

Subject Description Form

Subject Code	ABCT2133
Subject Title	Human Physiology
Credit Value	3
Level	2
Pre-requisite	General Biology
Objectives	To provide students with a physiological knowledge and an appreciation of the importance of physiology in the human body as well as its application in the field of biological science.
Intended Learning Outcomes	<p>On successfully completing this subject, students will be able to:</p> <ul style="list-style-type: none"> (a) explain and discuss the physiological controlling mechanisms in the human body which are essential to life and apply their knowledge to specialized areas of physiology or multi-disciplinary areas of biotechnology (b) generate an appreciation of the well controlled and integrative nature in the operation of the different body systems for survival (c) discuss the importance of communication and homeostasis at different levels of body organization in health and disease; (d) develop a broad and balanced foundation of biological science knowledge and practical skills related to physiology.
Subject Synopsis/ Indicative Syllabus	<p>Nervous system: Generation of the various types of membrane potentials and their interrelationship, roles and significance; mechanisms of generation of receptor potentials; synapses and neurotransmitters; function of the sensory cortex and transmission of nervous modulations from the periphery to the sensory cortex. Effects of drugs and poisons on the function of the nervous system.</p> <p>Cardiovascular system: Structure and function of the heart and blood vessels; role of the pacemaker, nervous and endocrine control of cardiac functions; haemodynamics and blood flow; thrombosis and anticoagulation</p> <p>Respiratory system: Ventilation and lung mechanics; significance of forced vital capacity and expiratory volume exchange; transport of blood gases; mechanism of chemical control of ventilation rate.</p> <p>Digestive system: Digestion and absorption; regulation of the digestive processes.</p> <p>Endocrine system: Organization of the endocrine system; classification and chemistry of hormones; controlling mechanisms of hormone secretion; function of various types of hormones.</p>

	<p>Renal system: Renal reabsorption processes; significance of the long and short loop of Henle; function of the vasa recta; regulation of acid-base balance.</p> <p>Reproductive system: Male and female reproductive physiology; female sex cycle; menopause and the male climacteric; integration with the other systems.</p> <p>Musculoskeletal system (structure of skeletal muscle; classification of muscle and muscle contraction, mechanism of muscle contraction; energy requirement of skeletal muscle; neural control of muscle contraction; structure of bone and cartilage; growth and remodeling of bone; calcium homeostasis)</p>																																																							
<p>Teaching/Learning Methodology</p>	<p>Lectures are designed to provide students with the physiological knowledge and its application in the field of biological science. Tutorial classes and Blackboard platform will be used to gauge their learning and performance. Laboratory classes are used to introduce students to physiological laboratory techniques and provide demonstrations of physiological processes learned in lectures, develop their skills to interpret data and report writing. A variety of assessment tools will be used, including quizzes, assignments and reports to develop students' analytical and communication skills.</p>																																																							
<p>Assessment Methods in Alignment with Intended Learning Outcomes</p>	<table border="1" data-bbox="480 943 1428 1370"> <thead> <tr> <th rowspan="2">Specific assessment methods/tasks</th> <th rowspan="2">% weighting</th> <th colspan="6">Intended subject learning outcomes to be assessed (Please tick as appropriate)</th> </tr> <tr> <th>a</th> <th>b</th> <th>c</th> <th>d</th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>1. Attendance</td> <td>5%</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2. 2 x Tests</td> <td>35%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>3. Lab Reports</td> <td>10%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>4. Exam</td> <td>50%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>Total</td> <td>100%</td> <td colspan="6"></td> </tr> </tbody> </table> <p>Lecture: the fundamental principles and facts of physiological knowledge will be explained. Examples and applications in health or biological science will be used to illustrate the concepts and ideas in the lecture. Students are provided with an interactive software for independent studying and enhancing their knowledge of physiology through interactive experimental techniques. Questions and assignments will be given and students are encouraged to work through them.</p> <p>Tutorials and Laboratories: Data collected from the lab, review/problem solving questions or assignments will provide students with the opportunity to apply and consolidate the knowledge gained from the lecture. Analytical and writing skills from reports will be assessed.</p> <p>Students are required to attend at least 75% of scheduled sessions for the subject. Students fail to fulfill the attendance requirement will lose the 5% attendance score and not be eligible to register ABCT3108.</p>		Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)						a	b	c	d			1. Attendance	5%							2. 2 x Tests	35%	✓	✓	✓	✓			3. Lab Reports	10%	✓	✓	✓	✓			4. Exam	50%	✓	✓	✓	✓			Total	100%						
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<p>Student Study Effort Expected</p>	<p>Class contact:</p>																																																							
	<ul style="list-style-type: none"> ▪ Lectures/Tutorials 	<p>33 Hrs.</p>																																																						

	<ul style="list-style-type: none"> ▪ Laboratories 	9 Hrs
	Other student study effort:	
	<ul style="list-style-type: none"> ▪ Self Study ▪ Writing up laboratory reports 	6Hrs /week
	Total student study effort:	131 hours
	<ol style="list-style-type: none"> 1. Rhoades R. A. and Pflanzer R.G.: Human Physiology. Fourth Edition, Saunders, New York, USA, July 2003. 2. Vander, Sherman, Luciano's Human Physiology: The Mechanisms of Body Function. Mcgraw-Hill (Tx); 9th edition, January 2003. 	
Reading List and References		