Noorul Islam Centre for Higher Education

(Deemed to be University u/s 3 of the UGC Act 1956)

Kumaracoil, Thuckalay, Kanyakumari District - 629 180

Accredited by NAAC with 'A' Grade

BM26 BSc Human Genetics and Molecular Biology

Student Performance and Learning Outcomes

BSc ALLIED HEALTH SCIENCE

BM26 BSc Human Genetics and Molecular Biology

Programme Outcome (PO)	
PO-A	Students are familiar with basic subjects of Human genetics and Molecular Biology
PO-B	Knowledge on the interdisciplinary subjects make them excel in the programme
PO-C	Provides solutions for their experiments through their theoretical knowledge.
PO-D	Based on the theoretical knowledge obtained, new solutions can be formulated for the genetic disorders
PO-E	Knowledge on genetics and their applications will help them to Diagnose prenatal disorders
PO-F	Provide genetic counselling to the society
PO-G	Giving awareness to the society about existing technologies in human genetics
PO-H	Group assignments and projects will make them to understand and cooperate with co-workers
PO-I	They can communicate with well versed with the team members about the problems and solutions in an effective manner
PO-J	In-plant training enables them to understand their roles and responsibilities as an professional geneticians in the society
PO-K	Designing new experimental methods for society in concern with genetics and social ethics
PO-L	Innovating reliable cost effective technology which can be affordable for all sector of the society
POM	Motivating the student to acquire update knowledge and innovations will make them continuous learner

PROGRAMME SPECIFIC OUTCOME(PSO)	
PSO-1	On successful completion of the course students will acquire knowledge about the genetic mechanisms that occur in the human body
PSO-2	To gain the basic and all aspects of knowledge about genetic diseases and its treatment process
PSO-3	To gain Knowledge about gene therapy and medical research in all medical fields and in health care industries
PSO-4	This programme could provide well trained Professionals as clinical geneticist and research analyst
PSO-5	This programmefamilarise students to get the basic knowledge about all the laboratory procedures in genetic research, stem cell and cancer research laboratories

2018-2019 (even)

Sl.No	Subject Code	Subject Name
SEMESTER II		
1.	BM2607	INTRODUCTION TO COMPUTER
2.	BM2608	PRINCIPLES OF IMMUNOLOGY
3.	BM2605	ORGANIC MECHANISM IN BIOLOGY
4.	BM2606	PLANT GENETICS
5.	BM2674	CYTOGENETIC TECHNIQUE LAB
6.	BM2675	INTRODUCTION TO COMPUTER LAB
7.	BM2676	PRINCIPLES OF IMMUNOLOGY LAB
SEMESTER IV		
8.	BM2614	MOLECULAR GENETICS
9.	BM2615	PRINCIPLES OF TRANSMISSION GENETICS
10.	BM2616	IMMUNOGENETICS
11.	BM2617	DEVELOPMENTAL GENETICS
12.	BM2618	BIOINFORAMTICS
13.	BM2614	MOLECULAR GENETICS LAB
14.	BM2682	IMMUNOGENETICS LAB
15.	BM2681	BIOINFORMATICS LAB

Introduction to computer – BM2607	
CO1	Upon successful completion of this course the students will able to understand about different types of computers
CO2	Student will understand about different types of OS
CO3	Students will become familiar with process, memory and device management
CO4	Understand about scientific package LOTUS
CO5	Understand about various software in Office automation

Principles of Immunology – BM2608	
CO1	To provide students with knowledge on how the immune system response
CO2	Students will acquire knowledge about regulation of immunoglobulin gene expression
CO3	Understand the significance of major histocompatibility complexes in terms of immune response
CO4	Know the importance of vaccine and vaccination
CO5	Students will be aware of autoimmunity and autoimmune diseases

Organic Mechanism in Biology – BM2605	
CO1	Upon successful completion of this course the students gain knowledge on metabolism, mechanism in Biology
CO2	Student will become understand about the common mechanism in biological chemistry
CO3	Students gain knowledge on biomolecules, hormones and vitamins
CO4	Students will become familiar with different metabolisms such as carbohydrates, proteins, nucleic acids
CO5	Students will understand about the synthesis and degradation of biomolecules

