The Hashemite University

الجامعـــــة الهاشميـــــة

Deanship of Academic Development and International Outreach

عمادة التطوير الأكاديمي والتواصل الدولي

Syllabus*: Diagnostic Microbiology (1801042442)

Second Semester 2021 /2022

COURSE INFORMATION	
Course Name: Diagnostic Microbiology **Semester:** Second **Department:** Department of Biology and Biotechnology **Faculty:** Science	**Course Code: 1801042442** **Section:** 1 **Core Curriculum**:
Day(s) and Time(s): Sunday: 8:00-9:00 (Lecture) Tuesday: 8:00-9:00 (Lecture) Sunday: 11-2 & 2- 5 (Practical) **Classroom:** Bio 241	**Credit Hours:** 3 (2+1) **Prerequisites**: General Microbiology (1801041241)

COURSE DESCRIPTION

This course focuses on:

- The criteria used in differentiation and classification of pathogenic bacteria, Medical importance of different pathogenic bacteria to humans is discussed. Study the etiological characteristic, the pathogenicity, the clinical manifestation and lab diagnosis as well as the epidemiology and control of such pathogenic bacteria

COURSE LEARNING OUTCOMES

1. Describe the etiologies, epidemiology and basic mechanisms of pathogenesis of infectious diseases.
2. Describe the basic principles of diagnosis, antimicrobial treatment, prevention and control of infectious diseases in the clinical lab.
3. Understand and interpret basic laboratory tests for the diagnosis of infectious diseases.
4. Apply the principles of molecular and immunological techniques for the diagnosis of infectious diseases.
5. Analyze and solve case studies involving bacterial and fungal agents

DELIVERY METHODS

The course will be delivered through a combination of active learning strategies. These will include:

- PowerPoint lectures and active classroom based discussion
- Collaborative learning through small groups acting in an interdisciplinary context.
- Relevant films and documentaries
- Video lectures

- E-learning resources: e-reading assignments and practice quizzes through Model and Microsoft Team

FACULTY INFORMATION

Name	**Khaled Husein Abu- Elteen**
Academic Title:	**Professor**
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Office Hours:	**Sunday 9-10** **Monday 10-11** **Tuesday 12-1** *Please send an e-mail (salma@hu.edu.jo) to meet at any other time.*

REFERENCES AND LEARNING RESOURCES

Required Textbook: Medical Microbiology 6th ed.2009, Patrick R. Murray *et al*, Mosby Health Sciences Comp London

Weekly readings are available electronically on Model.

Suggested Additional Resources:

Useful Web Resources:

www.awl.com/techsupport.

www.journal.uchicago.edu/JID/journal

www.sciencekomm.at/journal/medicine/med- bio.html

ACADEMIC SUPPORT

It is The Hashemite University policy to provide educational opportunities that ensure fair, appropriate and reasonable accommodation to students who have disabilities that may affect their ability to participate in course activities or meet course requirements. Students with disabilities are encouraged to contact their Instructor to ensure that their individual needs are met. The University through its Special Need section will exert all efforts to accommodate for individual's needs.

Special Needs Section:

Tel:

Location:

Email:

ALIGNMENT OF COURSE STUDENT LEARNING OUTCOMES TO PROGRAM STUDENT LEARNING OUTCOMES MATRIX*

Program SLOs	Course SLOs
1. Acquired a broad base of health sciences knowledge, understanding, and skills, as well as depth in Medical Laboratory Technology, and how laboratory data relate to clinical medicine.	• Describe the etiologies, epidemiology and basic mechanisms of pathogenesis of infectious diseases; • Describe the basic principles of diagnosis, antimicrobial treatment, prevention and control of infectious diseases in the clinical lab • Understand and interpret basic laboratory tests for the diagnosis of infectious diseases. • Apply the principles of molecular and immunological techniques for the diagnosis of infectious diseases.. • Analyze and solve case studies involving bacterial agents causing infectious diseases.
2. Applied their knowledge and understanding in careers in Medical Laboratory Technology.	• Describe the etiologies, epidemiology and basic mechanisms of pathogenesis of infectious diseases; • Describe the basic principles of diagnosis, antimicrobial treatment, prevention and control of infectious diseases in the clinical lab • Understand and interpret basic laboratory tests for the diagnosis of infectious diseases. • Practice essential laboratory safety procedures, rules and basic sterilization, culturing and microbial growth and identification techniques.
3. Developed a range of skills including knowledge of information technology, independent learning, critical thinking, verbal and written communication, time management, presentation skills and teamwork.	• Understand and interpret basic laboratory tests for the diagnosis of infectious diseases. • Practice essential laboratory safety procedures, rules and basic sterilization, culturing and microbial growth and identification techniques.
4. Gained an appreciation of the needs of industry and awareness of recent developments in the health sciences and Medical Laboratory Technology.	• Describe the basic principles of diagnosis, antimicrobial treatment, prevention and control of infectious diseases in the clinical lab • Understand and interpret basic laboratory tests for the diagnosis of infectious diseases. • Practice essential laboratory safety procedures, rules and basic sterilization, culturing and microbial growth and identification techniques.

