

Información del Plan Docente

Academic Year	2017/18
Faculty / School	104 - Facultad de Medicina 229 - Facultad de Ciencias de la Salud y del Deporte
Degree	304 - Degree in Medicine 305 - Degree in Medicine
ECTS	6.0
Year	2
Semester	First semester
Subject Type	Compulsory
Module	---

1.General information**1.1.Introduction****1.2.Recommendations to take this course****1.3.Context and importance of this course in the degree****1.4.Activities and key dates****2.Learning goals****2.1.Learning goals****2.2.Importance of learning goals****3.Aims of the course and competences****3.1.Aims of the course****3.2.Competences****4.Assessment (1st and 2nd call)****4.1.Assessment tasks (description of tasks, marking system and assessment criteria)****5.Methodology, learning tasks, syllabus and resources****5.1.Methodological overview**

The methodology followed in this course is oriented towards achievement of the learning objectives. It favors the acquisition of knowledge related to Physiology. A wide range of teaching and learning tasks are implemented, such as lectures, practice sessions, and assignments.

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Students are expected to participate actively in the class throughout the semester.

Classroom materials will be available via Moodle. These include a repository of the lecture notes used in class, the course syllabus, as well as other course-specific learning materials.

Further information regarding the course will be provided on the first day of class.

5.2. Learning tasks

The course includes 6 ECTS organized according to:

- Lectures (1,6 ECTS): 40 hours.
- Practice sessions (0,52 ECTS): 13 hours.
- Assignments (0,24 ECTS): 6 hours.
- Autonomous work (3,6 ECTS): 90 hours.

5.3. Syllabus

Theoretical program:

The cardiovascular system

1. Functional properties of the myocardium. Electrical activity of the heart.
2. Cardiac cycle: periods. Atrial, ventricular, and arterial pressures. Heart sounds.
3. Physiological basis of the electrocardiogram. Waves, vectors and complexes. Normal values, and more frequent abnormalities.
4. Cardiac output. Extrinsic and intrinsic cardiac activity control.
5. General functions of the circulatory system.
6. Biophysics Circulation: Hemodynamics: volume, flow, pressure and resistance in the circulatory system. Reynolds number. Distensibility and vascular capacitance.
7. Biophysics of Circulation: Circulation in arteries and arterioles. Hemodynamics. Hagen-Poiseuille Law. Blood

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pressures. Periodic phenomena: Pulse wave. Blood viscosity.

8. Microcirculation: capillary-interstitial-lymphoid nodes. Exchange capillary dynamics. Lymphatic circulation. Edema.

9. Circulation in the venous system. Venous return. Central venous pressure.

10. Regulation of blood flow. Nervous and humoral mechanisms. Role of nitric oxide in the control of blood flow.

11. Regulation of blood pressure. Baroreceptors and chemoreceptors. Humoral regulation. Renal regulation.

12. Coronary circulation.

13. Splanchnic circulation. Muscular circulation.

Respiration

14. Pulmonary circulation.

15. Functional structure of the respiratory system. Functions of the pleura and pleural fluid.

16. Respiratory cycle. Respiratory types. Lung volumes and airflow. Alveolar ventilation. Ventilation-perfusion ratio

17. Respiratory mechanics. Respiratory muscles. Thoracic pressures.

18. Static and dynamic resistances of the respiratory system. Surfactant.

19. Gas exchange through the respiratory membrane

20. Blood gas transport

21. Control of breathing

The gastrointestinal system

22. Estructural features of the gastrointestinal system and its accessory structures

23. Neural and hormonal mechanisms in the gastrointestinal system

24. Motility in the gastrointestinal system

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25. Salivary secretion and digestion
26. Gastric secretion and digestion
27. Exocrine pancreatic secretion and digestion
28. Biliary secretion
29. Intestinal secretion and digestión
30. Intestinal absorption. Faeces

Laboratory practice program

1. Cardiac and pulmonary auscultation. Arterial pressure and pulse rate
2. Registration and basic interpretation of the electrocardiogram
3. Physiological basis of cardiopulmonary resuscitation
4. Cardiac ultrasound
5. Cardiovascular and respiratory adaptations to exercise
6. Cardiovascular simulation
7. Spirometry
8. Acid-base balance
9. Supervised work

5.4.Course planning and calendar

For further details concerning the timetable, classroom and further information regarding this course please refer to the "Facultad de Medicina" website (<http://www.unizar.es/estructura/facultades-y-escuelas/facultad-de-medicina>)

5.5.Bibliography and recommended resources

Zaragoza:

