University of Gondar
College of veterinary medicine and animal sciences
Department of Veterinary Epidemiology and Public Health

Course Information

Course Title	Veterinary Public health -II
Course Number (Code)	VETM -4271
Credit Hours	3+1=4 (5ECTS)

Instructor (s)

Dr.Araya (DVM, MSC,PHD)
Dr. Seleshi Nigatu (DVM, MSc, PHD candidate)
Dr. Adugna (DVM, MPH-VPH)
Dr.Belete (DVM,MSc)
Mr. Bidir Zegeye (lecturer)

Lab Assistant

Mr Amsalu (Lab Tech)
Miss. Hanna H/Eyesus (Lab Tech)

Course Description

Lecture: The course deals with the sources of microbial and non-microbial contamination of food of animal origin, the effects of microorganisms on food, and detection and prevention of spoilage. It gives general account on milk composition, properties and nutritive value of milk and dairy products, hygienic milk collection, transportation, processing, quality control, milk microbiology and milk borne zoonotic diseases and discusses the importance of potable water in food processing industries (abattoirs ad dairies) and its quality assessment. Zoonotic diseases: Classification of zoonotic diseases. Emerging and re-emerging zoonotic diseases. Etiology, means and source of transmission, and control and prevention of major zoonotic diseases.

Practical: Determination of milk composition and quality control of milk; detection of adulteration and preservatives in milk and milk products. Collection of milk samples for chemical and bacteriological examination, grading of milk; test for pasteurization and plant sanitation; microbial examination of raw and pasteurized milk, milk products and water for processing plant; isolation and identification of organisms of public health importance. Demonstrations of lesions of zoonotic diseases in abattoirs.

Student Learning Objectives/Outcomes

Course objectives

At the end of the course the students should:

- To introduce students with the basic principles of veterinary public health and the activities of public health veterinarian;
- To make students familiar with sources of food contamination and detection of food spoilage;

- To acquaint students with composition, microbiology, milk processing and quality control of milk and milk products and assessing the microbiological quality of drinking water; and
- To familiarize students with the major milk-borne zoonotic diseases.

Required Textbooks and Materials

Required Texts

1. Food and agriculture organization (1991): Manual of food quality control, quality assurance in the Food Control Microbiology Laboratory. Rome, Italy.
2. FAO/WHO (1985): Food Standard Programmes. Codex Alimentarious commission: recommended International code for Ante-mortem and post-mortem judgment of slaughter animals and meat
3. Gracey, G. F. (1986): Meat Hygiene. 8th ed., Baillierr, Tindall, London, UK.
4. Schwa be, C. W. (1984): Veterinary Medicine and Human Health. Third ed., Williams and Wilkins Pub. Baltimore, USA.
5. Eckles, C.H, combs, W.B (2001): Milk and milk products 16th reprint,
6. Slater ken. (1991): The principle of dairy farming, 11th ed,
7. James, M.J. (2005): Modern food microbiology, 7th ed,
8. PAHO. (2003): Zoonoses and communicable disease common to man and animals, Vol. I, II, & III, 3rd ed,.
9. Geerts, S .(1987): Helminthe zoonoses,
10. Berans G.W. (1994) Handbook of zoonoses, 2nd ed. CRC prerss.
11. Krauss, Hartmut (2003) zoonoses. Infectious disease transmissible from animals to human, 3rd ed.,

Required Materials

Reference Books, LCD, OHP, Internet access, Computer

Suggested Course Materials

Suggested Readings/Texts: Lectures, Reference books, and website information's

Student Assessments

Assessment methods Continuous assessment: 50%

- Tests ----------20
- Quizzes----------5
- Assignment (individual and group----------15
- Presentation----------10

Final exam: 50%

Grading Policy

As per the rules of the registrar office (fixed for ECTS courses)

Accessing Grades

Students can see grads from the SIS system.

Assignment submission instructions

All Students should submit with in the given period of time. Let submission will be accepted after justifiable reason and decision of the department

Final Examination

By the college exam center coordinator (CVMAS)

Academic Calendar (may be modified as per the necessity)

S.No	Part –I Milk Hygiene	Instructor (S)	Cont Assessment	Reference's Number	WEEK No
1	Objectives, milk synthesis, constituents of milk, factors influencing composition of milk.			1-8	1
2	Physico-chemical properties of milk, criteria of raw milk, defects encountered.			1-8	2
3	Quality assessment: Organoleptic test, determination of specific gravity, freezing point, fat percentage, PH, titrable acidity, somatic cell and bacterial count, enzymatic test.		5% Assignment	1-8	3
4	Contamination of milk: microbial and non-microbial. Drug residual test in food			1-8	4
5	Microbiology of milk and milk products. Mastitis: Economic significant, effects on the quality of milk and milk products.			1-8	5
6	Dairy sanitation (sanitation in farm and in dairy processing industries)		10%	1-8	6
7	Milk preservation: pasteurization, sterilization, upperisation, the lacto peroxidase-thiocianite hydrogen peroxide system.			1-8	7
	Part –II **Zoonoses**				
8	**Zoonoses:** Introduction, classification of zoononses, Emergence and re-emergence of zoonoses. **Zoonoses**: Transmission of zoonoses, Route of transmission, Transmission cycles. Role of domesticated, domiciliated, wild and cold-blooded animals in zoonoses.			1,3,4,9,10,11	8 – 9
9	Major zoonotic diseases and classifications a. Bacterial zoonoses		10% Test	1,3,4,9,10,11	10
	b. Viral zoonoses			1,3,4,9,10,11	11