5. Developed an appreciation and understanding of the ethical and social issues important to the health sciences and Medical Laboratory Technology.	
6. Integrate and interpret laboratory data within the parameters of accepted laboratory testing standards, demonstrate administrative skills, professionalism, and knowledge of quality assurance, laboratory education and resource management.	•Understand and interpret basic laboratory tests for the diagnosis of infectious diseases. • Practice essential laboratory safety procedures, rules and basic sterilization, culturing and microbial growth and identification techniques
7. Advocate for the safety of all in the working environment by following safety rules and regulations	•Practice essential laboratory safety procedures, rules and basic sterilization, culturing and microbial growth and identification techniques.

COURSE OUTCOME ASSESSMENT PLAN

Course LOs	Teaching/Learning Method(s)	Assessment Tool(s)	Performance Indicators
Describe the etiologies, epidemiology and basic mechanisms of pathogenesis of infectious diseases;	Power point presentations	Exams Quizzes Solving Case Studies	**Students' Grades**
Describe the basic principles of diagnosis, antimicrobial treatment, prevention and control of infectious diseases in the clinical lab	Power point presentations	Exams	**Students' Grades**
Understand and interpret basic laboratory tests for the diagnosis of infectious diseases.	- Power point Presentations - Lab Experiments	Exams Quizzes Solving Case Studies Class Assignments Home works	**Students' Grades**
Apply the principles of molecular and immunological techniques for the diagnosis of infectious diseases..	Power point presentations	Exams	**Students' Grades**
Analyze and solve case studies involving bacterial agents causing infectious diseases	- Power point Presentations - Class Discussion	Exams Solving Case Studies Groups Discussion	**Students' Grades**

WEEKLY LECTURE SCHEDULE AND CONTENT DISTRIBUTION

Week	Topic	Chapter
1	Nosocomial Infections (Hospital Acquired Infections)	
2	Selection, Collection and Transport of Clinical Specimens for Microbiological Examination.	
3	Micrococaceae : *Staphylococcus* and *Micrococcus*	
4-5	Streptococaceae: *Streptococcus*, *Enterococcus*, Viridin Group and Pneumococcus	
6-7	Aerobic Gram-Negative Cocci (*Neisseria* and *Moraxella*)	
	1st Midterm Exam	
8-9	Gram- Positive Spore Forming Bacilli (*Clostridium* and *Bacillus* species)	
10	*Corynebacterium* & other G+ bacilli	
11-12	Enterobacteriaceae	
13	Vibrio, Aeromonas, and Plesiomonas	
	2nd Midterm Exam	
14	*Pseudomonas* ,*Campylobacter* and *Helicobacter*	
15	*Brucella* and *Haemophilus*	
16	*Mycobacterium*	

SCHEDULING OF LABORATORY AND OTHER NON-LECTURE SESSIONS, INCLUDING ONLINE SESSIONS, AS APPROPRIATE

Week	Topic	Comments
1.	Laboratory orientation; safety regulation; quality in clinical laboratory and principles of diagnostic microbiology.	
2.	Staphylococci species identification	
3.	Streptococcus Group A and Group B identification	
4.	Streptococcus pneumonia and *Entercoccus*	
5.	Examination of sputum and throat swabs.	
6.	Enterobacteriaceae I. *Escherichia coli* and *Klebsiella pneumonia* identification	
7.	Enterobacteriaceae II. *Proteus* and *Pseudomonas aeruginosa* identification	
8.	Midterm exam	
9.	Examination of urine samples	
10.	Examination of stool specimens	
11.	Examination of urogenital specimens	
12.	Blood cultures	
13.	*Haemophilus* species.	
14.	Final exam	