BB

Bases fisiológicas de la práctica médica

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- [14ª ed.] / directores, Mario A. Dvorkin, Daniel P. Cardinali, Roberto H. Hermoli. 14ª ed. en español Buenos Aires ; Madrid [etc.] : Editorial Médica Panamericana, cop. 2010 [Precede al título: Best y Taylor] Fisiología / editores, Bruce M. Koeppen, Bruce A. Stanto. 6ª ed. Ámsterdam ; Barcelona ; Madrid [etc.] : Elsevier, D.L.2009 [Precede al título: Berne y Levy] Fisiología humana / [director], Jesús A. Fernández Tresguerres, [coordinadores], Carmen Ariznavarreta Ruiz ... [et al.] . - 4ª ed. México ; Madrid [etc.] : McGraw-Hill, cop. 2010
- BB**
- Fisiología médica : del razonamiento fisiológico al razonamiento clínico / Cristobal Mezquita Pla ... [et al.] . - [1ª ed., 1ª reimpr.] Buenos Aires ; Madrid [etc.] : Editorial Médica Panamericana, 2012
- BB**
- Fox, Stuart Ira : Fisiología humana / Stuart Ira Fox ; traducción, Bernardo Rivera Muñoz . - 13ª ed. México ; Madrid [etc.] : McGraw-Hill Education, cop. 2014
- BB**
- Fundamentos de fisiopatología / coordinadores, A. Esteller Pérez, M. Cordero Sánchez . - 1a. ed., 2a. reimpr. Madrid [etc.] : McGraw-Hill Interamericana, D.L. 2002
- BB**
- Hall, John E. : Tratado de fisiología médica [13ª ed.] / John E. Hall ; [revisión científica, Xavier Gasull Casanova]. - 13ª ed. Barcelona : Elsevier España, D.L. 2016
- BB**
- Patton, Kevin T. Anatomía y fisiología / Kevin T. Patton, Gary A. Thibodeau . 8ª ed. Ámsterdam ; Barcelona ; Madrid [etc.] : Elsevier, D.L. 2013
- BB**
- PhysioEx 9.0 : simulaciones de laboratorio de fisiología / Peter Zao... [et al.] ; traducción y revisión técnica, Mª Dolores Garcerá Zamorano, Juan Javier Díaz Mayans, José J. del Ramo Romero . Madrid : Pearson Educación, D.L. 2012
- BB**
- Pocock, Gillian. Fisiología humana : la base de la medicina / Gillian Pocock, Christopher D. Richards . - 2ª ed. Barcelona [etc.] : Masson, 2005
- BB**
- Silbernagl, Stefan. Fisiología : texto y atlas / Stefan Silbernagl, Agamemnon Despopoulos ; ilustraciones de Rüdiger Gay y Astried Rothenburger . - 7ª. ed. completamente rev. y ampl. Buenos Aires ; Madrid [etc.] : Editorial Médica Panamericana, cop. 2009
- BB**
- Silverthorn, Dee Unglaub : Fisiología humana : un enfoque integrado / Dee Unglaub Silverthorn ; con la colaboración de Bruce R. Johnson y William C. Ober,

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- coordinador de ilustraciones ; Claire W. Garrison, ilustradora ; Andrew C. Silverthorn, consultor crítico . - 6ª ed. Buenos Aires ; Madrid [etc.] : Editorial Médica Panamericana, cop. 2014
- BB** Tortora, Gerard J.. Principios de anatomía y fisiología [13ª ed.] / Gerard J. Tortora, Bryan Derrickson . - 13ª ed. Buenos Aires ; Madrid [etc.] : Editorial Médica Panamericana, cop. 2013
- BB** Fisiología / Robert M. Berne, Matthew N. Levy [et al.] . 3a. ed. Madrid : Harcourt, D.L.2002
- BB** Fisiología humana / [director], Jesús A. Fernández Tresguerres, [coordinadores], Carmen Ariznavarreta Ruiz ... [et al.] . 4ª ed. México ; Madrid [etc.] : McGraw-Hill, cop. 2010
- BB** Fisiología médica : del razonamiento fisiológico al razonamiento clínico / Cristobal Mezquita Pla ... [et al.] . Madrid [etc.] : Editorial Médica Panamericana, D.L. 201
- BB** Fox, Stuart Ira. Fisiología humana / Stuart Ira Fox ; traducción, Bernardo Rivera Muñoz, Héctor Raúl Planas González, José Luis González Hernández . 12ª ed. México ; Madrid [etc.] : McGraw-Hill Interamericana, cop. 2011
- BB** Fundamentos de fisiopatología / coordinadores, A. Esteller Pérez, M. Cordero Sánchez . Madrid [etc.] : McGraw-Hill Interamericana, D.L. 1998
- BB** Hall, John E.. Tratado de fisiología médica / John E. Hall, Arthur C. Guyton. 12ª ed. Barcelona [etc.] : Elsevier, D.L. 2011
- BB** PhysioEx 6.0 :simulaciones de laboratorio de fisiología / Timothy Stabler [et al.] ; traducción y revisión técnica : José Juan del Ramo Romero, Mª Dolores Garcerá Zamorano . Madrid [etc.] : Pearson Education, cop. 2006
- BB** Pocock, Gillian. Fisiología humana : la base de la medicina / Gillian Pocock, Christopher D. Richards . 2ª ed. Barcelona [etc.] : Masson, 2005
- BB** Silbernagl, Stefan. Atlas de bolsillo de fisiología / Stefan Silbernagl, Agamemnon Despopoulos . 5a. ed., corr. y renov Madrid [etc.]: Harcourt, D.L. 2001
- BB** Silverthorn, Dee Unglaub. Fisiología humana : un enfoque integrado / Dee Unglaub Silverthorn ; con la participación de William C. Ober, Claire W. Garrison,

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- BB** Andrew C. Silverthorn ; con la colaboración de Bruce R. Johnson . 4ª ed., [2ª reimpr.] Buenos Aires ; Madrid [etc.] : Editorial Médica Panamericana, 2010
- BB** Thibodeau, Gary A.. Anatomía y fisiología / Gary A. Thibodeau, Kevin T. Patton ; [revisión, Mª Jesús Fernández Aceñero] . 6ª ed., [reimp.] Amsterdam ; Barcelona ; Madrid [etc.] : Elsevier, D.L. 2010
- BB** Tortora, Gerard J.. Principios de anatomía y fisiología / Gerard J. Tortora, Bryan Derrickson . 11ª ed., 4ª reimp. Buenos Aires ; Madrid [etc.] : Editorial Médica Panamericana, 2010

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<http://psfunizar7.unizar.es/br13/eBuscar.php?tipo=a>