**Course Description Form**

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| 1. Course Name: | | | | | | | | |
| Physiology I | | | | | | | | |
| 1. Course Code: | | | | | | | | |
| WBM-31-04 | | | | | | | | |
| 1. Semester / Year: | | | | | | | | |
| Semester | | | | | | | | |
| 1. Description Preparation Date: | | | | | | | | |
| 2024-03-19 | | | | | | | | |
| 1. Available Attendance Forms: | | | | | | | | |
| presence in the classroom | | | | | | | | |
| 1. Number of Credit Hours (Total) / Number of Units (Total) | | | | | | | | |
| 30 Hours / 2 Units | | | | | | | | |
| 1. Course administrator's name (mention all, if more than one name) | | | | | | | | |
| Name: Saad M. Sarhan  Email: saad.mah@uowa.edu.iq | | | | | | | | |
| 1. Course Objectives | | | | | | | | |
| **Course Objectives** | | | | Physiology is the science of life. It is the branch of biology that aims to understand the mechanisms of living things, from the basis of cell function at the ionic and molecular level to the integrated behaviour of the whole body and the influence of the external environment. Research in physiology helps us to understand how the body works in health and how it responds and adapts to the challenges of everyday life; it also helps us to determine what goes wrong in disease, facilitating the development of new treatments and guidelines for maintaining human and animal health. | | | | |
| 1. Teaching and Learning Strategies | | | | | | | | |
| **Strategy** | | The underlying goal is to explain the fundamental mechanisms that operate in a living organism and how they interact. Besides satisfying a natural curiosity about how animals and humans function, the study of physiology is of central importance in medicine and related health sciences, as it underpins advances in our understanding of disease and our ability to treat it more effectively. It is also important from psychological and philosophical viewpoints, helping us to understand the nervous system, through which subjective experience is gained and behaviour and learning are controlled. | | | | | | |
| 1. Course Structure | | | | | | | | |
| **Week** | **Hours** | | **Required Learning Outcomes** | | **Unit or subject name** | | **Learning method** | **Evaluation method** |
| 1 +2+3 | 4 | | Introduction | | Introduction, general characteristics of the cell, the tissue, the organ, the system. | | Lectures presented in PDF format | Daily exams + homework assignments + monthly exams |
| 4+5+6 | 4 | | cell membrane | | Structure of the cell, cell membrane, composition of the cell membrane, structure of cell membrane, lipid layers of the cell membrane. | | Lectures presented in PDF format | Daily exams + homework assignments + monthly exams |
| 6+7 | 4 | | Lipid layers | | The function of the lipid layer of the cell membrane, protein layers of the cell membrane, functions of the protein in the cell membrane, cytoplasm. | | Lectures presented in PDF format | Daily exams + homework assignments + monthly exams |
| 8+9 | 4 | | Cell-to-Cell Adhesions | | Cell-to-Cell Adhesions, biological glue, cell junction, tight junctions, gap junctions, hemostasis highlights, overview of membrane transport. | | Lectures presented in PDF format | Daily exams + homework assignments + monthly exams |
| 10 +11 | 4 | | mechanism of transport | | The basic mechanism of transport, unassisted membrane transportation, simple diffusion, net diffusion, dynamic equilibrium, Fick’s law of diffusion, assisted membrane transport. | | Lectures presented in PDF format | Daily exams + homework assignments + monthly |
| 12 | 4 | | mechanism of transport | | Assisted membrane transportation (continued), Facilitated diffusion is passive carrier-mediated transport | | Lectures presented in PDF format | Daily exams + homework assignments + monthly |
| 13 | 4 | | Introduction to neural communication | | Introduction to neural communication, depolarization and hyperpolarization, electrical signals during changes in ion movement, Voltage-gated channels, chemically gated channels, thermally gated channels. Implicit differentiation and fraction power: Introduction, Examples. | | Lectures presented in PDF format | Daily exams + homework assignments + monthly |
| 14 | 4 | | Electric signaling | | Electric signaling, graded potentials, passive current flow, action potentials, all-or-none law, frequency of action potentials, myelinated fibers, velocity of action potential propagation. | | Lectures presented in PDF format | Daily exams + homework assignments + monthly |
| 15 | 4 | | Electrical synapses | | Electrical synapses, chemical synapses, neurotransmitter, excitatory synapses, inhibitory synapses, grand postsynaptic potential, temporal summation, spatial summation. | | Lectures presented in PDF format | Daily exams + homework assignments + monthly |
| 1. Course Evaluation | | | | | | | | |
|  Daily exams with practical and scientific questions. ‏   Participation scores for difficult competition questions among students   Establishing grades for environmental duties and the reports assigned to them   Semester exams for the curriculum, in addition to the mid-year exam and final exam | | | | | | | | |
| 1. Learning and Teaching Resources | | | | | | | | |
| Required textbooks (curricular books, if any) | | | | | | • Physiology for Engineers (Applying Engineering Methods to Physiological Systems)  Michael Chappell  Department of Engineering Science University of Oxford  • Introduction to modeling in physiology and medicine  Cobelli C., Carson E.  First edition | | |
| Main references (sources) | | | | | | • College library to obtain additional sources for the academic curricula  • Check scientific websites to see recent developments in the subject | | |
| Recommended books and references (scientific journals, reports...) | | | | | | All reputable scientific journals that are related to the broad concept of designing hospitals and their results | | |