

**Faculty of Oral & Dental Medicine**

**Botany & Genetics**

**Information :**

**Course Code :** SGS 132

**Level :** Undergraduate

**Course Hours :** 3.00- Hours

**Department :** Faculty of Oral & Dental Medicine

**Instructor Information :**

Title	Name	Office hours
Professor	Alyaa Ragaei Hassan Mohamed Mostafa	
Lecturer	Ahmed Saeed Abdelmawgood Ibrahim	

**Area Of Study :**

- Appreciate the nature of interactions between genes and the influence of gene interaction on inheritance patterns.
- Prepare and distinguish Gram +ve and Gram . ve bacteria.
- Begin to develop lab skills in DNA isolation from plant
- Be able to understand the different pathogens causing infection and hence know what is infection control strategies in clinics and hospitals.

**Description :**

Basic microbiology (viruses , basic structure - replications - classifications of bacteria). Plant physiology (enzymes and enzyme kinetics) systematic botany (organizations of prokaryotic and eukaryotic plant cells -characteristic features, fungal , algal , non vascular and vascular plant)

**Course outcomes :**

**a. Knowledge and Understanding: :**

1 -	Explore the system of classification of plants bacteria and fungi..
2 -	Familiarize the students with the general characteristics of microorganisms.
3 -	Describe the general characteristics of viruses and the different methods of infection and multiplication.
4 -	Introduce students to the fundamentals of molecular genetics.
5 -	Explore the DNA structure and replication.
6 -	Understand the different concepts of plant genetics.
7 -	Be able to discuss the molecular aspects of chromosome and gene structure, how genes are replicated, expressed and regulated.
8 -	Appreciate the nature of interactions between genes and the influence of gene interaction on inheritance patterns.
9 -	Prepare students for heredity diseases in advanced levels.

**b. Intellectual Skills: :**

1 -	Use the library and internet resources to develop independent study skills through assignments.
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2 -	Distinguish between organic and genetically modified organisms through case studies and debates
3 -	Prepare and distinguish Gram +ve and Gram . ve bacteria.
4 -	Identify different fungi microscopically
5 -	Virus detection by haemagglutination tests

**c. Professional and Practical Skills: :**

1 -	Identify cell structure of the plant.
2 -	Begin to develop lab skills in DNA isolation from plant
3 -	Distinguish the microbial pathogens
4 -	Develop an informed interest in matters of scientific importance and recognize the usefulness, and limitations, of the advances in genetics research.
5 -	Conduct experiments and be able to write a report

**d. General and Transferable Skills: :**

1 -	Apply the genetics study in other medicinal disciplines and be stimulated for studies related to the course beyond this introductory level.
2 -	Apply the study of systematics (bacteria, fungi and viruses) to identify the pathogenic forms.
3 -	Be able to understand the different pathogens causing infection and hence know what is infection control strategies in clinics and hospitals.

**Course Topic And Contents :**

Topic	No. of hours	Lecture	Tutorial / Practical
Classification of living organisms	4	Classificati on of living organisms	Classification of living organisms
Bacteria	4	Bacteria	Bacteria
Fungi	4	Fungi	Fungi
Virus	4	Virus	Virus
Introduction to Genetics (mitosis and meiosis)	4	Introductio n to Genetics (mitosis and meiosis)	Introduction to Genetics (mitosis and meiosis)
The genetic code, protein synthesis and Gene regulation	4	The genetic code, protein synthesis and Gene regul	The genetic code, protein synthesis and Gene regul
Mutation , Mendelian inheritance	4	Mutation , Mendelian inheritance	Mutation , Mendelian inheritance
Genes and diseases	4	Genes and diseases	Genes and diseases

**Course Topic And Contents :**

Topic	No. of hours	Lecture	Tutorial / Practical
Identification of inherited disease	4	Identificati on of inherited disease	Identification of inherited disease
Karyotype. Molecular genetics testing	4	Karyotype. Molecular genetics testing	Karyotype. Molecular genetics testing

**Teaching And Learning Methodologies :**

Lectures
Practical training
Demonstrations
Small group discussion

**Course Assessment :**

Methods of assessment	Relative weight %	Week No	Assess What
1st Mid Term Examination	20.00		
2nd Mid Term Examination	20.00		
Class work	20.00		
Final Written Examination	30.00		
Practical Examination	10.00		

**Recommended books :**

Principles of Botany by Uno etal., 2007  
Biology of plants by Peter Raven 2008