



Jordan University of Science and Technology
Faculty of Medicine
Doctor Of Medicine (Md) Department

MED202 Genetics - JNQF Level: 7

First Semester 2023-2024

Course Catalog

3 Credit Hours. The Genetics course (MED202) is designed for second-year medical students, offering an in-depth understanding of molecular genetics. This comprehensive exploration covers the intricate structure, regulation of gene expression, genetic mutations, and polymorphisms. Students gain systematic exposure to essential tools used in molecular biology for studying these complex processes. Additionally, the curriculum thoroughly examines primary cytogenetic techniques, emphasizing their clinical significance in diagnosing chromosomal abnormalities. The course extends its focus to a thorough examination of Mendelian inheritance patterns of single-gene disorders. Moreover, it offers insightful insights into the biochemical regulation of the cell cycle and cell death, while extensively discussing the genetic and molecular basis of cancer. Throughout the course, pertinent clinical correlations are seamlessly integrated, reinforcing the practical application of theoretical knowledge.

Text Book

Title	Textbook of Biochemistry with Clinical Correlations
Author(s)	Thomas M. Devlin
Edition	8th Edition
Short Name	Ref # 1
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref # 2	Thompson & Thompson's Genetics in Medicine	Robert Nussbaum, Roderick R. McInnes, Huntington F Willard	9th Edition	
Ref # 3	Genetics: Analysis and Principles	Robert Brooker	7th Edition	

Instructor

Name	Dr. Heba Ghozlan
Office Location	-

Office Hours	Sun : 10:00 - 12:00 Mon : 09:30 - 10:30 Mon : 13:00 - 14:00 Wed : 09:30 - 10:30 Thu : 09:30 - 10:30
Email	hhgozlan@just.edu.jo

Class Schedule & Room	
Section 1:	Lecture Time: Tue : 10:30 - 12:00 Room: مدرج د. سعد حجازي
Section 2:	Lecture Time: Sun, Tue : 08:30 - 10:00 Room: NG76
Section 3:	Lecture Time: Mon, Wed : 11:00 - 12:30 Room: مدرج الفاروق

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	Nucleotides I: Purines; Structure, synthesis and degradation.	From Ref # 1
Week 1	Nucleotides II: Pyrimidines; Structure, synthesis and degradation.	From Ref # 1
Week 2	Structure of nucleic acids I	From Ref # 1
Week 2	Structure of nucleic acids II	From Ref # 1
Week 3	DNA replication I	From Ref # 1
Week 3	DNA replication II	From Ref # 1
Week 4	Recombination	From Ref # 1
Week 4	Transcription I	
Week 5	Review	
Week 5	First Exam (Lecture 1-7)	
Week 6	Transcription II	From Ref # 1
Week 6	RNA processing	From Ref # 1
Week 7	Regulation of gene expression	From Ref # 1
Week 7	Translation	From Ref # 1
Week 8	Mutations and Repair	From Ref # 1
Week 8	Protein processing and targeting:	From Ref # 1
Week 9	Review	

Week 9	Second Exam	
Week 10	Recombinant DNA techniques I	From Ref # 1
Week 10	Recombinant DNA techniques II	From Ref # 1
Week 11	The Molecular Biology of Cancer	From Ref # 1
Week 11	Chromosomal karyotyping	From Ref # 2 , From Ref # 3
Week 12	Inheritance I	From Ref # 2 , From Ref # 3
Week 12	Christmas Holiday	
Week 13	Inheritance II	From Ref # 2 , From Ref # 3
Week 13	New Year Holiday	
Week 14	Chromosomal anomalies	From Ref # 2 , From Ref # 3

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Students will be able to analyze nucleotide structures, their metabolic pathways, and the organization of nucleic acids. [1PLO1] [1L7K1, 1L7S2]	15%	
Students will be able to implement the central dogma of biochemistry, proficiently outlining the mechanisms that regulate the flow of genetic information from DNA to RNA to protein, and their interconnection in transmitting and utilizing genetic information. [1PLO1] [1L7K1, 1L7S2, 1L7S3]	35%	
Students will be able to describe how gene expression is regulated at the transcriptional and post-transcriptional level [1PLO1] [1L7K1, 1L7S2, 1L7S3]	15%	
Students will be able to apply molecular techniques like PCR, DNA sequencing, and genetic engineering methods to analyze and manipulate genetic material. [1PLO1] [1L7K1, 1L7S1, 1L7S2, 1L7S3]	10%	
Students will be able to proficiently differentiate the biochemical regulation of the cell cycle, apoptosis pathways, oncogenes, tumor suppressor genes, and key characteristics of cancer cells. [1PLO1] [1L7K1, 1L7S1, 1L7S2, 1L7S3]	5%	
Students will be able to apply cytogenetic principles, including chromosomal structure and karyotyping techniques, to identify diverse chromosomal anomalies. [1PLO1] [1L7K1, 1L7S1, 1L7S2, 1L7S3]	10%	
Students will be able to apply Mendelian inheritance rules to explain patterns of genetic transmission, including autosomal and sex-linked traits. [1PLO1] [1L7K1, 1L7S1, 1L7S2, 1L7S3]	10%	

Relationship to Program Student Outcomes (Out of 100%)													
PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12	PLO13	PLO14
100													

Relationship to NQF Outcomes (Out of 100%)			
L7K1	L7S1	L7S2	L7S3
32.92	8.75	32.92	25.42

Evaluation	
Assessment Tool	Weight
First Exam	30%
Second Exam	25%
Quiz	5%
Final Exam	40%

Policy	
Course Information:	<p>Credits: 3</p> <p>Course Structure: The course will be taught face-to-face (F2F), ensuring direct interaction between instructors and students.</p> <p>Office Hours: When meeting with an instructor is needed, please make an appointment by email or plan according to office hours. Office hours are designated times when instructors are available for one-on-one discussions, clarification of doubts, and additional support. Please take advantage of these opportunities to enhance your understanding of the course material and address any questions or concerns you may have.</p>
Course Materials:	<p>-Lectures (PPT slides or PDFs) and other course materials will be posted to JUST eLearning by each instructor. It is essential to regularly check the course platform for updates and relevant materials related to the course.</p> <p>-Textbooks</p>
Academic Integrity	Academic integrity is of utmost importance. Plagiarism, cheating, or any form of dishonesty will not be tolerated and may result in severe penalties, including failing the course. Familiarize yourself with the university's academic integrity policy.
Participation	Active participation in class discussions is encouraged. Engaging with the material and your fellow students can enhance your understanding and make the learning experience more enriching for everyone.
Required Materials	Ensure you have access to the required textbooks, and course materials necessary for the course. Familiarize yourself with the resources available to you, including JUSTLearn.
Classroom Etiquette	Respectful and professional behavior is expected in the classroom. Be punctual, attentive, and considerate of your fellow students and instructors. Mobile phones and electronic devices should be silenced during class.

Accommodations	If you require accommodations due to a documented disability, please contact the course coordinator as early as possible to arrange for appropriate support
Course Evaluation	Your feedback is valuable. At the end of the course, you will have the opportunity to provide feedback on the course content, instruction, and materials through course evaluations. Your input helps us continually improve the learning experience.
Disclaimer	The course syllabus and schedule are subject to change at the discretion of the instructors. Any changes will be communicated to students in advance.

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