

**Información del Plan Docente**

<b>Academic Year</b>	2017/18
<b>Faculty / School</b>	104 - Facultad de Medicina 229 - Facultad de Ciencias de la Salud y del Deporte
<b>Degree</b>	304 - Degree in Medicine 305 - Degree in Medicine
<b>ECTS</b>	6.0
<b>Year</b>	1
<b>Semester</b>	First semester
<b>Subject Type</b>	Basic Education
<b>Module</b>	---

**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 (1,52 ECTS): 38 hours.
- Practice sessions (0,52 ECTS): 13 hours.
- Assignments (0,28 ECTS): 7 hours.
- Autonomous work (90 ECTS): 3,6 hours.

### 5.3.Syllabus

Theoretical program:

1. Concepts of Physiology and Biophysics. Central role of Physiology in Medicine.
2. Homeostasis. Control mechanisms. Biorhythms.
3. Free radicals. Its features and functions
4. Antioxidants mechanisms. Oxidative stress in tissues.
5. Transport through biological membranes.
6. Bioelectric potentials. Ionic basis. Genesis of the action potential.
7. Action potential conduction
8. Transmission of action potential
9. Neurotransmitters and their receptors
10. Neurotransmitters in the autonomic nervous system
11. Biological fluids. Compartments: volume and composition
12. The pH of biological fluids
13. Hormonal action mechanisms
14. Basic principles of bioenergetics: Work. Energy efficiency.
15. Physiological basis of human nutrition
16. Normal dietary requirements and special situations
17. Biophysics and physiology of skeletal muscle
18. Smooth muscle physiology
19. Physiology of the heart muscle
20. Tissue Physiology: Physiology of endothelium

Laboratory practice program

1. Transmission of action potential

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2. Physiological aging
3. Study of a cell function
4. Muscle metabolism
5. Assessment of nutritional status
6. Elaboration of a diet
7. Practical calculation of nutritional needs
8. Muscle contraction
9. Strategies and learning styles in Physiology

### 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:

- |           |  |
|-----------|--|
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| <b>BB</b> | Fisiología médica : del razonamiento fisiológico al razonamiento clínico / Cristobal Mezquita Pla ... [et al.] . [1 <sup>a</sup> ed., 1 <sup>a</sup> reimp.] Buenos Aires ; Madrid [etc.] : Editorial Médica Panamericana, 2012  |
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- 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** Martín Cuenca, Eugenio. Fundamentos de fisiología / Eugenio Martín Cuenca [Madrid] : Thomson, 2006
- BB** Patton, Kevin T. : Anatomía y fisiología / Kevin T. Patton, Gary A. Thibodeau . - 8ª ed. Ámsterdam ; Barcelona ; Madrid [etc.] : Elsevier, D.L. 2013
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- BB** Raff, Hershel. Fisiología médica : un enfoque por aparatos y sistemas / Hershel Raff, Michael Levitzky ; traducción, Bernardo Rivera Muñoz, Germán Arias Rebatet México, D.F. ; Madrid [etc.] : McGraw Hill- Interamericana, cop. 2013
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