



Jordan University of Science and Technology
 Faculty of Applied Medical Sciences
 Department of Medical Laboratory Sciences
 Course Syllabus

Course Information	
Course Title	Viruses and Medical Fungi
Course Code	LM459
Prerequisites	--
Course Website	http://www.just.edu.jo
Instructor	Dr. Samer Swedan
Office Location	N3 L-3
Office Phone #	26887
Office Hours	To be announced
E-mail	Sfswedan4@just.edu.jo
Teaching Assistant(s)	Mrs. Yasemin Shboul
Course Description	
<p>This is an introductory course in virology and mycology for the medical laboratory sciences students. It covers basic principles of viral and fungal classification, structures, life cycles, host-parasite interactions, and clinical diseases. The laboratory part covers basic techniques in virology and mycology.</p>	

Textbook	
Title	Jawetz, Melnick, & Adelberg's Medical Microbiology
Author(s)	Geo. F. B., Karen C. C., Janet S. B., and Stephen A. M.
Publisher	McGraw Hill
Year	2007
Edition	24th
Book Website	NA
Other references	Murray, Rosenthal, & Pfaller's Medical Microbiology, 5th Edition

Assessment		
Assessment	Expected Due Date	Percentage
First Exam	7 th week	(20% theory + 10% lab) Total 30%
Second Exam	12 th week	(20% theory + 10% lab) Total 30%
Final Exam	To be determined by registrar	(27% theory + 13% lab) Total 40%
Assignments	Full laboratory session attendance and participation	
Attendance	Not less than 90%	

Course Objectives	Percentage
1. Understand viral classifications and structures	15%
2. Understands viral-host interactions and clinical diseases	15%
3. Understand viral life-cycles	10%
4. Understands fungal classifications and structures	10%
5. Understand fungal-host interactions and clinical diseases	10%
6. Understand fungal life-cycles	10%
7. Understands how specimens are collected and processed for the isolation of Fungi and viruses	15%
8. Learn basic laboratory skills in virology and mycology	15%

Teaching & Learning Methods
<p>Lectures which include:</p> <ul style="list-style-type: none"> • Discussions • Demonstrations • Audio-visual materials: data show and PowerPoint presentations • Laboratory applications • Reading assignments • Computer tests <p>Teaching duration:</p> <ul style="list-style-type: none"> • 16 weeks • Lectures: 32 lectures; 50 min each • Laboratory: 16 labs; 3 hours each

Learning Outcomes: Upon successful completion of this course, students will be able to	Reference(s) Handouts
1. Understand basic concepts in virology and mycology	
2. Understand etiology of viral and fungal diseases	
3. Determine type of clinical specimen to obtain to identify the source of viral and fungal disease	
4. Proper handling and testing of clinical specimens for the isolation or identification of viral or fungal pathogens	
5. Know the principles of usage of antiviral and antifungal agents	

Useful Resources

- All lectures will be posted on the JUST E-Learning website → <http://elearning.just.edu.jo/>
- The internet!

Course Content		
Week	Topics	Chapter in Textbook (handouts)
1	1. Course Introduction 2. Intro to Virology: Structure, cultivation, properties	Handout
2	3. Intro: Replication cycle (general) 4. DNA Viruses Replication	Handout
3	5. RNA Viruses Replication 6. Classification and Nomenclature of viruses	Handout
4	7. Pathogenesis of Viral diseases	Handout
5	8. Pathogenesis of Viral diseases	Handout
6	9. Viruses and Host Immune Response 10. Treatment and Prevention of Viral Diseases	Handout
7	11. FIRST EXAM	Handout
8	12. Adenoviruses 13. Picornaviruses and Coronaviruses	
9	14. Orthomyxoviruses 15. Paramyxoviruses	Handout
10	16. Rubella virus and Rhabdovirus 17. Pox viruses, Parvoviruses, and Prions	Handout
11	18. Papillomaviruses 19. Diagnostic Virology	Handout
12	20. Diagnostic Virology 21. SECOND EXAM	Handout
13	22. Introduction to mycology, classification 23. Laboratory Methods of Fungal Isolation and Identification	Handout
14	24. Superficial and Cutaneous Mycoses	Handout
15	25. Subcutaneous Mycoses	Handout
16	26. Systemic Mycosis caused by Endemic Dimorphic Fungal Pathogens 27. Opportunistic Mycoses 28. Antifungal Agents	

