



SEMESTER 3 LEARNING AND FOCUS GROUP DISCUSSION GUIDELINES

STUDENT BOOK



**UNIVERSITAS GADJAH MADA
FACULTY OF VETERINARY MEDICINE**

Address: Jl. Fauna No. 2, Karangmalang, Yogyakarta 55281, Indonesia

Telp. 0274-560862, Fax. 0274-560861

e-mail: fkf@ugm.ac.id

Learning and Focus Group Discussion Guidelines Semester 3
Second Edition
2018

Faculty of Veterinary Medicine, Universitas Gadjah Mada
Printed in Yogyakarta
Designed by: Team FGD

FGD Book for Student

Semester 3

Scenario 1-4

Integration and Synergy Courses:

- Applied Anatomy
- Animals' Organ System Histology
 - Veterinary Physiology II
 - Animal Breeding Science
- Veterinary Bacteriology and Mycological
- Veterinary Parasitic Disease Science

**Second Edition
Year 2018**

UNIVERSITAS GADJAH MADA
FACULTY OF VETERINARY MEDICINE
Adress: Jl. Fauna No. 2, Karangmalang,
Yogyakarta 55281, Indonesia
Telp. 0274-560862, Fax. 0274-560861
e-mail: fkf@ugm.ac.id

COMPILER TEAM

Coordinator

Chairperson:

Secretaries:

Members:

Technical Practitioners:

Facilitators:

Prof. Dr. drh. Siti Isrina Oktavia Salasia

Dr. drh. Untari, MP.

Dr. drh. Amelia Hana, MP.

drh. Christin Marganingsih S., M.Si.

• Dr. drh. Hery Wijayanto, MP.

• drh. Teguh Budipitojo, MP., Ph.D

• drh. R. Wisnu Nurcahyo

• Prof. Dr. drh. Pudji Astuti, MP

• Heru Dwiatma. S.Pt., M.Si.

• Nurika Puspitasari, SH.

• Dr. drh. Sarmin, MP

• Dr. drh. Amelia Hana, MP

• Prof. Dr. drh. Pudji Astuti, MP

• drh. Yudha Heru Fibrianto, MP., Ph.D.

• Dr. drh. Claude Mona Airin, MP.

• Dr. drh. Hery Wijayanto, MP.

• drh. Teguh Budipitojo, MP., Ph.D

• Dr. drh. Tri Wahyu Pangestiningih, MP.

• drh. Dewi Kania Musana, MP

• drh. Ariana, M.Phil

• drh. Dwi Liliek Kusindarta, MP., Ph.D

• Dr. drh. R. Wisnu Nurcahyo

• drh. Dwi Priyowidodo, MP.

• drh. Eryl Sri Rohayati, SU.

• Dr. drh. Joko Prastowo, M.Si.

• drh. Ana Sahara, M.Si.

• Dr. drh. Prabowo Purwono Putro, M. Phil.

• Dr. drh. Asmarani Kusumawati, MP

• drh. Sri Gustari, MP.

• drh. Agung Budiyanto, MP., Ph.D.

• Dr. drh. Untari, MP

• Prof. drh. Widya Asmara, SU., Ph.D.

• Dr. drh. Surya Amanu, M

• Dr. drh. A.E.T.H. Wahyuni, MSi.

• Dr. drh. M. Haryadi Wibowo, MP.

• drh. Sidna Artanto, M.Biotech.

PREFACE

Education goals of Faculty of Veterinary Medicine Universitas Gadjah Mada (FKH UGM) which has been set in Renstra FKH UGM 2013-2017 are generating competent veterinarian in handling animal diseases and harmonizing animal health, human and its environment health, as problem solver pioneer of animal health problem, and ready to carry technical duties that fulfill standard competency of veterinary profession. Therefore it needs Higher Education curriculum that adjusted and harmonized to existing needs and developments, assessed periodically minimum once in 5 (five) years so that it fits to needs and demands of Higher Education graduates public user. Faculty of Veterinary Medicine hereafter, develops new curriculum with competency basis with SK Rektor (Rector Decree) No: 484/SK/HT/2013 on 24 July 2013, starting effectively since academic year of 2013/2014.

Main competency of Program Study FKH UGM graduates that develops in that curriculum is adjusted with mutual agreement in Provisions of Professional Education of Veterinary Assembly of Indonesian Veterinary Association (9 competencies), added with 9 supporting competencies that are development and characterization of Faculty of Veterinary Medicine UGM competencies.

