

Medicine and Surgery II

Code: 102944
ECTS Credits: 13.5

Degree	Type	Year	Semester
2502442 Medicine	OB	4	1

Contact

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Use of Languages

Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: No
Some groups entirely in Spanish: No

Teachers

Juan Genesca Ferrer
Jorge Sierra Gil
Christian Domingo Ribas
David Pares Martinez
Sergi Bellmunt Montoya

Prerequisites

In order to take this subject, it is recommended that the students should previously have studied the pathophysiology of cardiovascular system, respiratory system and blood and lymphatic system. Additional knowledge of anatomy, genetics, molecular biology and pharmacology is also recommendable. Knowledge of psychological bases of health status and disease, and adequate knowledge of communication and ethics is also necessary.

The student will preserve the confidentiality and the professional secret and will maintain an ethical attitude in all the activities of knowledge

Objectives and Contextualisation

Hematology:

The students will reach the adequate knowledge of the diseases of blood and hematopoietic organs and will learn to interpret the hematologic abnormalities due to non-hematologic diseases. They will achieve knowledge of the hematologic diseases, their classification, risk factors and prevention, clinical picture and laboratory diagnosis, treatment (including stem cell transplantation and immunotherapy/cell therapy), as well as diseases of the hemostatic system, the transfusion of blood and derivatives and the diseases of the spleen.

Cardiology:

The students will achieve adequate knowledge of the pathophysiology of the diseases of heart and great vessels. The student will learn to make a differential diagnosis using the adequate complementary tools

(electrocardiogram, chest X ray film, echocardiogram, CT scan, MRI, and biochemical markers, among others). The diseases of the cardiovascular system, their risk factors and prevention, the pathophysiology and clinical picture of the diseases of myocardium, cardiac valves, pericardium, aorta and venous and lymphatic system. The principles and clinical use of diagnostic procedures and techniques used in Cardiology and cardiovascular surgery, the adequate treatment (medical, surgical or instrumental) and the rehabilitation procedures of patients with cardiovascular diseases.

Pneumology:

The students will achieve adequate knowledge of respiratory diseases (congenital, acquired, due to dysfunction, toxic drugs, infections, allergy, occupational, ambient, accidental inhalation, neoplastic, traumatism or of unknown origin), their clinical picture, risk factors and prevention, the diagnostic techniques and procedures, their medical, surgical (including the lung transplant) or instrumental therapy, as well as the rehabilitation procedures.

Competences

- Demonstrate understanding of the manifestations of the illness in the structure and function of the human body.
- Establish a diagnostic approach and a well thought-out strategy for action, taking account of the results of the anamnesis and the physical examination, and the results of the appropriate complementary tests carried out subsequently.
- Give the patient and/or accompanying persons the relevant information about the disease process, its bases and consequences, including bad news, in an appropriate way.
- Indicate the basic diagnosis techniques and procedures and analyse and interpret the results so as to better pinpoint the nature of the problems.
- Indicate the most suitable treatment for the most prevalent acute and chronic processes, and for the terminally ill.
- Obtain and prepare a patient record that contains all important information and is structured and patient-centred, taking into account all age and gender groups and cultural, social and ethnic factors.
- Perform a general and a system-by-system physical examination appropriate to the patient's age and sex, in complete and systematic way, and a mental evaluation.

Learning Outcomes

1. Describe the effects on all organs and systems of diseases of the blood, the cardiovascular system, the digestive system, the respiratory system, the endocrine system, the nervous system, the genitourinary system, infectious pathologies and diseases of the elderly.
2. Describe the main pathological situations of the musculoskeletal system, the blood, the cardiovascular system, the digestive system, the respiratory system, the endocrine system, the nervous system, the genitourinary system, infectious pathologies and diseases of the elderly.
3. Design the treatment for the main infectious diseases, diseases of the blood, of the elderly, and of the hematopoietic system, the cardiovascular system, the digestive system, the respiratory system, the endocrine system, the nervous system, the renal and genitourinary system, the retroperitoneal system and the musculoskeletal system.
4. Explain the mechanisms by which illness affects the structure and function of the human body.
5. Give patients the maximum possible information about their health, diagnostic steps, complementary examinations and treatments in an appropriate way.
6. Identify tumour diseases, and the diagnosis and management of these.
7. Indicate the complementary examinations for diagnosing the main infectious diseases, diseases of the blood, of the elderly, and of the hematopoietic system, the cardiovascular system, the digestive system, the respiratory system, the endocrine system, the nervous system, the renal and genitourinary system, the retroperitoneal system and the musculoskeletal system.
8. Perform a suitable physical examination for the main infectious diseases, diseases of the blood, of the elderly, and of the hematopoietic system, the cardiovascular system, the digestive system, the respiratory system, the endocrine system, the nervous system, the renal and genitourinary system, the retroperitoneal system and the musculoskeletal system.

