

**SUMMARY OF INFORMATION ON EACH COURSE**

1.	Name of Course	Human Anatomy and Physiology								
2.	Course Code	HAP1011								
3.	Status of Course [Applies to (cohort) ]	Specialisation core for B. Sc (Hons) Bioinformatics								
4.	MQF Level/Stage	Bachelor – MQF Level 6								
5.	Version (State the date of the Senate approval – history of previous and current approval date)	Date of previous version : June 2013 Date of current version : June 2015								
6.	Pre-Requisite	None								
7.	Name(s) of academic/teaching staff	Dr Ng Chong Han Mr Leonard Yew Chi Boon Mr Cheong Soon Fatt								
8.	Semester and Year offered	Trimester 1, Year 2								
9.	Objective of the course in the programme : 1. To describe the structure and function of major organ systems. 2. To teach the fundamentals of physiological processes of these systems. 3. To relate structure to function.									
10.	Justification for including the course in the programme : HAP 1011 is a subject that describes the anatomy (structure) and physiology (function) of the healthy human body. This subject with other subjects, including Basic Human Genetics, Introduction to Human Pathology and Introductory Course to Pharmacology will provide a good foundation for Bioinformatics students to understand the general aspect of human health.									
11.	<b>Course Learning Outcomes :</b>		<b>Domain</b>	<b>Level</b>						
	LO1 Describe the basic organization (macroscopic level) of the human body and organ systems.		Cognitive	Level 2						
	LO2 Explain functions of major-systems in the human body		Cognitive	Level 4						
	LO3 Understand interrelationships between different organ systems.		Cognitive	Level 5						
	LO4 Describe control mechanisms operating in the human body.		Cognitive	Level 4						
12.	<b>Mapping of Learning Outcomes to Programme Outcomes :</b>									
	<b>Learning Outcomes</b>	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>
	LO1	X	X							
	LO2	X	X							
	LO3	X	X							
	LO4	X	X							
13.	<b>Assessment Methods and Types :</b>									
	<b>Method and Type</b>		<b>Description/Details</b>						<b>Percentage</b>	
	Final Exam		Written examination						50	
	Tests (Quiz and Midterm test)		Written examination						30	
	Assignment		Report & Presentation						10	
	Lab		Lab reports						10	
14.	<b>Mapping of assessment components to learning outcomes (LOs)</b>									
	<b>Assessment Components</b>	<b>Percentage</b>	<b>LO1</b>	<b>LO2</b>	<b>LO3</b>	<b>LO4</b>				

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	Final Exam	50	55.6	55.6	55.6	55.6
	Tests (Quiz and Midterm test)	30	33.3	33.3	33.3	33.3
	Assignment	10			11.0	11.1
	Lab Reports	10	11.1	11.0		
15.	<b>Details of Course</b>					
	<b>Topics</b>	<b>Mode of Delivery</b>				
		<b>Lec</b>	<b>Lab</b>	<b>Tut</b>		
	<b>1. Organization of the Body</b> i. Introduction to body organization ii. The Tissue level of organization	1	2			
	<b>2. The Nervous System</b> i. Central nervous system ii. Function of neurons iii. Peripheral nervous system iv. Reflexes	3	2			
	<b>3. Skin and Sensory Systems</b> i. Touch/Pain, Vision, Hearing/Balance, Olfaction, Taste	3	2	1		
	<b>4. Musculoskeletal System</b> i. Bones, Muscles, Joints	3	1			
	<b>5. The Cardiovascular System</b> Anatomy i. The Heart • Structure – chambers and valves • Conduction system • Great vessels of the heart • Blood supply of the heart ii. The Circulatory System • Types of blood vessels • Major arteries and veins • The pulmonary and systemic circulation  Physiology i. Physiology of the Heart • Electrical properties and conduction • Control of the heart – neural and endocrine • Regulation of cardiac output ii. Physiology of Circulation • Principles and regulation of blood flow and blood pressure	4	3			

