

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

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

b.Intellectual Skills: :

1 -	Virus detection by haemagglutination tests
2 -	Identify different fungi microscopically
3 -	Prepare and distinguish Gram +ve and Gram –ve bacteria.
4 -	Distinguish between organic and genetically modified organisms through case studies and debates

5 -	Use the library and internet resources to develop independent study skills through assignments.
c. Professional and Practical Skills: :	
1 -	Conduct experiments and be able to write a report
2 -	Develop an informed interest in matters of scientific importance and recognize the usefulness, and limitations, of the advances in genetics research.
3 -	Distinguish the microbial pathogens
4 -	Begin to develop lab skills in DNA isolation from plant
5 -	Identify cell structure of the plant.
d. General and Transferable Skills: :	
1 -	Be able to understand the different pathogens causing infection and hence know what is infection control strategies in clinics and hospitals.
2 -	Apply the study of systematics (bacteria, fungi and viruses) to identify the pathogenic forms.
3 -	Apply the genetics study in other medicinal disciplines and be stimulated for studies related to the course beyond this introductory level.

Course Topic And Contents :			
Topic	No. of hours	Lecture	Tutorial / Practical
Classification of living organisms	4	Classification 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	Introduction 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
Identification of inherited disease	4	Identification of inherited disease	Identification of inherited disease

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
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 et al., 2007
Biology of plants by Peter Raven 2008