectures	25
Analysis of current bibliography	50
Hours for private study of the student	50
Total (hours)	**125**

visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS	
STUDENT ASSESSEMNT *Description of the evaluation procedure:* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	Students' assessment is oral, after arrangement with Professors. Assessment language is Greek.

5. RECOMMENDED LITERATURE

Recommended literature
TITLE: "Neuropsychiatry and behavioral neurology", AUTHORS: Jeffrey Cummings, Michael Trimble, BITA Publications

-Recommended scientific journals

- *Neuropsychiatry*
- *The Journal of Neuropsychiatry & Clinical Neurosciences*

COURSE OUTLINE MED_871

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_871	**SEMESTER OF STUDIES**	8th
COURSE TITLE	Urology		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	25	5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Background
PREREQUISITE COURSES:	-
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (English)
COURSE WEBPAGE (URL)	http://www.med.upatras.gr/en/Pages/undergrad/courses.aspx?lID=53

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
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- *Guidelines for writing Learning Outcomes*

Level Index: 6

The main objective of this course is to provide the background knowledge of urologic disease as well as basic techniques used in urology that are indispensable to all medical professionals regardless of further specialization.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
	Respect for difference and multiculturalism
	Respect for the natural environment

Adapting to new situations *Decision-making* *Working independently* *Team work* *Working in an international environment* *Working in an interdisciplinary environment* *Production of new research ideas*	*Showing social, professional and ethical responsibility and sensitivity to gender issues* *Criticism and self-criticism* *Production of free, creative and inductive thinking*
Clinical decision making	

3. COURSE CONTENT

The specialty of Urology is a fast evolving surgical one with sub-specialties that complete, but also broaden, its main trunk. Significant developments during the past few years include changes in the management of urological cancer, both by minimally invasive procedures and pharmaceutical interventions complementing established methods of surgical treatment, as well as in fields such as the treatment of lower urinary tract dysfunction, the diagnosis and treatment of male sexual dysfunction and infertility and techniques of endoscopic, percutaneous and laparoscopic surgery of the urinary tract.

The aim of Urology is to establish, through class teaching with up-to-date presentations, the background of basic urologic knowledge that is indispensable for every medical practitioner regardless of their specialty, but also to stimulate scientific interest in developing subspecialties.

Teaching of urology is organized in 6 major axis: 1) anatomy and physiology of the genitourinary system and pathophysiology of relevant symptoms, 2)oncology of the genitourinary system, 3) urinary tract infections 4) dysfunction of the lower urinary tract (benign prostatic hyperplasia/ bladder outlet obstruction, overactive bladder, incontinence), 5) male sexual dysfunction and infertility and 6) Stone disease of the urinary tract.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Lectures
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Audiovisual (PowerPoint)
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	
STUDENT ASSESSEMNT *Description of the evaluation procedure:* *Language of evaluation, methods of evaluation, summative or conclusive,*	Written exam in Greek Oral exam in English (Erasmus)

Activity	***Semester workload***
Lectures	70
Analysis of current bibliography	30
Hours for private study of the student	25
Total (hours)	**125**

multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	

5. RECOMMENDED LITERATURE

Smith's general urology *PRACTICAL UROLOGY: essential principles and practice (CR. CHAPPLE)* *https://www.sciencedirect.com/journal/european-urology* *https://www.journals.elsevier.com/the-journal-of-urology/* *http://www.hellenicurology.com/index.php/Hellenic-Urology*

COURSE OUTLINE MED_831

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_831	**SEMESTER OF STUDIES**	8th
COURSE TITLE	PHTHALMOLOGY		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	25	5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Compulsory, General Knowledge, Core Course, Skills Development
PREREQUISITE COURSES:	Typically, there are not prerequisite course.
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

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- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

By the end of this course the student will be able to:

To use the ophthalmic instruments and examine a patient

Recognize the most common diseases of the eye

And suggest possible treatment modalities

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
Working in an international environment	*Production of free, creative and inductive thinking*
Working in an interdisciplinary environment	
Production of new research ideas	

- Teaching of the basic ocular anatomy and physiology
- Ophthalmic Diseases and treatment
- Presentation of clinical cases- Discussion of the cases

3. COURSE CONTENT

DESCRIPTION OF OPHTHALMOLOGY COURSE

Ophthalmological examination
Presentation of ophthalmic equipment
Medical History
Examination of eyelids, nasal passages, conjunctiva, cornea, anterior chamber, lens, Fundoscopy
Confrontation Visual Field Testing
Intraocular Pressure measurement

Eyelashes
Growth abnormalities
Eyelid drooping (ptosis), Entropio, Ectropio, Blepharospasm
Inflammations
Benign / malignant tumors
Lacrimal system
Disorders of the lower lacrimal system
Dacryocystitis
Tumors of the lacrimal system
Malfunction of the lacrimal system
Keratoconjunctivitis sicca, Tearing
Diseases of the lacrimal gland, Lacrimal gland tumors

Conjunctiva
Congenital degeneration and age changes
Conjunctivitis, Tumors of conjunctiva

The cornea
Developmental anomalies / Ectatic abnormalities
Mechanisms of corneal protection
Bacterial keratitis, Viral keratitis
Non-infectious keratitis and keratopathy
Contact lens associated problems
Corneal deposits, degenerations and dystrophies
Corneal Surgery
Corneal refractive surgery

The Sclera
Wounds and Inflammation
Episcleritis
Scleritis

Lens
Congenital lens abnormalities
Cataract, cataract treatment
Secondary cataract
Lens dislocation

Uvea
Acquired abnormalities
Inflammation (Acute iritis and iridocyclitis, Chronic iritis and iridocyclitis, Choroiditis)
Sympathetic ophthalmia
Iris Neovascularization
Tumors (Malignant tumors, benign choroidal tumors)

Pupil
The light reflection
Evaluating the near reflexion
Effect of pharmacological agents on pupil
Abnormalities of mobility of the iris

Glaucoma
Primary glaucoma
Secondary glaucoma
Child glaucoma

Vitreous body
Vitreous detachment
Pathological changes in the vitreous body
Vitreous haemorrhage, Vitritis and endophthalmitis
Neovascularization of the retina
Surgical treatment, vitrectomy

Retina
Retinal vascular disease
Degenerative disease of the retina
Retina detachment
Central serous chorioretinopathy
Age-related macular degeneration
Retinal Dystrophy
Toxic retinopathy
Retinal vasculitis
Inflammations
Retinal tumors

Optic nerve
Disturbances that blur the boundaries of the optical disc
Congenital disorders that blur the boundaries of the optic disk
Acquired disturbances that blur the boundaries of the optic disk
Disturbances in which the boundaries of the optical disk are clearly scarred

Tumors
Intraocular tumors of the optic nerve

Retrobulbar tumors of the Optic nerve

Visual pathway
Visual tract disorders
Pro-chiasmatic damage
Chiasmatic damage
Post-Chiasmatic damage

Orbit
Anomalies of conformation
Orbitopathy in autoimmune disorders: Graves disease
Inflammation of the orbit
Vascular disorders
Tumors
Surgery in Orbit diseases

Visual and refractive errors
Refraction in the eye: Emmetropia and ametropia
Refraction abnormalities, Correction of refractive errors
Eyeglass lenses, Contact lenses, Prisms
Magnifying aids for vision

Ophthalmopathy and strabismus
Types of Strabismus
Treatment of strabismus
Treatment and prevention of amblyopia
Surgery
Ophthalmoplegia and paralytic strabismus
Nystagmus

Ocular trauma
Mechanical wounds
Open globe wounds
Penetrating trauma
Chemical burns
Wounds from physical agents
Thermal burns
Radiation injuries (ionizing radiation)
Indirect eye trauma: Purtscher retinopathy

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Lectures face to face.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Use of Information and Communication Technologies (ICTs) (e.g. powerpoint) in teaching.
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop,*	

Activity	***Semester workload***
Lectures	100
Hours for private study of the student	25
Total (hours)	**125**

interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS	
STUDENT ASSESSEMNT *Description of the evaluation procedure:* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	Written examination after the end of the semester - final grade Minimum passing grade: 5.

5. RECOMMENDED LITERATURE

Suggested Books

COURSE OUTLINE MED_831

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_876	**SEMESTER OF STUDIES**	8th
COURSE TITLE	Pediatric and Reproductive Endocrinology		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	25	5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Field of Science (Pediatric and Reproductive Endocrinology)
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	GREEK
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/modules/course_description/?course=MED1045

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
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- *Guidelines for writing Learning Outcomes*

This course is an introductory lesson on the principles of reproduction and its basic disorders.
The subject matter of the course is to introduce basic principles of the evolution of reproductive function-systems over the whole range of living life as well as the diversity and complementarity of the two sexes in relation to the gender diversity and gender disorders and their consequences. Examples will be presented regarding genotype disorders underlying the gender differentiation phenotypic disorders. The physiology of sexuality will be developed as well as the importance of its disorders. Also, references will be made to disorders of reproductive function during childhood and adolescence and their relation to adult life disorders and infertility. The basic molecular techniques of laboratory will be presented regarding the gene mutations detection as well the results evaluation necessary in medical practice.
The main objective upon successful completion of the course, is the student's ability to understand the basic principles of reproduction physiology and the significance of its disorders.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking

Acquisition of social, professional and moral responsibility and sensitivity to gender issues.
Respect of diversity.

3. COURSE CONTENT

1.Central Nervous System

Interaction of hormones and neural circuits.
Correlation of hormonal factors with reproductive and behavioral phenotypes

2. Infertility

Causes of infertility.
Clinical and laboratory infertility investigation

3. Pediatric Endocrinology

Introduction to Metabolic Diseases of Pediatric Endocrinology.
Investigation of molecular mechanisms of intracellular signal transduction

4. Gender and Reproduction

Introduction to the evolution of Reproduction.
Understanding the mechanism of gender differentiation in humans and differentiation disorders

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Lectures
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Use of Information and Communication Technologies (ICTs) (e.g. powerpoint) in teaching. The lectures content of the course for each chapter are uploaded on the internet, in the form of a series of ppt files, where from the students can freely download them using a password which is provided to them at the beginning of the course (e-class).
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic*	

Activity	***Semester workload***
Lectures	25
Analysis of current bibliography	40
Hours for private study of the student	60
Total (hours)	**100**

creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS	
STUDENT ASSESSEMNT *Description of the evaluation procedure:* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	Written examination after the end of the semester

5. RECOMMENDED LITERATURE

1.Williams Textbook of Endocrinology. Wilson J, Foster D, Kronenberg H, Larsen P, WB Saunders Company. 9th Edition.

2.Progress in Clinical Endocrinology. Sammel Sostin, MD, Editor.

3.Essentials of Endocrinology. PG Malan and RP Gould. Edited by JLH O?Riordan. Second edition.

4.Functional Endocrine Pathology. Editors Kalman Kovacs, Sylvia L.Asa. Blackwell Scientific Publications.

5.Clinical Endocrinology. Editor Ashley Grossman. Foreword by Michael Besser. Blackwell Scientific Publications.

6.Endocrinology and Metabolism. Philip Felig, John D. Baxter, Lawrence A. Frohman. Third Edition.

7.Molecular Endocrinology. Franklyn F. Bolander. Third Edition. Elsevier.

COURSE OUTLINE MED_883

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_883	**SEMESTER OF STUDIES**	6th
COURSE TITLE	Pediatric Surgery		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	25	5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Science and Skills Development
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek and English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes, Since now HELMSIC students have participated
COURSE WEBPAGE (URL)	http://www.med.upatras.gr/gr/Pages/undergrad/courses.aspx?lID=113

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

Students meet the pediatric surgical diseases
Embryology, anatomy, physiology and other sectors are applied in childhood clinical practice
They learn how to deal with pediatric patients in clinical examination and diagnosis since neonatal age
They understand the indications and operational techniques in children
They learn about the child in the surgical theater
They learn to use suture material and techniques

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology *Adapting to new situations* *Decision-making* *Working independently* *Team work* *Working in an international environment* *Working in an interdisciplinary environment* *Production of new research ideas*	*Project planning and management* *Respect for difference and multiculturalism* *espect for the natural environment* *Showing social, professional and ethical responsibility and sensitivity to gender issues* *Criticism and self-criticism* *Production of free, creative and inductive thinking*

Adjustment to new conditions
Decision taking
Autonomous work
Team work
International cooperation
Inter-scientific cooperation
Production of new investigative ideas
Criticism and self- criticism and evaluation
Production of free, creative and inductive way of rationing

3. COURSE CONTENT

Head and Cervical diseases

Cleft lip and palate, Ranula, Ear appendages and fistulas, Torticollis, Thyroglossal duct cyst, Dermoids, Branchial apparatus disorders, lymphangiomatic diseases

Thorax

Sternum, Trachea diseases, Pulmonary congenital and other diseases, pneumothorax, mediastinal diseases, congenital diaphragmatic hernia, congenital cardiopathies
Digestive system

Esophageal diseases, acute abdomen, pyloric stenosis, Duodenal stenosis and atresia, short bowel atresias, Malrotation, Hirschsprung's disease, Meconium diseases, , intestinal duplications, necrotic enterocolitis, short bowel syndrome, acute appendicitis, intussusception, hepatic congenital atresia and choledochal cyst, bladder diseases, spleen diseases

Abdominal wall

Inguinal hernia, umbilical and other hernias, Omphalocele, gastroschisis, urachus

Urogenital system

Congenital malformations of position and development of kidneys
Polycystic kidney
Renal dysplasia
Hydronephrosis
Pelvic ureteral obstruction
Double ureter
Ureterocele, VUR, urethral valves, ureteral outlet obstruction
Hydrocele, hypospadias, phimosis, ovarian disease, acute scrotum, undescended testes, DSD

Special diseases

Cancer in childhood, trauma, burns, dermatological disease, transplantation

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Teaching in small groups, interactive teaching, teaching in the operative theater, teaching of surgical skills and abilities
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Use of Information and Communication Technologies (ICTs) in teaching.
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	
STUDENT ASSESSEMNT *Description of the evaluation procedure:* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	Oral examination Theoretical knowledge testing Practical application of knowledge

Activity	***Semester workload***
Teaching	85
Operation	20
Surgical techniques instructions	20
Total (hours)	**100**

5. RECOMMENDED LITERATURE

Literature in Greek:
"Contemporary Pediatric Surgery - Diagnosis and Treatment"
Author: G. Vaos
Book Code on Evdoxos: [13256999]

"Principles of Pediatric Surgery and Pediatric Urology"
Author: S. Gardikis
Book Code on Evdoxos: [320275]*Journals Journal of Pediatric Surgery*
European Journal of Pediatric Surgery
Pediatric Surgery International

COURSE OUTLINE MED_880

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_880	**SEMESTER OF STUDIES**	6th
COURSE TITLE	PHYSICAL MEDICINE & REHABILITATION		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
LECTURES	4 h/week	4
CLINICAL PRACTICE	1 h/week	1
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).	Total of 20 h of lectures and 5 h of clinical practice	5

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Scientific area, expertise
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/main/portfolio.php

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

This course is an introduction in Physical Medicine & Rehabilitation

Basic knowledge in Physical Medicine & Rehabilitation is offered to Medical students that can be applied in their future practice as general doctors in:

1. Health centers
2. Small provincial offices
3. Regional hospitals as on call doctors of the surgical department
4. Private offices

General Educational Goals

Upon completition of studentship the students would be able to:

1. Understand the principles of rehabilitation and the bio-psycho-social model of the international classification of functioning, disability and health (ICF).
2. Be familiar with the physiatrist evaluation in determining the underlying diagnosis.
3. Be familiar with the assessment of functional capacity, activity and participation and their ability to change.
4. Be familiar with the design, the organization and the application of a rehabilitation plan.
5. Be familiar with the team dynamics and the principles and potential of physiotherapy, occupational therapy, speech therapy and other rehabilitation therapies.
6. Be familiar with the rehabilitation protocols in specific neurological and musculoskeletal conditions
7. Identify possible complications for his/her practice and manage them accordingly.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
espect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking

- Searching, interpretation and synthesis of data and information.
- Adaptation in new environment
- Decision making
- Individual work-up

- Team work

3. COURSE CONTENT

Lectures

- General principles of rehabilitation and the bio-psycho-social model of the international classification of functioning, disability and health (ICF).
- Interdisciplinary rehabilitation team. Design a rehabilitation plan.
- Diagnostic tools and assessments of functional capacity, activity and participation.
- Rehabilitation of cerebral injuries
- Rehabilitation of stroke
- Rehabilitation of spinal cord injuries
- Rehabilitation of musculoskeletal diseases
- Prevention and management of complications
- Rehabilitation technology

Clinical Practice

- Introduction to physical medicine and rehabilitation
- Rehabilitation of the orthopaedic patient
- Workshop in patients with spinal cord injury
- Workshop in patients with head injury
- Workshop in patients with stroke
- Prevention and management of complications

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Class, ward rounds, physiotherapy, occupational therapy and speech therapy departments.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	e-class platform
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements,*	

Activity	***Semester workload***
Lectures	25
Analysis of current bibliography	40
Hours for private study of the student	60
Total (hours)	**125**

clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS	
STUDENT ASSESSEMNT *Description of the evaluation procedure:* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	I. Written examination (50%) [multiple choice or full text] II. Oral examination (50%) in small groups after completition of clinical practice

5. RECOMMENDED LITERATURE

European Academy of Rehabilitation Medicine, European Federation of Physical and Rehabilitation Medicine, European Union of Medical Specialists (Physical and Rehabilitation Medicine Section): White Book on Physical and Rehabilitation Medicine. Universidad Complutense de Madrid; 1989

UEMS-PRM-Section: Definition of Physical and Rehabilitation Medicine. www.euro-prm.org. 2005.

Stucki G, Ewert T, Cieza A. Value and application of the ICF in rehabilitation medicine. Disability & Rehabilitation.

2002; 24 (17): 932-8.

Bent N, Tennant A, Swift T, Posnett J, Chamberlain MA. Team approach versus ad hoc health services for young people with physical disabilities: a retrospective cohort study Lancet 2002; 360 (9342): 1280-1286.

Tennant A. Principles and Practice of Measuring Outcome. In: Advances in Physical Medicine & Rehabilitation: Assessment in Physical Medicine and Rehabilitation, Eds. Barat M, Franchignoni F. Maugeri Foundation Books, Pavia. (ISBN 88-7963-180-2) 2004.

W.R.Frontera, J.K.Silver, T.D.Rizzo. Essentials of Physical Medicine & Rehabilitation: Musculoskeletal Disorders, Pain, and Rehabilitation. Second Edition. Saunders Elsevier (ISBN 978-1-4160-4007-1) 2008.

Randall L. Braddom. Handbook of Physical Medicine & Rehabilitation. Second edition.Saunders (ISBN 0721694489, 9780721694481) 2004.

COURSE OUTLINE MED_841

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_841	**SEMESTER OF STUDIES**	6th
COURSE TITLE	OTORHINOLARYNGOLOGY		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	25 HOURS/WEEK	5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).	TOTAL: 2 WEEKS	5

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Field of Science
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (in english)
COURSE WEBPAGE (URL)	http://www.med.upatras.gr

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The course is the main introductory lesson in Otorhinolaryngology. The aim of the course is the students to acquire the basic knowledge that they should have in the subject of Otorhinolaryngology. The subject includes the main body of the specialty as well as the individual sub-specialties such as Audiology & Neurology, Rhinology & Plastic Surgery, Head & Neck Oncology and Pediatric-Otorhinolaryngology. Clinical Practice includes the participation of the students in the ENT Clinic, the surgery, the outpatient clinics, the Audiology Laboratory.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary	*Project planning and management*
	Respect for difference and multiculturalism

technology	*espect for the natural environment*
Adapting to new situations	*Showing social, professional and ethical responsibility and sensitivity to*
Decision-making	*gender issues*
Working independently	*Criticism and self-criticism*
Team work	*Production of free, creative and inductive thinking*
Working in an international environment	
Working in an interdisciplinary environment	
Production of new research ideas	

1. Search, analyze and synthesize data and information, using the necessary technologies.
2. Adapting to new situations.
3. Decision making.
4. Promoting free and creative thinking.

