

## Course Syllabus

1	<b>Course title</b>	Medical Virology Course
2	<b>Course number</b>	0308355
3	<b>Credit hours</b>	2 hrs
	<b>Contact hours (theory, practical)</b>	2 hrs (2 theory)
4	<b>Prerequisites/corequisites</b>	General Microbiology course
5	<b>Program title</b>	Clinical Laboratory Sciences
6	<b>Program code</b>	0308
7	<b>Awarding institution</b>	The University of Jordan
8	<b>School</b>	School of Science
9	<b>Department</b>	Department of Clinical Laboratory Sciences
10	<b>Course level</b>	Junior level
11	<b>Year of study and semester (s)</b>	Second Semester (2023/2024)
12	<b>Other department (s) involved in teaching the course</b>	_____
13	<b>Main teaching language</b>	English
14	<b>Delivery method</b>	<input type="checkbox"/> Face to face learning <input type="checkbox"/> Blended <input checked="" type="checkbox"/> Fully online
15	<b>Online platforms(s)</b>	<input checked="" type="checkbox"/> Moodle <input checked="" type="checkbox"/> Microsoft Teams <input type="checkbox"/> Skype <input type="checkbox"/> Zoom <input type="checkbox"/> Others.....
16	<b>Issuing/Revision Date</b>	Feb. 2024

### 17 Course Coordinator:

**Name:** Prof. Salwa Bdour  
**Office number:** 312  
**Email:** bsalwa@ju.edu.jo

**Contact hours:** Wed. 1-2  
**Phone number:** 5355000 ext. 22233

### 18 Other instructors:

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**19 Course Description:**

This course begins with basic virology which includes: virus structure, genome organization, replication, and gene expression strategies of different viruses, propagation of viruses in the laboratory, classification and nomenclature of viruses. This background enables students to deal with specific groups of human viruses, diagnose viral infections, and control measures including immunization, and anti-viral therapies.

## 20. Course aims and outcomes:

### A- Aims:

This course aims to equip students with the necessary knowledge and skills to deal with human viruses, understand how they cause diseases, contribute to control measures, and make a positive impact on global health. Although the course is taught without a practical part, the commonly used virology techniques will be described: cell culture technique, detection, isolation and identification of different human viruses by serological and molecular techniques. The student will be able to practice these techniques at the hospital during the training period of the medical analysis program.

### B- Students Learning Outcomes (SLOs):

For purposes of mapping the course SLOs to the CLS program SLOs, at the successful completion of the program, graduates are expected to be able to:

**SLO(1).** Understand and apply the theoretical foundations of medical laboratory sciences to accurately calibrate and operate advanced laboratory equipment.

**SLO(2).** Demonstrate knowledge of safety protocols, Ministry of Health regulations, and environmental preservation practices when handling samples of pathogens and chemical/biological risks.

**SOL(3).** Acquire in-depth technical knowledge to stay abreast of scientific advancements and actively participate in local and global applied research in the field.

**SOL(4).** Perform diverse analyses and effectively interpret results for various clinical samples across laboratory disciplines such as hematology, clinical chemistry, microbiology, urine analysis, body fluids, molecular diagnostics, and immunology.

**SOL(5).** Apply practical training to solve complex problems, troubleshoot issues, and interpret results, ensuring a connection between data and specific medical conditions for precise diagnosis.

**SOL(6).** Show effective communication skills to convey information accurately and appropriately in a laboratory setting.

**SOL(7).** Demonstrate a commitment to lifelong learning and innovation by applying modern techniques, critically analyzing information, and contributing to the creation and application of new knowledge in medical laboratory sciences which fulfil the requirements of national and international CBD.

**SOL(8).** Uphold professional ethical behavior, ensuring the confidentiality of client information, and respecting client privacy throughout all aspects of laboratory work.

**SOL(9).** Apply managerial skills that align with quality assurance, accreditation, quality improvement, laboratory education, and resource management, showcasing competence in the effective administration of laboratory practices.

Descriptors	ILO/ID	Program SLOs	SLO (1)	SLO (3)	SLO (7)
		Course SLOs			
Knowledge	A1	Understanding virus structure, replication, classification, and emergence of new viruses.	X		
	A2	Knowledge about specific groups of human viruses.	X		
Skills	B1	Knowledge about the pathogenesis and transmission of viruses.	X		
	B2	Diagnosis of viral infections		X	
Competence	C1	Knowledge about the prevention and treatment strategies.	X		
	C2	Applying the acquired knowledge to some questions of current interest in the field of virology e.g. vaccination, antiviral drugs,-----etc.			X