S.No	Part –I Milk Hygiene	Instructor (S)	Cont Assessment	Reference's Number	WEEK No
	c. Parasitic zoonoses			1,3,4,9,10,11	12
	d. Rickettsial and chlamydial zoonoses			1,3,4,9,10,11	13
	e. Mycotic zoonoses		10%	1,3,4,9,10,11	14
	Part –III **Environmental Hygiene & Certification**				
10	**Water and Environmental Hygiene:** Water quality and detection methods pollution, Disposal of carcasses.			1,3,4,9,10,11	15
11	**General certification:** • *How to examine and monitor an animal or a group of animals* • *Requirements and procedures to certify freedom from specified diseases or conditions* • *National rules to provide health certificates*			12 - 19	16

PRACTICAL WORK: - WILL BE DONE BY INSTRUCTORS, MR. BIDIR ZEGEYE AND VEPH DEPARTMENT LAB TECHNICIANS

1) **Collection of Milk Sample for Biochemical and Bacteriological Examination (By Mr. Bidir Z and lab assistants)**
   (Week- 2)
   i. General Precautions
   ii. Sampling of milk from the bulk
   iii. Collection of milk samples for mastitis diagnosis

2) **Milk quality tests…… (By (By Mr. Bidir Z and lab assistants) week-3,4,5)**
   a) Rapid platform tests
   i. Organoleptic test
   ii. pH determination
   iii. Clot –on boiling test (COB)
   iv. Alcohol test
   v. Sedimentation test (Off –the- bottom test)

vi. Alcohol –alizarian test

b) Additional milk quality tests

i. Determination of milk specific gravity
ii. The Gerber butter fat test
iii. Determinitation of solids-not-fat in milk

3) Determination of Bacterial Lodes of the milk

***1. Direct tests*……..(By Mr. Bidir Z and lab assistants)**
(week -6,7,8,9)

a. Methods for quantification
    a. Standard plate count (SPC)
    b. Membrane filtration based methods
    c. Microscopic methods
        i. Direct microscopic count
        ii. Flueresent staining
        iii. Flow cytometry
        iv. Direct epifluorescent filter technique(DEFT)

***2. Indirect tests*……(By Mr. Bidir Z and lab assistants)(week-10, 11)**

vii. Dye reduction tests (e.g. Methylene blue and resazurin)
viii. The 10-minute Resazurin Test
ix. Methylene Blue Reduction Test (MBRT)
x. Sensory evaluation
xi. Titratable acidity
xii. Nitrate reduction test
xiii. Pyruvate test
xiv. Impedance test

4) Additional tests on milk quality, proper pasteurization and sterility… (By Mr. Bidir Z and lab assistants) (week -12,13)

1. Inhibitor test
2. Detection of Antimicrobial Residues in milk by disc assay method
3. Phosphatase Test
4. Peroxidase Test
5. Test for Sterilization of Milk (*Turbidity test)*

5) **Detection of adulteration by……. (By Mr. Bidir Z and lab assistants)(week-14,15,16)**
   1. determining the freezing point of milk
   2. Nitrate Test
   3. Detection of additives to milk using different kits
      a. Urea
      b. Starch
      c. formalin
   d. Detergent
6) **Microbial sanitary states detection methods of food processing equipments (By Mr. Bidir Z and lab assistants) week 17,18)**
   1. Agar- sausage method (Agar contact method)
   2. *Rinse Solution Method*
   3. Swab Contact Method

Scholastic Honesty

All students are expected to maintain a high level of responsibility with respect to academic honesty. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since such dishonesty harms the individual, all students and the integrity of the University, policies on scholastic dishonesty will be strictly enforced

University Policies

Student Conduct & Discipline

The University of Gondar have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations which govern student conduct and activities. General information on student conduct and discipline is contained in the University of Gondar (Students Handbook of Academic Rules and Regulations) publication, which is provided to all registered students each academic year.

A student at the university neither loses the rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the university regulations, and administrative rules. Students are subject to discipline for violating the standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct.

Academic Integrity

The college expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work.

Scholastic dishonesty includes, but is not limited to, statements, acts or omissions related to applications for enrollment or the award of a degree, and/or the submission as one's own work or material that is not one's own. As a general rule, scholastic dishonesty involves one of the following acts: cheating, plagiarism, collusion and/or falsifying academic records. Students suspected of academic dishonesty are subject to disciplinary proceedings.

Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism (see general catalog for details on students hand book and registrar rules).

Email Use

The University of Gondar recognizes the value and efficiency of communication between college/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The university encourages all official student email correspondence be sent only to a student's email address and that college and staff consider email from students official only if it originates from a UoG student account. This allows the university to maintain a high degree of confidence in the identity of all individual corresponding and the security of the transmitted information. UoG furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at UoG provides a method for students to have their UoG email forwarded to other accounts.

Withdrawal from Class

The administration of this institution has set deadlines for withdrawal of any college-level courses. These dates and times are published in that semester's course catalog. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class.

Student Grievance Procedures

In attempting to resolve any student grievance regarding grades, evaluations, or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor, administrator, or committee with whom the grievance originates (hereafter called "the respondent"). Individual faculty members retain primary responsibility for assigning grades and evaluations. If the matter cannot be resolved at that level, the grievance must be submitted in writing to the respondent with a copy of the respondent's Faculty Dean. If the matter is

not resolved by the written response provided by the respondent, the student may submit a written appeal to the Faculty Dean. If the grievance is not resolved by the Faculty Dean's decision, the student may make a written appeal to the higher officers.

Incomplete Grade Policy

Will be treated as per the UoG registrar rules and regulations.