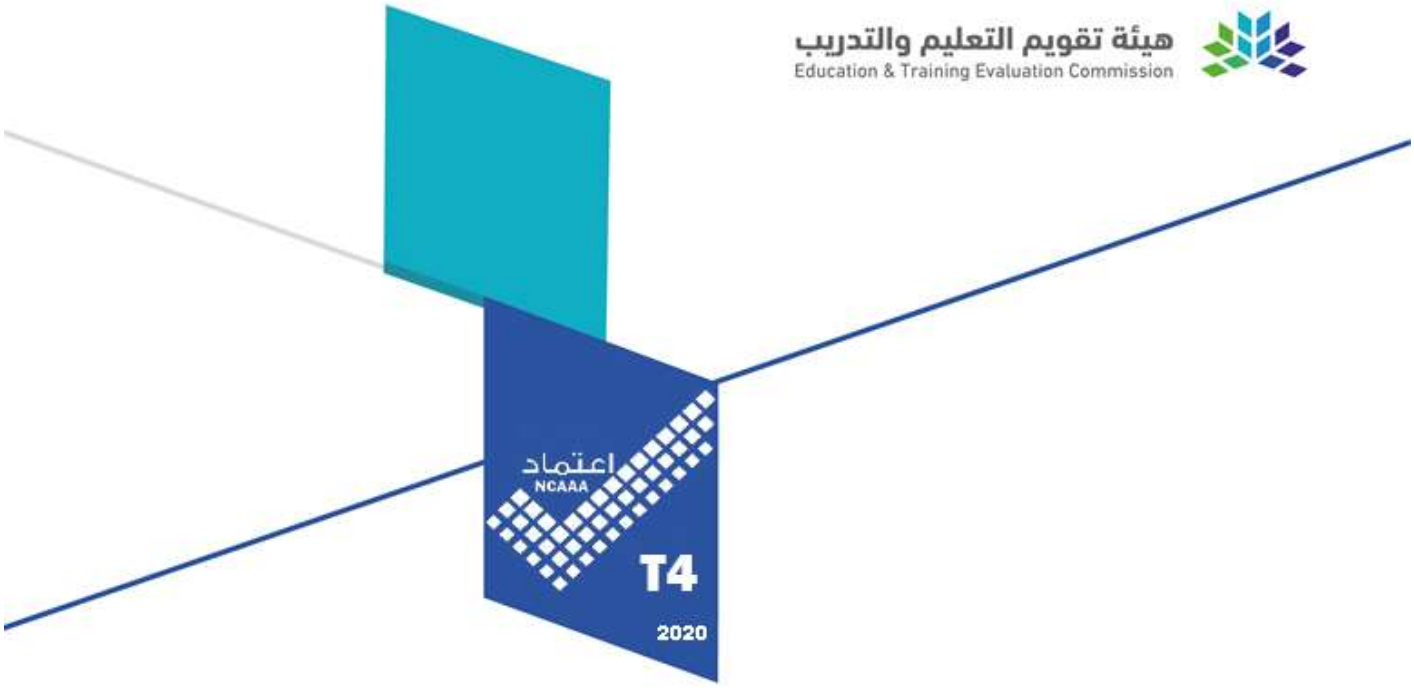
هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission



Course Specifications

Course Title:	Genetics
Course Code:	GEN124
Program:	Bachelor of Medicine, Bachelor of Surgery (MBBS)
Department:	NA
College:	College of Medicine
Institution:	Alfaisal University

Table of Contents

A. Course Identification

1. Credit hours: 2 (2+0+0)
2. Course type **a.** University ☐ College ■ Department ☐ Others ☐ **b.** Required ■ Elective ☐
3. Level/year at which this course is offered: Sem 2, Year 1
4. Pre-requisites for this course (if any)**:** None
5. Co-requisites for this course (if any)**:** None

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	19	90%
2	**LGDs**	2	10%

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	21
2	**Laboratory/Studio**	
3	**Tutorial**	
4	**Others** (specify)	
	Total	21

B. Course Objectives and Learning Outcomes

1. Course Description

Irrespective of medical specialty, understanding the principles of human genetics and their applications in medicine is an integral part of the clinical practice of every physician. The Genetics Course aims at providing future physicians with core knowledge in genetics as well as an understanding of the role of genetic factors in health and disease.

2. Course Main Objective

The Genetics Course is designed to provide medical students with specific knowledge, skills, and behaviors that are essential competencies in the field of medical genetics.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Describe the structure and function of nucleic acids, genes and chromosomes.	PLO2

