

**A COURSE MODULE DESCRIPTOR FORM**

Module Information			
Course Module Title	Virology		
ناوی کۆرس مۆدیۆل	فایرۆسزانی		
عنوان الوحدة	علم الفيروسات		
Course Module Type	Type Elective	Module Code	MLS 402
ECTSs	4		
Department	Medical laboratory technology		
Department Code	ML		
Module Website (CMW)	nobleinstitute.krd		
Module Leader (ML)	Dr. Rabar Mohammed Hussein		
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Relation with Other Modules	
<b>Pre-requisites</b>	N/A
Module Aims, Learning Outcomes and Indicative Contents	
<b>Module Introductory Description</b>	<p>This course provides an introduction to the field of virology. The course emphasizes the intrinsic properties of viruses that cause human disease and their interaction with cells, their structure, classification and evolution, their ways to infect and exploit host cells for virus reproduction, their interaction with host organism physiology and immunity, the diseases they cause, the techniques to isolate and culture them, and their use in research and therapy. Virology is considered to be a subfield of microbiology..</p>
<b>Module Aims</b>	<p>The purpose of this course is to provide a foundation for the understanding of viruses that cause human disease. The objective of the Science of Virology course is to describe at the molecular level the replication strategies of representative DNA and RNA viruses and the effects of virus infection on cell growth control and survival. Emphasis is placed on developing an understanding of the experimental systems used to elucidate individual steps in virus life cycles and their interactions with host cells. Host cell-virus interactions leading to production of progeny virus and interactions involved in establishing and maintaining long term interactions, such as latency and ontogenesis. Also present the historical perspectives of virology, to introduce the idea that viruses whether pathogenic or benign are important members of the biosphere and have an important impact on our daily and future activities</p>
<b>Module Learning Outcome</b>	<p>This course will provide a comparative overview of virus life cycles and strategies viruses use to infect and replicate in hosts. We will discuss virus structure and classification and the molecular basis of viral reproduction, evolution, assembly,</p>

	<p>and virus-host interactions.</p> <p>In the end of the course, it expects the students will be able to:</p> <ol style="list-style-type: none"> <li>1- Define common terms used in virology and the history of virology.</li> <li>2- Identify all the possible methods for diagnosis of virus, the special techniques by which we can replicate viruses, laboratory diagnosis of viruses using different techniques (such as: Molecular, immunological etc...)</li> <li>3-Identify International classification of viruses; know the taxonomy of human viruses that cause disease</li> <li>4-Understanding the main and new emerging threats of viral diseases e.g., HIV, influenza</li> <li>5- How to combat viral infections.</li> <li>6- Understanding the relationships between virus and the other Kingdome.</li> <li>7- Compare different virus replication strategies and genome coding strategies</li> <li>8- Have good knowledge of the prevention, control and eradication of viral diseases</li> <li>9- Think critically in terms of their learning and research.</li> </ol>
<p><b>Learning and Teaching Strategies</b></p>	
<p><b>Strategies</b></p>	<p>Instruction includes lectures, seminars, case studies, simulations, classroom teaching, project and problem-based teaching, individual supervision, group supervision, and project-oriented teaching, textbook studies, case methods, group work, placements and project-based and teaching based within research medical analysis, clinical skills training</p>



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Spring Semester

**Academic Year 2023 – 2024**

4<sup>th</sup> semester 2<sup>nd</sup> graders

## Required texts and References

1. Fundamentals of Molecular Virology, 2nd Edition by Nicholas H. Acheson, John Wiley & Sons, Inc. 2011
- 2- “Principles of Virology” Flint S.J., Enquist L.W., Racaniello V.R., Skalka A.M. 2008, 3rd edition, ASM Press.
- 3- “Fields Virology” David M. Knipe, PhD, Peter M. Howley, MD, Diane E Griffin MD, PhD, Robert A Lamb, PhD, ScD, Malcolm A Martin MD, Bernard Roizman ScD, and Stephen E Straus, MD. 2007, 5th edition, Lippincott Williams & Wilkins.
- 4- “Basic Virology” Edward K. Wagner, Martínez J. Hewlett, David C. Bloom, David Camerini. 2007, 3rd edition, Wiley-Blackwell.
- 5- “Introduction to Modern Virology” N.J. Dimmock, A.J. Easton, K.N. Leppard. 2007, 6th edition, Wiley-Blackwell.
- 6- “Understanding viruses” Teri Shors. 2nd ed. Burlington: Jones & Bartlett Learning, cop. 2013.

## Module Delivery

### Total workload

<b>Contact Theoretical Hours – Per semester</b>	15
<b>Contact Practical Hours – Per Semester</b>	

Module Activities	Time /Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Contact hours - Participation	10	5%	1 to 14	Intellectual skills
(Science / Lab) (Social science / Critical	1	5%	5	<b>Cognitive strategy</b>

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thinking)				
Presentation / Seminar	1	5%	7	<b>Verbal information</b>
Tutorial	2	5%	2 and 11	Intellectual skills
Quiz	2	5%	3 and 9	<b>Verbal information</b>
Self-study	2	5%	4 and 10	<b>Cognitive strategy</b>
Projects	1	5%	13	<b>Verbal information</b>
Oral assessment	1	5%	14	<b>Cognitive strategy</b>
Midterm Exam	1	20%	8	Motor skills
Final Exam	1	40%	15	
<b>Total</b>		100%		

### Delivery Plan (Designed Syllabus)

	Course Module Content
Week 1	Induction week, Student origination
Week 2	-Introduction and General characters of viruses (History, definition, and importance of study) -Diseases
Week 3	Virus Architecture and Nomenclature Viral shape (Symmetry) and different figure of virus <b>Classification</b>
Week 4	Virus replication Strategies Principal events involved in replication: Adsorption, penetration, uncoating nucleic acid and protein synthesis, assembly, maturation and release Pathogenesis
Week 5	Chemical and physical agent reaction To discuss the effect of pH, temperature, Heat, cold and salts upon



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	Viral activities. -Viral Immunopathology-Viral Immune response and viral evasion Mechanisms -Rhino virus
Week 6	Laboratory Diagnosis of Virus Infections (Method of Diagnosis) -Direct method -In Direct method -Serological and molecular method
Week 7	seminar
Week 8	Midterm exam 8/11
Week 9	Hepatitis virus
Week 10	Corona virus
Week 11	Retrovirus
Week 12	Antiviral Chemotherapy, Viral Vaccines.
Week 13	Oral exam
Week 14	Report and review
Week 15	Final Exam

## Course Keywords

**Disease , pathology , infection**