## 21. Topic Outline and Schedule:

Week	Lecture	Topic	Student Learning Outcome	Learning Methods (Face to Face/Blended/ Fully Online)	Platform	Synchronous / Asynchronous Lecturing	Evaluation Methods	Resources
<b>A. General Virology</b>								
1	1.1	<b>General properties of viruses</b> Architecture of viruses: basic components of viruses.	1	Fully Online	Microsoft teams	Synchronous lecturing	Oral Quiz & Exam	Books & Journals
	1.2	Virus symmetry and genomes.	1	Fully Online	Microsoft teams	Synchronous lecturing	Oral Quiz & Exam	Books & Journals
2	2.1	Classification and nomenclature of viruses, diseases caused by viruses.	1	Fully Online	Microsoft teams	Synchronous lecturing	Oral Quiz & Exam	Books & Journals
	2.2	<b>Viral replication and genetics</b> Virus infection and replication in a host cell: recognition of the host cell.	1	Fully Online	Microsoft teams	Synchronous lecturing	Oral Quiz & Exam	Books & Journals
3	3.1	Strategies of genomic replication and gene expression in DNA and RNA viruses, control of viral replication.	1	Fully Online	Microsoft teams	Synchronous lecturing	Oral Quiz & Exam	Books & Journals
	3.2	Virus assembly, release from the host cell and maturation, genetic variation of viruses.	1	Fully Online	Microsoft teams	Synchronous lecturing	Oral Quiz & Exam	Books & Journals
4	4.1	<b>Propagation of viruses in the laboratory</b> Virus isolation in cell cultures, cytopathic effects	1	Fully Online	Microsoft teams	Synchronous lecturing	Oral Quiz & Exam	Books & Journals
	4.2	Identification of viruses.	1	Fully Online	Microsoft teams	Synchronous lecturing	Oral Quiz & Exam	Books & Journals
<b>B. Specific Viral Infections</b>								
General properties of human viruses, pathogenesis of viruses, mode of transmission, types of infection, clinical features of infections, epidemiology, immune response to infections, treatment, prevention & control, and laboratory diagnosis of the following:								
5	5.1	<b>Herpesviruses:</b> Alpha herpesviruses: herpes simplex viruses and varicella	2-6	Fully Online	Microsoft teams	Synchronous lecturing	Oral Quiz & Exam	Books & Journals
	5.2	Beta herpesviruses: cytomegalovirus	2,6	Fully Online	Microsoft teams	Synchronous lecturing	Oral Quiz & Exam	Books & Journals
6	6.1	Gamma herpesviruses: Epstein-Barr virus	2,6	Fully Online	Microsoft teams	Synchronous lecturing	Oral Quiz & Exam	Books & Journals

	6.2	<b>Measles</b>	2,6	Fully Online	Microsoft teams	Asynchronous lecturing	Oral Quiz, Exam & Discussion	Books & Journals
7	7.1	<b>Mumps</b>	2,6	Fully Online	Microsoft teams	Asynchronous lecturing	Oral Quiz, Exam & Discussion	Books & Journals
	7.2	<b>Rubella</b>	2,6	Fully Online	Microsoft teams	Asynchronous lecturing	Oral Quiz, Exam & Discussion	Books & Journals
8	8.1	<b>Hepatitis viruses</b> The enteric hepatitis viruses: hepatitis A and E.	2,6	Fully Online	Microsoft teams	Synchronous lecturing	Oral Quiz & Exam	Books & Journals
	8.2	The bloodborne viruses: hepatitis B and D viruses.	2-6	Fully Online	Microsoft teams	Synchronous lecturing	Oral Quiz & Exam	Books & Journals
9	9.1	The bloodborne hepatitis C virus	2,6	Fully Online	Microsoft teams	Synchronous lecturing	Oral Quiz & Exam	Books & Journals
	9.2	<b>Retroviruses: HIV</b>	2,6	Fully Online	Microsoft teams	Synchronous lecturing	Oral Quiz & Exam	Books & Journals
10	10.1	<b>Respiratory viruses</b> Influenza virus	2,6	Fully Online	Microsoft teams	Synchronous lecturing	Oral Quiz & Exam	Books & Journals
	10.2	Respiratory syncytial virus Parainfluenza viruses Adenoviruses.	2,6	Fully Online	Microsoft teams	Synchronous lecturing	Oral Quiz & Exam	Books & Journals
11	11.1	<b>Gastroenteritis viruses</b> Rotaviruses	2,6	Fully Online	Microsoft teams	Synchronous lecturing	Oral Quiz & Exam	Books & Journals
	11.2	Adenoviruses and norovirus.	2,6	Fully Online	Microsoft teams	Asynchronous lecturing	Oral Quiz, Exam & Discussion	Books & Journals
12	12.1	<b>Picornaviruses</b> Poliovirus	2,6	Fully Online	Microsoft teams	Asynchronous lecturing	Oral Quiz, Exam & Discussion	Books & Journals
	<b>C. Viral infections of organs/systems</b>							
	12.2	Viral infections of the central nervous system. Intrauterine and perinatal infections. Viral Infections of the Reproductive System.	2,6	Fully Online	Microsoft teams	Synchronous lecturing	Oral Quiz & Exam	Books & Journals
13	13.1	Viral Infections of the Circulatory and Lymphatic Systems. Blood-borne viruses. Hemorrhagic viruses	2,6	Fully Online	Microsoft teams	Synchronous lecturing	Oral Quiz & Exam	Books & Journals
	13.2	Hepatic viruses. Exanthematous/Cutaneous viruses.	2,6	Fully Online	Microsoft teams	Synchronous lecturing	Oral Quiz & Exam	Books & Journals
14	14.1	Gastrointestinal viruses. Food and water-borne viruses.	2,6	Fully Online	Microsoft teams	Synchronous lecturing	Oral Quiz & Exam	Books & Journals

D. Assignment								
	14.2	Resistance of the human body to virus infections (interferons) The laboratory diagnosis of viral infections	2,6	—	—	—	Homework & Exam	Books
15	15.1	Antiviral chemotherapy Rabies	2,6,7	—	—	—	Homework & Exam	Books
	15.2	Coronaviruses and SARS Rhinoviruses Papilloma virus Ebola virus	2,6	—	—	—	Homework & Exam	Books
	Scientific Papers and Reviews about some new emerging viruses which are not included in the text book and references e.g. Zika virus, human virome.....ect..							

