



Course Specification of Microbiology and Parasitology

Faculty : Medicine and Health sciences

Department: Health Sciences

Program : Bachelor in Clinical Nutrition and Dietetic

I. General information about the course instructor :						
Name	Dr.Talal alqahtani	Office Hours(3 Hours Weekly)				
Location & phone number	Sana'a: 776005134	Sat	Sun	Mon	Tue	Wed
Email	Alqahtani.talal@yahoo.com					✓

II. General information about the course :						
1.	Course Title:	Microbiology and Parasitology				
2.	Course Code and Number :	BND232				
3.	Credit Hours	Lecture	Seminar/Tutorial	Practical	Training	Total
		2	-	1	-	3
4.	Study Level and Semester:	2 nd year / 1 st semester				
5.	Pre-requisites :	BHS120				
6.	Co-requisites :	None				
7.	Program in which the course is offered	Bachelor in Clinical Nutrition and Dietetic				
8.	Teaching Language:	English				
9.	Instruction Location	University of Science and Technology, Sana'a, Yemen.				

III. Course Description :
The course is designed to learn students the important pathogens and spoilage microorganisms in foods and the conditions under which they will grow. This course describes the relationship between microorganisms, food borne illness and foodstuffs and orient the students about management of food in terms of analysis, preservation, protection from contamination and spoilages. The teaching strategies will include lectures, practical sessions, self-learning and assignment. The student will be evaluated through report, written exam and practical exam. Biology is a prerequisite course.

عميد الكلية:
د. عبدالله المخلافي

رئيس القسم:
د. عبد الحبيب ردمان

المراجع:
د. ابراهيم السبل
د. مجاهد نصار

الموصف:
د. طلال القحطاني

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IV. Course aims: **This course is aimed to:**

1. Provide the student with basic knowledge about the nature of microorganisms, their classification, definition, growth, and the various illness they produce.
2. **Enable the student to explore the factors that influence microbial growth in foods.**
3. Learn students the different food spoilages and strategies for their preservation.
4. Enable students to demonstrate procedures and techniques that can be used to isolate and enumerate microorganisms in food and water.

V. **Course Intended Learning Outcomes (CILOs) :**

1. Describe the structure, classification, growth requirements, metabolism , genetics, morphology and cultural characteristics of bacteria, viruses, fungi and parasites.
2. Outline sources of food, milk and water contamination and factors that influence the growth of microorganisms..
3. Identify different types of food/water borne diseases .
4. Explain the different food spoilages and strategies for their preservation .
5. Analyze the sources of microbial contamination for water supply and during food production and processing .
6. Differentiate between foodborne intoxication and infection .
7. Collect and prepare food and water samples for lab investigations.
8. Carry out the common laboratory tests used to identify pathogens isolated form food and water samples.
9. Work independently or as a team member and effectively communicate with the teaching staff and colleagues and participate in public health education about risks of consumption of contaminated foods and water.

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VI. Course Contents				
First: Theoretical Aspects				
No.	Course Topics/Units	Sub-topics	No. of Weeks	Contact Hours
1	Introduction	History of microorganisms Gram stain & Ziehl-Neelsen	1 st	2
2	Bacteriology	Morphology of Bacteria Anatomy of the bacterial cell Physiology of Bacteria Bacterial Cultivation Host-Microbe Relationships and Disease Processes:	2 nd , 3 rd	4
3	Virology, Fungi & Parasitology	General Properties of Viruses Replication of viruses General Properties of fungi Clinical Manifestations of Fungal Diseases Definitions related of Parasites Classification of parasites:	4 th , 5 th	4
4	Food microbiology	Microorganisms found in foods. Primary Sources of Microorganisms Found In Foods	6 th	2
5	Factors Influencing the Growth of Microorganisms	Intrinsic Factors Extrinsic Factors	7 th	2
6	Mid term		8 th	2
7	Food Spoilage	Definition of spoilage Classification of foods spoilage	9 th	2
8	Food borne Illness	Foodborne Intoxication <i>Staphylococcus aureus</i> , <i>Cl. Botulinum</i> , <i>Cl. Perfringens</i> , <i>Vibrio cholera</i> Foodborne Infection <i>Salmonella</i> , <i>Campylobacter</i> , <i>Listeria</i> <i>Escherichia coli</i>	10 th - 12 th	6
9		Molds, Yeasts, Viruses and parasites in food.	13 th	2
10	Microbiology of water	Microbial Water treatment and waste water and Industrial microbiology	14 th	2
11	Food Preservation	Strategies for control of food spoilage-borne diseases	15 th	2
12	Final Exam		16 th	2
Total number of weeks and hours			16	32

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Second: Practical/Tutorial/Clinical Aspects			
No.	Practical/Tutorial/Clinical topics	No. of Weeks	Contact Hours
1	Introduction to practical work, discussion of safety and laboratory rule: Sample collection and processing, Basic microbiological techniques, Media preparation and aseptic transfer	2 nd ,3 rd	4
2	Bacterial staining: Simple staining, Negative staining, Gram stain and acid-fast stain	4 th ,5 th	4
3	Serial dilution-agar plate procedure to quantitate viable cell and the bacterial growth curve	6 th	2
4	Examination of foods for coliforms, a fecal coliforms and Escherichia coli, most probable number	7 th	2
5	Biochemical activities of microorganisms: Carbohydrate fermentation test, Triple sugar agar test, Litmus milk reaction, Catalase test, Oxidase test and IMViC test	8 th ,9 th	4
6	Water sample analysis, Aerobic Colony Count (Total Viable Count) and Bacterial identification.	10 th	2
7	Poultry (egg) sample analysis, Bacterial cultivation and Bacterial identification	11 th	2
8	Counting and isolation of fungi from food products	12 th	2
9	Demonstration to the microbial production of food.	13 th	2
10	Final practical exam	14 th	2
Total number of weeks and hours		13	26

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