3. COURSE CONTENT

Patient with hearing loss and tinnitus.
1. Case presentation.
2. Basic anatomy and physiology of the audiovestibular organ.
3. Symptomatology of otologic diseases.
4. Imagine evaluation of the petrous bone.
5. Subjective and objective methods of auditory clinical assessment.
6. Distinction of central and peripheral vertigo.
7. Nosological groups of otologic conditions.

Patient with otalgia and effusion.
1. Case presentation.
2. Otitis externa.
3. Infections of the upper respiratory tract and acute otitis media in children and in adults.
4. Chronic otitis media: initial symptoms, course and effects on hearing and balance of the patient.
5. Intratemporal and intracranial complications of chronic cholesteatomatous otitis media.
6. Definition and types of cholesteatoma.
7. Otogenic facial nerve paralysis.
8. Surgical procedures of the middle ear and the mastoid process. Surgical reconstructions of the tympano-ossicular system (myringoplasty, ossiculoplasty).
9. The entity of otospongiosis and the management of its consequences.

Patient with vertigo and hearing loss.
1. Case presentation.
2. Acoustic neuroma.
3. Paroxysmal positional vertigo and vestibular neuritis.
4. Demyelinating and vascular lesions of the Central Nervous System.
5. Study of vestibular symptoms in nosological entities of the organ of balance.
6. Conservative and surgical rehabilitation of functional disorders of the vestibular system.

Patient with nasal breathing difficulty.
1. Case presentation.
2. Basic anatomy and physiology of the nose and paranasal sinuses.
3. Symptomatology and examination methods of the nose.
4. Imagine investigation.
5. Nosological entities of the nose and paranasal sinuses.

Patient with epistaxis.
1. Case presentation.
2. Causes of epistaxis.
3. Nasopharyngeal structures and pathological entities.
4. Facial skeleton trauma.
5. Congenital anomalies of the palate and face.

6. Manifestations of systemic disorders from the nasal cavity.

Patient with painful dysphagia.
1. Case presentation.
2. Basic anatomy of the mouth, oropharynx and hypopharynx.
3. Symptomatology – Signs and symptoms of oral and pharyngeal diseases.
5. Bacterial flora, pathogens, antimicrobial agents.
6. Oncology of the mouth, oropharynx, hypopharynx.

Patient with neck swelling.
1. Case presentation.
2. Anatomy and physiology of the neck and salivary glands.
3. Symptomatology, Signs and symptoms and examination methods of the neck and salivary glands.
4. Benign neck diseases.
5. Causes of lymphadenopathy.
6. Salivary gland diseases.
7. Surgical management, radiotherapy.

Patient with voice hoarseness.
1. Case presentation.
2. Anatomy and physiology mission of the larynx.
3. Congenital disorders of the larynx.
4. Laryngitis in children and in adults, severity of the diseases and conservative management.
5. Benign neoplasms of the larynx.
6. Disorders of the voice, principles of phonosurgery.
7. Laryngeal cancer (epidemiology, symptoms, biological behaviour, metastases, staging).
8. Modern therapeutic management of laryngeal cancer and organ preservation protocols.
9. Voice restoration and social rehabilitation of the larygectomized patient.

Patient with stridor and dyspnea breathing.
1. Case presentation.
2. Extra- and intrathoracic obstruction.
3. Upper airway foreign bodies.
4. Laryngeal paralysis – modern therapeutic surgical restorations.
5. Croup syndromes.

Emergency care – Clinical skills - ORL manifestations of systemic diseases.
1. Parapharyngeal abscesses.
2. Laryngeal yedema.
3. Potential airway obstruction, tracheotomy.
4. Clinical skills for the General Practitioner.
5. ORL manifestations of systemic diseases.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Direct (face to face).
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Specialized software through E-CLASS Platform
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.*	

Activity	***Semester workload***
Lectures	40
Clinical Practice	35
Autonomous study	50

Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS	**Total (hours)**	**125**
STUDENT ASSESSEMNT *Description of the evaluation procedure:* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	Written final examination with multiple choice questions with ranking difficulty on the basis of the issues and subjects presented during theoretical courses.	

5. RECOMMENDED LITERATURE

COURSE OUTLINE MED_851

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_851	**SEMESTER OF STUDIES**	6th
COURSE TITLE	RADIOLOGY		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	25x2	5
Tutorials	25x1	
\Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Field of Science
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (in greek)
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/courses/MED1062/

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The aim of this training course is the knowledge of the basic imaging findings in common disease and understanding the implementation of modern radiology in the diagnostic and therapeutic approach of the inpatients as well as those in primary care.

By the end of the teaching course of radiology the students will gain knowledge and skills which will help them:

- To prioritize by organ and disease –which examination is best for imaging common diseases
- Gain Knowledge of main imaging findings in each disease.

- Correlate imaging findings and the pathogenesis of disease.
- To link imaging findings with the signs and symptoms of disease.
- To implement the main therapeutics of interventional radiology /neuroradiology
- To apply the main indications and methods in radiotherapy

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
espect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking

- Searching, analysis and synthesis of facts and information, as well as using the necessary technologies
- Adaptation to new situations
- Decision making
- Work in a interdisciplinary environment
- Demonstration of social, professional and ethical responsibility
- Promotion of free, creative and inductive thinking

3. COURSE CONTENT

The teaching units comprise:

- The main pathologic findings by system approach [CNS – respiratory system - GI system - cardiovascular – musculoskeletal - urogenital]
- Focus on the main imaging findings of the most common diseases
- Differential diagnosis of main diseases by system
- Interventional radiology/neuroradiology – indications and techniques of diagnostic and therapeutical interventional radiology with emphasis in their main and more common applications in clinical praxis.
- Emergency radiology (diagnostic and therapeutic problems)
- Modern imaging methods and their implementation in clinical praxis (CT angiography, MRI angiography, DWI, MR spectroscopy)
- Basic indications for radiotherapy
- Basic imaging methods used in oncology (diagnosis and therapeutic response)
- Basic principles of radiation protection and impact of ionizing radiation in humans

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Lectures
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Multimedia presentations in lectures Support of the Learning process by means of the e-class electronic platform

TEACHING ORGANIZATION
The manner and methods of teaching are described in detail.

Activity	*Semester workload*
Lectures	50
Tutorials	25
Private Study	10

Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS	Analysis of current bibliography / Hours for private study of the student	40
	Total (hours)	**125**
STUDENT ASSESSEMNT *Description of the evaluation procedure:* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	Written final multiple-choice examination (in greek)	

5. RECOMMENDED LITERATURE

FIRST RECOMMENDATION
Book Title: "Clinical Radiology"
Authors: A. Gouliamos, N. Kelekidis, A. Drevelengas, D. Siablis, K. Tsampoulas, M. Arfirovopoulou, A. Karantanas, I. Fezoulidis, P. Prassopoulos
Publisher: Ioannis Konstantaras
Year of Publication: 2012

SECOND RECOMMENDATION
Book Title: "Concise Handbook of Anatomical Sections of Axial and Magnetic Resonance Tomography"
Author: T.B. Moeller – E. Reif
Greek Editor: Th. Petsas

Publisher: Broken Hill Publishers LtdYear of publication: 2014

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_881	**SEMESTER OF STUDIES**	8th
COURSE TITLE	Geriatric Medicine and Gerontology		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Teaching courses	16	5
Clinical practice	8	
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Field of Science
PREREQUISITE COURSES:	Not required
TEACHING AND ASSESSMENT LANGUAGE:	Greek and English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBPAGE (URL)	-

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

Students should have a good knowledge of:

- Emergency care of older patients
- Management of Geriatric syndromes
- Management of polypharmacy and drug related issues in older age
- Elements of rehabilitation in elderly with functional impairment due to acute comorbidities
- Care of the frail in the community
- The clinician in the multidisciplinary team for the older people care

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology *Adapting to new situations* *Decision-making* *Working independently* *Team work* *Working in an international environment* *Working in an interdisciplinary environment* *Production of new research ideas*	*Project planning and management* *Respect for difference and multiculturalism* *Respect for the natural environment* *Showing social, professional and ethical responsibility and sensitivity to gender issues* *Criticism and self-criticism* *Production of free, creative and inductive thinking*

Following successful completion of this course, the student will be proficient to:

Basic elements of Geriatric Medicine and Gerontology, as well as having a good knowledge how to manage the needs of older people either in hospital or in the community

3. COURSE CONTENT

The undergraduate students of Geriatric Medicine should learn:

- The biochemical, molecular, cellular, psychosocial theories of ageing
- Anatomical and histological changes with ageing
- The etiopathogenesis of normal ageing, as well as the changes which lead to the disease in older age
- Atypical, non-specific, presentation of the disease in older age
- Evidence based medicine and guidelines related to the old and very old
- To describe the pathophysiology, diagnosis, work out and management of the common geriatric syndromes, such as
    - chronic pain
    - dementia
    - delirium
    - neglect and abuse in older age
    - falls and walking difficulties
    - hearing and visual impairment
    - malnutrition and sarcopenia
    - pressure sores
    - incontinence
    - frailty

- Pharmacodynamics and pharmacokinetics in older age
- Compliance to treatment in older people
- Comprehensive clinical assessment

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Group teaching
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Power point slides
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis*	

Activity	***Semester workload***
Lectures	16
Practice in the ward	8
Homework	40

of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS	Analysis of current bibliography / Hours for private study of the student	60
	Total (hours)	**125**
STUDENT ASSESSEMNT *Description of the evaluation procedure:* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	Students evaluation will be carried out during tuition and will be based upon interaction with the tutor and discussion of clinical cases. Abilities to carry out a geriatric clinical assessment will be evaluated. No final examination will be required	

5. RECOMMENDED LITERATURE

MERCK - Textbook of Geriatric, BERKOW ROBERT, BEER H. MARK

- Brocklehurst's Textbook of Geriatric Medicine and Gerontology, 8th Edition

COURSE OUTLINE MED_874

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_874	**SEMESTER OF STUDIES**	Eighth
COURSE TITLE	PUBLIC HEALTH NUTRITION		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	2	5

COURSE TYPE	Field of Science and Skills Development
PREREQUISITE COURSES:	Typically, there are not prerequisite course.
TEACHING AND ASSESSMENT LANGUAGE:	Greek. Teaching may be however performed in English in case foreign students attend the course.
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/courses/MED861/

2. LEARNING OUTCOMES

Leraning outcomes

Public Health nutrition is a specialized discipline in the field of nutrition. Public Health nutrition is targeting the population as a whole or specific subpopulations. The course is structured to begin with an overview taking students through a cycle of procedures, which should be the basis of any program of public health nutrition.
The second part, outline the major public health nutrition problem arising from overnutrition and undernutrition. The lessons deal also with issues of maternal and child health and some major diseases: (cancer diabetes, heart diseases and osteoporosis.
Upon successful completion of the course the student will be able to:

1. to identify nutrition-related public health problems relevant at the local, regional, national and international levels
2. to identify causes of these problems
3. to evaluate the impact of these strategies
4. to understand the process by which research-based evidence provides a basis for the development of public health policy
5. ultimately, to improve nutrition-related health by applying evidence to action to solve problems.

General Abilities

- Autonomous Work
- Teamwork

3. COURSE CONTENT

Assessment of Nutritional Status in Individuals

Assessment of Physical Activity

Public Health Nutrition Strategies for Intervention at

Dietary Guidelines

Food Choice

Iron deficiency Anemias

Fear of Fatness and Fad Slimming Diets

Nutrition and Child Development

Infant Feeding

The Role of Folate

Maternal Nutrition Fetal Programming and Adult

Cardiovascular Disease

Diabetes Mellitus

Public Health Aspects of Overnutrition

Public Health Aspects of Undernutrition

Vitamin A Deficiency

Iodine and Iodine deficiency Disorders

Cancer and Diet

Osteoporosis and Hip Fracture

4. TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<tr><td>TEACHING METHOD</td><td>Lectures and seminars</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td>Use of Information and Communication Technologies (ICTs) (e.g. powerpoint) in teaching. The lectures content of the course for each chapter are uploaded on the internet, in the form of a series of ppt files, where from the students can freely download them using a password which is provided to them at the beginning of the course.</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td>
<table>
<tr><th>Activity</th><th>Semester Workload</th></tr>
<tr><td>Lectures (2 conduct hours per week x 13 weeks)</td><td>26</td></tr>
<tr><td>Final examination (3 conduct hrs)</td><td>3</td></tr>
<tr><td>Hours for private study of the student and preparation of home-works (3 per semester),</td><td>96</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td>Total number of hours for the Course (25 hours of work-load per ECTS credit)</td><td>125 hours (total student work-load)</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSMENT</td><td>3. Written examination after the end of the semester - final grade, unless the student participated in the preparation of home-works during the semester. In that case, the 20% of the mean mark of the home-works is added to the final examination mark.
Minimum passing grade: 5.</td></tr>
</table>

5. RECOMMENDED LITERATURE

Public Health Nutrition: Michael J. Gibney, Barrie M. Margetts, John M. Kearney, Lenore Arab, 2013 John Wiley & Sons.

COURSE OUTLINE MED_875

1. GENERAL

SCHOOL	LIFE SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	**MED_875**	**SEMESTER OF STUDIES**	8th (OPTIONAL COURSE)
COURSE TITLE	INTRODUCTION TO NUCLEAR MEDICINE		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Clinical Training	25	5

COURSE TYPE	Scientific Area
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Learning outcomes

The aim of "Introduction to Nuclear Medicine" is to familiarize students with the entire spectrum Nuclear Medicine applications. At the end of the course the student should be able to discriminate the principles and techniques of Nuclear Medicine from those of other imaging modalities. Most importantly, the students should be properly informed about the main diagnostic and therapeutic applications of Nuclear Medicine.

General Abilities

- Study, analysis and synthesis of data, with the use of required technologic methods
- Decision making
- Autonomous task management
- Team working
- Generation of novel research ideas

3. COURSE CONTENT

Part A. Nuclear Physics, Radiopharmaceuticals, Imaging systems, types of Nuclear Medicine studies (planar, SPECT, PET, SPECT/CT, PET/CT, PET/MRI)

Part B. Main applications of Classical Nuclear Medicine

Part C. PET/CT and PET/MR. Clinical Applications

Part D. Therapeutic Applications of Nuclear Medicine - "Theranostics"

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Attendance at the Department of Nuclear Medicine, University General Hospital of Patras
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	- Lectures by the use of "PowerPoint" . - Demonstration of various devices and Imaging Systems of the Laboratory (SPECT/CT and PET/CT systems, dose calibrator, survey meter, Mo/Tc generator, etc).

<table>
<tr><td></td><td>- Use of the Web.</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td>
<table>
<tr><th>Activity</th><th>Semester Hours</th></tr>
<tr><td>Lectures</td><td>10</td></tr>
<tr><td>Explanation of the function of devices and Imaging Systems of the Laboratory</td><td>10</td></tr>
<tr><td>Presentation of illustrative cases from the daily routine. Making the diagnosis and differential diagnosis.</td><td>80</td></tr>
<tr><td>Analysis of current bibliography / Hours for private study of the student</td><td>25</td></tr>
<tr><td>Total Hours</td><td>125</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSMENT</td><td>Assessment is undertaken by oral exams in the Greek language.</td></tr>
</table>

5. RECOMMENDED LITERATURE

Recommended books:

- Notes (in the form of a book): Introduction to Nuclear Medicine. P. Vassilakos, D. Apostolopoulos. University of Patras Press.

- Clinical Nuclear Medicine in 20 Specialties. Ph. Grammatikos and col. Kyriakides A.E. Editions. ISBN 978-960-467-481-7. Athens 2014.

- Clinical and Translational Imaging. Reviews in Nuclear Medicine and Molecular Imaging. Editor-in-Chief: Giovanni Lucignani. ISSN: 2281-5872 (print version), ISSN: 2281-7565 (electronic version). Journal no. 40336.

Recommended Journals:

- Hellenic Journal of Nuclear Medicine

- European Journal of Nuclear Medicine and Molecular Imaging

- Journal of Nuclear Medicine

9th and 10th Semester

COURSE OUTLINE MED_941

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_941	**SEMESTER OF STUDIES**	9th & 10th
COURSE TITLE	OBSTETRICS AND GYNAECOLOGY		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	35	8
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Field of Science
PREREQUISITE COURSES:	Not required
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBPAGE (URL)	-

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

During their clinical attachment in the Obstetrics and Gynaecology Department, medical students rotate in Postnatal and Antenatal wards, Gynaecology ward, labour ward, Gynaecology outpatient unit and Gynaecology emergency unit. They follow fully the clinical practice and theatre list for each one of these departments. They will familiarize with the progress of natural delivery, CTG interpretation and vaginal examination. Students will have the opportunity to observe natural and operative vaginal deliveries, planned and emergency caesarean sections in labour ward. Sixth year medical students are encouraged to perform under supervision at least one uncomplicated natural delivery before the end of their rotation in labour ward. During their rotation in Gynaecology ward, medical students are expected to be responsible for their patients; to take their medical history, observe their procedure and follow them up from admission to discharge. They will

also have the chance to observe day surgeries such as hysteroscopies as well as colposcopies, loop excisions and biopsies. In the outpatient unit, they can take vaginal swabs and smear tests and also perform basic ultrasound examinations under supervision. At the same time they will be exposed to routine and emergency obstetric care and will be able to discriminate between low risk and high risk pregnancies and their management. In the clinical attachment, formal lectures are scheduled twice a week and students are also involved in case based discussions and every day medical rounds. Overall, this clinical attachment will give students the opportunity to familiarize with all aspects of the O&G every day clinical practice, to acquire basic skills and will combine theory with bed side teaching.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking

Search for, analysis and synthesis of data and information with the use of the necessary technology
Team work
Working independently
Promote free, creative and inductive thinking

3. COURSE CONTENT

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Face to face lectures
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Specialized online platform, e-class
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-*	

Activity	***Semester workload***
Lectures	140
Medical rounds	
Participation in every day clinical practice	
Case presentations	
Case based discussions	
Observing/assisting surgical procedures	
Analysis of current bibliography / Hours for private study of the student	60
Total (hours)	**200**

directed study according to the principles of the ECTS	
STUDENT ASSESSEMNT *Description of the evaluation procedure:* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	Multiple choice questions – written exams. Oral – case based discussion. Participation in the every day clinical practice of the department.

5. RECOMMENDED LITERATURE

Obstetrics and Gynaecology, Antsaklis, Parisianos Editions, 2010 edition

Principles of Obstetrics and Gynaecology, Messinis, Parisianos Ediitions, ,2010 edition

COURSE OUTLINE MED_931

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	FACULTY OF MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_931	**SEMESTER OF STUDIES**	9th and 10th
COURSE TITLE	Surgery		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
LECTURES - ON BED TRAINING - OR PARTICIPATION	35/week, 6 weeks	10

COURSE TYPE	Field of Science
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek. Teaching may be performed in English, in case foreign students attend the course.
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (in English)
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Learning outcomes
The main goal during the clinical practice of a fifth year medical student, is to gain the confidence to take on and handle the procedure of identification and cross examination of a surgical problem. The practical application of the achievement of this goal, which will signify the peak of a student's undergraduate surgical training, will be the responsibility one gains to perform as an auxiliary during his sixth year clinical practice. The achievement of this goal is a two-way process and it is based both on the effort of the trainer as of the trainee. The trainer is academically obliged to help the student to become competent in managing scientifically and responsibly a patient's issue. This procedure constitutes of interactive lectures taking place in small groups, that refer to the most common surgical issues (diagnostic approach, differential diagnosis and therapeutic approach is taught), as well as in the application of all mentioned above, in clinical practice, on patients hospitalised in the surgical ward. The procedure of this two-way effort in training for the achievement of the mentioned goal is based on a specific educational program which will comprise of theory and practice.
General Abilities
Search, analysis and synthesis of data with the use of appropriate technologies *Decision making* *Working alone and as part of a team* *Participation in Surgery*

3. COURSE CONTENT

Upper and Lower GI bleeding
Fluid – Electrolyte balance
Intestinal obstruction
Colon cancer
HPB cancer
Goiter investigation
Surgical treatment of morbid obesity, of diabetes type 2, and Metabolic syndrome
Jaundice
Acute abdomen
Breast lump investigation
Hypovolemic shock
Embolism – Thrombosis
Acute pancreatitis
Transplants

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD.	Face to face, e-class.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Use of I.C.T (eg Powerpoint) in teaching. The lectures are uploaded on the Internet (e-class).
TEACHING ORGANIZATION	
STUDENT ASSESSMENT	Written assessment Minimum passing grade: 5

Teaching Method	***Semester Workload***
Ward rounds	65
Lectures	65
Surgical cases presentation	25
Participation on call duties	45
Personal study	10
Total number of hours for the Course	***210***

5. RECOMMENDED LITERATURE

D. Voros, Surgery, 2nd edition, Parisianou A.E. 2014

I. Kanelos, General Surgery 3rd edition ROTONTA 2021

E-class notes

COURSE OUTLINE MED_921

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	921	**SEMESTER OF STUDIES**	9th & 10th
COURSE TITLE	PAEDIATRICS (5th YEAR)		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	5	
Seminars	5	
Clinical Practice	20	
TOTAL	**30**	**8**

COURSE TYPE	Field of Science and Skills Development
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek. Teaching may be however performed in English in case foreign students attend the course.
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (in English)
COURSE WEBPAGE (URL)	http://www.med.upatras.gr/gr/Pages/undergrad/courses.aspx?lID=59

2. LEARNING OUTCOMES

Leraning outcomes

The **aim** of the course is the **theoretical and practical training of medicine students in Paediatrics**.

