

Saint Louis University
Madrid Campus

Human Physiology PPY-254

Lecturer: Dr. Anya M. Hillery
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Semester: Fall 2014
Credits: 4
Timetable: Tues, Thurs: 11.00-12.15pm
Wed: 11-11.50am
Padre Rubio Hall, Room 10
Office Hours: 12.00 – 14.00 (Wed)
Other times arranged by request.
Office Location: Science Office, Padre Arrupe Hall (first floor, turn left,
down at the end of the corridor)
Text: *Principles of Anatomy and Physiology*
G.J. Tortora and B.H. Derrickson.
Wiley; 13th edition

Course Objective:

To provide a basic introduction to human physiology: the study of the *functions* of the human body and its constituent parts.

Description of the Course:

This course begins with an overview of the body as a whole, its constituent levels of organization and a description of how the various systems work together to provide an integrated whole. The crucial concept of homeostasis and the importance of homeostatic control mechanisms are also introduced at the beginning, to serve as the unifying theme for the subsequent study of the body systems.

The course then follows with a detailed study of the physiology of seven different systems of the human body: the skeletal, muscle, nervous, endocrine, cardiovascular, respiratory, digestive, urinary and reproductive systems.

Throughout the course, the complementarity of structure and function is emphasised. Also, every opportunity is taken to highlight homeostatic mechanisms within the system under consideration and how these mechanisms contribute to overall homeostasis.

Course Contents and Learning Outcomes:

The course is divided into 4 main areas of study:

Part 1: An introduction to the physiology of the human body

Learning Outcomes:

The student will understand the levels of body organization, the concept of homeostasis and feedback control, the function of the major physiologically relevant macromolecular groups in the human body, the physiology of cells and cell membranes, with particular focus on plasma membrane transport, tissues.

Part II: Principles of support and movement (bones and muscles)

Learning Outcomes:

The student will understand the functions of bone and the skeletal system, and the principles of bone formation, mineralization, growth and resorption.

The student will understand the different types of muscle, the sliding-filament model, the contraction cycle, excitation-contraction coupling, muscle metabolism, the control of muscle tension, and the neuromuscular junction.

Part III: Systems of communication and control (nerves and hormones)

Learning Outcomes:

The student will understand the physiology of nervous tissue, including the generation and propagation of action potentials, and signal transmission at synapses. The student will understand reflex responses and neuronal pathways of the spinal cord, the functions of the different regions of the brain and also brain integration, how the autonomic nervous system works, and the physiology of the somatic and special senses.

The student will have an understanding of the functions of the various organs of the endocrine system and how the endocrine and nervous systems function together to attain homeostasis.

Part IV: Maintenance of the human body

Learning Outcomes:

The student will understand the physiology of the cardiovascular, lymphatic, respiratory, digestive, urinary and reproductive systems, both alone and how they function together, to achieve homeostasis.

These areas are sub-divided into the following topics, with the following tentative timeline:

Week	Topic
1	Introduction to physiology and homeostasis
2	Macromolecules Cells
3	Tissues
4	Bones
5	Muscles
6	Nerves: electrical signals, Resting Potentials and Action Potentials
7	FIRST MID-TERM EXAMINATION Nerves: synapses and neurotransmitters, CNS and PNS
8	Special senses
9	The endocrine system
10	The cardiovascular system
11	The cardiovascular system ctd. SECOND MID-TERM EXAMINATION
12	The respiratory system
13	The digestive system
14	The urinary system
15	The reproductive systems
16	FINAL EXAMINATION

Examinations:

There are three main exams for this course: two mid-terms and a final exam.

The exams are not cumulative, thus the first mid-term will examine the material covered up to this exam. The second mid-term will examine the material covered *after* the first mid-term and the final exam will examine the material covered *after* the second mid-term.

However, there is also a comprehensive final exam that examines **all** of the course material. This exam is obligatory for students who fail or miss either mid-term exam. It is voluntary for any students who, having done their mid-terms, would like to try and improve their grade (but a poor result may obviously reduce the grade).

Students who miss an exam are required to provide written documentation of the circumstances, e.g. doctor's medical certificate, letter from university counsellor, etc.

There will also be two Quizzes, taken in class, a week before the two mid-terms. The aim of these quizzes is to encourage study and revision for the mid-terms.

Important Dates!

- First Quiz: Wednesday 1 October
- First Mid-Term: Thursday 9 October
- Second Quiz: Wednesday 5 November
- Second Mid-Term: Thursday 13 November
- Final Exam: **Wednesday 17 December** (12.00-15.00).

