



**Course Specification: Milk and Milk Products Hygiene and Technology (2020-2021)**

**Damanhour University**

**Faculty of Veterinary Medicine**

**Course specification**

**Programme title:** Bachelor of Veterinary Medical Sciences (BVMSc).

**Major or minor element of programme:** Major.

**Department:** Food Hygiene Department

**Academic year:** 4<sup>th</sup> year [First and Second semesters]

**A- Basic Information**

**Title:** Milk and Milk Products Hygiene and Technology

**Contact hours/week: Lecture:** ( 3 )      **Practical:** ( 2 )      **Total:** ( 5 )

**B- Professional information**

**1- Overall aims of course:**

By the end of milk hygiene course the students will acquire the scientific knowledge to maintain milk, milk products, table eggs and edible fats & oils of high quality and safe for consumers.

**2- Intended learning Outcomes of course (ILOs)**

**i. Knowledge and understanding**

*By the end of this course the student should be able to*

i.1- Understand English language and terminology.

i.2- Recognize and understand of the scientific principals underlying laboratory diagnosis and the ability to critically evaluate the limitations of diagnostic methodologies

i.3- Recognize the ideal and permissible parameters of milk, dairy products, table eggs, edible fats & oils

i.4 -Detect the adulteration of milk and their products.

i.5-Recognize the etiology, source, reservoir, mode of transmission of and control of zoonotic diseases via milk and its products.

i.6-Recognize the application of dairy farm and plant disinfectants.

i.7 –Outline the knowledge of laws and ethical codes relevant to food hygiene (milk and milk products)

**ii. Intellectual skills**

*By the end of this course the student should be able to*

ii.1- Assess and critique, as reported in veterinary journals, as well as based on an understanding of how data are derived.

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ii.2- Evaluate scientific as well as clinical information and critically analyze conflicting data and hypotheses.

ii.3- Able to select from different choices.

ii.4- Conclude and discuss the scientific experiments.

ii.5- Specify problems and finding solution.

ii.6- Face disasters.

ii.7- Utilize the knowledge of evidence based veterinary medicine in making decisions.

ii.8- Generate useful data in various forms.

**iii. Professional and practical skills.**

*By the end of this course the student should be able to*

iii.1- Handle and restrain animals in a safe and human manner during milk sample collections.

iii.2- Investigate the etiological agents of subclinical mastitis (Bacteria, viruses,... etc)

iii.3- Design the ongoing learning and self evaluation.

iii.4- Prepare the possible public health significance of milk and their products.

iii.5- Applicate MS, Win XP Word, Excel in scientific research in facing problems.

iii.6- Carry out feasibility studies for food safety projects.

iii.7- Investigate milk and milk products and decide their fitness to human consumption.

**iv. General transferable skills**

**By the end of this course the student should be able to**

iv.1- Perform a research on common problems as subclinical mastitis in the surrounding dairy animals at Sharkia Province.

iv.2- Have computer skills and get access to web sites to obtain information and to apply software in bioscience.

iv.3- Impress team work to get a specific task.

iv.4- Resolve conflicts.

iv.5- Interpret, transcribe and communicate data and observation.

iv.6 - Plan for competing disaster & crisis

**3- Contents:**

Semester	Lecture topic	No of hours	Practical Topic	No of hours
<b>first</b>	Introduction	1	Sampling of milk	2
	Milk production and secretion	2	Physical examination of milk	4
	Physical properties of milk	3	Chemical examination of milk	4



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	Milk composition and Factors affecting milk composition	4	Detection of milk adulteration	4
	Nutritive value of milk constituents	1	Sanitary & keeping quality tests	4
	Parameters affecting microbial growth	2	Detection of abnormal milk	2
	Sources of microorganisms in milk	2	Microbiological examination of milk	4
	Fermentation of milk	2	Testing of dairy utensils for sterility	2
	Diseases transmitted through milk	3	Detection of antibiotic residues in milk	2
	Guarding the health of dairy animals	3	Detection of heat treated milk	2
	Milk parlour	3		
	Indicator microorganisms	2		
	Clean milk production	3		
	Reception and pre treatment of milk	2		
	Food poisoning	3		
	Mastitis	3		
	Cleaning and sanitizing dairy equipments	2		
	Antibiotic residues	2		
	Heat treatment of milk	2		
		<b>45</b>		<b>30</b>
<b>second</b>	Introduction	1	Sampling	2
	Cream	4	Examination of cream	2
	Butter	3	Examination of butter	2
	Condensed milk	4	Examination of cheese	2
	Powdered milk	4	Examination of ice cream	2
	Cheese	5	Examination of fermented milk	2
	Fermented milks	5	Examination of condensed and evaporated milk	2
	Ice cream and dairy deserts	5	Examination of dried milk	2



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	Edible fats and oils	5	Physical examination of edible fats and oils	2
	Table eggs	5	Chemical examination of edible fats and oils	4
	HACCP	2	Examination of egg	4
	Bacteriophage	2	Manufacture of cheese	2
			Manufacture of Yoghurts	2
		<b>45</b>		<b>30</b>
<b>Total</b>		<b>90</b>		<b>60</b>

#### 4- Teaching and learning methods:

4.1- Lectures (Blackboard and Data show)

4.2- Practical (Equipped laboratories, Discussion)

4.3. Online Sessions

#### 5- Teaching and learning methods for students facing difficulties:

The department will apply special procedures to explore and help the students who face difficulties to achieve the required knowledge and skills related to food safety and quality (milk and its products) through additional lectures and/or practical sessions.

