COURSE DESCRIPTION: INTERNAL MEDICINE CLINICAL CLERKSHIP (IM 0100)

1. GENERAL			
SCHOOL	SCHOOL OF HEALTH SCIENCES		
DEPARTMENT	MEDICINE		
LEVEL OF EDUCATION	*Undergraduate*		
COURSE CODE	**IM 0100**	**SEMESTER OF STUDY**	**12th**
COURSE TITLE	INTERNAL MEDICINE CLINICAL CLERKSHIP		
COURSE TUTOR RESPONSIBLE	**GEORGE N. DALEKOS** PROFESSOR OF INTERNAL MEDICINE		
Co-Tutors	Dalekos George, Rigopoulou Eirini, Makaritsis Konstantinos, Zachou Kalliopi, Gatselis Nikolaos, Ntaios George: (Daily ward round with students' training by the patients' bed and lectures performance during the 11week period at the University Internal Medicine Clinic). Stefanidis Ioannis, Eleftheriadis Theodoros, Vassilopoulos George Yannakoulas Nikolaos, Gourgoulianis Constantinos, Daniel Zoe, Katsiari Christina, Bogdanos Demetrios, Bargiota Alexandra, Tryposkiadis Philip, Skoularigkis John, Giamouzis Gregory, Potamianos Spyridon, Kapsoritakis Andreas, Roussaki Angelica, Zafiriou Euterpi, Zakynthinos Epaminondas, Makris Dimosthenis, Dardiotis Efthimios. (The above tutors participate in training with certain lectures and during the 3 weeks of optional training in the Internal Medicine related specialties and in the Neurology Clinic).		

INTEGRATED TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	ECTS Credits
For the 11 weeks of training in the Internal Medicine Clinic	**56 (fifty-six hours / week)** **As follows:** **7 hours x 5 days = 35 hours** **+ 7 hours x 20 internal on-call = 2 on-call / week = 14 hours** **+ 7 hours x 9 general on-call = 1 on-call / week = 7 hours** **[35 + 14 + 7 = 56]** **Total for 11 weeks: 616 hours** **[56 hours x 11 weeks = 616 hours]**	
For the 3 weeks of optional training in the Internal Medicine related specialties and in the Neurology Clinic	**35 (thirty- five hours / week)** **Total for 3 weeks: 105 hours** **[7 hours x 5 days = 35** **35 hours x 3 weeks = 105 hours]**	
Hours / Academic Year	**721 (seven hundred twenty-one: 616 + 105 = 721)** **[56 hours x 11 weeks = 616**	

	+ 35 hours x 3 weeks = 105	
Total ECTS Credit Units		**19 (Nineteen)**
Add rows if necessary. The teaching structure and the teaching methods used are described in detail in 4.		

TYPE OF COURSE *Background, General Knowledge, Scientific Area, Skills Development*	***Scientific Area & Skills Development***
PREREQUISITE COURSES:	According to the Study Guide of the Medical School (Faculty) of the University of Thessaly.
TEACHING AND EXAMINATION (test) LANGUAGE:	**Greek** (However, **English** as teaching language is offered, as this is often the case with foreign students who take the course in the student exchange program ERASMUS and the student exchange program of the Hellenic Medical Students' International Committee (HELMSIC).
THE COURSE IS OFFERED TO ERASMUS STUDENTS	**YES**
COURSE WEBSITE (URL)	http://83.212.32.147/internalmedicine/index.php/en/degree

2. Learning Outcomes

Describe the learning outcomes of the course and the specific knowledge, skills and abilities that students will acquire upon successful completion of the course.