Learning method applied is Student Teacher Aesthetic Rolesharing (STAR) or Student Centered Learning plus (SCL+) that combine Teacher Centered

Learning (TCL) and Student Centered Learning (SCL) proportionally according to learning outcome that will be achieved in learning. STAR principle is existence of harmonious relationship between lecturers and students, enhancement of reciprocal learning partners between students and lecturer, so *Patrap Triloka* is created, *ing ngarsa sung tulada, ing madya mangun karsa, tut wuri handayani*, lecturers properly becomes an example in front of students, motivates in the middle, gives supports behind with lecturers authority so that the students will develop. Harmonious relationship between lecturers and students is created since the beginning of the lectures through interaction in class and more focus through tutorial in Forum Group Discussion (FGD), and added with guidance to students to be long life learner.

Lecture delivery method in class is done by cooperative learning method, lecturers deliver materials and discussion, deliver what will be learn and why it needs to be learned by the students. On the inaugural lecture, coordinator of the Course (MK) deliver learning contract to students, learning contract content is suitable with Plan of Semester Learning Activities Program (RPKPS) that has compiled by lecturers team, introducing all lectures with each of their expertise with goal that the students know the lecturers and their expert since the beginning of the lecture, so that the lecturers are expected to be a role model for their students. After lectures in class are done, it is followed by tutorial activities in small classes through FGD for SCL application. Delivery method in FGD at the beginning of the semester is done with collaborative learning method, while for the next semester it can be done using

competitive learning, case-based learning, research-based learning, problem-based learning, and other way used according to learning objective.

This learning and FGD guidelines book is used for guiding the student during the FGD process and doing FGD program. We wish that output result in this learning and education process in Faculty of Veterinary Medicine UGM is able to prioritize intellectual ability for sharpening hard skills and improving soft skills based on moral and veterinary Ethics, can conduct its students to achieve competencies that have set.

February, 2018
Dean

INTRODUCTION

Focus Group Discussion is done through discussion inside small classes to discuss existing tasks in a designed scenario so that students can understand significantly, deeply, not only in the form of theory but more realistic in the form of scenario through synergy and integration of Applied Anatomy, Animals' Organ System Histology, Veterinary Physiology II, Animal Breeding Science, Veterinary Bacteriology and Mycological, Veterinary Parasitic Disease Science Courses.

TABLE OF CONTENTS

Preface.....	Error! Bookmark not defined.
Introduction.....	Error! Bookmark not defined.
Table of Contents	Error! Bookmark not defined.
Learning Objective	Error! Bookmark not defined.
Learning Scheme.....	Error! Bookmark not defined.
Learning Outcome	2
Learning Activities.....	Error! Bookmark not defined.
General Assessment ...	Error! Bookmark not defined.2
Blue Print of Assessment	23
References.....	12
Scenario 1: Beef Cattle Calf and Dairy Cow	
Crossbreed	18
Scenario 2: Cow Enjoying Food	20
Scenario 3: Mongrel Urinates Blood	22
Scenario 4: Dog’s Sensory System.....	24

