**COURSE OUTLINE**

1. **GENERAL**

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| **SCHOOL** | School of Health Sciences | | | | |
| **ACADEMIC UNIT** | Faculty of Medicine | | | | |
| **LEVEL OF STUDIES** | Undergraduate | | | | |
| **COURSE CODE** | ΙΑΥ 102 | **SEMESTER** | | 2nd | |
| **COURSE TITLE** | Physiology I | | | | |
| **INDEPENDENT TEACHING ACTIVITIES** *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits* | | | **WEEKLY TEACHING HOURS** | | **CREDITS** |
| Lectures and laboratory exercises | | | 12 | | 7 |
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|  | | |  | |  |
| *Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).* | | |  | |  |
| **COURSE TYPE**  *general background,  special background, specialised general knowledge, skills development* | General background | | | | |
| **PREREQUISITE COURSES:** |  | | | | |
| **LANGUAGE OF INSTRUCTION and EXAMINATIONS:** | Greek | | | | |
| **IS THE COURSE OFFERED TO ERASMUS STUDENTS** | No | | | | |
| **COURSE WEBSITE (URL)** | https://ecourse.uoi.gr/enrol/index.php?id=206 | | | | |

1. **LEARNING OUTCOMES**

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| **Learning outcomes** | |
| *The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.*  *Consult Appendix A*   * *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area* * *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B* * *Guidelines for writing Learning Outcomes* | |
| **Course Objective:** This course is considered basic as it focuses on the study and transfer of knowledge regarding the fundamental principles of internal environment control, mechanisms of substance transport across biological membranes, functional morphology of nerve and muscle cells, as well as the mechanisms governing the hematopoietic and digestive systems, including their associated disorders.  **Teaching Format and Outcomes:** The course is delivered through in-person instruction combined with laboratory exercises focusing on the hematopoietic and digestive systems. Additionally, students participate in group presentations on topics related to the hematopoietic system.  **Learning Objectives:** The objectives of the *Physiology I* course are:  a) By the end of the course, students will have a thorough understanding of hematological indices, enabling them to interpret hematological profiles and identify the type of anemia, jaundice, or coagulation disorders present.  b) Students will acquire knowledge of the functions, regulation, and mechanisms governing the gastrointestinal system, preparing them to understand both its normal functioning and related pathological conditions.  **Hours of Training per Student:** 104  **Semester:** 2nd  **ECTS Credits:** 7 | |
| **General Competences** | |
| *Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?* | |
| *Search for, analysis and synthesis of data and information, with the use of the necessary technology*  *Adapting to new situations*  *Decision-making*  *Working independently*  *Team work*  *Working in an international environment*  *Working in an interdisciplinary environment*  *Production of new research ideas* | *Project planning and management*  *Respect for difference and multiculturalism*  *Respect for the natural environment*  *Showing social, professional and ethical responsibility and sensitivity to gender issues*  *Criticism and self-criticism*  *Production of free, creative and inductive thinking*  *……*  *Others…*  *…….* |
| Working independently  Team work  Working in an international environment  Working in an interdisciplinary environment  Production of new research ideas | |