9. State the most probable diagnosis for the main infectious diseases, diseases of the blood, of the elderly, and of the hematopoietic system, the cardiovascular system, the digestive system, the respiratory system, the endocrine system, the nervous system, the renal and genitourinary system, the retroperitoneal system and the musculoskeletal system.
10. Write a report giving guidance on diagnosing the main infectious diseases, diseases of the blood, of the elderly, and of the hematopoietic system, the cardiovascular system, the digestive system, the respiratory system, the endocrine system, the nervous system, the renal and genitourinary system, the retroperitoneal system and the musculoskeletal system.

Content

Is highly recommendable to have basic knowledge of pathophysiology of cardiovascular system, respiratory system and blood and lymphatic system.

Additional knowledge of anatomy, genetics, molecular biology and pharmacology is also recommendable.

Knowledge of psychological bases of health status and disease, and adequate knowledge of communication and ethics is also necessary.

The student will preserve the confidentiality and the professional secret and will maintain an ethical attitude in all the activities of knowledge

Hematology:

The students will reach the adequate knowledge of the diseases of blood and hematopoietic organs and will learn to interpret the hematologic abnormalities due to non-hematologic diseases.

The hematologic diseases, their classification, risk factors and prevention, clinical picture and laboratory diagnosis, treatment (including stem cell transplantation and immunotherapy/cell therapy) picture, the disease of the hemostatic system, the transfusion of blood and derivatives and the diseases of the spleen.

Cardiology:

The students will achieve adequate knowledge of the pathophysiology of the diseases of heart and great vessels. The student will learn to make a differential diagnosis using the adequate complementary tools (electrocardiogram, chest X ray film, echocardiogram, CT scan, MRI, and biochemical markers, among others)

The diseases of the cardiovascular system, their risk factors and prevention, the pathophysiology and clinical picture of the diseases of myocardium, cardiac valves, pericardium, aorta and venous and lymphatic system. The principles and clinical use of diagnostic procedures and techniques used in Cardiology and cardiovascular surgery, the adequate treatment (medical, surgical or instrumental) and the rehabilitation procedures of patients with cardiovascular diseases.

Pneumology:

The students will achieve adequate knowledge of respiratory diseases (congenital, acquired, due to dysfunction, toxic drugs, infections, allergy, occupational, ambient, accidental inhalation, neoplastic, traumatism or of unknown origin), their clinical picture, risk factors and prevention, the diagnostic techniques and procedures, their medical, surgical (including the lung transplant) or instrumental therapy, as well as the rehabilitation procedures.

A) HEMATOLOGY

Theory (20 hours)

1. Main hematologic syndromes. Hematologic tests and procedures
2. Anemias. Classification. Iron deficiency anemia. Anemia of chronic diseases. Megaloblastic and other macrocytic anemias.