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<p><b>6. The Respiratory System</b>            Anatomy            i. The Respiratory Tract            ii. The Structure of the Lungs            Physiology            i. Respiration and Control of Breathing            ii. Gas Transport &amp; Exchange            iii. Adjustment during Exercise and at High Altitudes</p>	2	2	
<p><b>7. The Urinary System</b>            Anatomy            i. Anatomy of the Kidney            ii. The Nephron            iii. Accessory Excretory Structure             Physiology            i. Physiology of the Kidneys           <ul style="list-style-type: none"> <li>• Glomerular filtration</li> <li>• Tubular secretion and reabsorption</li> <li>• The counter current mechanism</li> <li>• Plasma clearance</li> </ul> </p>	2	2	1
<p><b>8. The Gastrointestinal System</b>            Anatomy            i. Anatomy of the           <ul style="list-style-type: none"> <li>• Pharynx and oesophagus</li> <li>• Stomach</li> <li>• Small and large intestine</li> <li>• Liver and pancreas</li> </ul>           Physiology            i. Digestion and absorption            ii. Functions of the liver</p>	2	1	
<p><b>9. The Reproductive Systems</b>            Anatomy            i. Female Reproductive System           <ul style="list-style-type: none"> <li>• Ovary and uterus</li> <li>• Breast</li> </ul>           ii. Male Reproductive System           <ul style="list-style-type: none"> <li>• Testis and accessory structures</li> </ul>           iii. Development of the Reproductive Systems            Physiology            i. Spermatogenesis and Oogenesis            ii. The Ovarian and Uterine Cycle            iii. Physiology of Pregnancy            iv. Changes at Puberty and Menopause</p>	4	2	

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	<b>10. The Endocrine System</b> i. Anatomy of major Endocrine System ii. Physiology <ul style="list-style-type: none"> <li>• Chemistry of Hormone</li> <li>• Mechanisms of Hormone Action</li> <li>• Control of Hormone Release</li> <li>• The Hypothalamic-Pituitary Axis</li> <li>• Actions of Major Target Hormones</li> </ul>	4	1	1
	<b>Total</b>	<b>28</b>	<b>15</b>	<b>3</b>
<b>Laboratory</b>				
Lab 1: Explore the human organs according to system Lab 2: Quantify Compound Action potential of a frog nerve Lab 3: Explore human heart electrical impuls Lab 4: Study different volume and capacity of breathing Lab 5: Stimulate the function of kidney using Physio-X Lab 6: Stimulate the function of digestive enzyme Lab 7: Stimulate the function of major hormone of the human body using physio-x				
	<b>Total Student Learning Time (SLT)</b>	<b>Face to Face / Guided Learning</b>	<b>Independent Learning</b>	
	Lecture	28	28	
	Tutorials	3	3	
	Laboratory/Practical	15	8	
	Assignment	1	10	
	Mid Term Test	1	3	
	Quizzes	3 times	3	
	Final Exam	2	15	
	Sub Total	50	70	
	<b>Total SLT</b>	<b>120</b>		
16.	Credit Value	<b>3</b>		
17.	Reading Materials :			
	<b>Textbooks</b>			
	<i>Seeleys Anatomy &amp; Physiology 10<sup>th</sup> Ed.</i> VanPutte Cinnamon, Jennifer Regan, Andrew Russo, Philip Tate, Trent Stephens and Rod Seeley. McGraw Hill. 2013			
	PhysioEx™ 9.0 for Human Physiology: Laboratory Simulations in Physiology (Version 9.0). Peter Zao, Timothy Stabler, Lori Smith, Andrew Lokuta and Edwin Griff. Benjamin Cummings. 2011			
	<b>Reference Material (including 'Statutes' for Law)</b>			
	<i>Human Anatomy and Physiology.</i> 9 <sup>th</sup> Edition. Elaine N. Marieb and Katja Hoehn. Benjamin Cummings, 2012.			

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Appendix (to be compiled when submitting the complete syllabus for the programme) :

1. Mission and Vision of the University and Faculty
2. Programme Objectives or Programme Educational Objectives
3. Programme Outcomes (POs)
4. Mapping of POs to the 8 MQF domain
5. Summary of the Bloom's Taxonomy's Domain Coverage in all the Los in the format below :

Subject	Learning Outcomes (please state the learning outcomes)	Bloom's Taxonomy Domain		
		Affective	Cognitive	Psychomotor
ABC1234	Learning Outcome 1			
	Learning Outcome 2			
	Learning Outcome 3			
	Learning Outcome 4			
DEF5678	Learning Outcome 1			
	Learning Outcome 2			
	Learning Outcome 3			
	Learning Outcome 4			

6. Summary of LO to PO measurement
7. Measurement and Tabulation of result for LO achievement
8. Measurement Tabulation of result for PO achievement