Additional Notes
<p>Attendance policy:</p> <ul style="list-style-type: none"> ▪ Students are expected to attend at least 90% of lectures. ▪ All absences will be entered electronically into the University site ▪ If absence is more than 10% student will be banned from the course after electronic notification from the university through student e-mail. <p>Expected workload: Students are expected to take every effort to ensure satisfactory learning of the material given.</p> <p>Feedback: Concerns or complaints should be expressed in the first instance to the course instructor. If no resolution is forthcoming then the issue should be brought to the attention of the Department Chair and if still</p>

unresolved to the Dean. Questions about the material covered in the lecture, notes on the content of the course, its teaching and assessment methods can be also sent by e-mail to the following address sfswedan4@just.edu.jo

Course Content		
Week	Title of the Lecture	Lecturer
1	1. Course Introduction 2. Intro to Virology: Structure, cultivation, properties	Dr. Samer Swedan
2	3. Intro: Replication cycle (general) 4. DNA Viruses Replication	Dr. Samer Swedan
3	5. RNA Viruses Replication 6. Classification and Nomenclature of viruses	Dr. Samer Swedan
4	7. Pathogenesis of Viral diseases	Dr. Samer Swedan
5	8. Pathogenesis of Viral diseases	Dr. Samer Swedan
6	9. Viruses and Host Immune Response 10. Treatment and Prevention of Viral Diseases	Dr. Samer Swedan
7	11. <i>FIRST EXAM</i>	Dr. Samer Swedan
8	12. Adenoviruses 13. Picornaviruses and Coronaviruses	Dr. Samer Swedan
9	14. Orthomyxoviruses 15. Paramyxoviruses	Dr. Samer Swedan
10	16. Rubella virus and Rhabdovirus 17. Pox viruses, Parvoviruses, and Prions	Dr. Samer Swedan
11	18. Papillomaviruses 19. Diagnostic Virology	Dr. Samer Swedan
12	20. Diagnostic Virology 21. <i>SECOND EXAM</i>	Dr. Samer Swedan
13	22. Introduction to mycology, classification 23. Laboratory Methods of Fungal Isolation and Identification	Dr. Samer Swedan
14	24. Superficial and Cutaneous Mycoses	Dr. Samer Swedan
15	25. Subcutaneous Mycoses	Dr. Samer Swedan
16	26. Systemic Mycosis caused by Endemic Dimorphic Fungal Pathogens 27. Opportunistic Mycoses 28. Antifungal Agents	Dr. Samer Swedan

Laboratory Content		
Week	Topics	Instructor
1	Introduction	Dr. Samer Swedan
2	Cell culture for virus growth	Dr. Samer Swedan
3	Fertilized eggs for viral growth	Ms. Yasmin Shbool
4	Virus cytopathic effects and microscopy	Dr. Samer Swedan
5	Processing of clinical samples for the identification of viral pathogens	Dr. Samer Swedan
6	The plaque assay	Dr. Samer Swedan
7	ELISA and Immunofluorescence for the diagnosis of viral infections	Dr. Samer Swedan
8	Influenza Neutralization Assay; cell-vial cultures	Dr. Samer Swedan
9	Influenza Hemagglutination Test	Dr. Samer Swedan
10	Hemagglutination Inhibition Test	Dr. Samer Swedan
11	Introduction to mycology laboratory	Ms. Yasmin Shbool
12	Yeasts – Part 1	Ms. Yasmin Shbool
13	Yeasts – Part 2	Ms. Yasmin Shbool
14	Molds – Part 1	Ms. Yasmin Shbool
15	Molds – Part 2	Ms. Yasmin Shbool
16	Final Laboratory Exam	Ms. Yasmin Shbool