In their fifth year of studies, medical students attend clinical Paediatrics for **four (4) weeks per year** at the Paediatric Department of the University Hospital of Patras.

Aims of the course:

- Acquiring theoretical and practical knowledge in General Paediatrics
- Collecting, organizing, and recording critical information on various disorders, as well as on the psychosomatic development of children of all age groups (neonates, infants, children and adolescents)

By the end of this course the student is expected to develop the following skills:

- Ability to obtain a detailed history
- Ability to carry out a thorough physical examination and assess the developmental stage of the child
- Ability to organize and record the above information as conventional or problem-oriented history
- Ability to compile and analyze information to obtain a differential diagnosis
- Ability to determine a management plan for the patient
- Ability to present the above medical information in a comprehensive manner
- General knowledge regarding the treatment options for the most common paediatric disorders
- Ability to understand the pathophysiology of various diseases and their effects on the development of the patient

General Abilities

By the end of this course the student will, furthermore, have develop the following general abilities:

- Searching, analysis and synthesis of facts and information
- Decision making
- Autonomous (Independent) work
- Group work
- Development of novel research ideas
- Promotion of free, creative and inductive thinking

3. COURSE CONTENT

i. Developmental Paediatrics
ii. Nutrition
iii. The acutely ill child
iv. Neonatology
v. Paediatric Haematology and Oncology
vi. Paediatric Allergic diseases and Immunology
vii. Paediatric Gastroenterology
viii. Paediatric Endocrinology
ix. Paediatric Cardiology
x. Paediatric Infectious diseases
xi. Paediatric Neurology
xii. Paediatric Nephrology and Urology
xiii. Paediatric Pulmonology
xiv. Paediatric Rheumatic disorders
xv. Paediatric Surgery
xvi. Adolescence medicine

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Face to face (lectures, seminars, grand rounds)
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Communication Technologies in teaching (PowerPoint) and for bibliographic search (PubMed, Scopus)
TEACHING ORGANIZATION	

Activity	***Semester work-load***
Lectures (5 hours per week x 4 weeks)	20
Seminars (5 hours per week x 4 weeks)	20
Clinical Practice (20 hours per week x 4 weeks)	80
Total number of work-load hours	**120 hours = 8 ECTS credits** (15 hours of work-load per ECTS credit)

STUDENT ASSESSEMNT	Written final examination (in Greek language) which includes: • Multiple choice questions • Short discourse questions • Differential-diagnosis questions (clinical cases)

5. RECOMMENDED LITERATURE

Nelson Textbook of Pediatrics, 20th ed. Elsevier, 2016

COURSE OUTLINE MED_931 (Additional)

1. GENERAL

SCHOOL	Health Sciences		
DEPARTMENT	Medicine		
LEVEL OF COURSE	Undergraduate (Basic)		
COURSE CODE	Additional to MED_931	**SEMESTER OF STUDIES**	5th Year (9th-10th semester)
COURSE TITLE	**Intensive Care Medicine**		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	35	
Participation in educational clinical visits		
Clinical Exercise (ICU and Anesthesiology)		
		4

COURSE TYPE	Scientific Area
PREREQUISITE COURSES:	No
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBPAGE (URL)	https://www.dropbox.com/sh/v8uugt2bd9mkh8e/AABLuEQrrFqZnP2POSJE7XgRa?dl=0

2. LEARNING OUTCOMES

Leraning outcomes

Course Objectives:

Knowledge, understanding, implementation, synthesis and evaluation of intensive care and emergency medicine issues.

In the intensive care course, the above goals are summarized in 3 categories

1. - **Knowledge** of intensive care and emergency medicine

2. - A combination of understanding and clinical / practical application of intensive care and emergency medicine (**skill)**

3. - The ability to solve problems, transferring existing knowledge and acquired skills to new situations (**ability**)

General Abilities

• Search, analyze, and synthesize data and information

• Adapt to new situations

•Decision making

• Autonomous work

•Teamwork

• Work in an international and interdisciplinary environment

• Production of new research ideas

3. COURSE CONTENT

•Cardiopulmonary Resuscitation
• Airway estimation and securing
• Introduction to non-invasive mechanical ventilation
• Introduction to invasive mechanical ventilation
• Sepsis - Septic Shock – Multiple Organ Dysfunction Syndrome (MODs) in the ICU
• Acute Respiratory Distress Syndrome (ARDS)
• Infections in the ICU
• Enteral and Parenteral Feeding in the ICU
• Monitoring of the cardiovascular system in the ICU - Hemodynamic Monitoring
• Estimation, treatment and monitoring of patients with craniocerebral injuries in the ICU
• Introduction to Brain Death
• Acid base balance - Liquids - Electrolytes
• Ethical issues in the ICU
• Discussion of critical care patient cases

4. TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<tr><td>TEACHING METHOD.</td><td>Face to face</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td>Use of information and communication teaching technologies</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td>
<table>
<tr><th>Teaching Method</th><th>Semester Workload</th></tr>
<tr><td>Lectures</td><td rowspan="3">70</td></tr>
<tr><td>Participation in educational clinical visits</td></tr>
<tr><td>Clinical Exercise (ICU and Anesthesiology)</td></tr>
<tr><td>Study and analysis of bibliography, writing of scientific papers</td><td>30</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Total number of hours for the Course</td><td>100 hours</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSMENT</td><td>Assessment Language: Greek

Assessment methods:

• Multiple Choice Test
• Short answer questions
• Oral case discussions</td></tr>
</table>

	The evaluation criteria are explicitly specified for the students. Both the multiple-choice test and the short answer questions are based on the content of the lessons (lectures) to the students. Courses are accessible to students. Oral case discussions and clinical exercises are complementary / auxiliary.

5. RECOMMENDED LITERATURE

Principles of Critical Care (Hall et al.),

PACT (ESICM),

Intensive Care Medicine, Critical Care Medicine, JAMA, N.Eng.Journal of Medicine

COURSE OUTLINE MED_911 (additional)

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	Additional to MED_911	**SEMESTER OF STUDIES**	9th and 10th
COURSE TITLE	CARDIOLOGY CLINICAL TRAINING		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
LECTURES AND CLINICAL PRACTICE	30	14

COURSE TYPE	SCIENTIFIC FIELD
PREREQUISITE COURSES:	NO
TEACHING AND ASSESSMENT LANGUAGE:	GREEK
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES (IN ENGLISH)
COURSE WEBPAGE (URL)	-

2. LEARNING OUTCOMES

Learning outcomes

1. BE ABLE TO INTERVIEW CARDIOLOGY PATIENTS
2. BE ABLE TO INTERPRET ECG
3. BE ABLE TO INTERPRET CHEST X-RAY WITH EMPHASIS TO CARDIOLOGY SIGNS
4. BE ABLE TO VENIPUNCTURE AND INSERT ARTERIAL CATHETER
5. BE ABLE TO ANALYSE CHRONIC AND ACUTE CARDIOLOGY PROBLEMS
6. BE ABLE TO USE AUTOMATIC DEFIRRILLATORS
7. BE ABLE TO INTERPRET BASIC CARDIAC ULTRASOUND AND ANGIOGRAPHY IMAGES

General Abilities

1. SOLITARY WORK (DIAGNOSING BASIC CARDIAC CONDITIONS)
2.TEAM WORK (COOPERATING IN MANAGEMENT OF ACUTE CARDIAC PROBLEMS)

3. COURSE CONTENT

1. TEACHING 4 THEMATIC UNITS (DYSPNOIEA, CHEST PAIN, PALPITATIONS, SYNCOPE)
2. TEACHING CARDIAC PHYSICAL EXAMINATION
3.TEACHING ECG INTERPRETATION
4. TEACHING BASIC INTERVENTIONAL SKILLS
5. TEACHING DIFFERENTIAL DIAGNOSIS OF CARDIAC CONDITIONS
6.TEACHING BASIC CARDIAC IMAGING SKILLS AND INTERPRETATIONS

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	IN CLINIC
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	NO
TEACHING ORGANIZATION	

Teaching Method	***Semester Workload***
LECTURES	280
PRACTICAL SKILLS	
TEAMWORK	
PERSONAL WORK	70
Total number of hours for the Courses 0f Med_911	***350***

STUDENT ASSESSMENT	ORAL EXAMS

5. RECOMMENDED LITERATURE

SCIENTIFIC DOCUMENTS PRODUCED BY THE CARDIOLOGY DEPARTMENT

COURSE OUTLINE MED_911

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_911	**SEMESTER OF STUDIES**	9th and 10th
COURSE TITLE	INTERNAL MEDICINE-CLINICAL TRAINING		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
LECTURES AND CLINICAL PRACTICE	30	14

COURSE TYPE	Teaching, Tutorials, Clinical training
PREREQUISITE COURSES:	NO
TEACHING AND ASSESSMENT LANGUAGE:	GREEK (IF THERE ARE ERASMUS STUDENTS, ENGLISH LANGUAGE IS ALSO USED AT THE CLINICAL ROUNDS)
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBPAGE (URL)	-

2. LEARNING OUTCOMES

Learning outcomes

The aim of the course is to educate the students of the 5th year in the conduct of clinical practice and acquire the necessary knowledge, skills and attitudes needed in postgraduate medical practice.

General Abilities

Under the guidance of the medical personnel, students learn how to make some therapeutic and diagnostic operations such as blood tests, electrocardiogram and blood sugar measurement. Clean medical coat and decorous behavior is necessary at the Hospital. Students should avoid informing patients, that they attend, on the progress of the clinical, laboratory examinations and to refer them to the relevant doctors. Clinical notes contain confidential information and it is important to protect the confidentiality of the patient.

The students also participate in tutorials-courses and they know the topics of the course in advance. The topics are presented by faculty members and students are adequately prepared to participate actively in the discussion. The presence of all the students is compulsory. Students should also attend all the training events in the clinic obligingly (grand rounds, conferences).

3. COURSE CONTENT

Students are distributed to the pathological sections according to the program of the Secretariat of the Internal Medicine Department under the responsibility of faculty members who have been determined. The main objective is to train the student of the 5th year to take a medical history and be able to make proper physical examination. The student must be familiar with the concept of hospitalization cause, of the disease and medical history and of the conduct of a detailed clinical examination. As has become clear from the previous years, a lot of practice is needed in the approach of the patients and their problems but also in the physical examination. The techniques and skills needed for a proper clinical examination can only be obtained with clinical practice. Therefore, the students are given the opportunity for the above, as they may be repeated even in the same patient on a daily basis. Most health problems can be solved by careful medical history taking and physical examination. If there is any problem, the student can request the help of the doctors of the clinic. Students are, also exposed to the way to approach diseases (and differential treatment). The simultaneous study of books on physical examination and Internal Medicine given, will lead to better understanding of the pathophysiology of diseases.

The student is trained to present clearly, briefly and comprehensively the patient to the group. Efforts should be made to expose the student to as many patients and diseases as possible. At the same time the student is given the opportunity to develop the ability to work with all the members of the medical team.

During the visit the students gain theoretical training on cases hospitalized in the clinic. The trainers make references to the condition of the patient examined and questions that link theory with clinical practice in order to cause concern and better assimilation of knowledge.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	In small groups face to face, and tutorials in small groups
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	NO
TEACHING ORGANIZATION	
STUDENT ASSESSMENT	Written exam (multiple choice questions) at the end of the 4-week clinical rounds Everyday assessment by the faculty members

Teaching Method	***Semester Workload***
LECTURES	280
PRACTICAL SKILLS	
TEAMWORK	
PERSONAL WORK	70
Total number of hours for the Courses 0f Med_911	***350***

5. RECOMMENDED LITERATURE

COURSE OUTLINE MED_911 (additional)

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	Additional to MED_911	**SEMESTER OF STUDIES**	9th and 10th
COURSE TITLE	**NEPHROLOGY - CLINICAL TRAINING (INTERNAL MEDICINE CLINICAL TRAINING)**		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
LECTURES AND CLINICAL PRACTICE	35	14

COURSE TYPE	Skills development, Scientific area
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek and English (optional)
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (in English)
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Learning outcomes

Students during their stay attend clinical training classes in the Renal Centre.

- Learning objectives:
  Active participation of students in the daily program of the Nephrology Department and enhancement of their ability in history taking and clinical examination on patients with nephrological problems during daily visit with physicians in Clinic.
- On patient practice.
  Practice and acquaintance with renal replacement methods (dialysis or peritoneal dialysis).
- Discussion of interesting cases.
- Clinical scenarios with nephrological interest. Differential diagnosis and treatment of patients with nephrological problems.
- Attendance of postgraduate courses.

General Abilities

Search, analyze and synthesize data and information, using the necessary technologies
Decision making
Autonomous work
Teamwork

3. COURSE CONTENT

Active participation of students in the daily schedule of the Nephrology Clinic (medical history taking, physical examination, daily visits with physicians in clinics).

Training next to the hospitalized patients. In the clinic are hospitalized patients suffering from:

- Water and electrolytes disorders
- Acid-base balance disorders.
- Arterial hypertension.
- Acute renal failure.
- Diseases of the glomerulus (glomerulonephritis).
- Diabetes mellitus and kidney damage.
- Systemic diseases with renal involvement.
- Kidney transplantation.
- Vascular problems in Haemodialysis.
- Problems in peritoneal dialysis.

Students are also trained in the basic principles of methods of renal function replacement (haemodialysis and peritoneal dialysis)

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Face to face, Clinical training
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	NO
TEACHING ORGANIZATION	

Teaching Method	***Semester Workload***
Practical and Clinical Exercise Focusing on the Application of Methodologies in the Diagnosis and Treatment of Patients with Nephrology Problems in Small Groups of Students	35
Study and analysis of literature	20
Writing assignment	10
Self study	20
Total number of hours for the Courses 0f Med_911	***350***

STUDENT ASSESSMENT	Students deliver a writing assignment on a specific issue (eg: acute kidney injury, nephrotic syndrome).

5. RECOMMENDED LITERATURE

Harrison's Nephrology and Acid-Base Disorders, 1st Edition, J. Larry Jameson, Joseph Loscalzo.

COURSE OUTLINE MED_951

1. GENERAL

SCHOOL	OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED 951	**SEMESTER**	9th or 10th
COURSE TITLE	Psychiatry		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	5	
Clinical practice	30	
		8

COURSE TYPE	Field of science
PREREQUISITE COURSES:	No
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes in Greek
COURSE WEBPAGE (URL)	-

2. LEARNING OUTCOMES

Learning outcomes

The primary aim of undergraduate students' training in Psychiatric Clinic is the clinical application of psychiatric and psychotherapy knowledge for diagnosis and confrontation of psychiatric disorders. Students within the frame of clinical training are trained in psychiatric examination and assessment of the findings. Moreover, students get familiar with the most common psychiatric disorders and have to follow, at least once the regular outpatient psychiatric clinics of adults and child/adolescents, clinical examination during interdisciplinary psychiatry/counseling and group psychotherapy sessions. Furthermore, they should participate for 6 hours in at least 3 "open" on-call duty taking part in the examination of urgent psychiatric incidents. Four times per week professors, consultant and specialist clinicians give 45-minute lectures related to the most common psychiatric disorders (schizophrenia, bipolar disorders, depression, anxiety disorders, urgent psychiatry, child/adolescent psychiatry, clinician-patient relationship, health psychology, introduction to cognitive psychotherapy, psycho-education).

General Abilities

By the end of this course the student will be able to:

- Handle acute or chronic cases of psychiatric disorders
- Record a full medical history
- Perform a complete psychiatric examination
- Participate in discussion of differential diagnosis of the most common psychiatric disorders
- Evaluate laboratory results in the context of a particular clinical phenotype
- Recognize the clinical symptoms, signs, the natural course, and treatment of conditions such as neurocognitive disorders, disorders associated with the use of psychoactive substances, schizophrenia and related disorders, emotional disorders, anxiety and related disorders, psychosomatic disorders, personality disorders
- Develop a professional attitude toward the patients and their caregivers and explain to them in an understandable way their condition and the potential outcomes

3. COURSE CONTENT

1. Repetition of psychiatric and psychotherapeutical terminology
2. Obtain a medical history
3. Clinical psychiatric examination
4. Clinical manifestations of neurocognitive disorders, disorders associated with the use of psychoactive substances, schizophrenia and related disorders, emotional disorders, anxiety and related disorders, psychosomatic disorders, personality disorders, and their complications
5. Psychiatric patients in the ER
6. Liaison psychiatry
7. Group therapies (e.g. occupational therapy, psychotherapy)
8. Psychosocial rehabilitation interventions
9. Out-patient clinic – write a prescription

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Small group teaching, performing clinical examination of patients under supervision
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Short lectures with the use of PowerPoint Search for new information in dedicated scientific sites on the Internet
TEACHING ORGANIZATION	

Activity	***Hours during the semester***
Participation in activities of the psychiatric department	105
Clinical practice	30
Lectures	15
Private study	50
Total hours for the course	**200**

STUDENT ASSESSEMENT	At the end of the training, students have to pass an oral examination on the clinical skills/knowledge and patients' management. Their overall involvement in the clinical activities is co-assessed in the final grade. If a student is not able to have the test on the defined day, the exam may be postponed by 4 weeks so that they can be examined together with the students of the next group. If a student failed twice the final exam, they have to repeat all or part of the 3-week training.

5. RECOMMENDED LITERATURE

-recommended scientific books:

1. TITLE: "Psychiatry at glance", AUTHORS: C. Katona, C. Cooper & M. Robertson ISBN : 978-960-583-075-5, EDITION : 2015 CODE EVDOXOS: 41965262 PUBLISHER: Parisianou & Co.
2. TITLE: "Handbook of Clinical Psychiatry", AUTHORS: Sadock Benjamin J., Sadock Virginia A. Editorial : Kaplan & Sadock's ISBN : 978-960-372-115-4 EDITION: 2007 CODE EYDOXOS: 25204 PUBLISHER: K. & N. LITSAS & Co

-recommended scientific journals:

General hospital psychiatry

Schizophrenia bulletin

American journal of psychiatry

Affective disorders Alzheimer's and dementia Psychosomatic medicine

COURSE OUTLINE MED_961

1. GENERAL

SCHOOL	OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED 961	**SEMESTER OF STUDIES**	9th or 10th
COURSE TITLE	Neurology-Neurosurgery		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	5	
Clinical practice	35	
		8

COURSE TYPE	Field of science
PREREQUISITE COURSES:	No
TEACHING AND ASSESSMENT LANGUAGE:	Greek (or English)
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBPAGE (URL)	-

2. LEARNING OUTCOMES

Leraning outcomes
The main goal of student training, including 3-week training in the neurological department and 1-week training in the Department of Neurosurgery, is the implementation of theoretical knowledge in diagnosis and treatment of diseases of the central and peripheral nervous system and the muscles. From the first day, an effort is made for the students to attend and participate in all clinical activities together with the medical staff. There is a morning briefing where the new admissions from the out-patient clinic and ER are discussed. Next, there is a visit of in-patients, during which a detailed history for each patient is presented and the clinical sings, laboratory investigations, the potential diagnosis and the therapeutic possibilities (if any) are discussed. From the 2nd week students are encouraged to take the history and perform clinical examination under supervision in a new patient and then to present it to the doctors' meeting prior to the ward round. Students are divided in small subgroups of 3-4, in order to attend the out-patient clinics (general neurology or specific such as neuromuscular diseases & Neurosurgery), which are performed 3 times a week, as well as the examination in the electromyography and electroencephalography laboratories. Students should also attend, at least once, a shift in the ER (duration 5-6 hours). Short lectures (45 minutes) on topics of clinical interest are given 4 times a week by university faculty and national health system members and residents in neurology. For example the examination of motor system, of cranial nerves, of mental function, of extrapyramidal syndromes, is analyzed. Particular attention is paid to the correct use of test organs (neurological hammer, vibration tune) and the details of clinical tests (such as Barre, Romberg) and sings (babinski).