#### 6- Student assessment methods

##### 6.1- Assessment methods

**Written exam.** A comprehensive exam. with variable questions covering all topics of the course and suitable for all students. The exam. Will be applied in MCQ and other questions in the form of fill in space, correct, true or false and multiple choose. The time is enough for solving and revision. The exam. Assess knowledge, understanding and intellectual skills. ( MCQ -100 points 1\4 mark for each)

**Oral exam.** Different oral questions to assess knowledge, understanding, intellectual and general skills.( 5 questions 2 mark for each)

**Practical exam.** The students will be examined in their practical session under supervision of staff members within allowed enough time . practical exams are one chemical test (10 mark)and spots (5 mark ) to assess practical, professional and intellectual skills



Periodical exam. sheets

Attendance . weekly lab. activity

Assignments (Posters, presentation and assay)

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U (i)	I.S (ii)	P&P.S (iii)	G.S (iv)
Written exam	i.1, i.2,i.3,i.5 & i.6	ii.1 & ii.2	iii.3& iii.4	iv.6
Oral exam	i.2,i.3 &i.4	ii.1, ii.2, ii.3&ii.7	iii.1 & iii.2	iv.2&iv.4
Practical exam	i.1, i.2 & i.3	ii.1 & ii.2&ii.4	iii.5&iii.7	iv.1, iv.2&iv.3
Periodical exam	i.1, i.2 & i.3	ii.1 & ii.2	-	-
Assignments	i.7	ii.5, ii.6&ii.8	iii.6	iv.5

### 6.2- Assessment schedule/Semester:

	Week No./ Semester
<b>First Periodical exam</b>	<b>4<sup>th</sup></b>
<b>Second Periodical exam</b>	<b>8<sup>th</sup></b>
<b>Practical exam</b>	<b>16<sup>th</sup></b>
<b>Oral exam</b>	<b>17<sup>th</sup></b>
<b>Written exam</b>	<b>17<sup>th</sup></b>
<b>Assignments (Booster and presentation)</b>	<b>Weekly</b>

### 6.3- Weighting of assessments:

Assessment	%	Allocated Mark		
		1 <sup>st</sup> semester	2 <sup>nd</sup> semester	Total
<b>Practical examination</b>	<b>20</b>	<b>10</b>	<b>10</b>	<b>20</b>
▪ Periodical exam	4	2	2	4
▪ Attendance(lab.activity)	2	1	1	2
▪ <b>Assignments</b> (Booster and presentation)	4	2	2	4
<b>Oral examination</b>	<b>20</b>	<b>10</b>	<b>10</b>	<b>20</b>
<b>Final examination</b>	<b>50</b>	<b>25</b>	<b>25</b>	<b>50</b>
<b>Total</b>	<b>100</b>	<b>50</b>	<b>50</b>	<b>100</b>



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## 7- List of references

7.1- Course note:

Milk Hygiene (part 1,2013) (theoretical and practical)

Hygiene of Milk products, Edible fats and oils and Table eggs (part 2, 2013) (theoretical and practical)

7.2- Recommended texts

Dairy science books second edition 1950

Microorganisms in food books first edition 1996

Dairy processing book first edition 2000

7.3- Websites

[www.Pubmed.com](http://www.Pubmed.com)

[WWW. Science direct.com](http://WWW.Science direct.com)

## 8- Facilities required for teaching and learning:

Apparatus/equipment	No.	Uses
Laboratories		Physical, chemical and microbiological analysis of milk, dairy products, table eggs and edible fats and oils
Laptop and data show		Teaching and presentation on round tables and seminars
Overhead projectors		Teaching and presentation on round tables and seminars
Computer		Teaching and presentation on round tables and seminars
Modern devices in dairy hygiene and technology		Training of students on manufactures of dairy products as well as examinations
Reagents and chemicals		Physical, chemical and microbiological analysis of milk, dairy products, table eggs and edible fats and oils.