3. Congenital and acquired hemolytic anemias
5. Myelodysplastic syndromes
6. Acute leukemias
7. Chronic myeloproliferative neoplasias
8. Benign and malignant diseases of lymph nodes. Diagnosis and staging of lymphomas.
9. Malignant lymphomas
10. Chronic lymphoproliferative diseases.
11. Monoclonal gammopathies
12. Pathology of the spleen.
13. Pathology of mononuclear phagocytic system
14. Diseases of the hemostatic system. Thrombocytopenia and thrombocytopathy.
15. Congenital and acquired coagulopathies.
16. Hypercoagulability. Anticoagulant and thrombolytic therapy.
17. Hemotherapy
18. Hematopoietic stem cell transplantation and cellular therapy

Seminars on clinical cases (5 hours)

1. Case 1: anemia
2. Case 2: pancytopenia
3. Case 3: adenopathy
4. Case 4: hemorrhage
5. Case 5: thrombosis
6. Case 6: hematologic abnormalities of extrahematologic disease
7. Case 7: splenomegaly

Clinical practice

Stay on the hospitalization unit, day/hospital, outpatient area, laboratory of hematology and blood bank

B) CARDIOVASCULAR

Theory (28 hours)

1. Ischemic cardiopathy
2. Ischemic cardiopathy II (diagnosis)
3. Ischemic cardiopathy III (stable and unstable angor)
4. Ischemic cardiopathy IV (myocardial infarction)

5. Surgery of ischemic cardiopathy
6. Pericardic diseases
7. Myocardial diseases (myocarditis, dilated cardiomyopathy)
8. Myocardial diseases II (hypertrophic cardiomyopathy)
9. Cardiac failure I (concept, clinical picture and diagnosis)
10. Cardiac failure II (treatment)
11. Arrhythmias I (bradiarrhythmias)
12. Arrhythmias II (supraventricular tachiarhythmias)
13. Arrhythmias III (ventricular tachiarhythmias)
14. Arrhythmias IV (treatment)
15. Syncope and sudden death
16. Valvulopathies I (mitral)
17. Valvulopathies II (aortic)
18. Infectious endocarditis
19. Valvular surgery. Hearth transplant
20. Arterial hypertension
21. Pulmonary arterial hypertension and pulmonary thromboembolism
22. Diseases of thoracic aorta
23. Congenital cardiopathies in adults
24. Acute ischemia and vascular trauma
25. Chronic ischemia. Diabetic foot.
26. Aneurisms
27. Tumors and angiodysplasia. Arteriovenous fistulas.
28. Arteritis and functional vasculopathies

Specialized seminars (6 hours)

1. Normal electrocardiogram
2. Arrhythmias
3. Hearth failure
4. Ischemic cardiopathy. Myocardial infarction
5. Aneurisms
6. Ischemia of extremities

Clinical practice

Stay at the inpatient unit, coronary unit, specialized exploration and outpatient unit

C) PNEUMOLOGY AND THORACIC SURGERY

Theory (23 hours)

Study of patients with respiratory disease

2. Respiratory failure
 3. Disorders of ventilation. Hypoventilation and hyperventilation
 4. Respiratory disorders during the sleep
 5. Chronic obstructive pulmonary disease
 6. Asthma
 7. Defensive mechanisms of lung. Bronchiectasis. Cystic fibrosis.
 8. Respiratory infections
 9. Nosocomial pneumonia
 10. Lung tuberculosis
 11. Lung infections in immunosuppressed patients
 12. Occupational and ambient diseases
 13. Pulmonary eosinophilias. Extrinsic allergic alveolitis
 14. Interstitial and infiltrative lung diseases
 15. Sarcoidosis
 16. Lung involvement in systemic diseases and pulmonary vasculitis
 17. Lung cancer I; epidemiology, etiology, classification, histology, clinical picture, radiology, diagnosis, paraneoplastic syndromes, medical therapy.
 18. Lung cancer II; surgical staging, indications of surgery, surgical techniques, combined therapy, solitary pulmonary nodule.
 19. Lung cancer III; lung metastasis, benign lung tumors. Surgical aspects of the treatment of tumors.
 20. Pathology of the mediastinum. Diagnosis and therapy of mediastinal tumors. Pleuropericardic and bronchogenic cysts. Neurogenic tumors. Acute and chronic mediastinitis
 21. Benign pleural diseases: Etiology. Classification, diagnosis. Tuberculous pleuritis
 22. Thoracic traumatism; management
 23. Lung transplant
- Specialized seminars (3 hours) and seminars of clinical cases (4 hours)
1. Oxygenotherapy devices
 2. Lung function tests. Tobacco

3. Thoracic echography. Pleural drainages

Seminars on clinical cases

1. Pneumonia

2. Hemoptysis

3. Interstitial lung disease

4. Asthma. Chronic obstructive airways disease

D) Clinical practice

Attendance to the Pneumology Department (medical and surgical): hospitalization, day hospital, outpatient area, laboratory, special techniques.