LEARNING OBJECTIVES

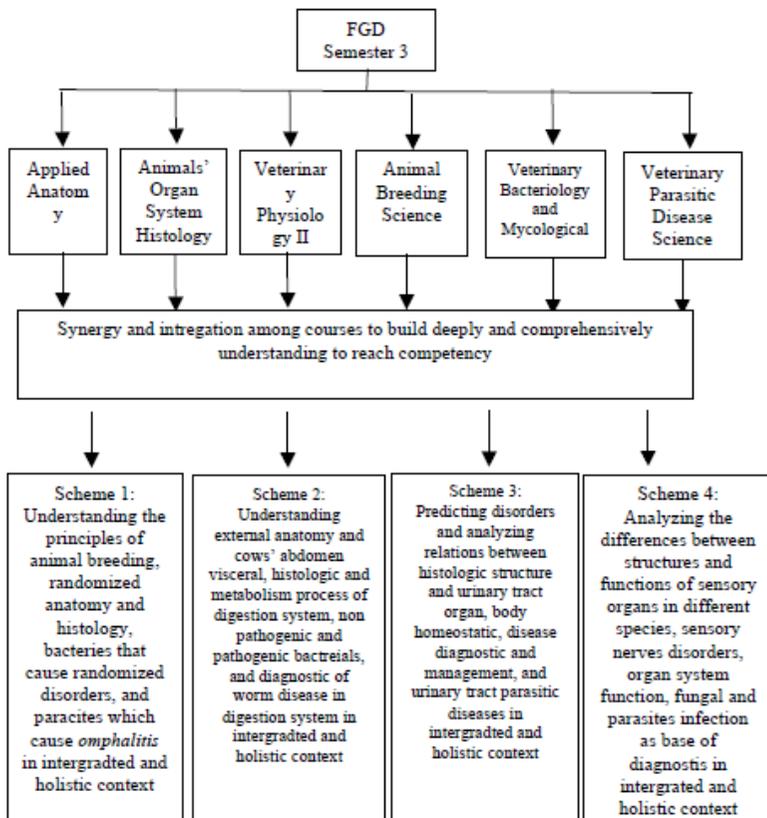
General Instructional Goal

Students are able to understand courses that learned through implementation of integration and synergy among courses to complete/ improve/ sharpen each other and share scientific, skill, and behavior concepts.

Specific Instructional Goal

Students are able to understand significantly of Applied Anatomy, Animals' Organ System Histology, Veterinary Physiology II, Animal Breeding Science, Veterinary Bacteriology and Mycological, Veterinary Parasitic Disease Science.

LEARNING SCHEME



LEARNING OUTCOME

Integral discussion from various courses through scenario in FGD aims to support curriculum competency learning achievement of Faculty of Veterinary Medicine.

Learning Outcome of Applied Anatomy:

Students are able to understand and explain the external anatomy (inspection area for auscultation, percussion, organ position predictions based on body landmarks), and exotic wild animals' anatomy, horse posture and conformation and randomized anatomy, basics of animal anatomy and forensic archeology, meat maps.

Students are able to predict the disorder in animals based on external anatomy of the animal's body, locations of the visceral organs by external body landmarks, the introduction of animal species based on the conformation of the body; able to predict the class of animals and organ function based on anatomical structures and organs development level; able to distinguish between motoric and sensory nerve disorders.

Learning Outcome of Animals' Organ System Histology:

Students are capable to know and understand the histology terminology in Latin and English; capable to understand and explain organs organization histologically, histological structure of every organ system in the body of domestic animals (nerves,

cardiovascular, endocrine, lymphatic and immune, digestive, male genital, female genital, respiratory, sensory); capable to understand, explain and analyze the relationship between the histological structure of all the organs in the animal body and their functions; capable to understand, explain and analyze the differences and / or similarities between the structure and function of organs of animal species and between classes of domestic animals; skilled in observing the histological structure of organs, identifying differences between the structure of an organ or organ system and organ structure differences between species.

Learning Outcome of Veterinary Physiology II:

Students are capable to explain the basic functions of urination system integration, sensory organs, metabolism, reproductive males and females, and homeostasis.

Learning Outcome of Animals' Breeding Science:

Students are capable to apply the knowledge of genetic engineering; capable to understand the genetics terms. Students are capable to explain the principles of animals breeding in livestock animals (farm animals) as well as pets or companion animals.

Learning Outcome of Veterinary Bacteriology and Mycological Science:

Students are capable of understanding basic causative agents of diseases caused by bacteria and fungi as well as capable in the environment control and protection.

Learning Outcome of Veterinary Parasitic Diseases Science:

Students are capable to understand the meaning of parasitic diseases in the role in the veterinary field, understand emigration, modes of transmission, pathogenesis, pathological changes, clinical symptoms, methods of diagnosis and control; understand the diversity of parasites which are pathogenic and their life patterns; control problems that cause disease in animals and capable of using it in a diagnosis differential of a disease.

LEARNING ACTIVITIES

This learning activities series is prepared to direct the students reach learning objectives:

1. Learning method

Learning method used is through Student Teacher Aesthetic Rolesharing (STAR), by combining proportionally between teacher centered learning (TCL) and student centered learning (SCL) according to learning outcome that will be achieved. STAR principle is harmonious relationship between lecturers and students, enhancement of reciprocal learning partners between students and lecturer, so *Patrap Triloka* is created, *ing ngarsa sung tulada, ing madya mangun karsa, tut wuri handayani*, lecturers properly becomes an example in front of students, motivates in the middle, gives supports behind with lecturers authority so that the students will develop. Harmonious relationship between lecturers and students is created since the beginning of the lectures through interaction in class and more focus through discussion activities in forum group discussion (FGD), and student guidance to be a long life learner.