Course Coordinator

Head of the Department



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**Course Matrix (Milk & Milk Products Hygiene and Technology 2020-2021)**

**Department: Food Hygiene**

**Course Title: Milk & Milk Products Hygiene and Technology**

**Academic Year: 2020-2021**

Program ILOs	Course ILOs	Course topics	Teaching and Learning methods	Assessment Methods	Evidence
<b>K&amp;U</b>	<b>K&amp;U</b>				
a.20- Recognition of ideal and permissible parameters (physical, chemicals, and drug residues as well as microbial) of milk, dairy products, eggs, oils	i.1- Understand English language and terminology. i.3- Recognize the ideal and permissible parameters of milk, dairy products, eggs, oils.	Physical properties of milk	Lectures	Written & oral Exam	Marked written papers & list of oral
a.21 - Detection of adulteration of milk, and dairy products	i.2- Recognize and understand of the scientific principals underlying laboratory diagnosis and the ability to critically evaluate the limitations of diagnostic methodologies i.4 – Detect the adulteration of milk and dairy products.	Physical and chemical examination of milk	Practical Training / Laboratory	Practical Exam	Marked practical note
a.23-Recognizing how to make judgment of milk and their products	i.5-Recognize the etiology, source, reservoir, mode of transmission of and control of zoonotic diseases via milk and its products. i.6-Recognize the application of dairy farm and plant disinfectants. i.7 –outline the knowledge of laws and ethical codes relevant to food hygiene (Milk and its products)	Milk composition	Lectures	Written Exam	Marked written papers & list of oral



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<b>I.S</b>	<b>I.S</b>				
b.2- The ability to assess and critique, as reported in veterinary journals, as well as based on an understanding of how data are derived.	ii.1- assess and critique, as reported in veterinary journals, as well as based on an understanding of how data are derived	Sampling and examination of milk and milk products	Practical Training / Laboratory	Practical Exam	Marked practical note
b.3- The ability to evaluate scientific as well as clinical information and critically analyze conflicting data and hypotheses	ii.2- evaluate scientific as well as clinical information and critically analyze conflicting data and hypotheses	Quantitative assay of food borne pathogens– Serology – Polymerase Chain Reaction.	Practical Training / Laboratory	Practical Exam	Marked practical note
b.4- The ability to select from different choices.	.ii.3- able to select from different choices	HACCP	Lectures	Assignment	poster
b.5- The ability to conclude and discuss the scientific experiments	ii.4- conclude and discuss the scientific experiments	Sampling and examination	Practical Training / Laboratory	Practical Exam	Marked practical note
b.7- Specifying problems and finding solution	.ii.5- Encourage the innovation nature of students	Bacteriophage	Lectures /Practical Training	Assignment	Poster
	ii.6- Specify problems and finding solution ii.7- Utilize the knowledge of evidence based veterinary medicine in making decisions. ii.8- Generate useful data in various forms.	Mastitis	Lectures /Practical Training	Assignment	Poster
<b>P&amp;P</b>	<b>P&amp;P</b>				
c.15- The ability of carrying out feasibility studies as well as bioinformatics for animal	iii.1- Handle and restrain animals in a safe and human	Examination of milk products/ Mastitis/	Lecturer/Practical Training / Laboratory	Practical Exam/Written exam.	Marked practical note





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production projects.	<p>manner during milk sample collections.</p> <p><b>iii.2-</b> Investigate the etiological agents of subclinical mastitis (Bacteria, viruses,...etc)</p> <p><b>iii.3-</b> Design the ongoing learning and self evaluation.</p> <p><b>iii.4-</b> Prepare the possible public health significance of milk and their products.</p> <p>iii.7- investigate the milk and dairy products and decide their fitness to human consumption</p>	Food poisoning			
c.21- Have a commitment to ongoing learning and self-evaluation.	<b>iii.5-</b> Applicate MS, Win XP Word, Excel in scientific research in facing problems.	Examination of milk products	Practical Training / Laboratory	Practical Exam	Marked practical note
c.7- The ability to perform physical, chemical and microbiological examination to milk and its products	iii.6- carry out feasibility studies for animal projects.				
c.16- Inspection of milk and their products to decide their fitness to human consumption.					
<b>G&amp;T</b>	<b>G&amp;T</b>				
d.1- To conduct themselves in	<b>iv.1-</b> Perform a research on common problems as	Manufacture of cheese	Laboratory	Assignment	Posters



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a professional manner, the responsibility of general organization of veterinary service (GOVS).	subclinical mastitis in the surrounding dairy animals at Sharkia Province. iv..3- Impress teamwork to get a specific task.	and yoghurt			
d.2- To impress team work to get a specific tasks.	iv..4- Resolve conflicts iv..5- Interpret, transcribe and communicate data and observation..	Cleaning and sanitizing of dairy equipment Testing of dairy utensils	Practical Training	Assignment	Posters
d.5- Demonstrate knowledge of the organization and management of veterinary practices and record keeping.	iv..2- Have computer skills and get access to web sites to obtain information and to apply software in bioscience..  iv..6 - Plan for competing disaster & crisis	All teaching topics	Assay	Assignment	Posters
d.6 - To plan for competing emerging diseases and disasters.					
d.7- To be able to interpret, transcribe and communicate data and observation					

**Course coordinator**

**Head of Department**

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