Methodology

The setting, content methodology and general rules of MIC II according to the general study plan are herein described. The final organization of MIC II regarding the number and size of groups, calendar distribution, date of exams, specific criteria for evaluation and review of exams will be specifically indicated at each Docent Unit in their respective web pages, as well as by the responsible professors of MICII at each Docent Unit

As a general rule for teaching methodology the theoretical classes and seminars should have a practical orientation avoiding when possible the magisterial class. They should be based on practical clinical cases and should be oriented to the training of general physicians, avoiding the concepts belonging to super specialization.

The professors responsible of MIC II for this course are:

Responsible Departments: Medicine and Surgery

Responsible at the Faculty: Josep-Maria Ribera Santasusana, David Pares Martinez

Responsible at the Teaching Hospital Units (UDH)

Unitat Docent Sant Pau

	Responsible UDH	Responsible Surgery	Responsible Medicine
MIC II	Jorge Sierra Gil jsierra@santpau.cat Eduard Targarona etargarona@santpau.cat	Eduardo Targarona etargarona@santpau.cat	Jorge Sierra Gil jsierra@santpau.cat
• Cardiovascular diseases	Jose M ^a Guerra Ramos jguerra@santpau.cat	Jose Roman Escudero Rodriguez	<align="center"> J.Guerra Ramos jguerra@santpau.cat
• Respiratory diseases	Vicente Plaza Moral vplaza@santpau.cat	Elisabet Martinez Tellez	V. Plaza Moral vplaza@santpau.cat

• Hematologic diseases	Jorge Sierra Gil jsierra@santpau.cat	Eduardo Targarona etargarona@santpau.cat	Jorge Sierra Gil jsierra@santpau.cat
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Unitat Docent Vall d'Hebron

	Responsible UDH	Responsible surgery	Responsible medicine
MIC II	Joan Genescà jgenesca@vhebron.net Sergi Bellmunt Montoya (sbellmunt@vhebron.net)	Sergi Bellmunt	Joan Genesca
• Cardiovascular diseases	Ignacio Ferreira Sergi Bellmunt Montoya	Sergi Bellmunt Montoya (sbellmunt@vhebron.net)	Ignacio Ferreira
Respiratory diseases	Jaume Ferrer Albert jauregui	Albert Jauregui	Jaume ferrer
• Hematologic diseases	Francesc Bosch Albareda fbosch@vhebron.net	Nivardo Rodriguez Conde nirodriguezvhebron.net	Francesc Bosch Albareda fbosch@vhebron.net

Unitat Docent Germans Trias i Pujol

	Responsible UDH	Responsible Surgery	Responsible medicine
MIC II	Josep-Maria Ribera Santasusana jribera@@iconcologia.net Jaume Fdez.-Llamazares Rodríguez jflamazares.germanstrias@gencat.cat	Jaume Fdez.-Llamazares Rodríguez jflamazares.germanstrias@gencat.cat	Josep-Maria Ribera Santasusana jribera@@iconcologia.net
• Cardiovascular diseases	Antoni Bayés Genís abayesgenis@gmail.com Secundino Llagostera Pujol sllagostera.germanstrias@gencat.cat	Secundino Llagostera Pujol sllagostera.germanstrias@gencat.cat	Antoni Bayés Genís abayesgenis@gmail.com
• Respiratory diseases		Pedro Enrique López de Castro plopezdecastro.germanstrias@gencat.cat	Jorge Albaladejo jabadc.germanstrias@gencat.cat

Jorge Abad Capa
jabadc.germanstrias@gencat.cat
Pedro Enrique López de Castro
plopezdecastro.germanstrias@gencat.cat

• Hematologic diseases	Josep Ma. Ribera Santasusana jribera@iconcologia.net David Pares Martínez David.Pares@uab.cat	David Pares Martínez David.Pares@uab.cat	Josep M. Ribera jribera@ico
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Unitat Docent Parc Taulí