2. Lectures

Lectures method is used by lecturers delivering/presenting materials and discussion, delivering what will be learned by the students and why should it be learned. On the inaugural lecture,

coordinator of the Course (MK) deliver learning contract to students, learning contract content is suitable with Plan of Semester Learning Activities Program (RPKPS) that has compiled by lecturers team, introducing all lectures with each of their expertise with goal that the students know the lecturers and their expert since the beginning of the lecture, so that the lecturers are expected to be a role model for their students. Plan of Semester Learning Activities Program (RPKPS) and teaching materials must be given to students to be copied (or given to Library as narration/ reference/ students learning materials). Coordinator of MK introduces all of lecturer team and facilitators involved from each division with each expertise.

In applying curriculum competency basis, lectures are held by combining with group discussion in small classes, aim to make students obtain enough lecture materials and followed by self study time addition. Lectures are held based on specified learning outcome in reaching competencies. Integration and synergy among courses are held through FGD that discuss certain scenario, to increase and sharpen students understanding. Lectures can be held between FGD schedule, to give chance to student for clarifying and discussing unanswered students question in group discussion.

3. Group discussion in FGD with facilitator mentoring

FGD is scheduled twice a week. If facilitator could not come because of certain reasons, it should be

substitute by other facilitator. If at the fixed schedule the facilitator has not come yet, relevant students group should inform academic as soon as possible. During discussion process, all of the groups should bring relevant learning sources that might be needed during tutorial.

To reach learning objective in the first semester, collaborative learning method is used, that held in twice discussion meeting in discussing one same scenario. Basic questions that should be underlined are: What have we known? What else that we expected to know?

First FGD:

- All students are divided into 12 classes, each of class consist of 12-16 students.
- Facilitator explains the discussion process and scenario for discussion
- Facilitator divides the class into small groups of 5-6 students
- Facilitator asks each students to read the scenario relevant to materials learned
- Facilitator asks the students to do task relevant with perception and solution towards cases/problems in scenario
- Facilitator asks students to discuss their work results in each of their small groups, led by one of the students (as chairman) helped by one other students (as secretary)
- Facilitator asks each of small groups discuss the group agreement

- Facilitator asks each of the students to make report of discussion results with by searching reference sources as wide as possible. Contents of the report are: discussion topic, learning objective, learning scheme, analysis, conclusion, learning outcome (explaining student ability after discussing topic in scenario), references.
- Facilitator asks every small groups prepare their discussion results in the form of power point that presented by one of the group representatives in the second FGD meeting.

Second FGD:

- Facilitator asks every students to submit complete report
- Facilitator asks each of the group to present group discussion result
- Facilitator asks other groups to give feedback to presentation result

Facilitator Job:

- Facilitator must be present on schedule. The facilitator's delay in attending is a maximum of 10 minutes (the rest will be replaced by a substitute facilitator).
- Directing and facilitating the discussion, lecturers put themselves as trend setter applying *patrap triloka ing ngarsa sung tulada, ing madya mangu karsa, tut wuri handayani* (in front becomes example, in the middle motivates, at behind gives support with lecturers authority so that students can develop).

- Giving assessment to students activities during discussion in the first and second FGD, with assessment through 3 aspects:
 1. A = Attitude (mental and manner) = affective
 2. S = Skill (competent, expert, adaptable to positive competency) = psychomotor
 3. K = Knowledge (building intellectual capital) = cognitive

4. Group discussion without facilitator mentoring

According to group needs, students can held a meeting without facilitator. Aims of this discussion are varies, for example, identificate theoretical questions, identificate group learning objective, ensure that group have already submitted all of the information needed, and identificate practical questions.

5. Practice

Held by Laboratorium in Division to enrich students understanding about discussed concept related to science development. Exercise to improve skills that needed by veterinarians to fulfill their competencies also given intensively (such as communication with clients skill, clinical skill, etc.)

6. Expert consultation

This activity is held based on needs and held by groups of students, by directly contacting the relevant competent lecturer. It is very recommended for the chairman of the group make an appointment before with the relevant experts.