Demonstration of special procedures such as lumbar puncture (CSF test) is performed. Finally, students are welcome to attend lectures for trainees in neurology such as the weekly neuro-radiological meetings.

General Abilities

By the end of this course the student will be able to:

- Handle acute or chronic cases of neurological diseases
- Record a full medical history
- Perform a complete neurological examination
- Participate in discussion of differential diagnosis of the most common neurological diseases/ syndromes
- Evaluate laboratory results in the context of a particular clinical phenotype
- Recognize the clinical symptoms, signs, the natural course and treatment of conditions such as stroke, epilepsy, polyneuropathy, Parkinson's disease, myasthenia, brain tumors, spine diseases, subarachnoid hemorrhage, head injury.
- Acquire experience as an observer in neurosurgical & neuroendovascular interventions
- Develop a professional attitude toward the patients and explain to them in an understandable way their condition and the potential outcomes

3. COURSE CONTENT

1. Neurological terminology
2. Obtain a medical history
3. Neurological detailed examination. In particular, examination of comatose patients, patients with cranial nerve lesions, impairment of gait and stance, mental function impairment, episodes of loss of consciousness.
4. Clinical manifestations of epilepsy, Parkinson and other extrapyramidal diseases, stroke, multiple sclerosis, neuromuscular diseases (including myasthenia) and of any rare diseases (if such cases exist in the clinic at the time)
5. Demonstration of procedure at the bedside
6. Patients in the ER (stroke/thrombolysis, syndrome Guillain Barre, acute severe headache, acute paraparesis)
7. Out-patient clinic – write a prescription
8. Basic principles of electroencephalography – electromyography
9. Clinical manifestations of brain tumors, spine diseases, subarachnoid hemorrhage & head injury.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD.	Small group teaching, performing clinical examination of patients under supervision
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Short lectures with the use of PowerPoint Search for new information in dedicated scientific sites on the Internet
TEACHING ORGANIZATION	

Activity	***Semester workload***
Participation in activities of the neurological department	105
Clinical practice	35x4
Lectures	15
Private study	50
Total hours for the course	***310***

STUDENT ASSESSEMNT	At the end of the training, the students have to pass an oral examination on the clinical skills/knowledge and patients' management. Their overall involvement in

	the clinical activities is co-assessed in the final grade. If a student is not able to have the test at the defined day, the exam may be postponed by 4 weeks so that they can be examined together with the students of the next group. If a student failed twice the final exam, they have to repeat all or part of the 3-week training.

5. RECOMMENDED LITERATURE

1. NEXT SUMMARY OF NEUROLOGY
AUTHORS: MISULIS-HEAD
Scientific Editing: Panag. Papathanassopoulos
PUBLICATION: 2011
ISBN: 978-960-94-2717-3
CODE. EYDOXOS: 13255867
Publisher: Gotsis Konstantinos & Co.

2. NEUROLOGY
AUTHOR: Neumann Masuhr
Editor: Nikos Vlaikidis
ISBN: 978-960-6894-06-0
CODE. EYDOXOS: 3593
Pages: 600
Publisher: Rotonda

3. HANDBOOK OF NEUROSURGERY
Mark S. Greenberg
ISBN: 978-1-60406-326-4
Thieme

4. e-class lessons

COURSE OUTLINE MED_861 additional

1. GENERAL

SCHOOL	MEDICINE		
DEPARTMENT	ORTHOPAEDICS		
LEVEL OF COURSE	PRE-GRADUATE		
COURSE CODE	MED_861	**SEMESTER OF STUDIES**	8TH , (9TH or 10th)
COURSE TITLE	ORTHOPAEDICS & TRAUMATOLOGY		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
LECTURES	25 (2 weeks in 8th semester)	2.5
CLINICAL PRACTICE	25 (2 weeks in 9th or 10th semester)	2.5
	Total of 50 h of lectures and 50 h of clinical practice	5

COURSE TYPE	Scientific area, expertise
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek, English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	yes
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/main/portfolio.php

2. LEARNING OUTCOMES

Leraning outcomes

This course is an introduction to General Orthopaedics & Traumatology

Basic knowledge of Orthopaedics is offered to Medical students that can be applied in their future practice as general doctors in:

1. Health centers
2. Small provincial offices
3. Regional hospitals as on call doctors of the surgical department
4. Private offices

General Educational Goals

Upon completition of studentship the students would be able to:

1. Identify and manage life-threatening injuries (i.e. pelvic fractures, multi-trauma patients)
2. Identify and manage various orthopaedic emergencies (i.e. Cauda equina syndrome, amputations, open fractures, compartment syndromes).
3. Identify and manage various acute (non-urgent) orthopaedic injuries (fractures, dislocations, infections) and provide initial stabilization (plaster cast, bracing).
4. Identify and apply primary care in chronic orthopaedic diseases, (sciatica, back pain, arthritis, tendinitis) and proceed to initial radiological and biochemical investigation before referral to appropriate doctors.
5. Identify possible complications for his/her practice and manage them accordingly.
6. To communicate with his/her colleagues describing the problem.

General Abilities

- Searching, interpretation and synthesis of data and information.
- Adaptation in new environment
- Decision making
- Individual work-up
- Team work

3. COURSE CONTENT

Lectures

- Bone metabolism: micro-anatomy and physiology
- Osteoporosis – metabolic diseases
- Fractures of pelvis & acetabulum
- Bone & Joint infections
-Inflammatory & degenerate arthritis
- injuries & diseases of the Shoulder
- injuries & diseases of the Elbow
- Injuries & diseases of wrist and hand
- Injuries & diseases of the hip
- Injuries & diseases of the knee
- Injuries & diseases of the foot and ankle
- Injuries & diseases of the spine
- Soft tissue tumors
- Bone tumors
- Paediatric Orthopaedics (injuries and diseases in children)

Clinical Practice

Introduction – Learning outcomes and goals
Immobilization of fractures (casts, braces)
Clinical examination: shoulder and elbow
Clinical examination: hip and pelvis
Clinical examination: knee
Clinical examination: wrist and hand - carpal tunnel syndrome
Adult reconstruction (hip and knee arthroplasty)
Management of the polytrauma patient – Damage Control Orthopaedics
Compartment syndrome – pulmonary and fat embolism
Introduction to physiatry and rehabilitation
Rehabilitation of the orthopaedic patient
Management of spinal cord injuries
Management of cerebral injuries and stroke
Management of decubitus
Research opportunities in musculoskeletal diseases
Workshop in patients with spinal cord injury
Workshop in patients with head injury and stroke
Fragility fractures
Techniques of suturing in skin lacerations

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD.	Class, ward rounds, operation theater, A & E department, Rehabilitation center

USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	e-class platform
TEACHING ORGANIZATION	

Teaching Method	***Semester Workload***
Lectures	30
Clinical practice - lessons	40
Interactive teaching	10
Ward rounds	5
Operation theater	5
Practice in A & E and rehabilitation center	5
Self-contained study	30
Total hours for the course	***125***

STUDENT ASSESSMENT	I. Written examination (50%) [multiple choice or full text] II. Oral examination (50%) in small groups after completition of clinical practice

5. RECOMMENDED LITERATURE

Miller's Review of Orthopaedics, Book by Assistant Professor of Psychiatry Mark D Miller, MD

Apley's System of Orthopaedics and Fractures. Textbook by Alan Graham Apley and Louis Solomon

Essential Orthopaedics and Trauma Textbook by David J Dandy

Clinical orthopaedic examination Textbook by Ronald McRae

McRae's Orthopaedic Trauma and Emergency Fracture Management Book by Alasdair J Gray, Samuel P. Mackenzie, and Timothy O. White

11th and 12th Semester

COURSE OUTLINE MED_1175

6. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	1175	**SEMESTER OF STUDIES**	11th & 12th
COURSE TITLE	NEONATOLOGY		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures and clinical practice in the Neonatal Intensive Care Unit	**35**	**4**

COURSE TYPE	Field of Science and Skills Development
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek. Teaching may be however performed in English in case foreign students attend the course.
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (in English)
COURSE WEBPAGE (URL)	

7. LEARNING OUTCOMES

Leraning outcomes

The **aim** of the course is the **theoretical and practical training in Neonatology**.

In their sixth year of studies, medical students attend lectures and are trained in Neonatology in the Neonatal Intensive Care Unit, the Delivery Room, and the well-baby Nursery of the University Hospital of Patras, for a period of **two (2) weeks**.

Aim: Acquiring theoretical knowledge and basic practical skills in Neonatology.

General Abilities

By the end of this course the students will have develop the following general abilities:

- Searching, analysis and synthesis of facts and information
- Decision making
- Promotion of free, creative and inductive thinking

8. COURSE CONTENT

- History and physical examination of the neonate
- Delivery room care. Birth injuries. Neonatal transfer.
- Transition from intrauterine to extrauterine life
- Standard medical care of the normal newborn
- The high-risk pregnancy

- Nutrition and growth of the neonate
- Respiratory problems of preterm and term neonates. Basic principles of mechanical ventilation.
- Neonatal jaundice
- Infections (congenital and neonatal)
- Cardiological problems of the neonate
- Problems from the gastrointestinal tract
- Neurological problems (cerebral hemorrhage, neonatal seizures, hypotonia, hypoxic-ischemic encephalopathy)
- Haematological, endocrinological and metabolic problems
- Long-term sequelae of preterm birth
- Intrauterine growth restriction
- Surgical emergencies in the neonatal period

9. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD.	Face to face (lectures, practical training in the Neonatal Intensive Care Unit, the Delivery Room, and the well-baby Nursery)
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Communication Technologies in teaching (PowerPoint)
TEACHING ORGANIZATION	

Activity	***Semester work-load***
Lectures (35 hours per week x 2 weeks)	70
Personal Study	30
Total number of work-load hours	**100 hours = 4 ECTS credits**

STUDENT ASSESSEMNT	Written final examination with multiple choice questions

10. RECOMMENDED LITERATURE

1. Fanaroff AA and Martin RJ. Neonatal - Perinatal Medicine. Diseases of the fetus and infant
2. Polin RA and Fox WW. Fetal and Neonatal Physiology

COURSE OUTLINE MED_1164

1. GENERAL

SCHOOL	Faculty of Health Sciences		
DEPARTMENT	Medical School		
LEVEL OF COURSE	Pregraduate		
COURSE CODE	MED_1164	**SEMESTER OF STUDIES**	9-12
COURSE TITLE	Rheumatology Clinic		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Practical training in Rheumatology	30	

COURSE TYPE	Field of Science and Skills Development
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek- English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (English)
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Leraning outcomes

The students attend the Rheumatology Clinic for 2 weeks. During their practical training the students will encounter patients suffering from all kinds of systemic rheumatic diseases as well as patients with degenerative diseases such as osteoarthritis. They will participate in obtaining the medical history of patients and during their second week in the clinic they may perform physical examination on patients with rheumatic diseases, under close supervision. Following the completion of the Rheumatology Clinic each day, the students participate in rounds in different wards of our Hospital, in cases where a rheumatology consultation is asked for. Each Friday students attend educational courses/literature reviews held in our Department.

Following the completion of this course students will be able to 1)recognize typical patients with the most common rheumatic disease (RA, SLE, spondyloarthropathies, gout) 2) differentiate “inflammatory” vs “degenerative” causes of musculoskeletal symptoms, 3) *Obtain medical history in patients with musculoskeletal symptoms and 4)Perform physical examination in patients with rheumatic diseases*

General Abilities

Autonomous work
Group work
Working in an interdisciplinary environment

3. COURSE CONTENT

Practical traing in Rheumatology

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Practical training in the Clinic
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	
TEACHING ORGANIZATION	
STUDENT ASSESSEMNT	Verbal examination at the end of the clinic

Activity	***Semester workload***
Practical training in the Clinic	6 hours/ day for 2 weeks
Personal Study	40
Total	***100***

5. RECOMMENDED LITERATURE

COURSE OUTLINE MED_1160

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED1160	**SEMESTER OF STUDIES**	11th
COURSE TITLE	CLINICAL HEMATOLOGY AND MOLECULAR TARGETED TREATMENT		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	3	4
Tutorial on microscopy-guided morphological diagnosis	3	
Educational visit to inpatients and outpatients	27	
	Totally 33 hours x 3 weeks = 99 hours	

COURSE TYPE	Scientific area and Skills Development
PREREQUISITE COURSES:	PATHOLOGY AND HEMATOPATHOLOGY, INTEGRATED NOSOLOGY OF THE HEMATOPOIETIC SYSTEM
TEACHING AND ASSESSMENT LANGUAGE:	GREEK
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBPAGE (URL)	Under construction

2. LEARNING OUTCOMES

Leraning outcomes

This is a tutorial training course in Clinical Hematology, with the opportunity to approach and practice the clinico-laboratory nature of this area of Internal Medicine, be exposed to all the specific fields and activities of this specialty, and participate in the clinical practice and implementation of the modern methods of diagnostic investigation of the patient with hematological disorders. It also includes clinical exercises / patterns of application of the modern diagnostic work-up, comprehensive demonstration of the importance of blood cell morphology with the incorporation of microscopic morphological analysis into the diagnostic process of the hematopoietic tissue disorders. Finally, it includes description of the novel therapeutic strategies, both, the conventional and the molecular targeting approaches, upon real patient cases across the whole range of the hematopoietic tissue disorders.

Students, who will attend the course will compile and integrate the knowledge they have gained after their training in the Clinical Pathology of the Hematopoietic Tissue (5th semester) and the nosology of the blood diseases, which were taught in the Integrated Hematology Teaching course (6th semester).

At the end of this course students are expected to have perceived the scientific field and the whole disease spectrum of the modern hematology, the dual (clinical-laboratory) nature of this field of internal medicine and the dynamics of its evolution. In particular, after successful completion of the course students they should:

- Be aware of the currently applied classification systems of the neoplastic and the non-neoplastic hematopoietic tissue disorders.
- Practice the diagnostic approach and work-up of patients with anemia, and they should be aware of the procedures preventing the birth of a patient with hemoglobinopathies, as well as of the procedures for the appropriate prenatal diagnosis of potentially affected fetuses.

- Have perceived and realized the appropriate diagnostic approach for investigating numerical abnormalities of a complete blood analysis and be aware of the differential diagnosis of any of these disorders.
- Know the classification of acute leukemias and their current methods of delegate diagnosis of these diseases (flow cytometry, cytogenetics, molecular biology methods, etc.).
- Have understood the platelet and coagulation disorders and are capable to appropriately approach a patient with a bleeding or a thrombotic disorder.
- Perform blood and bone marrow smears and be able to recognize the normal peripheral blood cells on routine microscopic examination.
- Know to perform the necessary diagnostic work-up to patients with lymphoproliferative disorders and the appropriate staging procedures in these diseases.
- Recognize the myelodysplastic and the bone marrow failure syndromes, as well as the chronic myeloproliferative neoplasms, their epidemiology, the necessary diagnostic work up and their morphological, clinical, cytogenetic and molecular findings.
- Understand the basic intracellular signal transduction pathways disrupted in the neoplastic blood disorders and recognize the key drugs with which it is attempted to intervene and restore them.
- Be capable to describe strategies for intervention with molecular targeting therapies in key diseases of the hematopoietic tissue where these therapies have long ago been established as routine treatments (eg chronic myelogenous leukemia, multiple myeloma, etc.).

General Abilities

- *Teamwork along with the tutors*
- *Autonomous / Individual work and highlighting of skills and initiatives*
- *Promoting free creative and inductive thinking*
- *Ability to write a review work, upon a selected field*
- *Ability to produce, design and promote a research idea*

3. COURSE CONTENT

- Normal and derranged hematopoiesis. Generation of clonality and neoplastic transformation
- Benign - non-neoplastic hematopoietic tissue disorders. Investigation, diagnostic approach and differential diagnosis of the anemia. Hematinic component' deficient and hemolytic anemias.
- Physiology of hemostasis and thrombosis. Investigation, diagnostic approach and differential diagnosis of the patient with haemorrhagic manifestations.
- Transfusion medicine. Indications for whole blood and blood products' transfusions. Thepautic and donative apheresis and cell-based therapies.
- Bone marrow failure syndromes and chronic myeloproliferative neoplasms
- Acute leukemias, pathogenesis and pathophysiology of leukemia, leukemic hematopoiesis. Principles of chemotherapy and molecular targeting therapies for neoplastic blood disorders.
- Hematopoietic stem cell transplantation autologous and allogeneic.
- Chronic lymphoproliferative disorders, Hodgkin's and non-Hodgkin's lymphomas nodal and extranodal. Chronic lymphocytic leukemia and non-clonal lymphoproliferations
- Plasma cell dyscrasias, multiple myeloma and related diseases, diagnosis and management
- Consultation hematology for the general family medicine and hematological problems encountered in the clinical practice of various medical specialties.
- Principles of laboratory analysis and morphology of the peripheral blood, bone marrow and lymph nodes.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Interactive lectures of thematic sections Participation in teamwork activities, visits at the inpatient hematology wars and monitoring of outpatients with hematological disorders in the outpatient clinic

<table>
<tr><td></td><td>Training in morphology and diagnostic microscopy of the peripheral blood, the hematopoietic bone marrow and the lymph nodes</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td>Teaching for the use of light microscopy
Training in scientific literature search and in retrieving and documentation of information from bibliographic databases (PubMed, Web of Science etc)
Support of the learning process by uploading educational material to the e-class platform</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td>
<table>
<tr><th>Teaching Method</th><th>Semester Workload</th></tr>
<tr><td>Lectures</td><td>10</td></tr>
<tr><td>Clinical teamwork</td><td>27</td></tr>
<tr><td>Outpatient Clinic teamwork</td><td>36</td></tr>
<tr><td>Tutorial on microscopy</td><td>9</td></tr>
<tr><td>Self-study</td><td>18</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Total number of hours for the Course</td><td>100</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSMENT</td><td>Daily assessment of actual clinical work and development of clinical skills
Written evaluation of the performance with multiple choice questions
Participation in team work and evaluation of initiatives, cooperation and effectiveness
Presentation of a review paper in a specified field
Possibility to develop research initiatives and appropriate assessment</td></tr>
</table>

5. RECOMMENDED LITERATURE

Textbooks:

Williams Hematology, 9th Edition 2016

Wintrobe's Clinical Hematology, 14th Edition 2018

Related Scientific Journals:

Blood, Lancet Hematology, Haematologica, Leukemia, Blood Cancer Journal, American Journal of Hematology, Bone Marrow Transplantation, Transfusion, Journal of Thrombosis and Hemostasis

COURSE OUTLINE MED_1158

1. GENERAL

SCHOOL	MEDICINE		
DEPARTMENT	ORTHOPAEDICS		
LEVEL OF COURSE	PRE-GRADUATE		
COURSE CODE	1158	**SEMESTER OF STUDIES**	11TH or 12th
COURSE TITLE	ORTHOPAEDICS		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
CLINICAL PRACTICE	25 (2 weeks in 11th or 12th semester)	4
	Total of 50 h of clinical practice	

COURSE TYPE	Scientific area, expertise
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek, English
THE COURSE IS OFFERED TO ERASMUS STUDENTS	yes
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/main/portfolio.php

2. LEARNING OUTCOMES

Leraning outcomes

This course is an introduction to General Orthopaedics & Traumatology

Basic knowledge of Orthopaedics is offered to Medical students that can be applied in their future practice as general doctors in:

1. Health centers
2. Small provincial offices
3. Regional hospitals as on call doctors of the surgical department
4. Private offices

General Educational Goals

Upon completition of studentship the students would be able to:

1. Identify and manage life-threatening injuries (i.e. pelvic fractures, multi-trauma patients)
2. Identify and manage various orthopaedic emergencies (i.e. Cauda equina syndrome, amputations, open fractures, compartment syndromes).
3. Identify and manage various acute (non-urgent) orthopaedic injuries (fractures, dislocations, infections) and provide initial stabilization (plaster cast, bracing).
4. Identify and apply primary care in chronic orthopaedic diseases, (sciatica, back pain, arthritis, tendinitis) and proceed to initial radiological and biochemical investigation before referral to appropriate doctors.
5. Identify possible complications for his/her practice and manage them accordingly.
6. To communicate with his/her colleagues describing the problem.