- *Description of the Learning Outcome Level for each course of study in accordance with the European Qualifications Framework for Higher Education*
- *Descriptive Indicators of Levels 6, 7 & 8 of the European Lifelong Learning Qualifications Framework*

See the Summary Guide to Writing Learning Outcomes

The Internal Medicine Clinical Clerkship course is one of the core courses (along with Surgery, Pediatrics, Gynecology and Psychiatry) of the Medical School and carries the highest requirements by the students. The course is offered in the 6th year (12th Semester) of the Medical School. Because of this, the Internal Medicine Clinical Clerkship course has the highest grading of all courses of the Medical School and is the only course that has been graded with nineteen (19) ECTS credits. During the 14-week course, students must acquire and be able to apply the clinical skills necessary to evaluate and care for adult patients with various disorders. In addition, students need to improve their knowledge of Internal Medicine focusing on differential diagnosis, and treatment of common and urgent pathological situations. Treatment of patients suffering from various diseases is a primary objective of the course. Finally, students need to understand and become familiar with the principles necessary to provide proper medical care, while respecting the patient's personal data and rights. The 14-week clinical practice course aims to acquire the clinical skills, knowledge and professional behavior necessary for the care and management of adult patients with the careful supervision of the medical staff and faculty of the Internal Medicine Clinic.

Clinical Practice is done in groups under the supervision of a tutor supervisor (faculty member). Usually each group consists of 4-8 students. Each student attends at least 4-6 patients.

Objectives

The 14-week Internal Medicine Clinical Clerkship course aims to acquire the clinical skills, knowledge and professional behavior required in the study and care of adult patients with the close supervision of the medical staff and faculty of the Internal Medicine Clinic.

The Objectives of the course can be categorized in clinical skills, knowledge and professional behavior.

CLINICAL SKILLS: During the course, students will acquire and be able to apply the clinical skills needed to evaluate and care for adult patients with common pathological problems (with the appropriate supervision).
Specifically, students should acquire the following skills:
• Obtain accurate, complete and focused medical history from the patient based on the symptoms presented by the patient.
• Perform accurate, complete and focused medical examination.
• Be able to evaluate simple laboratory tests, such as blood tests, urine tests, routine biochemical laboratory findings, and chest X-rays.
• Identify the major problems of the patient and formulate differential diagnostic possibilities accordingly.
• Design the necessary laboratory, imaging, and other clinical examinations needed for differential diagnosis, diagnosis establishment, and patient management.
• Be able to record the history, findings of the physical examination, the natural course of the disease, the findings of the lab tests and treatment in the appropriate medical records (in parallel with, but also independently of the official records kept by the attending physicians).
• Communicate with other team members and in particular report incidents during the ward round and communicate with the nursing staff of the clinic.
• Become familiar with the ways to communicate about the diagnosis, prognosis and treatment approach with the patients and their families, learning from the procedures followed by the attending physicians.
• Become familiar with and be able to perform simple medical procedures, such as venipuncture, arterial blood catheterization, venous catheter placement, ECG execution, nasogastric tube placement and urinary catheterization.
• Become familiar with the use of sterilization and the application of general rules for the prevention of transmission of infectious agents.
• Become acquainted in assisting attending physicians performing more complex medical procedures such as obtaining peritoneal fluid, synovial fluid, pleuritic fluid, lumbar puncture for cerebrospinal fluid collection and marrow smear and bone marrow biopsy.
PROFESSIONAL BEHAVIOR: Students need to understand and become familiar with the behaviors necessary to provide proper care. Particularly:
• Independent and self-driven learning
• Reliability
• Integrity, honesty, altruism
• Respect the patient's personal data and rights
• Professional look and dress code
• Recognition by the student of gaps and limitations in knowledge and skills and a constant willing to improve
• Providing medical care without personal bias
• Respect the role of other health professionals

Requirements

In order for the student to attend the 6th year Internal Medicine Clinical Clerkship course effectively, he / she must have significant knowledge of many previous courses offered in the curriculum. Of particular importance are the knowledge of preclinical courses like: Anatomy, Histology, Physiology, Biology, Biochemistry, Pharmacology and Microbiology. Additionally, vast knowledge in Pathology, Pathophysiology, Radiology, Clinical Examination and Diagnosis in Internal Medicine, Internal Medicine I & II is required.