COURSE REGULATIONS

Participation

Class participation and attendance are important elements of every student's learning experience at The Hashemite University, and the student is expected to attend all classes. A student should not miss more than 15% of the classes during a semester. *Those exceeding this limit of 15% will receive a failing grade regardless of their performance*. It is a student's responsibility to monitor the frequency of their own absences. **Attendance record begins on the first day of class irrespective of the period allotted to drop/add and late registration. It is a student's responsibility to sign-in; failure to do so will result in a non-attendance being recorded.**

In exceptional cases, the student, with the instructor's prior permission, could be exempted from attending a class provided that the number of such occasions does not exceed the limit allowed by the University. The instructor will determine the acceptability of an absence for being absent. A student who misses more than 25% of classes and has a valid excuse for being absent will be allowed to withdraw from the course.

Plagiarism

Plagiarism is considered a serious academic offence and can result in your work losing marks or being failed. HU expects its students to adopt and abide by the highest standards of conduct in their interaction with their professors, peers, and the wider University community. As such, a student is expected not to engage in behaviours that compromise his/her own integrity as well as that of the Hashemite University.

Plagiarism includes the following examples and it applies to all student assignments or submitted work:

- **Use of the work, ideas, images or words of someone else without his/her permission or reference to them.**
- **Use of someone else's wording, name, phrase, sentence, paragraph or essay without using quotation marks.**
- **Misrepresentation of the sources that were used.**

The instructor has the right to fail the coursework or deduct marks where plagiarism is detected

Late or Missed Assignments

In all cases of assessment, students who fails to attend an exam, class project or deliver a presentation on the scheduled date without prior permission, and/or are unable to provide a medical note, will automatically receive a fail grade for this part of the assessment.

- Submitting a term paper on time is a key part of the assessment process. Students who fail to submit their work by the deadline specified will automatically receive a 10% penalty.

Assignments handed in more than 24 hours late will receive a further 10% penalty. Each subsequent 24 hours will result in a further 10% penalty.

- In cases where a student misses an assessment on account of a medical reason or with prior permission; in line with University regulations an incomplete grade for the specific assessment will be awarded and an alternative assessment or extension can be arranged.

Student Complaints Policy

Students at The Hashemite University have the right to pursue complaints related to faculty, staff, and other students. The nature of the complaints may be either academic or non-academic. For more information about the policy and processes related to this policy, you may refer to the students' handbook.

COURSE ASSESSMENT

Course Calendar and Assessment

Students will be graded through the following means of assessment and their final grade will be calculated from the forms of assessment as listed below with their grade weighting taken into account. The criteria for grading are listed at the end of the syllabus.

Students are assessed as follows:

Assessment Tool(s)	Deadline Assessment	Grade Weighting (%)
Theory		
1st Exam	Week 6	20
2nd Exam	Week 11	20
Final Exam	Week 16	30
Practical		
Quizzes and Reports		5
Mid Term	Week 8	10
Final Exam	Week 15	15
Total		

Note: 70% is allocated for theory and 30% is allocated for Practical

Description of Exams

Test questions will predominately come from material presented in the lectures. Semester exams will be conducted during the regularly scheduled lecture period. Exam will consist of a combination of multiple choice, short answer, match, true and false and/or descriptive questions.
Homework: Will be given for each chapter, while the chapter in progress you are supposed to work on them continuously and submit in next lecture when I finish the chapter.
You are also expected to work on in-chapter examples, self-tests and representative number of end of chapter problems. The answers of self-tests and end of chapter exercises are given at the end of the book.

Quizzes: Unannounced quizzes will be given during or/and at the end of each chapter based upon the previous lectures. It will enforce that you come prepared to the class.

No make-up exams, homework or quizzes will be given. Only documented absences will be considered as per HU guidelines.

GRADES ARE NOT NEGOTIABLE AND ARE AWARDED ACCORDING TO THE FOLLOWING :CRITERIA

Letter Grade	Description	Grade Points
A+	Excellent	4.00
A		3.75
A-		3.50
B+	Very Good	3.25
B		3.00
B-		2.75
C+	Good	2.50
C		2.25
C-		2.00
D+	Pass	1.75
D	Pass	1.50
F	Fail	0.00
I	Incomplete	-

Professor Khaled H. Abu-Elteen