Plant genetics –BM2606	
CO1	To understand the molecular biology of plant reproduction
CO2	To analyse genes involved in organ development in plants
CO3	To understand the genome organization and molecular mechanism in plant development
CO4	To evaluate the principles and techniques of plant breeding in crop plants
CO5	To analyze the molecular techniques involved in crop improvement and genome mapping

Cytogenetic technique Lab –BM2674	
CO1	To understand the techniques in media preparation
CO2	To analyze culture of human, animal and plant cells
CO3	To understand slide preparation and staining techniques
CO4	To analyze karyotyping
CO5	To understand mitosis in plants

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Introduction to Computer Lab – BM2675	
CO1	Students are able to understand and access different types of office automation applications
CO2	Students are familiar to work with windows operating system
CO3	Students will become expert on DOS operating system
CO4	Student will understand about the word and excel
CO5	Upon successful completion of this course students will understand about windows, DOS, OS

Principles of Immunology Lab – BM2676	
CO1	Analyse the agglutination reaction by blood grouping
CO2	Determine the antibody titration by ouchterlony double diffusion
CO3	Analyse the antigen antibody reaction by immunoelectrophoresis method
CO4	Evaluate the antigen antibody reaction by coomb's test
CO5	Determine the effect of antigen antibody reaction by ELISA

Molecular Genetics – BM2614	
CO1	Learn how to separate, isolate, quantify and purify nucleic acids. Also they learn about gel electrophoresis
CO2	Learn about restriction endonucleases and ligation procedures
CO3	Know about various vectors used for cloning in both prokaryotes and eukaryotes
CO4	Study about the amplification and cloning strategies of DNA fragments
CO5	Learn the hybridization procedures and microarray

Principles of Transmission genetics – BM2615	
CO1	To understand the science of genetics and inheritance patterns
CO2	To analyse about the extension of mendelism
CO3	To understand and evaluate about the variation of alleles and the gene function
CO4	To evaluate the changes in the structure and number of chromosomes
CO5	To apply and analyse the cytogenetic principles and techniques

Immunogenetics – BM2616	
CO1	Students will understand about basic principles and overview of the immune system
CO2	Students are able to understand the fine structure of immunoglobulin
CO3	Student will get the knowledge about the general organization of major histocompatibility complex
CO4	Students are familiar with cell mediated immune response
CO5	Students are able to understand about autoimmune disorders

Developmental Genetics	
CO1	To understand the theories of embryo development and to know the various functions of genes involved in development
CO2	To analyze various signaling pathways in development
CO3	To evaluate the environmental factors regulating the development
CO4	To analyze developmental pathways in various organisms

CO5	To study the metamorphosis and regeneration and aging process in various organisms

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Bioinformatics – BM2618	
CO1	Upon successful completion of this course the students will able to understand biological database and to access it
CO2	Student will understand and access different types of sequence alignment tools and algorithms
CO3	Students will able to understand and familiar with sequence analysis tools
CO4	Understand about secondary and tertiary structure prediction methods
CO5	Understand about various emerging areas in bioinformatics

Molecular Genetics Lab– BM2614	
CO1	Learn to determine the nucleic acids
CO2	Learn to isolate and purify nucleic acids
CO3	Know to generate mutants by spontaneous mutation
CO4	Study about the phage isolation and phage titre
CO5	Learn to perform PCR

Immunogenetics Lab – BM2682	
CO1	Students are able to understand and identify different types of blood groups
CO2	Students are familiar to work with immunodiffusion methods
CO3	Students will understand about the isolation and cell culture
CO4	Students will expert in working with toxicity assay and immunosorbant assay
CO5	Upon successful completion of this course the students will understand about blotting technique

Bioinformatics Lab –BM2681	
CO1	Students are familiar with biological databases
CO2	Students are able to understand with sequence similarity tools
CO3	Students are familiar with homology modeling
CO4	Students are able to access proteomics tools in expasy server
CO5	Students are familiar with gene prediction tools