Structure of Educational Process

Internal Medicine Clinical Clerkship course is offered in the 6th year according to the Medical School Study Guide. Clinical Practice lasts 14 weeks (11 weeks in the University Internal Medicine Clinic and 3

weeks in the Internal Medicine Subspecialty Clinics). One of the 3 weeks is held at the Respiratory Diseases Clinic.
During the course the students are trained as follows:
1) Attend the clinic on weekdays from 08.00 to 15.00.
• Each student personally attends weekly at least 4-6 patients. He/she records the history, the findings of the physical examination on a daily basis, the results of the lab tests, the course of the disease and the patient's treatment. The student attends 70 patients approximately during the total course period of time. On discharge, a critique with a summary of the history, physical examination findings and an analysis of the rationale for differential diagnosis, establishment of diagnosis and treatment are recorded.
• Performs and attends the performance of clinical interventions described in "CLINICAL SKILLS".
• Follows medical instructions given to him by the medical staff of the clinic.
2) Every student during the course is present at the hospital from 16.00 to 23.00 for at least 20 days. There he has the opportunity to familiarize himself with problems that arise frequently in hospitalized patients.
3) Each student during the course is present at the hospital from 08.00 to 23.00 for at least 10 days. During these days he becomes familiar with acute situations and especially abdominal pain, precordial pain, fever, coma, gastrointestinal bleeding, acute renal failure, asthma, acute heart failure, seizures, acute neoplastic syndromes, venous thrombosis and pulmonary embolism and other acute conditions.
4) During the course, the student attends the whole educational processes of the Internal Medicine Clinic according to the annual postgraduate program:
- Analysis of patient cases and lectures on medical entities
- Lectures by invited speakers
- Conferences and Seminars organized by the Clinic or other Clinics of the Department of Medicine
- Bibliography information
- Interclinic scientific meetings
- Lecture Attend (see below)

LECTURES IN THE INTERNAL MEDICINE CLINICAL CLERKSHIP COURSE

1. Coma: Definitions, Causes, Diagnostic Approaches and Management.
2. Perception disorders: Confusion, delirium and acute confusion, amnesia, dementia: Definitions, etiology and diagnostic approach.
3. Febrile states: Diagnostic approach for fever in the first week and fever of unknown etiology.
4. Chemotherapy of Infections: Medication Groups, Mode of Action, Common Side Effects by Group and Therapy of Common Bacterial Infections
5. Arterial Hypertension: Definition of arterial hypertension and treatment (antihypertensive drug groups, mode of action, side effects) and treatment strategy of hypertension.
6. Bronchial asthma: Groups of anti-asthma drugs, mode of action, side effects in groups. Treatment of acute episodes and chronic treatment.
7. Pneumonia: Community pneumonia, hospital pneumonia, pneumonia in immunosuppressed patients, pulmonary abscess. Diagnostic approach and treatment.
8. Abdominal Pain: Types of abdominal pain, possible causes and diagnostic approach.
9. Gastric ulcer: Clinical manifestations, importance of Helicobacter pylori and treatment.
10. Upper Gastrointestinal Bleeding: Definition, Reason, Investigation and Treatment.
11. Interpretation of laboratory findings of liver disease
12. Anemia: Differential diagnosis of the main types of anemia (iron deficiency anemia, chronic anemia, megaloblastic anemia, hemolytic anemia).
13. Anticoagulant treatment: Heparin therapy (heparin formulations, mechanisms of action, indications for their administration, modes of administration and monitoring, major side effects). Coumarine derivatives (mechanism of action, modes of administration, monitoring and major side effects). Newer oral anticoagulants (Dabigatran, Rivaroxaban, Apixaban - mechanism of action, modes of administration, monitoring and major side effects).

