## Faculty of Oral & Dental Medicine

## Botany & Genetics

**Information :**

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| **Course Code :** | SGS 132 | **Level :** | Undergraduate | **Course Hours :** | 3.00- Hours |

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

**Instructor Information :**

| Title | Name | Office hours |
|---|---|---|
| Lecturer | Dina Magdy Abdel Salam Abdel Aziz | |

**Area Of Study :**

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

**Description :**

Basic microbiolgy (viruses , basic structure - replications - classifications of bacteria). Plant physiolgy (enzymes and enzme kinetics) systematic botany (organizations of prokaryotic and eukaryotics plant cells -characteristic features, fungal , algal , non vascular and vascular plant)

**Course outcomes :**

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| **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. |
| 2 - | Distinguish between organic and genetically modified organisms through case studies and debates |

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| 3 - | Prepare and distinguish Gram +ve and Gram ï 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 | 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 |

**Course Topic And Contents :**

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

**Teaching And Learning Methodologies :**

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| 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