General Abilities

- Searching, interpretation and synthesis of data and information.
- Adaptation in new environment
- Decision making
- Individual work-up
- Team work

3. COURSE CONTENT

Clinical Practice

Introduction – Learning outcomes and goals
Immobilization of fractures (casts, braces)
Clinical examination: shoulder and elbow
Clinical examination: hip and pelvis
Clinical examination: knee
Clinical examination: wrist and hand - carpal tunnel syndrome
Adult reconstruction (hip and knee arthroplasty)
Management of the polytrauma patient – Damage Control Orthopaedics
Compartment syndrome – pulmonary and fat embolism
Introduction to physiatry and rehabilitation
Rehabilitation of the orthopaedic patient
Management of spinal cord injuries
Management of cerebral injuries and stroke
Management of decubitus
Research opportunities in musculoskeletal diseases
Workshop in patients with spinal cord injury
Workshop in patients with head injury and stroke
Fragility fractures
Techniques of suturing in skin lacerations
Student evaluation

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD.	Ward rounds, operation theater, A & E department, Rehabilitation center
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	e-class platform
TEACHING ORGANIZATION	

Teaching Method	***Semester Workload***
Clinical practice - lessons	40
Interactive teaching	10
Ward rounds	5
Operation theater	5
Practice in A & E and rehabilitation center	5
Personal Study	*35*
Total	***100***

STUDENT ASSESSMENT	I. Oral examination (50%) in small groups after completition of clinical practice

5. RECOMMENDED LITERATURE

Orthopedics and Traumatology, Elias E. Lampiris, Medical Publications P. H. Paschalidis, 2007

Miller's Review of Orthopaedics, Book by Assistant Professor of Psychiatry Mark D Miller, MD

Apley's System of Orthopaedics and Fractures. Textbook by Alan Graham Apley and Louis Solomon

Essential Orthopaedics and Trauma Textbook by David J Dandy

Clinical orthopaedic examination Textbook by Ronald McRae

McRae's Orthopaedic Trauma and Emergency Fracture Management Book by Alasdair J Gray, Samuel P. Mackenzie, and Timothy O. White

COURSE OUTLINE MED_1124

1. GENERAL

SCHOOL	MEDICINE		
DEPARTMENT	ORTHOPAEDICS		
LEVEL OF COURSE	PRE-GRADUATE		
COURSE CODE	MED_1124	**SEMESTER OF STUDIES**	11TH or 12th
COURSE TITLE	OBSTETRICS AND GYNAECOLOGY		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	35	4
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Field of Science
PREREQUISITE COURSES:	Not required
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBPAGE (URL)	-

2. LEARNING OUTCOMES

Leraning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

During their clinical attachment in the Obstetrics and Gynaecology Department, medical students rotate in Postnatal and Antenatal wards, Gynaecology ward, labour ward, Gynaecology outpatient unit and Gynaecology emergency unit. They follow fully the clinical practice and theatre list for each one of these departments. They will familiarize with the progress of natural delivery, CTG interpretation and vaginal examination. Students will have the opportunity to observe natural and operative vaginal deliveries, planned and emergency caesarean sections in labour ward. Sixth year medical students are encouraged to perform under supervision at least one uncomplicated natural delivery before the end of their rotation in labour ward. During their rotation in Gynaecology ward, medical students are expected to be responsible for their patients; to take their medical history, observe their procedure and follow them up from admission to discharge. They will also have the chance to observe day surgeries such as hysteroscopies as well as colposcopies, loop excisions and biopsies. In the outpatient unit, they can take vaginal swabs and smear tests and also perform basic ultrasound examinations under supervision. At the same time they will be exposed to routine and emergency obstetric care and will be able to discriminate between low risk and high risk pregnancies and their management. In the clinical attachment, formal lectures are scheduled twice a week and students are also involved in case based discussions and every day medical rounds. Overall,

this clinical attachment will give students the opportunity to familiarize with all aspects of the O&G every day clinical practice, to acquire basic skills and will combine theory with bed side teaching.

General Abilities

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking

Search for, analysis and synthesis of data and information with the use of the necessary technology
Team work
Working independently
Promote free, creative and inductive thinking

3. COURSE CONTENT

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Face to face lectures
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Specialized online platform, e-class
TEACHING ORGANIZATION *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	
STUDENT ASSESSEMNT *Description of the evaluation procedure:*	Multiple choice questions – written exams. Oral – case based discussion. Participation in the every day clinical practice of the department.

Activity	***Semester workload***
Lectures	105
Medical rounds	
Participation in every day clinical practice	
Case presentations	
Case based discussions	
Observing/assisting surgical procedures	
Total (hours)	**105**

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other *Specifically-defined evaluation criteria are given, and if and where they are accessible to students*	

5. RECOMMENDED LITERATURE

Obstetrics and Gynaecology, Antsaklis, Parisianos Editions, 2010 edition

Principles of Obstetrics and Gynaecology, Messinis, Parisianos Ediitions, ,2010 edition

COURSE OUTLINE MED_1123

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	1123	**SEMESTER OF STUDIES**	11th & 12th
COURSE TITLE	PAEDIATRICS (6th YEAR)		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	5	
Seminars	5	
Clinical Practice	20	
In-house duty	7	
TOTAL	**37**	**12**

COURSE TYPE	Field of Science and Skills Development
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek. Teaching may be however performed in English in case foreign students attend the course.
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (in English)
COURSE WEBPAGE (URL)	http://www.med.upatras.gr/gr/Pages/undergrad/courses.aspx?lID=81

2. LEARNING OUTCOMES

Leraning outcomes

The **aim** of the course is the **theoretical and practical training of medicine students in Paediatrics**.

In their sixth year of studies, medical students attend clinical Paediatrics for **six (6) weeks per year** at the Paediatric Department of the University Hospital of Patras.

Aims of the course:

- Acquiring theoretical and practical knowledge in General Paediatrics
- Collecting, organizing, and recording critical information on various disorders, as well as on the psychosomatic development of children of all age groups (neonates, infants, children and adolescents)

By the end of this course the student is expected to develop the following skills:

- Ability to obtain a detailed history
- Ability to carry out a thorough physical examination and assess the developmental stage of the child
- Ability to organize and record the above information as conventional or problem-oriented history
- Ability to compile and analyze information to obtain a differential diagnosis
- Ability to determine a management plan for the patient
- Ability to present the above medical information in a comprehensive manner
- General knowledge regarding the treatment options for the most common paediatric disorders
- Ability to understand the pathophysiology of various diseases and their effects on the development of the patient

General Abilities

By the end of this course the student will, furthermore, have develop the following general abilities:

- Searching, analysis and synthesis of facts and information

- Decision making
- Autonomous (Independent) work
- Group work
- Development of novel research ideas
- Promotion of free, creative and inductive thinking

3. COURSE CONTENT

i. Developmental Paediatrics
ii. Nutrition
iii. The acutely ill child
iv. Neonatology
v. Paediatric Haematology and Oncology
vi. Paediatric Allergic diseases and Immunology
vii. Paediatric Gastroenterology
viii. Paediatric Endocrinology
ix. Paediatric Cardiology
x. Paediatric Infectious diseases
xi. Paediatric Neurology
xii. Paediatric Nephrology and Urology
xiii. Paediatric Pulmonology
xiv. Paediatric Rheumatic disorders
xv. Paediatric Surgery
xvi. Adolescence medicine

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Face to face (lectures, seminars, grand rounds)
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Communication Technologies in teaching (PowerPoint) and for bibliographic search (PubMed, Scopus)
TEACHING ORGANIZATION	

Activity	***Semester work-load***
Lectures (5 hours per week x 6 weeks)	30
Seminars (5 hours per week x 6 weeks)	30
Clinical Practice (20 hours per week x 6 weeks)	120
In-house duty (7 hours per week x 6 weeks)	42
Personal Study	128
Total number of work-load hours	**250 hours = 12 ECTS credits**

STUDENT ASSESSEMNT	Written final examination (in Greek language) which includes: • Multiple choice questions • Short discourse questions • Differential-diagnosis questions (clinical cases)

5. RECOMMENDED LITERATURE

Nelson Textbook of Pediatrics, 20th ed. Elsevier, 2016

COURSE OUTLINE MED_1176

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_1176	**SEMESTER OF STUDIES**	11th & 12th
COURSE TITLE	ELECTIVE IN VASCULAR SURGERY		
INDEPENDENT TEACHING ACTIVITIES		**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
		35	4
COURSE TYPE	Clinical skills development		
PREREQUISITE COURSES:	None		
TEACHING AND ASSESSMENT LANGUAGE:	Greek. Teaching may be however performed in English in case foreign students attend the course.		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes		
COURSE WEBPAGE (URL)			

2. LEARNING OUTCOMES

Leraning outcomes
Acquisition of medical history focused on vascular diseases. Practice of physical examination in patients with vascular diseases. Ability to perform differential diagnosis of common vascular diseases. Learn the basics of investigation for vascular diseases. Recognition of vascular structures and comprehension of basic vascular surgery techniques during open and endovascular procedures.
General Abilities
Adaptability in a new environment *Decision making*

Autonomous work

3. COURSE CONTENT

Diseases of arteries, veins and lymphatic vessels. Diabetic foot.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD.	Face to face
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	
TEACHING ORGANIZATION	

Activity	***Semester workload***
Clinical training	70 hours
Personal Study	30
Total number of hours for the Course (25 hours of work-load per ECTS credit)	***100 hours (total student work-load)***

STUDENT ASSESSEMNT	Clinical examination and patient assessment.

5. RECOMMENDED LITERATURE

European Journal of Vascular and Endovascular Surgery, Journal of Vascular Surgery

COURSE OUTLINE MED_1171

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_1171	**SEMESTER OF STUDIES**	11th and 12th (elective)
COURSE TITLE	RADIOBIOLOGY -RADIOTHERAPY		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Clinical Training	35x2	4

COURSE TYPE	Skills Development
PREREQUISITE COURSES:	Medical Physics
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (in english)
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/courses/MED858/

2. LEARNING OUTCOMES

Leraning outcomes

The aim of this course is to present:

- the main mechanisms of action of ionizing radiation in cells and organisms
- methods of protection against the use of ionizing radiation in medicine
- their application in the treatment of malignant and non-malignant diseases

General Abilities

- Searching, analysis and synthesis of facts and information, as well as using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous (Independent) work
- Group work
- Work in a interdisciplinary environment
- Promotion of free, creative and inductive thinking

3. COURSE CONTENT

The course includes:

- The action of ionizing radiation on cell.
- Repair of radiation injury.
- Radiosensitivity of normal tissues and tumors.
- Radiosensitising and Radioprotective substances.
- Applications of radiobiology in radiotherapy.
- Radiation protection
- Radiation Protection principles in Radiology and Radiotherapy – Current applicable Legislation

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Clinical Training - Job shadowing
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Support of the Learning process by means of the e-class electronic platform
TEACHING ORGANIZATION	

Activity	***Semester workload***
Clinical Training	70
Personal Study	30
Total	***100***

STUDENT ASSESSMENT	Oral assessment Clinical Examination of Patients

5. RECOMMENDED LITERATURE

The course notes and recent articles are available from the above University of Patras e-class platform

COURSE OUTLINE MED_1174

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_1174	**SEMESTER OF STUDIES**	11th and 12th (elective)
COURSE TITLE	CLINICAL TRAINING IN RADIOLOGY		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Seminar Lectures	2,5x2	
Clinical Training	35x2	4

COURSE TYPE	Skills Development
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (in greek)
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/courses/MED1155/

2. LEARNING OUTCOMES

Leraning outcomes

The activities on this clinical training offer students the opportunity to develop their basic knowledge of modern diagnostic and therapeutic Radiology, but mainly to develop skills in making decisions about the choice of the appropriate imaging examination, according to the clinical scenario. This knowledge and skills are essential in all contemporary medical specialties, because all physicians use diagnostic methods of radiology in the care of their patients

General Abilities

- Searching, analysis and synthesis of facts and information, as well as using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous (Independent) work
- Group work
- Work in a interdisciplinary environment
- Promotion of free, creative and inductive thinking

3. COURSE CONTENT

Clinical Training in Radiology (elective) is part of the sixth year of undergraduate studies, in the 11th and 12th semesters and has a duration of 2 weeks.

Small groups of up to five students are rotated through all Radiology departments. Students follow the full program of the Laboratory. They familiarize with all diagnostic radiology procedures but also with the therapeutic procedures of interventional radiology – neuroradiology.

Additionally, in association with the academic staff of the Laboratory, students follow the procedure of medical reporting and learn to interpret the imaging study findings in the context of the clinical picture and medical

history of the patient. Students also attend the educational activities of the department, which include morning lectures and meetings with physicians of various specialties. Students also attend a series of lectures on the basic principles of imaging modalities and also on radiation protection issues.

In order to familiarize with emergency cases, students must spend on-call time once in the Radiology department

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Seminars, Clinical Training - Job shadowing
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Multimedia presentations in seminars Support of the Learning process by means of the e-class electronic platform
TEACHING ORGANIZATION	
STUDENT ASSESSMENT	Comprehensive assessment of the student participation in the procedures of the Clinical Radiology Laboratory

Activity	***Semester workload***
Seminars	5
Clinical Training	70
Personal Study	25
Total	***100***

5. RECOMMENDED LITERATURE

FIRST RECOMMENDATION
Book Title: "Clinical Magnetic Resonance Imaging"
ISBN: 9789606802508
Publisher: Ioannis Konstantaras

SECOND RECOMMENDATION
Book Title: "Concise Handbook of Axial and Magnetic Resonance Tomographic Anatomy"
Author: T.B. Moeller – E. Reif
Greek Editor: Th. Petsas
Publisher: Broken Hill Publishers Ltd
Year of publication: 2014

COURSE OUTLINE MED_1169

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_1169	**SEMESTER OF STUDIES**	12th
COURSE TITLE	IMMUNOHEMATOLOGY		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	4	4

COURSE TYPE	Elective course. Fields of Science (Immunology and Hematology) and Skills Development (perform and interpret experiments, learning immunological methods, learning to write scientific articles)
PREREQUISITE COURSES:	Basic Immunology and Hematology
TEACHING AND ASSESSMENT LANGUAGE:	Greek. Teaching may be however performed in English in case ERASMUS students attend the course.
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Learning outcomes

At the end of the course the students should have:
A good knowledge of current topics of clinical immunology and immunohematology.
A good knowledge of the types of immunotherapies already applied to patients or they're being developed.
A good knowledge and ability to plan experiments to solve problems related to immune disease pathogenesis.
Optional:
Learned the methodology of immune experimental methodology such as HLA typing, phenotypic analysis of immune cells, measurement of the concentration of cytokines and other proteins in peripheral blood and bodily fluids, and in cell culture supernatants.
Learned how to write scientific articles in immunology topics.

General Abilities

Autonomous work
Teamwork
Work in an international environment

3. COURSE CONTENT

The cells of the immune system - types, functions, communication
Immune tolerance
Antibodies - types, functions
Vaccines
The HLA system
Malfunctions of the immune system -
- Hypersensitivity reactions
- Autoimmune diseases
- Neoplasias

Immunology of transplantation
The immune system and HIV/AIDS
Immunomodulation -
- Interventions at the molecular and cellular level
- Therapies with antibodies, artificial antigens (peptides)
- Transplantation of hematopoietic stem cells

Optional:
1. Learning peripheral blood cell phenotyping using flow cytometry and analysis of the results
2. Small laboratory project entailing culture of peripheral blood cells, methods for isolation of cell populations, measurement of cytokine expression and secretion levels in isolated cell populations
3. Learning HLA typing by PCR methods
4. Learning to write scientific articles on an immunological topic

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	In the classroom and in the lab. Face to face for problem solving.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Lectures and tutorials using ICT. Support of learning process through the e-class platform.
TEACHING ORGANIZATION	

Activity	***Semester workload***
Lectures	20
Tutorials	8
Laboratory work	18
Laboratory work (6 conduct hours per week x 13 weeks)	78
Hours for private study of the student and preparation of home-work	54
Total number of hours for the Course (25 hours of work-load per ECTS credit)	***100***

STUDENT ASSESSMENT	The students get a grade at the end of the course with one of the following evaluation methods: 1. The students are given 15 questions of which they have to answer 10 and hand in their answers within 2 weeks. 2. If the students choose to do a laboratory project, they hand in their reports with their results and interpretation thereof within 1 month. 3. If the students opt to try and write a paper, they hand in their paper within 6 months, which is then evaluated. The evaluation criteria can be found in the e-class platform.

5. RECOMMENDED LITERATURE

Textbook: Lippincott's Illustrated Reviews: Immunology", 2nd Edition by T. Doan, R. Melvold, S. Viselli, C. Waltenbaugh, 2014 (ISBN: 978-960-394-986-2). Responsible for the Greek Edition: Athanasia Mouzaki.

All scientific articles used in teaching and, also, all articles the students require if they write a report or paper are made available to them.