Grades:

The final grade is calculated as follows:

First mid-term: 22%
Second mid-term: 22%
Final exam: 26%
Quizzes: 20% (10% each)
Home-work assignments: 10%

Homework assignments will be given throughout the semester. They will be marked and returned to the student. Homework is not accepted if handed-in late.

Class attendance is obligatory. Absence from class must be accounted for. Unaccountable absence will negatively affect the final grade. More than four unaccountable absences will result in a drop in the final grade. Continual lateness to class is disruptive and not acceptable.

Extensive use of the SLU GLOBAL Learning System will be employed. All lectures will be posted there in advance and it is highly recommended that you read the lectures before class and bring a printed copy with you to class.

Bibliography

The following books are stocked in the library and are recommended:

- Principles of Human Anatomy. (Tortora)
- Anatomy & Physiology (Thibodeau and Patton)
- Anatomy and Physiology: Colouring and Workbook (Ross & Wilson)
- Drug Delivery and Targeting for Pharmacists and Pharmaceutical Scientists (Hillery, Lloyd and Swarbrick)
- Human Biology: Form, Function and Adaptation (Dewitt)
- Molecular Biology of the Cell (Alberts, Bray et al)
- Biology: Concepts and Connections (Campbell, Mitchell, Reece)

Statement on Academic Honesty:

The University is a community of learning, whose effectiveness requires an environment of mutual trust and integrity, such as would be expected at a Jesuit, Catholic institution. As members of this community, students, faculty, and staff members share the responsibility to maintain this environment. Academic dishonesty violates it. Although not all forms of academic dishonesty can be listed here, it can be said in general that soliciting, receiving, or providing any unauthorized assistance in the completion of any work submitted toward academic credit is dishonest. It not only violates the mutual trust necessary between faculty and students but also undermines the validity of the University's evaluation of students and takes unfair advantage of fellow students. Further, it is the responsibility of any student who observes such dishonest conduct to call it to the attention of a faculty member or administrator.

Examples of academic dishonesty would be copying from another student, copying from a book or class notes during a closed-book exam, submitting materials authored by or editorially revised by another person but presented as the student's own work, copying a passage or text directly from a published source without appropriately citing or recognizing that source, taking a test or doing an assignment or other academic work for another student, tampering with another student's work, securing or supplying in advance a copy of an examination without the knowledge or consent of the instructor, and colluding with another student or students to engage in an act of academic dishonesty.

Where there is clear indication of such dishonesty, a faculty member or administrator has the responsibility to apply appropriate sanctions. Investigations of violations will be conducted in accord with standards and procedures of the school or college through which the course or research is offered. Recommendations of sanctions to be imposed will be made to the dean of the school or college in which the student is enrolled. Possible sanctions for a violation of academic integrity include, but are not limited to, disciplinary probation, suspension, and dismissal from the University. The complete SLU Academic Honesty Policy can be found at the following link:

http://spain.slu.edu/academics/academic_advising/docs/Academic_integrity.pdf

Students with Disabilities

In recognition that people learn in a variety of ways and that learning is influenced by multiple factors (e.g., prior experience, study skills, learning disability), resources to support student success are available on campus. Students who think they might benefit from these resources can find out more about:

Course-level support (e.g., faculty member, departmental resources, etc.) by asking your course instructor.

University-level support (e.g., tutoring/writing services, Disability Services) by visiting the Academic Dean's Office (San Ignacio Hall) or by going to http://spain.slu.edu/academics/learning_resources.html.

Students who believe that, due to a disability, they could benefit from academic accommodations are encouraged to contact Disability Services at +34 915 54 58 58,

ext. 204, send an e-mail to counselingcenter-madrid@slu.edu, or to visit the Counselling Office (San Ignacio Hall). Confidentiality will be observed in all inquiries. Course instructors support student accommodation requests when an approved letter from Disability Services has been received and when students discuss these accommodations with the instructor after receipt of the approved letter.

Collection of student work for assessment

Saint Louis University - Madrid Campus is committed to excellent and innovative educational practices. In order to maintain quality academic offerings and to conform to relevant accreditation requirements, we regularly assess our teaching, services, and programs for evidence of student learning outcomes achievement. For this purpose we keep on file anonymized representative examples of student work from all courses and programs such as: assignments, papers, exams, portfolios, and results from student surveys, focus groups, and reflective exercises. Thus, copies of your work for *PPY-254* (e.g. any exams, oral presentations, assignments, submitted papers and/or portfolios) may be kept on file for institutional research, assessment and accreditation purposes. *If you prefer that Saint Louis University-Madrid Campus does not keep your work on file, you will need to communicate your decision in writing to your professor.*