

SUMMARY OF INFORMATION ON EACH COURSE

1.	Name of Course	Basic Human Genetics								
2.	Course Code	HHG1011								
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 : April 2014 Date of current version: August 2015								
6.	Pre-Requisite	None								
7.	Name(s) of academic/teaching staff	Cheong Soon Fatt Amelia Kassim								
8.	Semester and Year offered	Trimester 2, Year 2								
9.	Objective of the course in the programme : 1. To introduce the students to the principles of human genetics 2. To provide an understanding of the fundamental concepts in genetics 3. To provide an overview of gene testing for mutations									
10.	Justification for including the course in the programme : This subject provides fundamental knowledge required for bioinformatics students to learn advanced aspects in body development and human diseases.									
11.	Course Learning Outcomes :		Domain			Level				
	LO1	Explain the basic principles in human development, gene inheritance and genetic variations	Cognitive			Level 2				
	LO2	Comprehend the basic principles in genetic polymorphism, mutations and population genetics.	Cognitive			Level 2				
	LO3	Explain the molecular basis of common diseases and cancers.	Cognitive			Level 2				
	LO4	Apply the various strategies and approaches in genetic testing, disease prevention through molecular techniques, gene therapy and gene cloning.	Cognitive			Level 3				
12.	Mapping of Learning Outcomes to Programme Outcomes :									
	Learning Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
	LO1		X							
	LO2	X	X							
	LO3	X	X							

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	LO4		X						
13.	Assessment Methods and Types :								
	Method and Type		Description/Details					Percentage	
	Final Exam							50%	
	Tests (Quizzes and Midterm test)							30%	
	Assignment		Report & Presentation					10%	
Lab Reports							10%		
14.	Mapping of assessment components to learning outcomes (LOs)								
	Assessment Components		%	LO1	LO2	LO3	LO4		
	Final Exam		50	55.6	62.5	50	55.6		
	Tests (Quiz and Midterm test)		30	33.3	37.5	30	33.3		
	Assignment		10			10	11.1		
Lab Reports		10	11.1		10				
15.	Details of Course								
	Topics					Mode of Delivery			
						Lecture	Tutorial	lab	
	1	Introduction to Genetics	1	-	-				
2	Human Development <ul style="list-style-type: none"> Meiosis Gamete maturation Prenatal development Maturation and aging 	2	-	-					
3	The Human Genome <ul style="list-style-type: none"> Structure of the chromosome DNA structure and function Classes of DNA in the human genome Gene structure and organization Gene regulation and expression Epigenetics Coordinated gene expression Transcription of DNA Translation and Genetic Code Genetic mutation/Mechanism of disease 	5	-	-					

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4	Patterns of Single Gene Inheritance <ul style="list-style-type: none"> Autosomal inheritance Sex linked inheritance Phenotypic expression Non-classical patterns of inheritance Molecular pathology of single gene disorders 	3	1	3
5	Multifactorial Inheritance	1	-	-
6	Human Population Genetics <ul style="list-style-type: none"> Phenotypes, genotypes and gene frequencies Hardy-Weinberg equilibrium Human mutation rates 	2	-	3
7	Genetic Variation, Polymorphism and Mutation	2		-
8	Multifactorial diseases <ul style="list-style-type: none"> Metabolic disorders: Diabetes immune system disorders: Asthma Cardiovascular diseases 	2	1	3
9	Pharmacogenetics	1	-	-
10	Cancer <ul style="list-style-type: none"> Tumour viruses and oncogenes Cancer suppressor and anti-oncogenes Rare genetic disorders that predispose towards cancer 	3	1	-
11	Approach to Gene Testing <ul style="list-style-type: none"> Cytogenetics Molecular cytogenetics Molecular genetics Cancer genetics Prevention of Disease <ul style="list-style-type: none"> Prenatal diagnosis Postnatal testing Genetic counseling Ethical issues 	2	-	3
12	Gene Therapy Gene Cloning <ul style="list-style-type: none"> Approach Ethical issues 	2	1	-

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	Total	26	4	12
	Laboratory			
	Lab 1 ABH Secretor test Lab 2 Mendelian patterns of inheritance and Population genetics Lab 3 Mendelian genetics of Corn Lab 4 Bioinformatics analysis of human genetics diseases			
	Total Student Learning Time (SLT)	Face to Face / Guided Learning	Independent Learning	
	Lecture	26	26	
	Tutorials	4	4	
	Laboratory/Practical	12	6	
	Presentation	-	-	
	Assignment	-	10	
	Mid Term Test	1	5	
	Final Exam	2	20	
	Sub Total	45	75	
	Total SLT	120		
16.	Credit Value	3		
17.	Reading Materials :			
	Textbooks			
	Ricki Lewis (2014) Human Genetics – Concepts and Applications. 11 th Edition. WCB/McGraw Hill.			
	Reference Material (including ‘Statutes’ for Law)			
	Michael Cummings (2015) Human Heredity: Principles and Issues. 11 th Edition. Cengage Learning.			

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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
HHG1011	Learning Outcome 1		2	
	Learning Outcome 2		2	
	Learning Outcome 3		2	
	Learning Outcome 4		3	

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