7. Self study

As mature learner, students are expected to be able to apply self study, a kind of important skill for developing personality and career in the future. This skill includes the ability to find personal interest, find more information from various learning sources, decide the appropriate learning style, and identify further learning needs. Students will not feel enough to study only from lecture notes or text books. Self study is the most important character of the SCL approach, and in the certain level, study will be an unlimited journey.

8. Class discussion

Class discussion can be held through lectures between FGD schedules. The aims of this discussion are to give explanation and compare learning process among groups to prevent wrong direction groups in the discussion. All of the groups can propose certain issues to be discussed, and facilitator or lecturers will answer questions based on their own competencies.

GENERAL ASSESSMENT

Some assessments to evaluate students learning results achievement:

1. Formative Exam

Students will be given series of pre-test or post-test during lectures. This test is unscheduled, so that will force students to learn the materials since the beginning of learning. This test gives contribution to student final grade. So that, if there is a students disturbed in their final tests, this tests will help the final grade result.

2. Summative Exam

This exam is done in the mid-semester (mid-semester exam/UTS) and semester final exam (UAS). Students should prepare themselves to take summative exam. A mature learner can achieve better result because s/he can utilize time effectively to achieve goals.

3. Remedial Exam

Students are possible to tak eremidial exam to improve grades of certain MK that failed. This exam is held at the end of final semester exam.

BLUE PRINT OF ASSESSMENT

STUDENTS ASSESSMENT COMPONENTS

- ✓ FGD 15 %
- ✓ Practice 25%
- ✓ UTS + UAS 60 %

Types of question:

- MCQ with answer types of a, b, c, d, e
- Essay
- etc.

REFERENCES

Applied Anatomy

- Budras KD., Robert EH., Christoph K W., Mülling, Paul RG., Gisela J., Renate R., Diemut S., 2011. Bovine Anatomy: An Illustrated Text, Second Edition, Schlutersche GmbH & Co, Germany, ISBN-10: 3899930525; ISBN-13: 978- 3899930528
- de Lahunta A., and Habel R.E., 1986. Applied Veterinary Anatomy, W.B. Saunders Company, Philadelphia.
- Getty, R., 1966. Atlas for Applied Veterinary Anatomy, 2nd edition, Iowa State University Press, IOWA.
- Kardong K.V., 2008. Vertebrates Comparative Anatomy, Function, Evolution, 5th edition, McGraw-Hill, ISBN 10:0-39-011705-6, ISBN-13:978-0-39-011705-2
- McLelland J., 1990. A Colour Atlas of Avian Anatomy, Wolfe Publishing Ltd, Aylesbury, England, ISBN: 0-7234-1575-7
- Orsini, PG and Sack, WO., 2003. Rooney's Guide to the dissection of the horse, 7th edition, Veterinary Textbooks, Ithaca, New York, ISBN 0-9601152-4-2
- Shively M.J., 1984. Veterinary Anatomy, Basic, Comparative, and Clinical, Texas, A&M University Press, Texas.

Veterinary Physiology II

- Cunningham, J. 2007. Textbook of Veterinary Physiology. Saunders, Santolouis, Missouri, USA.

- Frandson, R.D., Wilke, W.L., and Fails, A.D. 2005. *Anatomy and Physiology of Farm Animals*. 7th Edition. Willey.
- Guyton, A.C., and John, E.H. 2006. *Textbook of Medical Physiology*. 11th Edition. Elsevier Saunders Philadelphia-Pennsylvania, USA.

Animal Breeding Science

- Sisson, S., Grossman, JD., Getty, R., Sisson and Grossman's *the Anatomy of the Domestic Animals*
- Konig, HE., Liebich, H., *Veterinary Anatomy of Domestic Mammals: Textbook and Colour Atlas*
- Miller, ME., Evans, HE., Christensen, GC., *Miller's Anatomy of the Dog*
- Budras, KD., Sack, WO., Rock, S., Horowitz, A., Berg,R., *Anatomy of the Horse*
- Budras, KD., Habel, RE., Mulling, CKW., Greenough, PR., Jahmaker, G., Richer,R., Starke,D., *Bovine Anatomy: An Illustrated Text*

Cytology, Basic Histology and Embriology

- Anderson, H., 2012. *Livestock Breeding Principles*. Elsevier, Amsterdam.
- Hafez ., E. S. E., 2003, *Reproduction in Farm Animals*, 6TH ED., Lea and Febiger, Philadelphia.
- Noakes, J. J. et al., 2011. *Veterinary Obstetrics and Reproduction*. Balliere Tindall Publishing Co., Philadelphia, London, Toronto.
- Robertson, H, 2007, *Applied Animals Reproduction*. Werber Publishing Co., London.
- Turnbull, A., 2009. *Principles of Animal Breeding*. Carlston Publishing Co., Sydner.