14. Blood transfusions and blood derivatives.
15. Acute & Chronic Kidney Failure: Definition, Categorization, Diagnosis and Treatment.
16. Electrolyte disorders (Sodium, Potassium, Calcium etc.): Main pathophysiological groups, etiology, investigation and treatment.
17. Acid-base balance disorders
18. Arthritis Syndromes: Clinical syndromes, differential diagnosis based on clinical and laboratory data.
19. Autoantibodies: Classification and clinical applications in diagnostics.
20. Non-steroidal anti-inflammatory drugs: Mode of action, clinical applications and adverse reactions.
21. Hyperthyroidism and hypothyroidism: Definition, etiology, clinical-laboratory manifestations and treatment.
22. Diabetes mellitus: Definition, major complications and treatment with antidiabetic tablets and insulin.
23. Dyslipidaemia: Major lipid disorders, clinical implications and management.
24. Paraneoplastic syndromes: Endocrine, neurological, dermatological and hematological.
25. Acute neoplastic syndromes: Superior vena cava syndrome, spinal cord compression, gastrointestinal tract obstruction, urological emergencies.
26. Investigation of ascites
27. Emergencies in Internal Medicine: Airway obstruction-Pneumothorax-Cold and Heat injuries-Poisoning-Bites-Rhabdomyolysis-Anaphylactic shock-Cardiopulmonary resuscitation

General Competences

Taking into account the general competencies that the graduate must have acquired (as listed in the Diploma Supplement and listed below) to which / which of them does the course aim?

Search, analyze and synthesize data and information, using the necessary technologies
Adaptation to new situations
Decision making
Independent work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Generation of new research ideas
Project planning and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstrate social, professional and ethical responsibility and gender sensitivity
Exercising criticism and self-criticism
Promoting free, creative and inductive thinking

The course aims to:

- Search, analyze and synthesize data and information, using the necessary technologies
- Decision making
- Independent work
- Teamwork
- Working in an international environment
- Working in an interdisciplinary environment
- Promoting the production of new research ideas
- Exercising criticism and self-criticism
- Promoting free, creative and inductive thinking

3. COURSE CONTENTS

KNOWLEDGE: During the course, students will improve their knowledge in Internal Medicine with emphasis on differential diagnosis, diagnosis establishment and treatment of common pathological conditions. The key pathological entities that students need to acquire knowledge are:

- Abdominal pain
- Acute renal failure (Acute kidney disease)
- Chronic renal failure (Chronic kidney disease)
- Differential diagnosis and diagnosis of anemia
- Chronic obstructive pulmonary disease and asthma
- Diabetes mellitus
- Dyslipidaemia
- Electrolyte and acid-base disturbances
- Gastric ulcer
- Upper and lower gastrointestinal bleeding
- Heart failure
- Acute and chronic liver diseases
- Diseases of biliary tract and pancreas
- Hypertension
- Diagnosis and differential diagnosis of arthritis syndromes
- Respiratory infections - pneumonia
- Thyroid diseases
- Venous thrombosis and pulmonary embolism
- Common types of neoplasms and acute neoplastic syndromes
- Recent onset febrile syndromes and fever of unknown etiology
- Diagnosis and treatment of severe sepsis
- Genetics in clinical medicine

4. TEACHING AND LEARNING METHODS - EVALUATION

METHOD OF TEACHING	***Direct lecture performance***
USE OF COMPUTER SCIENCE AND COMMUNICATION TECHNOLOGIES *Use of Computer Science in Teaching, in Laboratory Education, in Communication with Students*	Microsoft Power Point software is used to perform the lectures. The Library provides the necessary textbooks for the course. Students also have access to the international scientific databases (PubMed) available at the Library. All lectures are performed using a computer based Power Point. All course lectures are available at the Medical School and Department of Internal Medicine websites and Medical students have free access. CD-DVDs are also used in the teaching process. In addition, course instructors' emails are available and can be used for the communication between students and teachers, and students are encouraged to use this method of communication as well. Also information or announcements regarding the course are posted at the Medical School and Department of Internal Medicine websites with free access by Medical School students.
TEACHING STRUCTURE *The method and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Study & Analysis of Bibliography, Tutorial, Practice (Placement), Clinical Exercise, Art Workshop,*	