COURSE OUTLINE MED_1163

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE - OPTIONAL		
COURSE CODE	MED_1163	**SEMESTER OF STUDIES**	ELEVENTH & TWELFTH
COURSE TITLE	GASTROENTEROLOGY - HEPATOLOGY		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	35	4

COURSE TYPE	FIELD OF SCIENCE
PREREQUISITE COURSES:	NO
TEACHING AND ASSESSMENT LANGUAGE:	GREEK
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBPAGE (URL)	http://www.med.upatras.gr/gr/Pages/undergrad/courses.aspx?lID=97

2. LEARNING OUTCOMES

Leraning outcomes

The students during this course at the Department of Gastroenterology are trained as follows:

- Medical history taking
- Clinical examination of hospitalized patients
- Teaching on the main problems of Gastroenterology – Hepatology
- Rotational monitoring in the clinics of the Department of Gastroenterology
- Rotational monitoring of the Endoscopic Program

General Abilities

- *Searching, analysis and synthesis of data and information, using the necessary technologies*
- *Adaptation to new situations*
- *Decision making*
- *Autonomous (Independent) work*
- *Group work*
- *Working in an interdisciplinary environment*
- *Production of innovative research ideas*
- *Exercise of criticism and self-criticism*
- *Promotion of free, creative and inductive thinking*

3. COURSE CONTENT

The content of integrated study in Gastroenterology concerns the main and most representative disorders of the digestive system. The educational units that are taught include:

CLINICAL EXAMINATION, DIAGNOSTIC APPROACH AND THERAPEUTIC INTERVENTIONS OF DIGESTIVE DISORDERS IN HOSPITALIZED PATIENTS, IN CLINICS AND IN THE EMERGENCY SERVICES OF GASTROENTEROLOGY DEPARTMENT

4. TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<tr><td>TEACHING METHOD.</td><td>Lectures face to face.</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td>Use of Information and Communication Technologies (ICTs) (PowerPoint slides) in teaching.</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Clinical exercise</td><td>70</td></tr>
<tr><td>Personal Study</td><td>30</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Total</td><td>100</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSEMNT</td><td>Oral examination by the Teaching staff of the department at the end of the course.</td></tr>
</table>

5. RECOMMENDED LITERATURE

Bates' Guide to Physical Examination and History Taking

Harrison's Principles of Internal Medicine

Kumar and Clark's Clinical Medicine,

Davidson's Principles and Practice of Medicine

CURRENT Medical Diagnosis and Treatment 2018

Related scientific journals:

Gastroenterology, Gut, Hepatology, J Hepatology

COURSE OUTLINE MED_1161

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	**MED_1161**	**SEMESTER OF STUDIES**	11-12
COURSE TITLE	CLINICAL ENDOCRINOLOGY		

	TEACHING HOURS PER WEEK	**ECTS CREDITS**
	35	4

COURSE TYPE	SCIENTIFIC AREA
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	GREEK
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBPAGE (URL)	eclass.upatras.gr

2. LEARNING OUTCOMES

Leraning outcomes
Disease definition Pathogenesis Clinical signs and symptoms Laboratory work-up Diagnosis Differential diagnosis Therapy Development of the clinical skills in taking the medical history and performing the physical examination Evaluation of laboratory tests, carrying out dynamic tests, thyroid ultrasound, Fine Needle Aspiration of thyroid nodules and lymph-nodes of the neck, evaluation of CTs and MRIs of the endocrine glands.
General Abilities
Data and information gathering, analysis and synthesis Decision making Autonomic and team work

3. COURSE CONTENT

Hypothalamus – Pituitary

Clinical case (headache, hemi-anopsia, reduced libido)

Anatomy

Hypothalamus – Nuclei

Pituitary

General

Neuro-hormones (releasing hormones)

Pituitary hormones

Receptors

GnRH – Pulsatile secretion-circadian rhythms

The concept of feed-back regulation of hormone secretion

Growth Hormone (GH)

Acromegaly

GH deficiency

Prolactin

Tumors

Pituitary adenomas

Hypothalamic and paraselar tumors

Pituitary Failure

Adenohypophysis

Introduction-Etiology-Therapy

Hypophysitis

Posterior Lobe (Neurohypophysis)

Diabetes insipidus

Syndrome of Inappropriate ADH secretion (SIADH)

Hypogonadism

Hypogonatrophic

Hypergonadotropic

Disorders of Menstrual Period

Menopause

Diabetes Mellitus

Clinical Case: (polyuria, polydipsia, weight loss, muscle weakness)

Diabetes mellitus

Epidemiology

Diagnosis

Types of Diabetes

Pancreas (anatomy, islets, physiology, hormones)

Insulin (Secretion, Action)

Glucagon (Secretion, Action)

Type 2 Diabetes Mellitus

Pathogenesis

Clinical presentation

Metabolic syndrome

Therapy

MODY

Gestational Diabetes

Type 1 Diabetes Mellitus – LADA

Pathogenesis

Clinical presentation

Therapy

Complications

Acute: Ketosis

Hyperosmosis

Chronic:

Pathogenesis (general)

Retinopathy

Neuropathy

Nephropathy

Atherosclerosis

Diabetic foot

Hypoglycemia

General

In diabetes

In non-diabetic

Lipids

Introduction

Lipoproteins

Lipoprotein metabolism

Primary dyslipidemias

Secondary dyslipidemia

Therapy

Obesity

Etiology

Complications

Treatment

Thyroid

Embryology

Anatomy

Physiology

Hypothalamic-Pituitary-Thyroid axis

Synthesis and secretion of thyroid hormones

Thyroid hormone transport and action

Iodine deficiency

Goiter

Thyroid nodule

Evaluation of thyroid function

Hyperthyroidism

Hypothyroidism

Thyroiditides

Thyroid disorders in pregnancy

Thyroid cancer

Mineral Metabolism - Hormones and disorders

Structure and Function of the Skeleton

Bone remodeling and its regulation

Calcium and phosphorus homeostasis

The system of vitamin D

Hypercalcemia

Hyperparathyroidism

Hypocalcemia

Hypoparatyroidism

Pseudo-hypoparathyroidism

Pagets disease

Osteoporosis

Epidimiology

Pathogenesis

Prevention

Treatment

Adrenals

Clinical case: A patient with orthostatic hypotension and skin pigmentation

Anatomy- Histology

Hormones: Glucocorticoids

Mineralocorticoids

Catecholamines

Hypothalamic-Pituitary-Adrenal axis

CRH-ACTH

Hormone action

Adrenal Insufficiency

ADDISON's disease

Etiology

Clinical presentation

Diagnosis

Differential diagnosis

Treatment

Acute adrenal insuficiency

Glucocorticoid Hypersecretion (CUSHING's syndrome)

Etiology

Clinical presentation

Laboratory findings

Diagnosis

Treatment

Adrenal incidentalomas

Endocrine Hypertension

Regulation of aldosterone secretion

Primary aldosteronism

Clinical presentation

Diagnosis

Treatment

Catecholamines

Pheochromocytoma- Paragangliomas

Clinical presentation

Diagnosis

Treatment

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Clinical course at the outpatient clinic of the Endocrine Division, Department of Medicine
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	
TEACHING ORGANIZATION	
STUDENT ASSESSEMNT	Greek and English language Oral examination

Activity	***Semester workload***
Medical History taking and writing	70
Physical Examination	
Evaluation of laboratory tests	
Dynamic tests	
Neck and thyroid ultrasound	
Fine needle aspiration of thyroid nodules	
Personal Study	*30*
Total	***100***

5. RECOMMENDED LITERATURE

Harrison's Principles of Internal Medicine

Davidson's Internal Medicine,

The Endocrine System at a Glance (Ben Greenstein, Diana Wood)

COURSE OUTLINE MED_1159

1. GENERAL

SCHOOL	Health Sciences		
DEPARTMENT	Medicine		
LEVEL OF COURSE	Undergraduate (Basic)		
COURSE CODE	MED_1159	**SEMESTER OF STUDIES**	6th Year (11th-12th semester)
COURSE TITLE	**Intensive Care Medicine**		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	10	4
Participation in educational clinical visits	5	
Clinical Exercise (ICU and Anesthesiology)	5	
Study and analysis of bibliography, writing of scientific papers	1	
	21 hours (total)	

COURSE TYPE	Scientific Area
PREREQUISITE COURSES:	No
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBPAGE (URL)	https://www.dropbox.com/sh/v8uugt2bd9mkh8e/AABLuEQrrFqZnP2POSJE7XgRa?dl=0

2. LEARNING OUTCOMES

Leraning outcomes

Course Objectives:
Knowledge, understanding, implementation, synthesis and evaluation of intensive care and emergency medicine issues.

In the intensive care course, the above goals are summarized in 3 categories

1. - **Knowledge** of intensive care and emergency medicine

2. - A combination of understanding and clinical / practical application of intensive care and emergency medicine (**skill)**

3. - The ability to solve problems, transferring existing knowledge and acquired skills to new situations (**ability**)

General Abilities

• Search, analyze, and synthesize data and information

• Adapt to new situations

•Decision making

• Autonomous work

•Teamwork

• Work in an international and interdisciplinary environment

• Production of new research ideas

3. COURSE CONTENT

•Cardiopulmonary Resuscitation
• Airway estimation and securing
• Introduction to non-invasive mechanical ventilation
• Introduction to invasive mechanical ventilation
• Sepsis - Septic Shock – Multiple Organ Dysfunction Syndrome (MODs) in the ICU
• Acute Respiratory Distress Syndrome (ARDS)
• Infections in the ICU
• Enteral and Parenteral Feeding in the ICU
• Monitoring of the cardiovascular system in the ICU - Hemodynamic Monitoring
• Estimation, treatment and monitoring of patients with craniocerebral injuries in the ICU
• Introduction to Brain Death
• Acid base balance - Liquids - Electrolytes
• Ethical issues in the ICU
• Discussion of critical care patient cases

4. TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<tr><td>TEACHING METHOD</td><td>Face to face</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td>Use of information and communication teaching technologies</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td>
<table>
<tr><th>Teaching Method</th><th>Semester Workload</th></tr>
<tr><td>Lectures</td><td>20</td></tr>
<tr><td>Participation in educational clinical visits</td><td>10</td></tr>
<tr><td>Clinical Exercise (ICU and Anesthesiology)</td><td>10</td></tr>
<tr><td>Study and analysis of bibliography, writing of scientific papers</td><td>5</td></tr>
<tr><td>Personal Study</td><td>55</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Total number of hours for the Course</td><td>100 hours</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSMENT</td><td>Assessment Language: Greek

Assessment methods:

• Multiple Choice Test
• Short answer questions
• Oral case discussions</td></tr>
</table>

	The evaluation criteria are explicitly specified for the students. Both the multiple-choice test and the short answer questions are based on the content of the lessons (lectures) to the students. Courses are accessible to students. Oral case discussions and clinical exercises are complementary / auxiliary.

5. RECOMMENDED LITERATURE

Principles of Critical Care (Hall et al.),

PACT (ESICM),

Intensive Care Medicine, Critical Care Medicine, JAMA, N.Eng.Journal of Medicine

COURSE OUTLINE MED_1162

1. GENERAL

SCHOOL	Medical Sciences		
DEPARTMENT	Medicine		
LEVEL OF COURSE	Pre graduate		
COURSE CODE	MED_1162	**SEMESTER OF STUDIES**	11th and 12th (optional)
COURSE TITLE	**NEPHROLOGY - CLINICAL TRAINING**		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	35	4

COURSE TYPE	Skills development, Scientific area
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek and English (optional)
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (in English)
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Leraning outcomes

Students during their stay attend clinical training classes in the Renal Centre.

Learning objectives:
• Active participation of students in the daily program of the Nephrology Department and enhancement of their ability in history taking and clinical examination on patients with nephrological problems during daily visit with physicians in Clinic.
• On patient practice.
• Practice and acquaintance with renal replacement methods (dialysis or peritoneal dialysis).
• Discussion of interesting cases.

• Clinical scenarios with nephrological interest. Differential diagnosis and treatment of patients with nephrological problems.
• Attendance of postgraduate courses.

General Abilities

Search, analyze and synthesize data and information, using the necessary technologies
Decision making
Autonomous work
Teamwork

3. COURSE CONTENT

Active participation of students in the daily schedule of the Nephrology Clinic (medical history taking, physical examination, daily visits with physicians in clinics).

Training next to the hospitalized patients. In the clinic are hospitalized patients suffering from:

- Water and electrolytes disorders
- Acid-base balance disorders.
- Arterial hypertension.
- Acute renal failure.

- Diseases of the glomerulus (glomerulonephritis).
- Diabetes mellitus and kidney damage.
- Systemic diseases with renal involvement.
- Kidney transplantation.
- Vascular problems in Haemodialysis.
- Problems in peritoneal dialysis.
- Students are also trained in the basic principles of methods of renal function replacement (haemodialysis and peritoneal dialysis)

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Face to face, Clinical training
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	
TEACHING ORGANIZATION	

Activity	***Semester workload***
Practical and Clinical Exercise Focusing on the Application of Methodologies in the Diagnosis and Treatment of Patients with Nephrology Problems in Small Groups of Students	35
Study and analysis of literature	20
Writing assignment	10
Self study	35
Total	***100***

STUDENT ASSESSEMNT	• Students deliver a writing assignment on a specific issue (eg: acute kidney injury, nephrotic syndrome).

5. RECOMMENDED LITERATURE

Harrison's Nephrology and Acid-Base Disorders, 1st Edition, J. Larry Jameson, Joseph Loscalzo.

COURSE OUTLINE MED_1172

1. GENERAL

SCHOOL	Health Sciences		
DEPARTMENT	Medicine		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_1172	**SEMESTER OF STUDIES**	11^{th}- 12^{th}/ 6^{th} year
COURSE TITLE	Andrology (elective clinical training)		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Clinical practice	35	4

COURSE TYPE	Scientific field
PREREQUISITE COURSES:	Urology
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (English)
COURSE WEBPAGE (URL)	http://www.med.upatras.gr/en/Pages/undergrad/courses.aspx?lID=106

2. LEARNING OUTCOMES

Leraning outcomes
Level Index: 6 The main objective of this course is the exposure of medical students to the entire spectrum of conditions of the field of andrology and the understanding of diagnostic techniques as well as basic principles of treatment approaches.
General Abilities
Clinical decision making, Working in an international setting, Development of research ideas

3. COURSE CONTENT

The significant evolution of Urologic subspecialties and the accumulation of knowledge through contemporary scientific progress led to the introduction of the clinical course of Andrology.

Andrology is the subspecialty of Urology that focuses on two important functional problems of the male genital system: erectile dysfunction and male sub-fertility (infertility)

In the first part of male sexual dysfunction knowledge arranged in logical sequence is presented, systematically approaching the condition from the anatomical structure of the genital area concerning embryology and neurophysiology to the medical and surgical treatment. In particular chapters the conditions of priapism, Peyronie's disease, endocrine dysfunction related to the genital system as well the clinical and laboratory investigation of sexual dysfunction are presented.

In the second part of subfertility, curriculum includes elements of embryology, normal spermiogram, elements of immunobiology, endocrinopathies related to subfertility, cryptorchidism, testicular torsion, genital tract infections, obstructive azoospermia, normal biopsy and biopsies typical of subfertility syndromes and surgical techniques for fertility restoration

Finally, the up-to-date evolution and different techniques concerning in vitro fertilization and other assisted reproduction techniques are presented.

Taking into consideration that sexual dysfunction is a condition concerning the couple and not just the male, the last part of the course is on female sexual dysfunction.

Male sexual dysfunction:

1) Anatomy of genital tract, 2) Embryology, 3) Male erectile dysfunction-Sexual dysfunction, 4) The normal sexual function, 5) Prerequisites for normal erectile function, 6) Physical examination, 7) Particular diagnostic tests concerning sexual dysfunction, 8) Categories of erectile dysfunction, 9) Peyronie's disease, 10) Priapism,

11) Treatment of sexual dysfunction

Male subfertility:

1) Elements of embryology, 2) The normal spermiogram, 3) Elements of immunobiology for the comprehension of possible parameters concerning male subfertility, 4) Causes of male subfertility,

5) Cryptorchidism, 6) Testicular torsion, 7) Genital tract infections, 8) Obstructive azoospermia, 9)

Testicular biopsy, 10) Varicocele and microsurgery for its correction, 11) Endocrine assessment of the subfertile male, 12) Classification of male subfertility based on the spermiogram, 13) Obstruction of the deferent ducts of the testis, 14) Toxic causes or factors affecting spermatogenesis, 16) Assisted - reproduction techniques & Female sexual dysfunction

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Lectures
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Audiovisual (PowerPoint)

<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>70</td></tr>
<tr><td>Personal Study</td><td>30</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>100 hours</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSEMNT</td><td>Oral exam

Greek, English (Erasmus)</td></tr>
</table>

5. RECOMMENDED LITERATURE

Contemporary Management of Impotence and Infertility, E. Tanagho,T Lue, R. Dale Mcclure,,edit, Williams & Wilkins,Baltimore,1988

https://uroweb.org/wp-content/uploads/EAU-Extended-Guidelines-2016-Edn.pdf

http://www.mayoclinic.org/diseases-conditions/erectile-dysfunction/diagnosis-treatment/treatment/txc-20314103

Sexual Dysfunction, J.P. Wincze &R.B. Weisberg,The guilford press,N. York, 2015

-Journals: Journal Sexual Medicine, Fertility and Sterility

COURSE OUTLINE MED_1155

1. GENERAL

SCHOOL	LIFE SCIENCES		
DEPARTMENT	SCHOOL OF MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	**MED1155**	**SEMESTER OF STUDIES**	11^{th} -12^{th}
COURSE TITLE	ELECTIVE CLINICAL TRAINING IN MICROBIOLOGY		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Clinical Training	25	4

COURSE TYPE	Scientific Area
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Learning outcomes

The elective clinical training in Microbiology aims to familiarize students with the entire spectrum of methods and practices used in the clinical laboratory of a tertiary hospital for diagnosis of infectious and autoimmune diseases. Students are also trained to communicate precisely and efficiently with clinical doctors and discuss diagnostic algorithms.
Students are actively involved in the following diagnostic procedures:

- Cultures of biological fluids (urine, blood, pus), conventional and automated microbe identification techniques, as well as and antimicrobials sensitivity tests (1^{st} week).
- Serological tests such as agglutination test, immunofluorescence, ELISA, CMEIA, nephelometry, immunofixation and the use of automatic analyzers (2^{nd} week)
- Critical evaluation of laboratory data, establishment of diagnostic algorithms in the context of specific clinical problem, effective communication with their clinical counterparts.
- Active involvement in Microbiology-Immunology-Clinical Biochemistry courses (curriculum designed for Clinical Pathology residents).

General Abilities

Study, analysis and synthesis of data, with the use of required technologic methods
Decision making
Autonomous and Team working
Generation of novel research ideas

3. COURSE CONTENT

- Students in small teaching groups of 2-3 persons, observe and/or are actively involved (where possible) the diagnostic procedures performed in the clinical Microbiology-Immunology laboratory for two weeks. In particular, they critically interpretate results of many diagnostic procedures performed in the clinical laboratory in the context of real clinical problems, involving infection, immunodeficiency and autoimmunity.
- Precise and effective communication with clinical counterparts.
- Participation in training courses designed for Biopathology residents.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<tr><td>TEACHING METHOD.</td><td>Attendance at the Department of Microbiology, University General Hospital of Patras</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td>Solving clinical cases with the use of internet and lectures by using PowerPoint</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Clinical training focused on theory comprehension by discussing clinical cases and Microbiological laboratory findings</td><td>50</td></tr>
<tr><td>Personal Studying</td><td>50</td></tr>
<tr><td>Total (25 hours per unit)</td><td>100</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSEMNT</td><td>Assessment is undertaken in the Greek Language with oral exams (100%) and is comprised of:
Short answer questions based on a simple clinical case in order to evaluate student’s understanding of the theory</td></tr>
</table>

5. RECOMMENDED LITERATURE

1) "Review of Medical Microbiology and Immunology," 11th edition, by Warren Levinson (original edition 2013). Medical Microbiology and Immunology Review, Scientific Editions Parisian S.A., 2016.

2) "Medical Microbiology," 5th edition, by Murray, Rosenthal, Pfaller (original edition 2008). Medical Microbiology, Scientific Editions Parisian S.A., 2010.

COURSE OUTLINE MED_1152

1. GENERAL

SCHOOL	Health Sciences		
DEPARTMENT	Medicine		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED_1152	**SEMESTER OF STUDIES**	11th -12th/ 6th year
COURSE TITLE	Clinical Training in Urology (elective)		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Clinical Training	35	4

COURSE TYPE	Skill development
PREREQUISITE COURSES:	Urology
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (English)
COURSE WEBPAGE (URL)	http://www.med.upatras.gr/en/Pages/undergrad/courses.aspx?lID=86

2. LEARNING OUTCOMES

Leraning outcomes

Level Index: 6
The main objective of this course is the exposure of medical students to the entire spectrum of conditions of the field of Urology and the development of clinical experience in the management of urologic patient through the understanding of diagnostic techniques as well as basic principles of treatment approaches.

General Abilities

Clinical decision making, development of professional and ethical responsibility

3. COURSE CONTENT

During the clinical training of students on the responsibility of the Teaching Staff and all the members of the Urological Clinic, a particular learning process is carried out concerning both practical and theoretical aspects of the specialty.
Theoretical courses concerning urologic emergencies, urologic oncology, and diagnostic approach to the urologic patient and imaging techniques are held.
Students are practically trained and get familiarized with endourologic procedures (catheterization – cystoscopy – endoscopic surgery) and post-operative care and assessment of patients.
Trainees assume the responsibility of assisting with the care of patients, participate in the whole diagnostic and therapeutic procedure and present cases during daily ward rounds. They attend the outpatient clinic, participate in operations, get trained at particular units and laboratories, and have the opportunity to participate in research protocols.
During the two-week training each trainee has to go on-call twice from 2:00 pm till 8:00 pm.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD.	Face to face
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	
TEACHING ORGANIZATION	
STUDENT ASSESSEMNT	Oral test Greek, English (Erasmus)

Activity	***Semester workload***
Clinical training	60
Lectures	10
Personal Study	30
Total	***100 hours***

5. RECOMMENDED LITERATURE

-Suggested literature :
House officcer series: UROLOGY, Michael t. Macfarlane, M.d
Smith's general urology
- Relevant medical journals:
https://www.sciencedirect.com/journal/european-urology
https://www.journals.elsevier.com/the-journal-of-urology/
http://www.hellenicurology.com/index.php/Hellenic-Urology

COURSE OUTLINE MED_1121

1. GENERAL

SCHOOL	MEDICINE		
DEPARTMENT	INTERNAL MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_1121	**SEMESTER OF STUDIES**	11th AND 12th
COURSE TITLE	INTERNAL MEDICINE-CLINICAL TRAINING		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Clinical Training and Lectures	35	12

COURSE TYPE	Teaching, Tutorials, Clinical training
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	GREEK (IF THERE ARE ERASMUS STUDENTS ENGLISH LANGUAGE IS ALSO USED AT THE CLINICAL ROUNDS)
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Leraning outcomes
The purpose of this course is to train the students of the 6th year in the exercise of clinical practice and in the acquisition of the necessary knowledge, skills and attitudes needed for the postgraduate medical practice. During the six weeks of exercise, the students are incorporated in the nursing-education units of the Internal Medicine Clinic for 4 weeks and then in the Hematology Unit of Internal Medicine Clinic for 2 weeks.
General Abilities
Students are acting as assistants. They take over patients that are hospitalized and are responsible for writing the medical history of the patients. Students have to monitor the daily progress of their patients and actively participate with their group members in the diagnostic and therapeutic access of these patients.