Veterinary Bacteriology and Mycology

- Black Jacquelyn G. 1999. Microbiology: Principles and Exploration 4th New York, USA
- Jawetz, Melnick & Adelberg. 1995. Mikrobiologi Kedokteran. Edisi Jakarta: EGC 1996
- Madigan MT., Martinko JM., Parker J. 2000. Brock Biology of Microorganisms. 9th ed. Prentice-Hall, Inc.
- Tsugunobu Andoh, Yusuke Takayama, Yasushi Kuraishi, Involvement of leukotriene B4 in dermatophyte-related itch in mice, Pharmacological Reports, Volume 66, Issue 4, August 2014, Pages 699-703, ISSN 1734-1140, <http://dx.doi.org/10.1016/j.pharep.2014.01.003>.
- Fernandes, Elizabeth S. and Vong, Chi Teng and Quek, Samuel and Cheong, Jessica and Awal, Salma and Gentry, Clive and Aubdool, Aisah A. and Liang, Lihuan and Bodkin, Jennifer V. and Bevan, Stuart and Heads, Richard and Brain, Susan D., Superoxide generation and leukocyte accumulation: key elements in the mediation of leukotriene B4-induced itch by transient receptor potential ankyrin 1 and transient receptor potential vanilloid 1 FASEB J April 2013 27:1664-1673; published ahead of print December 27, 2012, doi:10.1096/fj.12-221218

Veterinary Parasites Diseases Science

- Chidini, P.L., Moody, A.H., and Manser, D.W. 2001. *Atlas of Medical Helminthology and Protozoology*, fourth edition, Chirchii Livingstone, Toronto
- Kaufmann, J. 1996. *Parasitic Infections of Domestic Animals: A Diagnostic manual*, TCF., Berlin.
- Olsen, O.W. 1962. *Animal Parasites: Their Biology and Life Cycles*. Burgess Publishing Company, Minesota, USA.

- Roberts, L.S. & Janovy Jr, J. 2000. *Foundations of parasitology*. Sixth edition. W.B. Saunders, Co. Philadelphia.
- Soulsby, E.J.L. 1982. *Helminth Arthropods and Protozoa of Domesticated Animals*, Seventh edition, Bailliere Tindal, London.
- Urquhart, G.M., Armour, J., Duncan, J.P., Dunn, A.M. & Jennings, F.W. 1987. *Veterinary Parasitology*, First edition, ELBS, England.
- Robert E. Hungate, 1991. *The Rumen and Its Microbes*. John Wiley & Sons, Ltd.
- Russell, J. B., 2002. *Rumen Microbiology and its role In Ruminant Nutrition*. Ithaca, N.Y.

Beef Cattle Calf and Dairy Cow Crossbreed

Mr. Sastro, a cow rancher, called the local vet Clinic, because he has two calves suffering from a different illness. The first 4 month old calf (calf under five months = balibu calf) crossbreed result of artificial insemination from the *Onggole Peranakan* (PO) with frozen semen of *Simmental* (Sim-PO). This hybrid calf experiencing lameness in the left front leg, it turns out the vet found no inflammation caused by injury to the randomized inter (interdigital phlegmon) and from laboratory tests, it's indicated that it has been infected by the bacteria *Bacillus necrophorus*. The second calf is a pure *Friestian Holstein* dairy cow, two weeks old, also suffered from acute inflammation in the umbilical cord (*navel ill, omphalitis*) which was already experiencing maggots (*myiasis*).

Learning objectives:

1. Students are able to study the principles of breeding in dairy cows and beef cows (pure breeding and and cross breeding), the advantages and the disadvantages.
2. Students are capable of understanding conformation and applied anatomy prediction as well as randomized histology.
3. Students are capable of understanding the bacterias which cause *interdigital phlegmon* and parasites which cause omphalitis.