CLOs		Aligned PLOs
1.2	Describe the patterns of inheritance.	PLO2
1.3	Recognize the common mutations observed in clinical practice.	PLO2
1.4	Describe the common methods in the diagnosis of genetic diseases.	PLO2
1.5	Recognize the significance of genetic alterations in common diseases	PLO2
1.6	Recognize the significance of genetic testing in the diagnosis, prevention, and treatment of monogenic and common diseases	PLO2
1.7	Outline the purpose and techniques of genetic counseling	PLO2
1.8	Describe the concepts of gene frequency, genetic drift and founder effect, and recall and apply the Hardy-Weinberg equilibrium.	PLO2
1.9	Recognize the impact of consanguinity on genetic diseases in Saudi Arabia	PLO2
1.10	Recognize patterns of inheritance	PLO2
1.11	Recognize features that suggest the presence of genetic disease	PLO2
2	**Skills :**	
2.1	Interpret the results of common genetic tests	PLO2
2.2	Estimate recurrence risks for mendelian disorders	PLO2
2.3	Estimate the frequency of genetic diseases by applying the Hardy-Weinberg equilibrium.	PLO2
2.4	Demonstrate the ability of using authoritative web-based educational resources in medical genetics.	PLO2
2.5	Use appropriate resources to obtain information necessary for good patient care.	PLO2
3	**Values:**	
3.1	Demonstrate the recognition of the limitations of own skills and seek consultation when necessary	PLO2
3.2	Appreciate the implications of having a genetic disorder on patients, families, tribes, and society at large	PLO2,27
3.3	Adhere to the attendance policy.	
3.4	Maintain professional conduct with colleagues, faculty, and staff.	

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to Human Genetics	1
2	Structure and Function of Genes	1
3	Structure and Function of Chromosomes	1
4	The Human Genome	1
5	Patterns of Inheritance	1
6	Variations in Inheritance	1
7	DNA replication and repair	1
8	Mutations and Polymorphisms	1
9	Principles of Genetic Testing	1
10	Methods of Molecular Analysis	1
11	Genetics of Common Diseases	1
12	Population Genetics-I	1
13	Population Genetics-II	1
14	Molecular Mechanisms of Mutations	1

15	Genetic Counselling	1
16	Precision Medicine	1
17	Ethical Issues in Genetics	1
18	When You Were in Nursery	2
19	Large Group Discussion (LGD)	2
Total		21

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	Describe the structure and function of nucleic acids, genes and chromosomes.	Lectures, LGDs	Formative and summative assessment
1.2	Describe the patterns of inheritance.	Lectures, LGDs	Formative and summative assessment
1.3	Recognize the common mutations observed in clinical practice.	Lectures, LGDs	Formative and summative assessment
1.4	Describe the common methods in the diagnosis of genetic diseases.	Lectures, LGDs	Formative and summative assessment
1.5	Recognize the significance of genetic alterations in common diseases	Lectures, LGDs	Formative and summative assessment
1.6	Recognize the significance of genetic testing in the diagnosis, prevention, and treatment of monogenic and common diseases	Lectures, LGDs	Formative and summative assessment
1.7	Outline the purpose and techniques of genetic counseling	Lectures, LGDs	Formative and summative assessment
1.8	Describe the concepts of gene frequency, genetic drift and founder effect, and recall and apply the Hardy-Weinberg equilibrium.	Lectures, LGDs	Formative and summative assessment
1.9	Recognize the impact of consanguinity on genetic diseases in Saudi Arabia	Lectures, LGDs	Formative and summative assessment
1.10	Recognize patterns of inheritance	Lectures, LGDs	Formative and summative assessment
1.11	Recognize features that suggest the presence of genetic disease	Lectures, LGDs	Formative and summative assessment
2.0	**Skills**		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.1	Interpret the results of common genetic tests	Lectures, LGDs	Formative and summative assessment
2.2	Estimate recurrence risks for mendelian disorders	Lectures, LGDs	Formative and summative assessment
2.3	Estimate the frequency of genetic diseases by applying the Hardy-Weinberg equilibrium.	Lectures, LGDs	Formative and summative assessment
2.4	Demonstrate the ability of using authoritative web-based educational resources in medical genetics.	Lectures, LGDs	Formative and summative assessment
2.5	Use appropriate resources to obtain information necessary for good patient care.	Lectures, LGDs	Formative and summative assessment
3.0	**Values**		
3.1	Demonstrate the recognition of the limitations of own skills and seek consultation when necessary	Lectures, LGDs	Formative and summative assessment
3.2	Appreciate the implications of having a genetic disorder on patients, families, tribes, and society at large	Lectures, LGDs	Formative and summative assessment
3.3	Adhere to the attendance policy.		Continuous assessment
3.4	Maintain professional conduct with colleagues, faculty, and staff.		Continuous assessment

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Mid-term	9	30%
2	Final Exam	18	70%

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

The CoM program established its own mentorship program that employs all full-time faculty as mentors. Through this program, every medical student in the program is assigned a mentor at the beginning of their first semester of studies. The program has a broad scope covering academic advising and counseling. The mentors handle all aspects related to academic advising, including academic planning, academic performance review, advice on course drop or withdrawal, study skills, and time management.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	• Robert L. Nussbaum, Roderick R. McInnes, Huntington F. Willard. Thompson & Thompson Genetics in Medicine. 8th Edition. 2015. Saunders. • Pamela Champe, Richard Harvey, Denise Ferrier. Biochemistry. Lippincott's Illustrated Reviews. 3rd edition. 2005. Lippincott Williams & Wilkins. (chapter 29 only)
Essential References Materials	
Electronic Materials	PowerPoint presentations uploaded on Alfaisal E-learning Portal
Other Learning Materials	The Online Mendelian Inheritance in Man: http://www.omim.org/ Genetics Education Center: http://www.kumc.edu/gec/ The National Human Genome Research Institute Education website: http://www.genome.gov/Education/

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classrooms
Technology Resources (AV, data show, Smart Board, software, etc.)	AV (Audio-Visual), Smartboard, Moodle (E-learning Management)
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Course and Faculty Evaluation Survey	Students	Survey

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	