

	<p style="text-align: center;">HO CHI MINH UNIVERSITY OF TECHNOLOGY AND EDUCATION</p> <p style="text-align: center;">FACULTY OF ELECTRICAL AND ELECTRONICS ENGINEERING</p>	<p>Programme: Biomedical Engineering</p> <p>Programme Level: Undergraduate</p>
---	--	--

Syllabus

1. **Course Name:** Human and Animal Physiology and Anatomy
2. **Course Code:** HUAN330265
3. **Credits:** 3 credits (3:0:6) (3-hour lecture and 6 hours of self-study per week)
4. **Course Instructor(s):**
 - A. Dang-Khoa Tran, MEng
 - B. Dr. Van-Trinh Le
5. **Registration Requirements**
 - A. Pre-requisite Course(s): None
 - B. Previous Course(s): None

6. Course Descriptions:

The field of physiology includes the scientific study of the functions and mechanisms in living systems. As a sub-discipline of biology, physiology focuses on how organisms, organ systems, individual organs, cells, and biomolecules perform chemical and physical functions within a living system. According to the classes of organisms, the field can be divided into medical physiology, animal physiology, plant physiology, cell physiology, and comparative physiology.

The subject of human and animal physiology will focus on providing students with knowledge of the functional structure of organs in the human body. Students will understand the physiological systems, including the immune, cardiovascular, nervous, epidermal, muscular, respiratory, endocrine, and digestive systems. At the same time, the subject introduces more knowledge about many diseases and medical devices to diagnose and treat those diseases related to the above organs. Students learn the fundamental theories of structure, function, operating principle of medical devices related to human and animal physiological systems as above.

7. Course Learning Outcomes (CLOs)

CLOs	<p style="text-align: center;">Descriptions</p> <p style="text-align: center;">After completing this module you should be able to:</p>	ELO(s)/PI(s)	Competency
CLO1	Understand the link between human and animal physiology and existing problems in the biomedical field.	ELO1/PI1.2	R
	Explain the structures and functions of biological organs and the human physiological system.	ELO1/PI1.3	

CLO2	Convey understandings about human and animal physiology to others.	ELO6/PI6.3	R
	Read and understand documents written in English about human and animal physiology.	ELO6/PI6.4	
CLO3	Analyze medical problems to recommend improvements for state-of-the-art biomedical applications based on human and animal physiology knowledge.	ELO7/PI7.3	R

Notes: I: Introduction, R: Reinforce, M: Mastery

8. Course Content

- Structure and function: Levels of organization in the body, tissues, and organs.
- Physiological-immunological: Blood system, innate immunity and specific immunity.
- Cardiovascular system: Structure, function, blood exchange activities of the heart, electrocardiogram and electrocardiogram equipment.
- Nervous system: Brain organ, nervous system, electroencephalogram and electroencephalogram device.
- Epidermal system: Major functions of the skin and structures related to them, structure and function of sweat glands, sebaceous glands, skin diseases and related diagnostic technology.
- Muscular system: Characteristics, function and physiology of muscle contraction of some organs, electromyography and electromechanical measuring devices.
- Respiratory system: Definition, structure and activity of pulmonary gas exchange, lung diseases and imaging technology.
- Endocrine system: Endocrine organs, common endocrine diseases, diabetes and diabetes treatment system.
- Digestive system: Function and structure of the digestive system, digestion and absorption of food, some digestive diseases.

9. Teaching Methods

- Presentation
- Problem solving

10. Student Assessments

- Grading scale: **10**
- Assessment plan:

No.	Content	CLOs	Competency	Assessment Methods	Assessment Tools	Weighting (%)
Formative Assessment						50
1	Present the link between human and animal physiology and existing problems in the biomedical field.	CLO1	R	Short-answer questions	Questions	20

2	Understandings English terms used in human and animal physiology	CLO2	R	MCQs	MCQs	20
3	Ability to convey knowledge about human and animal physiology.	CLO2	R	Q&A	Grading rubric	10
Summative Assessment						50
4	- Explain the structures and functions of biological organs and the human physiological system. - Analysis of medical problems to improve biomedical devices based on human and animal physiology knowledge.	CLO1 CLO3	R	MCQs Essay	MCQs Questions	50

11. Learning Materials

- **Main reading:** Thomson, Anne, et al. Ross & Wilson Anatomy and Physiology in Health and Illness. 13th edition, Elsevier, 2018.

12. General Information

Academic Integrity

All students in this class are subject to HCMUTE's Academic Integrity Policy (<http://sao.hcmute.edu.vn/>) and should acquaint themselves with its content and requirements, including a strict prohibition against plagiarism. Any violations will be reported to the Faculty of Electrical and Electronic Engineering Dean's office.

Notice of Change

All information in this syllabus (other than grading and absence policies) may be subject to change with reasonable advanced notice. Students need to regularly update the information of their registered class.

Intellectual Property

All contents of these lectures, including written materials distributed to the class, are under copyright protection from HCMUTE's Intellectual Property Regulations. Notes based on these materials may not be sold or commercialized without the express permission of the instructor.

13. Approval Date:

14. Endorsement:

Dean of Faculty	Head of Department	Course Instructor
------------------------	---------------------------	--------------------------

Assoc. Prof. Minh-Tam Nguyen	Assoc. Prof. Thanh-Hai Nguyen	

15. Revision History:

1 st Revision:	<i>Course Instructor</i> Assoc. Prof. Thanh-Hai Nguyen <i>Head of Department</i>
2 nd Revision:	<i>Course Instructor</i> Assoc. Prof. Thanh-Hai Nguyen <i>Head of Department</i>