	Responsible UDH	Responsible Surgery	Responsible Medicine
MICII	Cristian Domingo Ribas Cdomingo@tauli.cat	Salvador Navarro Soto snavarro@tauli.cat	Cristian Domingo Ribas Cdomingo@tauli.cat
• Cardiovascular diseases	Antoni Martínez Rubio AMartinezR@tauli.cat	Jana Merino	Cristian Domingo Ribas Cdomingo@tauli.cat
• Respiratory diseases	Christian Domingo	Manuela Iglesias	Cristian Domingo
• Hematologic diseases	Luz Muñoz Marin Lmunoz@tauli.cat	Salvador Navarro Soto snavarro@tauli.cat	Luz Muñoz Marin

In the current exceptional circumstances, at the discretion of the teachers and also depending on the resources available and the public health situation, some of the theoretical classes, practicals and seminars organized by the Teaching Units may be taught either in person or virtually.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
CARE PRACTICUM WITHOUT GUIDELINES	62	2.48	1, 2, 3, 8, 4, 9, 6, 7, 5, 10
CLINICAL CASE SEMINARS (SCC)	9	0.36	1, 2, 3, 8, 4, 9, 6, 7, 5, 10
Specialized seminars (SEM)	9	0.36	1, 2, 3, 8, 4, 9, 6, 7, 5, 10
THEORY (TE)	73	2.92	1, 2, 3, 8, 4, 9, 6, 7, 5, 10

Assessment

The evaluation procedure of each matter of MIC II will consist of a written theoretical exam (40% of final score), evaluation through case studies and problem solving (40% of final score), analysis of clinical, cyto or histologic, radiologic EKG, or other image pictures (10% of final scores) and evaluation of the attendance to the hospital practice (10%). The attendance and active participation in class and seminars will also be taken into account.

Theoretical exam (40%)

Restricted question or multiple choice questions can be used according to the criteria of each Hospital Teaching Unit

Case studies and problem solving (40%)

At least two clinical cases.

Pictures (10%)

Will be presented during the exam. A specific answer will be required

Hospital practice (10%)

The attendance is mandatory. A written signature by the professor will be required

If the student has not approved the exam of any of the matters of MIC II (minimal score 5) an additional exam with the same structure will be offered

The final score of MIC II will be the wetged mean of scores of the three matters (cardiology, neumology and hematology)

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Objective tests	60%	10	0.4	1, 2, 3, 8, 4, 9, 6, 7, 5, 10
Practical evaluations: open and descriptive registries and / or closed registers	40%	7	0.28	1, 2, 3, 8, 4, 9, 6, 7, 5, 10

Bibliography

The bibliography of ewach mattter of MIC II will appear in the specific programs located at the web page of each Teaching Unit and /or at the virtual campus of MIC II

Hematology

Woessner S, Florensa L. La citología óptica en el diagnóstico hematológico. 5ª ed. Madrid, Fundación Española de Hematología y Hemoterapia FEHH, 2006.

Sanz MA, Carreras E. Manual práctico de Hematología Clínica. 5ª ed. Sabadell, Ed. Antares, 2020

Hoffman R, Benz Jr. EJ, Astil SJ, et al. Hematology. Basic principles and practice. 7ª ed. Churchill Livingstone, Philadelphia, 2018.

Greer JP, Foerster J, Lukens JN, Rodgers GM, Paraskevas F, Glader B. Wintrobe's Clinical Hematology 14ª ed. Philadelphia, Lippincott Williams & Wilkins, 2018.

Lichtman M, Beutler E, Kaushansky K, Kipps TJ, Seligsohn U, Prchal J. Williams Haematology. 9ª ed. McGraw-Hill, 2016.