4. Students are capable of collaborating, sharing concepts, skill, and attitude in discussion.

Scenario 2 (FGD Semester 3)

Cow Enjoying Food

Mooo the sound of a cow that looks to be enjoying the delicious food. Food goes into the cow's digestive tract can be digested and converted into energy through metabolic processes with the help of living organisms in the digestive tract. It is amazing because of the very small living things, so it can only be seen with a microscope. The living beings are bacteria that are normally present in the digestive tract that are useful to help the digestive process include *Escherichia coli*, *Lactobacillus sp.*, *Enterococcus sp.* other creatures can sometimes be found and can cause diarrhea such as *Salmonella sp.* and *Fasciola sp.* To determine whether there is interference in the rumen, the vet can perform the examination in sinister flank area.

Learning objectives:

1. Students are capable of understanding external anatomy of cows abdomen area, capable of identifying visceral organ inside the abdomen cavity, capable structured digestion system histology, and digestion system metabolism process.
2. Students are capable of finding the differences between pathogen bacterias and non pathogen bacterias in digestion ducts.
3. Students are capable of understanding and recognizing variety of worms in digestion problem,

mastering problems that cause diseases and can be used as a base of diagnosis and a disease diagnosis differential.

4. Students are capable of collaborating, sharing concepts, skill, and attitude in discussion.

Scenario 3
(FGD Semester 3)

Mongrel Urinates Blood

Male local dog (mongrel) owned by Mr. Pendi looks very lethargic when brought to the Animal Hospital, before the examination, the vet performs anamnesis diagnose. From the anamnesis obtained the following information: 2 years old dog, dog is not kept in cage and often fed raw fish according to the owner. Two days before being taken to the RSH, the dog will not eat and drink, diarrhea, and urinary seen with blood. The vet then perform a physical examination on the dog and get results: abdomen enlarged dog, when the dog had ascites and palpable abdominal pain, oral and nasal mucosa visible pallor, and poor skin turgor indicating severe dehydration. Results of stool examination did not reveal any oocyst or worm egg, while in urine was found worm eggs with thickwalled features, spots and have stoppers at both ends. Case of urine with blood can also be caused by bacteria that are sometimes hard to treat with antibiotics because already experiencing resistance.

Learning objectives:

1. Students are capable of recognizing clinical symptoms of parasitological diseases in dogs and cats, knowing how to diagnose, treatment and handling of parasitological diseases in cats and dogs, as well as knowing the diagnosis differential of parasitological diseases in dogs and cats.

2. Students are capable of explaining the basic urination system function and homeostasis in dogs.
3. Students are capable of predicting disorders/disruptions in dogs urinary system based on external animals body, visceral organ location based on external body landmark, and capable of analyzing relations between urination tracts organ histology structure and digestion system with the functions
4. Students are capable of collaborating, sharing concepts, skill, and attitude in discussion.

Scenario 4
(FGD Semester 3)

Dogs Sensory System

Eddy follows drug tracking training using sniffer dogs as Herder. It is said that this breed of dog has 220 million olfactory nerve cells, so that the dog can quickly find drugs. Something more surprising, the dog can also find objects that sink to the bottom of the sea, why be so, how the propagation of nerve impulses to the central olfactory sensors to a reaction? The mechanism begins sound stimuli received by the receptors, then taken by afferent nerve fibers leading to the hearing center located in cochlea, leading to the efferent nerves to the resulting sound. In addition to the sense of smell, dogs can also hear the sound of a very low frequency 16Hz to 70 KHz (when humans are only able to hear sounds with a frequency of 20Hz-20 KHz). In certain types of nocturnal animals have acute vision. Seeing the unique sensory system in animals, Eddy wants to compare the strength of the senses and sensory organs to know the difference structure of each species. On the other hand, it turns out the animal auditory sensory system can be disrupted if the infected ear mites or various fungi in the ear, the ear that causes hearing sensitivity to be reduced. To determine the interference Eddy should be able to distinguish sensory nerve disorders based on the science of applied anatomy.

Learning objectives:

1. Students are capable of understanding, explaining, and analyzing the differences and/or similarities in structures and functions of sensory organs between classes of domestic animals and capable of differentiating sensory nerve disorders.
2. Students are capable of explaining basic sensory organ integration system functions (hearing and balance, olfactory, flavoring, touch and sight).
3. Students are capable of understanding diversity of pathogenic fungi and parasites in ears, understanding problems which cause diseases and capable of using it as base of diagnosis and a disease differential diagnosis.
4. Students are capable of collaborating, sharing concepts, skill, and attitude in discussion.