3. COURSE CONTENT

After consultation and with the guidance of doctors in the team, the responsible for the patient student conduct therapeutic and diagnostic procedures. These include blood sampling, taking arterial blood, chest puncture, puncture of ascites fluid, placing nasogastric catheter, bladder catheterization, etc.
Students must have full and daily updates on the progress of their patients and they should be able to accurately report the status of patients to the attending physician of the team when requested.
Students are on call at the external call of the nursing unit to which they belong. The working hours are 3pm-10pm on weekdays and 8am-10pm on holidays. From the start of the call they are presented to the team members that are in charge and they assign them appropriate tasks. During the call the students are in constant contact with the responsible doctors on call, and they refer to them as for the settlement of the delegated tasks. They must also be constantly accessible by doctors on call, who must know where their students are and what they deal with. Students should also be on duty on 1-2 internal calls.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	In small groups face to face, and tutorials in small groups
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	
TEACHING ORGANIZATION	
STUDENT ASSESSEMNT	Written exam (multiple choice questions) at the end of the 6-week clinical practice. The written exam is prerequisite to take the following oral exam on physical examination of a given patient and history taking, and this is followed by oral exam by an exam committee of three faculty members that give the final grade. Everyday assessment by the faculty members

Activity	***Semester workload***
Clinical training	210
Lectures	
Personal Study	90
Total	***300 hours***

5. RECOMMENDED LITERATURE

COURSE OUTLINE MED_1167

1. GENERAL

SCHOOL	Medical Sciences		
DEPARTMENT	Medicine		
LEVEL OF COURSE	Pre graduate		
COURSE CODE	MED_1167	**SEMESTER OF STUDIES**	11th (optional)
COURSE TITLE	Oncology Clinical Training		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Clinical training	35	4

COURSE TYPE	Skills development, Scientific area
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek and English (optional)
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (in English)
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Leraning outcomes

Active participation of the students in the daily program of the Division of Oncology (history taking, physical examination, evaluation of the laboratory tests, the radiology exams and the results of patients' biopsies who are evaluated in the outpatient clinic as well as the chemotherapy unit).

- On patient practice.
- Training and acquaintance with the chemotherapy drugs that are used.
- Principles of chemotherapy administration.
- Evaluation of laboratory and radiologic tests.
- Discussion of interesting cases
- Principles of clinical research on the basis of clinical trials.
- Attendance of educational activities of the Division of Oncology as well as the University Hospital's Tumor Board.

General Abilities

Search, analyze and synthesize data and information, using the necessary technologies

Decision making

Autonomous work

Teamwork

Work in an international environment

Multidisciplinary work

Production of new research questions

3. COURSE CONTENT

- Acquaintance with commonly used chemotherapy regimens.
- Calculation of medication dosing.
- Identification and management of chemotherapy toxicities.
- Priniciples of management of common tumors (e.g. breast, lung, colon cancer)
- Evaluation of laboratory and radiologic tests.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Face to face, Clinical Training	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES		
TEACHING ORGANIZATION	***Teaching Method***	***Semester Workload***
	Practical and Clinical Exercise Focusing on the Application of Methodologies in the Diagnosis and Treatment of Patients with	35

	Oncology Problems in Small Groups of Students	
	Study and analysis of literature	10
	Self study	25
	Total number of hours for the Course	***100***
STUDENT ASSESSMENT	Students take an oral exam at the end of their 2 weeks training.	

5. RECOMMENDED LITERATURE

MANUAL OF CLINICAL ONCOLOGY , CASCIATO

COURSE OUTLINE MED_1154

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED1154	**SEMESTER OF STUDIES**	ELEVENTH
COURSE TITLE	CARDIOLOGY (OPTIONAL CLINICAL ACTIVITY)		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
LECTURES AND CLINICAL PRACTICE	35	4

COURSE TYPE	SCIENTIFIC FIELD
PREREQUISITE COURSES:	NO
TEACHING AND ASSESSMENT LANGUAGE:	GREEK
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES (IN ENGLISH)
COURSE WEBPAGE (URL)	-

2. LEARNING OUTCOMES

Learning outcomes
BE ABLE TO INTERVIEW CARDIOLOGY PATIENTS BE ABLE TO INTERPRET ECG BE ABLE TO INTERPRET CHEST X-RAY WITH EMPHASIS TO CARDIOLOGY SIGNS BE ABLE TO VENIPUNCTURE AND INSERT ARTERIAL CATHETER BE ABLE TO ANALYSE CHRONIC AND ACUTE CARDIOLOGY PROBLEMS BE ABLE TO USE AUTOMATIC DEFIRRILLATORS BE ABLE TO INTERPRET BASIC CARDIAC ULTRASOUND AND ANGIOGRAPHY IMAGES
General Abilities
1. SOLITARY WORK (DIAGNOSING BASIC CARDIAC CONDITIONS) 2.TEAM WORK (COOPERATING IN MANAGEMENT OF ACUTE CARDIAC PROBLEMS)

3. COURSE CONTENT

1. TEACHING 4 THEMATIC UNITS (DYSPNOIEA, CHEST PAIN, PALPITATIONS, SYNCOPE)
2. TEACHING CARDIAC PHYSICAL EXAMINATION
3.TEACHING ECG INTERPRETATION
4. TEACHING BASIC INTERVENTIONAL SKILLS
5. TEACHING DIFFERENTIAL DIAGNOSIS OF CARDIAC CONDITIONS
6.TEACHING BASIC CARDIAC IMAGING SKILLS AND INTERPRETATIONS

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD.	IN CLINIC
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	NO
TEACHING ORGANIZATION	
STUDENT ASSESSMENT	NO EXAMS

Teaching Method	***Semester Workload***
Lectures, Clinical Training	70
Personal Study	30
Total number of hours for the Course	***100***

5. RECOMMENDED LITERATURE

SCIENTIFIC DOCUMENTS PRODUCED BY THE CARDIOLOGY DEPARTMENT

COURSE OUTLINE MED_1168

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	**MED-1168**	**SEMESTER OF STUDIES**	11o
COURSE TITLE	Cardiothoracic surgery		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	2	
Clinical Practice	48	
		Total 4

COURSE TYPE	SCIENTIFIC AREA
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	GREEK
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES (IN ENGLISH LANGUAGE)
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Leraning outcomes

Educational Objectives

At the end of the course the student is expected to be able to understand the pathophysiology of the diseases of the chest and heart, to describe the diagnostic work up needed and to discuss the therapeutic management of the patients weather it is conservative or surgical.

Annual Scientific Seminar

At the end of the course and at the initiative of the students and the coordination of the teaching professors, an Annual Scientific Seminar is organized. This includes two conference tables. where state of the art topics is presented by the four-year medical students

The teaching professors are always available to assist students wishing to participate in clinical and research studies. Finally, students are encouraged to present the aforementioned studies at the Annual Congress of Medical Students.

Importance of the Course

The frequency of lung and heart diseases is rapidly increasing in our country and it is estimated that thoracic and cardiac operations have been doubled within the last 10 years.

Ischemic heart disease and lung cancer still rise, especially in the geographic area covered by the University Hospital of Patras.

Both the respiratory and cardiovascular systems collectively support life and thus the study of the surgical pathology of the diseases of the chest and heart becomes crucial in the integrated part of a medical student's education.

Teaching

The teaching procedure is gradual/staged with intent to provide messages and directories on the management of the patients and basic information about the surgical techniques used.

At the third-year courses of the integrated teaching on diseases and symptoms short lectures on pertinent to cardiothoracic surgery issues represent the first step of the teaching procedure in this field. A detailed presentation of the issues related to Cardiothoracic Surgery is achieved through the optional course of "Introduction to Cardiothoracic Surgery". Furthermore, the optional 2-week clinical practice in Cardiothoracic Surgery represents the final comprehensive outcome in this staged teaching procedure. The students are invited to come closer to the diseases and clinical problems discussed during the theoretical courses. Therefore, students following this course of theoretical and clinical lessons may finally experience a highly scientific and thorough knowledge of topics primarily presented in the integrated teaching of symptoms and diseases at the previous years of study.
The teaching professors are responsible for the teaching procedure which is additionally assisted by doctors/consultants of the National Health System.
The teaching includes lectures with Microsoft Power Point and video presentations and participation as observers in the Operation Room. The students are also encouraged to work in the Experimental Surgery Room whenever there are is an active experimental protocol.

General Abilities

Autonomous Work Study

Team Work Study

Planning and Organizing of the Annual Scientific Seminar

Multidisciplinary Team Work

Hands on in clinical scenarios

Active emergency on-call duty

3. COURSE CONTENT

Anatomy of the thorax

Physiology of the respiratory function and anatomy of the heart and great vessels

Physiology of the cardiovascular system

Diagnostic approach – imaging of chest diseases (chest x-rays, computed tomography, Magnetic Resonance imaging, positron emission tomography)

Diagnostic approach-imaging of cardiovascular diseases (coronary angiography, cardiac stress test, classic and CT angiography, ultrasound of the heart)

Cardiopulmonary bypass

Preoperative assessment of patients undergoing major thoracic, non-cardiac, operations

Preoperative assessment of patients undergoing cardiac surgery

Chest incisions according to the planned operation (indications, selection, complications)

Myocardial protection during cardiac surgery

Surgical treatment of ischemic heart disease

Major lung resections (indications, selection, complications)

Surgery for the management of mechanical complications of ischemic heart disease

Ischemic mitral valve regurgitation- therapy

Surgery of the trachea (indications, techniques, complications)

Aortic valve replacement (indications, techniques, results)

Tumors of the superior sulcus

Mitral valve replacement (indications, techniques, results)

Tumors of chest wall and diaphragm

Mitral valve repair (indications, techniques, results)

Surgery for thoracic outlet syndrome (preoperative evaluation, indications, techniques, complications, results)

Lung cancer (diagnosis and staging)

Lung cancer – surgical therapy 9indications, outcome)

Surgery for tricuspid valve regurgitation

Postoperative management of the adult cardiac surgery patient

Surgery for atrial or ventricular septal communication (adults and children)

Parasitic infections of the lung – surgical treatment

Postoperative- adjuvant therapy in lung cancer patients

Ascending aorta surgery (acute and chronic diseases)

Postoperative management of patients undergoing General Thoracic Surgery procedures (medications, prevention and management of complications)

Surgery of the aortic arch, descending thoracic aorta and abdominal aorta (acute and chronic diseases)

Trauma to the heart and great vessels

Surgery for benign esophageal diseases. Carcinoma of the esophagus-surgical therapy

Cardiac pacing (indications, complications)

Surgical treatment of pericardial diseases

Surgical treatment of myasthenia gravis (indications, techniques, complications, results)

Surgical approach to mediastinal tumors (frequency, diagnosis, therapy

Surgery for native and prosthetic valve endocarditis (indications, results)

Mechanical circulatory support

Surgical treatment of pulmonary embolism (indications, techniques, results)

Heart and lung transplantation

Postoperative bleeding after general thoracic and cardiac surgery

EUROSCORE in the preoperative risk assessment of the cardiac surgery patient.

Postoperative antiplatelet and anticoagulation therapy in patients with prosthetic materials

Deep hypothermic circulatory arrest (indications, techniques, results)

Cardiac tumors

Post-discharge recommendations for the general thoracic surgery and cardiac surgery patient.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	From Person to Person gradually transform into ***peer to peer***
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	
TEACHING ORGANIZATION	***Teaching Method*** / ***Semester Workload***
	Lectures: 4
	Team work study, Scientific papers, Power Point Presentations: 4
	Autonomous Study Work: 2
	Hands on clinical practice: 70
	Tutorials: 1
	Operation room: 19
	Total number of hours for the Course: ***100***
STUDENT ASSESSMENT	• Final examination which includes patient and problem management in different clinical scenarios • Expert lecture in Cardiothoracic Surgery Topics - power point presentation at the Department Stuff Meetings in hot real case scenarios.

5. RECOMMENDED LITERATURE

Thoracic Surgery Notes. Apostolakis E, Koletsis E, Dougenis D Cardiac Surgery. Spanos P et al. University Studio press 1999 http://www.ctsnet.org

COURSE OUTLINE MED_1165

1. GENERAL

SCHOOL	Medical Sciences		
DEPARTMENT	Medicine		
LEVEL OF COURSE	Pre graduate		
COURSE CODE	MED_1165	**SEMESTER OF STUDIES**	6th year (optional)
COURSE TITLE	**INFECTIOUS DISEASES - CLINICAL TRAINING**		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	35	4

COURSE TYPE	Skills development, Scientific area
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek and English (optional)
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (in English)
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Leraning outcomes

Students attend clinical training classes.

Learning objectives:

- Active participation of students in the daily program of the Division of Infectious Diseases and enhancement of their ability in history taking and clinical examination on patients with infectious diseases during daily visit with physicians in the Departments of the University Hospital of Patras.
- On patient practice.
- Appropriate use of antibiotics.
- Management of immunocompromised patients (e.g. HIV/AIDS, transplant patients, cancer patients).
- Infection Control and prevention of Infections.
- Knowledge of common infectious diseases.
- Discussion of interesting cases.
- Clinical scenarios /Differential diagnosis and treatment of patients presenting with infectious diseases.

General Abilities

Search, analyze and synthesize data and information, using the necessary technologies
Decision making
Autonomous work
Teamwork

3. COURSE CONTENT

Active participation of students in the daily schedule of the Division of Infectious Diseases (medical history taking, physical examination, daily visits with physicians in clinics, outpatient clinic).

- Differential diagnosis of patients presenting with clinical features of infectious diseases
- All aspects of antibiotic use
- Management of immunocompromised patients, including those with HIV/AIDS , transplant patients and patients with hematological malignancies

- Diagnosis & management of hospital acquired infections and understanding the principles of prevention and control (including postoperative and intensive care related illness)
- Antimicrobial resistance
- Diagnosis and Management of patients with community acquired infection (outpatient/inpatient)
- Access of appropriate resources to maintain knowledge of existing and emerging infectious diseases
- Treatment of zoonoses – Tuberculosis
- Sexually Transmitted Diseases
- Management and treatment of Hepatitis B and C
- Selection and interpretation of appropriate microbiological diagnostic tests

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Face to face, Clinical training
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	
TEACHING ORGANIZATION	

Activity	***Semester workload***
Practical and Clinical Exercise Focusing on the Application of Methodologies in the Diagnosis and Treatment of Patients with infection in Small Groups of Students	70
Study and analysis of literature	20
Writing assignment	10
Total	***100***

STUDENT ASSESSEMNT	• Students deliver a writing assignment on a specific issue (eg: use of antibiotics, clinical syndromes). • Oral examination

5. RECOMMENDED LITERATURE

- Harrison's Principles of Internal Medicine. Seventeeth Edition
- Notes of lecturers in Greek
- Hellenic guidelines for the Diagnosis and Treatment of Infections 2015 (Hellenic Society for Infectious Diseases)

COURSE OUTLINE MED_1170

1. GENERAL

SCHOOL	OF HEALTH SCIENCES		
DEPARTMENT	OF MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	MED 1170	**SEMESTER OF STUDIES**	11th
COURSE TITLE	Neurosurgery		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	5	
Clinical practice	35	
		4

COURSE TYPE	Field of science
PREREQUISITE COURSES:	No
TEACHING AND ASSESSMENT LANGUAGE:	Greek (or English)
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBPAGE (URL)	-

2. LEARNING OUTCOMES

Leraning outcomes

The main goal of student training includes 2-week advanced practical training in the Department of Neurosurgery and is the implementation of theoretical knowledge in diagnosis and treatment of neurosurgical diseases of the central and peripheral nervous system.

From the first day, an effort is made for the students to attend and participate in all clinical activities together with the medical staff. There is a morning briefing where the new admissions from the out-patient clinic and ER are discussed. Next, there is a visit of in-patients, during which a detailed history for each patient is presented and the clinical sings, laboratory investigations, the potential diagnosis and the therapeutic possibilities (if any) are discussed. From the 2nd week students are encouraged to take the history and perform clinical examination under supervision in a new patient and then to present it to the doctors' meeting prior to the ward round.

Students are divided in small subgroups of 3-4, in order to attend the out-patient clinics of Neurosurgery. Students should also attend, at least once, a shift in the ER (duration 5-6 hours).

Short lectures (45 minutes) on topics of clinical interest are given 4 times a week by university faculty and national health system members and residents in neurology. For example the examination of motor system, of cranial nerves, of mental function, of extrapyramidal syndromes, is analyzed. Particular attention is paid to the recognition of neurosurgical brain and spinal diseases according to their clinical manifestations.

Finally, students are welcome to attend lectures in the neurosurgical meetings.

General Abilities

By the end of this course the student will be able to:

- Handle acute or chronic cases of neurosurgical diseases
- Record a full medical history
- Perform a complete neurological examination

- Participate in discussion of differential diagnosis of the most common neurosurgical diseases/ syndromes
- Evaluate laboratory results in the context of a particular neurosurgical disease
- Recognize the clinical symptoms, signs, the natural course and treatment of conditions such as hemorrhagic stroke, brain tumors, spine diseases, subarachnoid hemorrhage, head injury.
- Acquire experience as an observer in neurosurgical & neuroendovascular interventions
- Develop a professional attitude toward the patients and explain to them in an understandable way their condition and the potential outcomes

3. COURSE CONTENT

1. Obtain a neurosurgical medical history
2. Neurological detailed examination of neurosurgical patients
3. Patients in the ER
4. Out-patient neurosurgical clinic – write a prescription
5. Clinical manifestations of brain tumors, spine diseases, subarachnoid hemorrhage & head injury.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Small group teaching, performing clinical examination of patients under supervision
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Short lectures with the use of PowerPoint Search for new information in dedicated scientific sites on the Internet
TEACHING ORGANIZATION	
STUDENT ASSESSEMNT	At the end of the training, the students have to pass an oral examination on the clinical skills/knowledge and patients' management. Their overall involvement in the clinical activities is co-assessed in the final grade. If a student is not able to have the test at the defined day, the exam may be postponed by 4 weeks so that they can be examined together with the students of the next group. If a student failed twice the final exam, they have to repeat all or part of the 3-week training.

Activity	***Semester workload***
Participation in activities of the neurological department	105
Clinical practice	70
Lectures	15
Total hours for the course	***190***

5. RECOMMENDED LITERATURE

1. HANDBOOK OF NEUROSURGERY
   Mark S. Greenberg
   ISBN: 978-1-60406-326-4
   Thieme

2. e-class

COURSE OUTLINE MED_1125

1. GENERAL

SCHOOL	MEDICAL SCHOOL		
DEPARTMENT	OPHTHALMOLOGY		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED 1125	**SEMESTER OF STUDIES**	11th
COURSE TITLE	OPHTHALMOLOGY-CLINICAL TRAINING-COMPULSORY		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	35	4
Lectures-Theory: ***5 hours*** *Laboaratories:* ***5 hours*** *Teaching in small groups* *(tutorials, seminars, etc.):* ***5 hours*** *Contact with patients* *(Clinic-Surgery-Outpatient Clinics:* ***20 hours***		

COURSE TYPE	Compulsory, General Knowledge, Core Course, Skills Development
PREREQUISITE COURSES:	Typically, there are not prerequisite course.
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Leraning outcomes
The aim is for the student to be able to recognize basic clinical entities of ophthalmology and to be able to approach diagnosis and possible treatment by simple ophthalmological examinations. The daily clinical exercise includes a start with 2 courses by specialized medical staff in the Clinic and then the students follow the course of the hospitalized patients or the patients of the Outpatient Departments and the Special Departments. Also small groups of students participate in surgical interventions in the hospital's surgery theater. Matter is in line with developments in ophthalmology and is adjusted accordingly
General Abilities

By the end of this course the student will be able to:

Search, analyze and synthesize data and information, using the necessary technologies.