1. **SYLLABUS**

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| **General Cell Physiology**  ⚫Membrane Structure and Components: Proteins, lipids, formation and properties of the lipid bilayer, biological membranes. ⚫ Movement of Substances in Body Spaces: Cell membrane polarization, passive, facilitated, and active transport; channels and pumps; ATP-ases; primary and secondary active transport. ⚫ Functional Morphology of the Nerve Cell: Structure and function of nerve cells. ⚫ General Physiology of Striated and Smooth Muscles: Muscle contraction, cardiac muscle, nerve and neuromuscular synapse, and drugs affecting the neuromuscular synapse. ⚫ General Physiology of Peripheral Nerves: Sensory receptors and their functions.  **Physiology of the Hematopoietic System**  ⚫Homeostasis and Control Systems: General blood characteristics; red blood cells and hematological markers. ⚫ Erythropoiesis and Related Factors: Iron metabolism, iron deficiency anemia, aplastic anemia, and megaloblastic anemia. ⚫Hemolysis: Congenital and acquired hemolytic anemias. ⚫White Blood Cells and Immunity: The body’s resistance to infection, inflammation, innate and acquired immunity, transfusions, and allergies. ⚫Blood Types: Rhesus incompatibility. ⚫Platelets and Hemostasis: Fibrinolysis, hemorrhagic and thromboembolic conditions, anticoagulants. ⚫ Bone Marrow and Reticuloendothelial System: Functions and importance. ⚫Blood Plasma and Serum Proteins: Maintenance of water balance in vessels and interstitial spaces. ⚫Hemoglobin Biosynthesis and Degradation: Jaundice, bile pigments, and related conditions.  **Digestive System Physiology**  ⚫ Basic Functions of the Gastrointestinal System: Breakdown and absorption of nutrients, regulation of gastrointestinal motility, secretion of digestive enzymes, and other substances. ⚫ Neuromuscular Function: Role of the enteric nervous system and interaction with the autonomic nervous system. ⚫Regulation of Gastrointestinal Function: Hormonal regulation and the interaction between nervous and endocrine mechanisms. ⚫ Organ-Specific Functions: Role of the mouth, stomach, small and large intestines, liver, and gallbladder, with a focus on physiological functions related to digestion and absorption. ⚫Microbiota: Importance of the microbiota in digestion, immunity, and overall health. ⚫Pathophysiological Conditions: Basic principles of disorders such as gastroesophageal reflux disease, irritable bowel syndrome, and inflammatory bowel disease. |

1. **TEACHING and LEARNING METHODS - EVALUATION**

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| **DELIVERY** *Face-to-face, Distance learning, etc.* | Face-to-face  In the classroom with personal presence  In the laboratory exercise room with personal presence |
| **USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY** *Use of ICT in teaching, laboratory education, communication with students* | Use of ICT: PowerPoint and video projectors are utilized during lectures, laboratory exercises, and student assignments for presentations on topics related to the course material. Use of Experimental Simulation Programs: Physio-Ex 7.0 is employed during laboratory exercises to simulate experimental processes. |
| **TEACHING METHODS**  *The manner and methods of teaching are described in detail.*  *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.*  *The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS* | |  |  | | --- | --- | | ***Activity*** | ***Workload of each students group*** | | *Lectures* | 52 | | *Laboratory practice* | 40 | | *Project* | 30 | | *Essay writing* | 16 | | *Study and analysis of bibliography* | 72 | | Sum | **210** | |
| **STUDENT PERFORMANCE EVALUATION**  *Description of the evaluation procedure*  *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other*  *Specifically-defined evaluation criteria are given, and if and where they are accessible to students.* | Open-ended questions / multiple choice questionnaires / short-answer questions  Written work, essay/report and Public presentation  Laboratory work |

1. **ATTACHED BIBLIOGRAPHY**

*Teaching - study material*

**1**.Τίτλος: OXFORD Φυσιολογία του Ανθρώπου. Συγγραφείς: Pocock G., Richards C.D., Richards D.A. Εκδότης/Διαθέτης: Broken Hill Publishers Ltd – Πασχαλίδης, c2024. Έκδοση: 1/2023. ISBN: 9789925588831. Κωδικός Εύδοξου: 112690867.

**2**. Τίτλος: Vander’s Φυσιολογία του Ανθρώπου. Συγγραφείς: Eric P. Widmaier, Hershel Raff, Kevin T. Strang. Εκδότης/Διαθέτης: UTOPIA ΕΚΔΟΣΕΙΣ Μ. ΕΠΕ. Έκδοση: 16η αμερικανική-3η ελληνική/2022. ISBN: 9786185173807. Κωδικός Εύδοξου: 112699188.

**3**. Τίτλος: Φυσιολογία του Ανθρώπου. Συγγραφείς: Silverthorn Dee Unglaub. Εκδότης/Διαθέτης: Broken Hill Publishers Ltd. Έκδοση: 1/2018. ISBN: 9789925563470. Κωδικός Εύδοξου: 77107020.