Medicina Interna Farreras Rozman. Sección 14 Hematología. 19ª ed. Madrid Elsevier España S.A. 2020

Harrison's Principles of Internal Medicine, 20th Edición, McGraw-Hill, 2018

<http://asheducationbook.hematologylibrary.org/>

<http://www.ash-sap.org/>

<http://ashimagebank.hematologylibrary.org/>

<http://teachingcases.hematology.org/>

<http://www.hematology.org/Publications/Videos/>

<http://www.ehaweb.org>

<http://www.esh.org/>

<http://www.hematologyatlas.com/>

<http://www.sehh.es>

Pneumology

Farreras A y Rozman C. Medicina Interna.1 7ª edición. Elsevier. Barcelona 2012.

Braunwald, Fauci, Kasper, Hauser, Longo, Jameson. Principios de Medicina Interna 17ª Ed.McGraw-Hill, Interamericana. Madrid 2010.

JL Álvarez-Sala et al., Neumología Clínica. Elsevier España SL. Barcelona 2010

Recomendaciones SEPAR. Normativas disponibles en la página Web de la SEPAR

Sabinston. Tratado de cirugía. Townsend et al. 19ª ed. 2013. Elsevier.

Tratado de cirugía torácica SEPAR. Ed SEPAR- EDIMSA Madrid 2010

Societat Catalana de Pneumologia (SOCAP): www.socapnet.org

Sociedad Española de Neumología y Cirugía Torácica (SEPAR): www.separ.es

European Respiratory Society (ERS): www.ersnet.org

American Thoracic Society (ATS): www.thoracic.org

Cardiology

Books

- *Harrison Principios de Medicina Intern. Mc Graw Hill.*
 - *Tratado de Medicina Interna Farreras-Rozman. Elsevier.*
 - *Braunwald Tratado de Cardiología. Elsevier.*
 - *Heart disease. A text book of cardiovascular medicine. Braunwald E, Ross R, Topol EJ. Philadelphia.*
 - *Mayo Clinic Cardiology Review, Murphy*

- *Electrocardiografía clínica*, Bayés de Luna, Antoni. Espaxs, S.A
- [*La electrocardiografía en la toma de decisiones en urgencias*. H. Wellens. Elsevier.](#)
- *Vascular surgery*: Rutherford W. B. Saunders Company
- *Tratado de las enfermedades vasculares*. Sociedad Española de Angiología y Cirugía Vascular. Viguera editores. Varios autores
- *Guía del residente de angiología y cirugía vascular* Sociedad Española de Angiología y Cirugía Vascular.
- *Aterosclerosis y enfermedad arterial coronaria*. Springer-Verlag Ibérica. Barcelona.

Journals

- Circulation
- Journal of the American College of Cardiology
- European Heart Journal
- Revista Española de Cardiología

Internet resources

<http://www.ncbi.nlm.nih.gov/pubmed>

- <http://www.revespcardiolog.org>
- <http://www.secardiologia.es>
- <http://www.theheart.org/index.cfm>
- <http://www.ctsnet.org/residents/ctsn/> (apunts residents cardiologia americans)
- <http://www.hemodinamica.com/becas/guidant/imagenes.html> (imatges d'estudis hemodinàmics amb bona qualitat i amb un ampli ventall de patologies)
- <http://www.erl.pathology.iupui.edu/> (atlas imatges anatomia patològica amb bona iconografia cardiològica)
- <http://www.blue.temple.edu/~pathophys/general/tablecontents.html> (esquemes malalties cardiovasculars)
- http://www.meddean.luc.edu/lumen/mede/grossanatomy/cross_section/vhphthorax.html (pàgina original que permet obtenir seccions del tòrax a diferents nivells.)
- <http://visiblehuman.epfl.ch/stdappletv1.php> (similar a la anterior, permet imatges interactives, excel·lent anatomia)
- <http://www.escardio.org/Pages/index.aspx>
- Sociedad Española Angiología y Cirugía Vascular: www.seacv.es
- Capítulo de Diagnóstico Vascular no Invasivo: www.cdvni.org
- Capítulo de Cirugía Endovascular: www.c-cev.org
- Capítulo de Flebología: www.capitulodeflebiologia.org
- Cirujanos vasculares de Habla Hispana: www.cvhh.net

Software

Each Unit will develop the program of Hematology, Cardiology and Pneumology with specific adaptations to the particular characteristics, especially regarding the time table for classes, hospital attendance, seminars and dates of exams.