To use the ophthalmic instruments and examine a patient

Recognize the most common diseases of the eye

And suggest possible treatment modalities

3. COURSE CONTENT

CONTENT-EDUCATIONAL OBJECTIVES

SLIT LAMP

- Installing and updating a patient
- Basic operations and machine operations
- Demonstration and examination in small groups
- Indications, patient update and fluorescein test display
- Examination of at least 3 patients, with discovery of findings
- Objectives: Familiarity with basic functions and basic forehead examination of anterior segment and accessories

ORDINARY OPHTHALMIC MEDICINE

- Indications, contraindications
- Categories and ways of use
- Objective: Connect with theory, drugs for diagnosis and pharmacy treatment of common eye conditions

EYELID REVERSAL

- Updating and placing a patient
- Demonstration and examination in small groups
- Objective: Familiarize yourself with the technique

DIRECT OPHTHALMOSCOPY

- Indications, restrictions
- Basic instrument operations, handling
- Updating and placing a patient
- Examination in small groups
- Examination of at least one patient with a cataract
- Examination of at least three patients with mydriasis
- Objectives: Familiarity with the instrument, red reflection and cataract.
- Identification of retinal vessels and optic disc.

FIRST AID

- Demonstration of washing and pH measuring system for chemical burns
- Eye bud in small groups

Objective: Recognition and first treatment of ophthalmic urgency

- • PRESENTING A CLINICAL CASE TO THE TEAMP
- Downloading history
- Reporting at least two positive and two negative findings
- Possible diagnosis and differential diagnosis
- Therapeutic approach

Objectives: Develop interpretation of findings and competences of interdisciplinary communication

OPTIONAL

- Tonometry o
- Indications, contraindications, methods, update and placement of patient, demonstration, interpretation of results, interpretation of visual fields

Objectives: Contact the exam

THE MEDICAL DOCUMENT

- Counseling and information note
- Medical assurance / consultation, prescription

Objective: Writing of ophthalmological findings

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD.	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	
TEACHING ORGANIZATION	

Teaching Method	***Semester Workload***
Lectures	70
Small groups	
Patient's examination	
Personal Study	30
Total number of hours for the Course	***100***

STUDENT ASSESSMENT	Oral examination, Greek

5. RECOMMENDED LITERATURE

COURSE OUTLINE MED_1153

1. GENERAL

SCHOOL	MEDICAL SCHOOL		
DEPARTMENT	OPHTHALMOLOGY		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED 1153	**SEMESTER OF STUDIES**	11th
COURSE TITLE	OPHTHALMOLOGY-CLINICAL TRAINING-OPTIONAL		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	35	4
Theoretical training (Teaching hiurs/week) 1,5 hours		

COURSE TYPE	Optional, development of clinical skills
PREREQUISITE COURSES:	-Compulsatory ophthalmology 8th semester -Compulsatory clinical course 11th semester
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Leraning outcomes
- The acquisition of clinical skills and theoretical training beyond the obligatory learners. - Content is in line with developments in ophthalmology and is adjusted accordingly
General Abilities

3. COURSE CONTENT

The student follows the program of trainer doctors and examines patients himself.
- Fills the history and performs the necessary clinical testing as appropriate.
- Handle emergencies.
- He participates in surgical operations.
- This is followed throughout the process by the trainer he follows in all his activities.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	

TEACHING ORGANIZATION

Teaching Method	***Semester Workload***
Face to face	70

	Contact with patients (Clinic - Surgery - Outpatient clinics)	
	Personal Study	30
	Total number of hours for the Course	100
STUDENT ASSESSMENT	Oral	

5. RECOMMENDED LITERATURE

Multiple modern bibliography

COURSE OUTLINE MED_1156

1. GENERAL

SCHOOL	LIFE SCIENCES		
DEPARTMENT	SCHOOL OF MEDICINE		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	**MED1156**	**SEMESTER OF STUDIES**	12th
COURSE TITLE	ELECTIVE CLINICAL TRAINING IN PATHOLOGY		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Clinical Training	25	4

COURSE TYPE	Scientific Area
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Learning outcomes

The elective clinical training in Pathology aims to familiarize students with the entire spectrum of the practice of Pathology in a tertiary care center, with both classical and modern techniques and methods.

Students gain knowledge and experience regarding pathology services, including:

- Gross examination and processing of biopsy material and resection specimens
- Processing of tissues in the laboratory
- Use and contribution to diagnosis of ancillary techniques like immunohistohemistry
- Process of formulation of the final diagnosis

The students study, through clinical problem solving, and comprehend the importance of histopathologic diagnosis as a process that integrates the clinical and laboratory data that are available for each case and results in the final treatment decisions.

Lastly, the students are introduced to the practical application of prognostic and predictive biomarkers in the targeted therapeutic approach of malignant neoplasms.

General Abilities

Study, analysis and synthesis of data, with the use of required technologic methods
Decision making
Autonomous task management
Team working
Generation of novel research ideas

3. COURSE CONTENT

The students observe the everyday routine of the Department of Pathology of the University General Hospital of Patras. In particular, they observe the gross and microscopic evaluation of specimens (biopsy material, surgical specimens) and the clinicopathologic discussions with Clinical Doctors of various specialties and they attend the intradepartmental educational meetings. They have the opportunity to examine cases covering a wide diagnostic spectrum of Pathology dealing with inflammatory and neoplastic diseases of almost all organ systems included in the subject of Systemic Pathology (Pathology II).

4. TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<tr><td>TEACHING METHOD</td><td>Attendance at the Department of Pathology, University General Hospital of Patras</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td>Solving of pathology clinical cases with the use of internet, histologic slides' demonstration through a light microscope connected through a high definition camera to a high definition screen (live microscopy) and lectures by using PowerPoint</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Clinical training focused on theory comprehension by discussing clinical cases and demonstration of gross specimens and histologic slides</td><td>70</td></tr>
<tr><td>Personal Studying</td><td>30</td></tr>
<tr><td>Total (25 hours per unit)</td><td>100</td></tr>
</table>
</td></tr>
<tr><td>STUDENT ASSESSEMNT</td><td>Assessment is undertaken in the Greek Language with oral exams (100%) and is comprised of:
Short answer questions based on a short clinical case in order to evaluate student's understanding of the theory</td></tr>
</table>

5. RECOMMENDED LITERATURE

- Greek translation of Robbins Basic Pathology, 9th Edition, by V. Kumar, A. Abbas, J. Aster, Parisianou Publishing, 2016, (original edition 2013)
- Greek translation of Robbins and Cotran Atlas of Pathology, 3rd Edition by E. Klatt, Parisianou Publishing, 2018 (original edition 2014)

Useful sites

- https://library.med.utah.edu/WebPath/webpath.html
- (Webpath the Internet Pathology Laboratory)
- http://www.virtualpathology.leeds.ac.uk/ug/
- (Leeds University Pathology E-learning)
- http://zoomify.lumc.edu/path/genpath/genpath.htm
- http://zoomify.lumc.edu/path/virtualpath.htm
- http://www.stritch.luc.edu/lumen/lessons.cfm
- http://www.pathguy.com/
- (The Pathology Guy - Online Help)
- http://www.meddean.luc.edu/lumen/MedEd/Histo/htm
- http://www.udel.edu/biology/Wags/histopage/histopage.htm

COURSE OUTLINE MED_1166

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED_1166	**SEMESTER OF STUDIES**	$10^{TH} – 11^{TH}$
COURSE TITLE	PULMONARY MEDICINE		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures	35	4

COURSE TYPE	Field of Science, Skills
PREREQUISITE COURSES:	Typically, there are not prerequisite course.
TEACHING AND ASSESSMENT LANGUAGE:	Greek. Teaching may be performed in English in case foreign students also attend the course.
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/courses/MED983/

2. LEARNING OUTCOMES

Leraning outcomes

Pulmonary Medicine is taught during the 10^{th} and 11^{th} semester. The aim of the course is to provide the student with essential knowledge in the field of pulmonary medicine and the important practical medical skills. Pulmonary medicine is the science of respiratory system and its systematic study is essential for every medical student and medical doctor.
The lung participates in the exchange of respiratory gases, which is a critical procedure. Moreover, they play a role in human defense, as the airways lead the air inside the lung and may allow viruses and other microbes enter the bronchial tree. Finally, they allow waste substances to be excreted, while facilitating some other functions of human metabolism.
Symptoms of the respiratory system are quite frequent, and they are a leading cause of submissions to the emergency room.
The aim of the unit “Signs and symptoms” is to understand the main respiratory symptoms, namely cough, haemoptysis, chest pain and dyspnea.
The aim of the unit “Physical examination and history” is to analyze the methods of physical examination that can be used for the respiratory system. More specifically a careful medical history is needed, together with patient review, palpation, palpation, touch, and auscultation.
In the unit “Laboratory tests” the student understands spirometry, plethysmography, lung diffusion capacity test, cardiopulmonary exercise testing, arterial blood gases analysis, bronchoscopy, aspiration of pleural effusion and polysomnography. Moreover, more recent imaging techniques of the lung are analyzed, such as chest radiography and computed tomography.
The unit “Lung diseases” is dedicated to the most common respiratory diseases: Bronchial asthma, Chronic Obstructive Pulmonary Disease, Lower respiratory tract infections, Interstitial lung diseases, Lung cancer, Pulmonary embolism, Sleep apnoea, Acid-Base Balace, Pleural effusion, Tuberculosis.

Generally, by the end of this course the student will, furthermore, have developed the following general abilities:

- Understanding of the main principles of the respiratory system, the main symptoms and the correlation of the lungs to the other systems of the human body.

- Knowledge of the most important diagnostic tests, as well as their importance in the diagnosis and staging of lung diseases.
- Development of certain medical skills to examine the patient and proceed with a diagnostic procedure.
- Ability to take a complete patient history and reach a differential diagnosis.
- Knowledge of the therapeutic approach in emergency and chronic lung diseases.

General Abilities

Search, analysis and synthesis of information, using new technologies, Individual work, Team work, Development of new scientific ideas, Promotion of free, creative and inductive thinking.

3. COURSE CONTENT

- Signs and symptoms
  - Cough
  - Sputum
  - Haemoptysis
  - Chest pain
  - Dyspnoea
- Physical examination and history
  - History
  - Inspection
  - Palpation
  - Percussion
  - Auscultation
- Diagnostic tests
  - Spirometry
  - Plethysmography
  - Diffusion capacity
  - Cardiopulmonary exercise test
  - Arterial blood gas analysis
  - Pulse oximetry
  - Bronchoscopy
  - Pleural effusion
  - Sleep study
  - Chest radiography
  - Radiology of the respiratory system
- Lung diseases
  - Aasthma
  - COPD
  - Respiratory infections
  - Interstitial lung disease
  - Lung cancer
  - Pulmonary embolism
  - Sleep apnoea
  - Acid base balance
  - Oxygen therapy
  - Pleural effusion
  - Tuberculosis
  - Lung cancer

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Clinic

USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Clinic. Use of electronic platform of University of Patras eclass.
TEACHING ORGANIZATION	
STUDENT ASSESSEMNT	Written and/or oral exam at the end of the lectures with multiple choice and questions.

Activity	***Semester workload***
Lectures	70
Personal Study	30
Total	**100 hours**

5. RECOMMENDED LITERATURE

ERS handbook, Respiratory Medicine. Paolo Palange, Anita Simonds. 2013. European Respiratory Society. ISBN: 978-1-84984-040-8

COURSE OUTLINE MED_1151

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	**MED 1151**	**SEMESTER OF STUDIES**	11th & 12th semester
COURSE TITLE	CLINICAL TRAINING IN RHINOLOGY – Elective		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	35 hours/ week	
	2 weeks	4 ECTS
	TOTAL: 70 hours	

COURSE TYPE	Field of Science
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (in english)
COURSE WEBPAGE (URL)	http://www.med.upatras.gr

2. LEARNING OUTCOMES

Leraning outcomes

Clinical Training in Rhinology is an introductory course in the area of Rhinology and aims to provide the student with specialized knowledge in this field as it is the most common pathology in Otolaryngology.

General Abilities

1. Search, analyze and synthesize data and information, using the necessary technologies.
2.Teamwork
3.Respect for diversity and multiculturalism
4.Demonstration of social, professional and moral responsibility and sensitivity to gender issues
5.Exercise of criticism and self-criticism
6. Promoting free and creative thinking.

3. COURSE CONTENT

Embryology - Anatomy − Histology − Physiology and Pathophysiology of nasal cavity and paranasal sinuses
Nasal Breathing Difficulties - Nasal Diformities
Nasal problems in children
Snoring - Sleep apnea
Olfactory and taste disorders
CSF leak
Facial and head pain
Other nasal disorders
Emergency nasal problems
Diagnostic techniques for nasal diseases
Imaging techniques of nasal cavity and paranasal sinuses
Practical training cycle in all modern techniques for the treatment of inferior turbinates hypertrophy in the experimental laboratory

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Direct (face to face).
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Specialized software through E-CLASS Platform
TEACHING ORGANIZATION	

Activity	***Semester workload***
Clinical Practice	60
Autonomous study	40
Total number of hours for the Course (25 hours of work-load per ECT credit)	***100 h***

STUDENT ASSESSEMNT	Oral Student Examination at the End of Clinical Exercise

5. RECOMMENDED LITERATURE

COURSE OUTLINE MED_1122

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	FACULTY OF MEDICINE		
COURSE CODE	MED_1122	**SEMESTER OF STUDIES**	11th
COURSE TITLE	Surgery		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
LECTURES - ON BED TRAINING - OR PARTICIPATION	35/week, 6 weeks	12

COURSE TYPE	Field of Science
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek. Teaching may be performed in English, in case foreign students attend the course.
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (in English)
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Leraning outcomes

Students will gain wide knowledge of common surgical diseases. Basic anatomical and pathophysiological knowledge will recall, in order to understand, in depth, surgical diseases.

Students will gain skills in completing medical records, performing physical examination, presenting surgical cases, performing simple procedures (blood sampling, catheter insertion, suturing).

Gaining knowledge and skills, students will acquire the ability to perform patient primary assessment, to structure a diagnostic plan, to make differential diagnosis and lastly introduce a therapeutic plan for patients with surgical diseases.

General Abilities

Search, analysis and synthesis of data with the use of appropriate technologies
Decision making
Working alone and as part of a team

3. COURSE CONTENT

Preoperative assessment
Postoperative monitoring
Fluids – Electrolytes
Acute abdomen
Upper and Lower GI bleeding
Intestinal obstruction
Colon cancer
HPB cancer
Breast cancer
Gastric cancer
Jaundice
Hernias
Thyroid goiter - thyroid nodule
Bariatric - metabolic surgery
Acute pancreatitis
Hypovolemic shock
Trauma
Mesenteric embolism - Arterial embolism - Abdominal aortic aneurysm - venous insufficiency
Thoracic emergencies
Organ transplantation

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Face to face, e-class.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Use of I.C.T (eg Powerpoint) in lectures. The lectures are uploaded on the Internet (e-class).
TEACHING ORGANIZATION	

Teaching Method	***Semester Workload***
Ward rounds	60
Lectures	30
Surgical cases presentation	20
Participation on call duties	40
Total number of hours for the Course	***150***

	Written assessment Oral exams Minimum passing grade: 5

5. RECOMMENDED LITERATURE

D. Voros, Surgery, 2nd edition, Parisianou A.E. 2014

COURSE OUTLINE MED_1126

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	**MED 1126**	**SEMESTER OF STUDIES**	11th & 12th semester
COURSE TITLE	CLINICAL TRAINING IN OTORHINOLARYNGOLOGY – Mandatory		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	35 hours/ week	
	2 weeks	4 ECTS
	TOTAL: 70 hours	

COURSE TYPE	Field of Science
PREREQUISITE COURSES:	
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (in english)
COURSE WEBPAGE (URL)	http://www.med.upatras.gr

2. LEARNING OUTCOMES

Leraning outcomes

Medical students in their 6th year mandatorily attend the Otorhinolaryngology Clinic for 2 weeks. Training of the students is carried out under the supervision of the ORL Clinic Teaching Faculty with the objective of acquiring experience in both practical and theoretical aspects of the specialty.
Courses taught include Otorhinolaryngological emergency care, Head and Neck oncology and the diagnostic approach of patients. Students are required to attend rounds carried out daily by the ORL Clinic doctors and to participate in all the diagnostic and therapeutic procedures. They also attend the outpatient department of the clinic, participate in operations and are trained at the Units and Labs of the Clinic (Neurootology – ElectroNystagmography, Audiometry – Tympanometry, Speech therapy, Endoscopic ORL).
Nine (9) presences are mandatory during the ten days of the clinical training.
At the end of clinical training students are evaluated by their supervisors.

General Abilities

1. Search, analyze and synthesize data and information, using the necessary technologies.
2.Teamwork
3.Respect for diversity and multiculturalism
4.Demonstration of social, professional and moral responsibility and sensitivity to gender issues
5.Exercise of criticism and self-criticism
6. Promoting free and creative thinking.

3. COURSE CONTENT

Familiarising students with the **examination** and **diagnostic methods** in the specialty of Otorhinolaryngology.

- Otoscopy
- Laryngoscopy

- Rhinoscopy
- Flexible endoscopy
- Audiometry
- Tympanometry
- Electro Nystagmography
- Auditory Brain Stem Response

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD	Direct (face to face).
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Specialized software through E-CLASS Platform
TEACHING ORGANIZATION	

Activity	***Semester workload***
Clinical Practice	60
Autonomous study	40
Total number of hours for the Course (25 hours of work-load per ECT credit)	***100 h***

STUDENT ASSESSEMNT	Oral Student Examination at the End of Clinical Exercise

5. RECOMMENDED LITERATURE

COURSE OUTLINE MED_1157

1. GENERAL

SCHOOL	HEALTH SCIENCES		
DEPARTMENT	MEDICAL		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MED1157	**SEMESTER OF STUDIES**	ELEVENTH- TWELFTH (ELECTIVE)
COURSE TITLE	CLINICAL DERMATOLOGY ELECTIVE		

INDEPENDENT TEACHING ACTIVITIES	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures, seminars and laboratory work	35	2

COURSE TYPE	Field of Science
PREREQUISITE COURSES:	Basic principles of dermatology
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Leraning outcomes

By the end of the Clinical Dermatology Elective, the student will be able to:

1. Obtain a relevant dermatologic history
2. Perform physical examination of the integumentary system
3. Describe accurately morphology of lesions and eruptions on patients
4. Diagnose common and important cutaneous disorders and sexually transmitted diseases
5. Demonstrate familiarity with common diagnostic procedures(immunopathology, molecular biology, immunology, medical engineering, photobiology, and allergology)
6. Demonstrate knowledge of basic principles and application of topical and systemic therapy of cutaneous disorders and sexually transmitted diseases.

General Abilities

Autonomous (Independent) work

3. COURSE CONTENT

Supervised participation in clinical activities, both inpatient and outpatient, and all scheduled lectures of the Department of Dermatology.

Students participate in ward rounds, bedside teaching and case presentations, outpatient clinic, evaluation of laboratory tests, instruction in the invasive and non invasive methods of diagnosis and treatment of skin diseases.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<tr><td>TEACHING METHOD</td><td>Bedside clinical examination and lectures face to face</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</td><td>Use of Information and Communication Technologies (ICTs) (e.g. powerpoint) in teaching. The lectures content of the course for each chapter are presented in the form of a series of slides.</td></tr>
<tr><td>TEACHING ORGANIZATION</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Bedside clinical examination and lectures (35 conduct hours per week x 2 week)</td><td>70</td></tr>
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35 hours of work-load per ECTS credit)</td><td>70</td></tr>
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<tr><td>STUDENT ASSESSEMNT</td><td>Oral examination after the end of the Clinical Dermatology Elective</td></tr>
</table>

5. RECOMMENDED LITERATURE

- Dermatology Essentials, Bolognia & Schaeffer, Eds. Paschalidis
- Dermatology, Lecture Notes, Robin Graham-Brown-Tony Burns. Eds. Parisianou