Activity	***Semester Workload***
1. Clinical Exercise The Clinical Clerkship Course exercise is performed in the wards of the Internal Medicine Clinic of the University Hospital of Larissa,	**721 hours**

Interactive Teaching, Study Visits, Project Design , Writing / Writing. lp *The student study hours for each learning activity are recorded as well as the non-instructional study hours so that the overall workload at semester level corresponds to ECTS standards .*	where students are trained by the patients' bed.	
	2. LECTURES (27 hours per Clinical Clerkship Course) The Teaching Rooms of the Internal Medicine Clinic of the University Hospital of Larissa are used for course lectures performances.	**27 hours**
	Total Course (... hours of work per credit unit)	***Total hours: 721 + 27 = 748*** ***Working hours per ECTS credit unit: 748/ 19 = 39.36***

EVALUATION OF STUDENTS *Description of the evaluation process* *Public Presentation, Laboratory Work, Clinical Examination Language Assessment, evaluation methods, Formative or Concluding, Multiple Choice Test, short-answer questions, test development Questions, Troubleshooting, Written Work, Report / Report, Oral Examination, Patient, Artistic Interpretation, Other / Others Specify clearly defined assessment criteria and if and which are accessible to students.*	Student assessment includes: 1. Grading at the end of the course by the responsible faculty member on student's performance in clinical practice. This grading is rated as inadequate, moderate, good, very good. 2. Student assessment is made by oral questions regarding patients' problems on a daily basis during clinical exercise. Students are assessed by their trainers at the end of the clinical course on their ability to provide the basic differential diagnosis of certain clinical and lab findings according to the main symptoms and signs of the patient and treatment approach. 3. At the end of the clinical clerkship course an oral examination in Internal Medicine is performed by the Director of the course and members of the Faculty of the Clinic. Exams are particularly demanding and it is usually necessary for the student to answer at least 70% of the questions correctly so that a passing grade can be achieved. The final grading is based on the above three ratings. Based on the above mentioned, it can be concluded that the workload of the students for the Internal Medicine Clinical Clerkship course is the highest possible and the requirements are comparatively higher than any other course of the University of Thessaly Medical School. Thus, the Internal Medicine Clinical Clerkship course has been rated by nineteen (19) ECTS credits. The evaluation criteria are accessible by students at the course website: http://83.212.32.147/internalmedicine/index.php/en/degree ***Tutor Evaluation*** A special questionnaire is available to the students at the end of the semester, so that students can evaluate each of their tutors, for both lectures given and clinical practice tutoring. Students are also encouraged to express their opinion on the overall educational process along with any proposed changes.

	The obtained data from the above questionnaire responses are given to Medical School Committee and are appropriately utilized aiming to the improvement of the educational process for the course.

5. RECOMMENDED BIBLIOGRAPHY

1. Current Medical Diagnosis & Treatment
(Tierney Lawrence M., Saint Sanjay, Thompson Clinton E., Whooley Mary A.)
ISBN 9789603998099 BROKEN HILL PUBLISHERS LTD
2. Cecil Essentials of Medicine
(Andreoli Thomas, Carpenter Charles, Griggs Robert)
ISBN 978960372176-5 K. & N. LITSAS OE
3. Internal Medicine Mayo clinic
(Thomas Habermann)
ISBN 978-960-6894-43-5 HAVALES A - HATZISSIMON K OE
4. HARRISON'S Principles of Internal Mdicine
(D. KASPER, E. BRAUNWALD, A. FAUCI, S. HAUSER, D. LONGO L. JAMESON)
ISBN 978-960-394 684-7 PARISIAN PUBLISHER

- Related scientific journals:

1. The New England Journal of Medicine
2. The Lancet
3. Annals of Internal Medicine
4. JAMA Internal Medicine