

UNIVERSITY OF PUERTO RICO
MEDICAL SCIENCES CAMPUS
SCHOOL OF MEDICINE

PHYSIOLOGY DEPARTMENT

COURSE DESCRIPTION

COURSE TITLE: **VERTEBRATE PHYSIOLOGY I**

COURSE CODE: **FISA 8601**

CREDIT HOURS: **3 CREDITS (54 HOURS)**

COURSE DURATION: **18 WEEKS**

NUMBER OF STUDENTS: **MIN.: 3 MAX.: 10**

COORDINATOR NAME: **DR. CARLOS JIMENEZ**

COORDINATOR OFFICE HOURS: **TO BE ARRANGED**

COORDINATOR OFFICE: **A-689**

COURSE HOURS: **TO BE ARRANGED**

WHEN WILL BE OFFERED: QUATERLY **X** SEMESTER
 YEAR SUMMER

PREREQUISITE: **N/A**

COURSE JUSTIFICATION: **New students that come to our graduate program need an introductory course in the field of physiology. Therefore, this course is designed to provide the students with basic concepts in physiology.**

COURSE DESCRIPTION: This course is designed to offer students the basic concepts in vertebrate physiology, emphasizing the human vertebrate. The course develops from the cell, discussing membrane properties and the physiology of muscle cells, and continues with a discussion of the two integrative systems: the nervous and endocrine systems. The final portion of the course is dedicated to discuss reproductive physiology and its neuroendocrine regulation.

Different educational strategies will be used throughout the course, such as group discussions, lectures and student presentations. Computer demonstrations will be used in some topics. The course is a requirement for all Master and Doctoral students of the Physiology Department and for all doctoral students of the Departments of Anatomy and Pharmacology. Students from the Intercampus Doctoral Program of the Biology Department of the University of Puerto Rico, Rio Piedras Campus are allowed to register in the course.

The course consists of five sections: Cell and Membrane Physiology, Muscle Physiology, Neurophysiology, Endocrine Physiology and Reproductive Physiology. Part one introduces basic physiological processes at the cellular level, emphasizing membrane physiology. Part two presents the anatomy and physiology of muscle cells. Part three discusses basic concepts in neurophysiology, starting with the organization of the nervous system, electrical and chemical transmission of nerve impulses, sensory systems, motor systems, autonomic nervous system, limbic system and the regulation of higher brain functions. Part four discusses the endocrine system and homeostatic balance, emphasizing hormonal regulation of nutrients and complex processes such as stress. Part five presents the physiology of reproduction. The process of sexual differentiation, the neuroendocrinology of the male and female reproductive system, sexual behavior, contraceptives, pregnancy and lactation are all briefly discussed. The ultimate goal of the course is to enable students to understand the basic physiological processes of vertebrates, and in particular, humans.

COURSE OBJECTIVES AND EXPECTED RESULTS:

1. Identify the main features of the endocrine system under discussion. Describe and discuss the relevant new information presented in the literature and attempt to provide a unifying theory for the data discussed.
2. Describe the new information in detail, paying particular attention to new findings, which may be of value to other areas of science, as well as endocrinology.
3. Examine the molecular and cellular basis of the discovery presented in seminar or group discussion.
4. Analyze events that lead up to the discovery presented. Show how the investigators took advantage of previous knowledge to come to the new discovery.

The students should provide proficiency with the course objectives, that will be measured by analysis, integration and comparison of the above mentioned concepts, that will be evaluated through multiple choice questions, essay exams, term papers, presentations and/or publications.

COURSE TOPICS AND TIME DISTRIBUTION:
TO BE ANNOUNCED

TEACHING STRATEGIES:

METHODS:

Seminars

Group discussions

Assigned readings

AUDIOVISUAL RESOURCES:

Power Point

Transparencies

Blackboard

ESSENTIAL REQUIREMENTS:

Attendance

Class Participation

EVALUATION STRATEGIES:

First Exam:	8 lectures/29 total lectures: 27.5 %
Second Exam:	11 lectures/29 total lectures: 38 %
Third exam:	10 lectures/29 total lectures: 32.5%
Oral report:	4 %
Participation and attendance:	<u>2 %</u>
	100%

EVALUATION SYSTEM:

A 90-100 %

B 80-89 %

C 70-79 %

D 60-69 %

F 50-59 %

BIBLIOGRAFY:

- 1) **Physiology 5th ed. (2004) Robert M. Berne et al., Mosby**
- 2) **Recent scientific articles to be selected by the instructors.**

REASONABLE ACCOMODATION STATEMENT:

Students with a health condition or situation that, according to the law, makes them eligible for reasonable accommodation have the right to submit a written application to the professor and the dean of their Faculty, according to the procedures established in the document Submittal Process for reasonable Accommodation of the Medical Sciences Campus. A free copy of this document may be obtained at the Office of the Dean for Student Affairs, second floor of the School of Pharmacy building; phone 787-758-2525 ext. 5203. A copy may also be obtained at the Office of the faculty Deans as well as in the MSC web page. The application does not exempt the student from complying with the academic requirements pertaining to the programs of the Medical Sciences Campus.

ACADEMIC INTEGRITY

The University of Puerto Rico promotes the highest standards of academic and scientific integrity. Article 6.2 of the UPR Student Bylaws (Certification JS 13 2009–2010) states that "academic dishonesty includes but is not limited to: fraudulent actions, obtaining grades or academic degrees using false or fraudulent simulations, copying totally or partially academic work from another person, plagiarizing totally or partially the work of another person, copying totally or partially responses from another person to examination questions, making another person to take any test, oral or written examination on his/hers behalf, as well as assisting or facilitating any person to incur in the aforementioned conduct". Fraudulent conduct refers to "behavior with the intent to defraud, including but not limited to, malicious alteration or falsification of grades, records, identification cards or other official documents of the UPR or any other institution." Any of these actions shall be subject to disciplinary sanctions in accordance with the disciplinary procedure, as stated in the existing UPR Student Bylaws.

DISCLAIMER: The above statement is an English translation, prepared at the Deanship of Academic Affairs of the Medical Sciences Campus, of certain parts of Article 6.2 of the UPR Student Bylaws "Reglamento General de Estudiantes de la Universidad de Puerto Rico", (Certificación JS 13 2009-2010). It is in no way intended to be a legal substitute for the original document, written in Spanish.