UNIVERSITI TEKNOLOGI MARA

BIO095: FOUNDATION BIOLOGY II

Course Name (English)	FOUNDATION BIOLOGY II APPROVED
Course Code	BIO095
MQF Credit	5
Course Description	This course contains eight chapters which include genetic inheritance and genetic control, gene technology, homeostasis, reproductive system, hormonal and nervous communication, circulatory system, immune system and respiratory system. These topics examine the inheritance, gene expression and regulation, DNA technology and physiology of humans and selected organisms.
Transferable Skills	Demonstrate ability to identify and articulate self skills, knowledge and understanding confidently in a variety of contents.
Teaching Methodologies	Lectures, Lab Work, Tutorial, Discussion, Presentation
CLO	CLO1 Apply concepts of homeostasis and animal structure and function to solve problems related to genetics and animal physiology. CLO2 Display basic scientific skills in genetics and animal physiology. CLO3 Demonstrate social skills and responsibilities for the well-being of the society by sharing and creating awareness of genetics and animal physiology common diseases and health issues in Malaysia. CLO4 Demonstrate communication skills in written related in genetics and animal physiology.
Pre-Requisite Courses	No course recommendations

Topics
1. Genetic Inheritance & Genetic Control 1.1) Mendelian genetics 1.2) DNA structure and replication 1.3) Protein synthesis 1.4) Gene regulation and expression 1.5) Mutation 1.6) Population genetics
2. Gene technology 2.1) Recombinant DNA technology
3. Homeostasis 3.1) Definition, importance and mechanism of homeostasis 3.2) Negative feedback mechanism 3.3) Positive feedback mechanism
4. Reproductive system 4.1) Types of reproduction in plants and animals 4.2) Types of fertilization 4.3) Gametogenesis 4.4) Human reproduction
5. Hormonal and Nervous Communication 5.1) Major endocrine glands and functions 5.2) Structure of neuron 5.3) Neuron transmission of impulse 5.4) Comparison between hormonal and nervous communication

6. Circulatory system 6.1) Open circulatory system and close circulatory system 6.2) Single circulation and double circulation 6.3) Structure and function of the heart and blood vessels 6.4) Heart circulation, cardiac cycle and cardiac output 6.5) Cardiovascular disease 6.6) Blood pressure 6.7) Diseases related to lymphatic system
7. Immune system 7.1) Three lines of defence 7.2) Process of humoral immune response and cell-mediated immune response 7.3) Homeostatic imbalance in the immune system 7.4) Infectious diseases
8. Respiratory system 8.1) Outline of the respiratory system 8.2) Structure of alveolus 8.3) Breathing cycle 8.4) Effect of smoking

Assessment Breakdown	%
Continuous Assessment	100.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Final Test	Final test. Covers Genetic Inheritance & Genetic Control, Gene Technology, Homeostasis, Reproductive System, Hormonal and Nervous Communication, Circulatory system, Immune System and Respiratory System.	50%	CLO1
Lab Exercise	Lab 1 - DEMONSTRATION OF PROTEIN SYNTHESIS. Lecturer demonstrate protein synthesis process followed by students. Lab 2 - KIDNEY FUNCTION & PHYSIOLOGY. Students draw and label structures of kidney and observe prepared slide of human kidney. Lab 3- REPRODUCTIVE, ENDOCRINE SYSTEM AND MOUSE DISSECTION. Students draw and label the structures of stated structures based on diagram and mouse dissection Lab 4- CARDIOVASCULAR PHYSIOLOGY. Students draw and label the structures of human heart. Students measures blood pressure and heart rate both during resting and active state. Lab 5 -LEUKOCYTES ASSESSMENT AND BLOOD AGGLUTINATION. Students observe different types of blood cells in prepared	15%	CLO4
Presentation	Presentation to create awareness about common health issues in Malaysia via poster, oral or video presentation.	10%	CLO3
Quiz	Written quiz. 20-minute duration. Individual assessment. Quiz consist of the following chapter; Genetic Inheritance & Genetic Control, Reproductive system, and Immune system	5%	CLO1
Test	Mid-term test: A one and half hour examination. One seating. Topics covered are Genetic Inheritance & Genetic control and Gene Technology	15%	CLO1
Visual Asssessment	Lab Observation. Observation on lab skills, management, teamwork, and scientific skills of group member	5%	CLO2

Reading List

Reference Book Resources

- **Solomon P. Eldra, Martin E. Charles, Martin W. Diana, Berg R. Linda, Biology, 11th, Cengage 2019, *Biology*, 11 Ed., CENGAGE [ISBN: 9781337392938]**
- **Lisa A. Urry,Michael L. Cain,Steven A. Wasserman,Peter V. Minorsky,Jane B. Reece,Neil A. Campbell, 2017, *Biology*, 11 Ed., Pearson Education [ISBN: 9781292170435]**
- **Gerald Audesirk,Teresa Audesirk,Bruce E. Byer 2017, *Biology*, 11 Ed., Pearson Education [ISBN: 9781292158167]**

Article/Paper List: This Course does not have any article/paper resources

Other References: This Course does not have any other resources