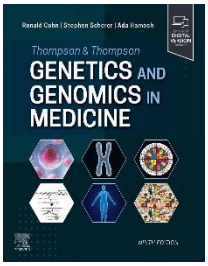
Fall 2024/2025

Class:	**Human Genetics (BT-441)**	**Place:**	SF06 & Unsynchronized
Time:	Mon, Wed: 2:30-3:30	**Office hours:**	To be announced
Dr.	Asem Alkhateeb	**Office:**	PH4-L0

Topic	Chapter	Lectures
Gene structure & function	**3**	In class
Genomic variation	**4**	Unsynchronized
Cytogenetics & Genome analysis	**5**	In class
Patterns of Single-Gene Inheritance	**7**	Unsynchronized
Clinical epigenetics	**8**	In class
Complex inheritance of common multifactorial disorders	**9**	In class
Population genetics for genomic medicine	**10**	Unsynchronized
Identifying the genetic Basis for human disease	**11**	In class
Molecular Basis of Genetic Disease-Hemoglobinopathies	**12**	Unsynchronized
Molecular, Biochemical, & Cellular Basis of Genetic Disease	**13**	In class

Grade Distribution:		**Content of exam**
First Exam	30%	Chapters 3 & 4 & 5
Second Exam	30%	Chapters 7 & 8 & 9
Final Exam	40%	Chapters 10 & 11 & 12 & 13
Total	**100%**	

Each exam will have ~10% bonus questions. This bonus will not be present in make-up exams. Regular exams will be multiple choice questions. Make-up exams will be assay questions.



Text book:
Genetics in Medicine. Cohn, Scherer and Hamosh. **9th** ed. **2024**.

Course Description: The course covers topics in human genetics such as human genetic diseases, mapping the human genome; the molecular analysis of single gene disorders; the genetic analysis of complex diseases; gene therapy, gene testing; the human genome project; human population genetics and evolution; DNA fingerprinting; human genetics and society.

Learning obectives:

1. Describe the organization of the human genome and explain the molecular mechanisms that contribute to genetic variation and gene mutations
2. Explain the chromosomal and molecular basis for simple and complex genetic disease in individuals and populations
3. Use mapping and sequencing analysis to predict the genetic basis for a disease and the risk of inheritance
4. Understand the molecular, biochemical, and cellular basis of genetic disease

Attendance: You are required to attend all classes. Missing 20% of class will result in dismissal from class. No excuses are accepted beyond 20% limit according to University Regulations.

Course learning Outcomes: Upon completion of the course, the students should be able to**:**

Course Learning Outcomes (CLO)	Chapter	Weight (%)	Program Learning Outcomes (PLO)	Level
1. Describe the organization of the human genome and explain the molecular mechanisms that contribute to genetic variation and gene mutations	3,4	20	**PLO1(A)**	1
2. Explain the chromosomal and molecular basis for simple and complex genetic disease in individuals and populations	5,7,8,9	30	**PLO1(A)**	1
3. Use mapping and sequencing analysis to predict the genetic basis for a disease and the risk of inheritance	10	20	**PLO1(A), PLO6(F)**	1
4. Understand the molecular, biochemical, and cellular basis of genetic disease	11,12,14	30	**PLO1(A), PLO3(C)**	1