## 22 Evaluation Methods:

Opportunities to demonstrate achievement of the SLOs are provided through the following assessment methods and requirements:

Evaluation Activity	Mark	Topic(s)	SLOs	Period (Week)	Platform
Assignments	5%	Part "D" of the syllabus	1, 3, 7	10 <sup>th</sup> week	Class room
Oral Quizzes	5%	All	1, 3, 7	At the beginning of each lecture	Microsoft teams
Activity	10%	Selected topics related to the description of the course	1, 3, 7	12 <sup>th</sup> week	Hall of the department
First Exam	10%	Part "A" of the syllabus	1	5 <sup>th</sup> week	Class room
Mid Exam Exam	30%	Herpesviruses, measles, mumps, and rubella	1, 3, 7	8 <sup>th</sup> week	Class room
Final Exam	40%	Topics in all parts of the syllabus	1, 3, 7	16 <sup>th</sup> week	Class room



## 23 Course Requirements

(e.g: students should have a computer, internet connection, webcam, account on a specific software/platform...etc):

Internet connection, Text book, and References

## 24 Course Policies:

### A- Attendance policies:

- Attend and participate in all classes: attendance will be taken. Class time will be used to discuss, elaborate, expand, etc., on the written modules. This may include formal/informal lectures, audio visual presentations, demonstrations, labs, etc.

### B- Absences from exams and handing in assignments on time:

- A student who has been absent for 15% or more of the total hours of any course, including absences for medical or compassionate reasons, may be required to withdraw from that particular course.
- Students who miss quizzes or examinations will automatically be assigned a mark of zero unless the respective instructor, or the Program Head, has been notified of the reason for absence *PRIOR* to the commencement of the exam. Acceptable reasons will be evaluated at the time (e.g., illness - medical certificate may be required, serious illness or death in the family, etc.). Supplemental examinations may be allowed in legitimate cases.

### C- Health and safety procedures:

All students need to be immunized against hepatitis B, immunization certificate must be forwarded to the coordinator of the hospital training. Pregnancy affects immunization and it is the responsibility of the student to notify the health person as soon as possible of her pregnancy. If there are fees related to immunization, it is the responsibility of the student.

### D- Honesty policy regarding cheating, plagiarism, misbehavior:

### E- Grading policy:

Evaluation	Point %	Date
First Hour Exam	10%	Tuesday 9/ 4/ 2024
Oral Quiz	5%	At the beginning of each lecture
Activity	10%	12 <sup>th</sup> week
Assignment	5%	
Midterm Exam	30%	Tuesday 30 / 4/ 2024
Final Exam	40%	Will be announced in due time.





F- Available university services that support achievement in the course:

1. The University Computer Laboratory.
2. The University Main Library.
3. The University e-library.

## 25 References:

### A- Required book(s), assigned reading and audio-visuals:

Collier, L., Kellam, P., and Oxford J. (2011). Human Virology. Fourth Edition. Oxford University Press, U.K.

### B- Recommended books, materials, and media:

1. Zuckerman, A.J., Banatvala, J.E. and Pattison, J.R., Griffiths P.D., and Schoub, B.D. (2004). Principles and Practice of Clinical Virology. 5th edition. John Wiley & Sons, New York.
2. Fields, B.N., Knipe, D.M., Chanock, R.M., Hirsch, M.S., Melnick, J.L., Monath, T.P. and Roizman, B. (1996). Virology. Vol. 1&2. 3rdEd. Raven Press, New York.
3. Galasso, G.J. (1993). Practical Diagnosis of Viral Infections. Raven Press, New York.
4. Journals:  
Journal of Medical Virology  
Journal of Clinical Virology  
Journal of Virology  
Journal of General Virology

## 26 Additional information:

For more details on University regulations please visit: <http://www.ju.edu.jo/rules/index.htm>

Name of Course Coordinator: **Prof. Salwa Bdour**

Signature: *Salwa Bdour* Date: 25/2/2024

Head of Curriculum Committee/Department: **Dr. Suzan Mattar**

Signature: *Suzan Mattar*

Head of Department: **Dr. Ahmed Abu siniyeh**

Signature: *Ahmed Abu siniyeh*

Head of Curriculum Committee/Faculty: **Dr. Muayyad Al Hseinat**

Signature: *Muayyad Al Hseinat*

Dean: **Prof. Mahmoud Jaghoub**

Signature: *Mahmoud Jaghoub*