

Departement of Veterinary Public Health

RPKPS/Modul for ASIIN : Veterinary Epidemiology and Economics

Modul name	Veterinary Epidemiology and Economics
Modul level	Bachelor
Abbreviation, if applicable:	KHU 2071
Sub-heading, if applicable:	<ol style="list-style-type: none"> 1. Introducing 2. Epidemiology Concepts 3. Observational Study 4. Measures of Rate 5. Epidemiologic Measures of Association 6. Measuring Statistical Association 7. Sampling Methods 8. Diagnostic Test 1 and 2 9. Diagnostic Test 3 and 4 10. Observational Study Association 11. Monitoring Disease 12. <i>Monitoring and Surveillance</i> 13. Animal Health Economics
Courses included in the module, if applicable:	<ol style="list-style-type: none"> 1. Introducing <ol style="list-style-type: none"> 1.1. System Introducing and Learning Contract. 1.2. Basic Concepts of Epidemiology Analitic 2. Epidemiology Concepts <ol style="list-style-type: none"> 2.1. Concepts of Postulat Koch and Evans 2.2. Four (4) key questions about monitoring disease of veterinary epidemiology : disease determinant 3. Observasional Study <ol style="list-style-type: none"> 3.1. Survey 3.2. Longitudinal Study 3.3. Cross Sectional Study 3.4. Case – Control Study 3.5. Cohort Study 4. Measures of Rate <ol style="list-style-type: none"> 4.1. Proportion of rate and risk 4.2. Measuring of rate dan risk 4.3. Prevalency and Insidency 4.4. Measuring of prevalence and incidence 5. Epidemiologic Measures of Association <ol style="list-style-type: none"> 5.1. Measuring of chi-square association 6. Measuring Statistical Association <ol style="list-style-type: none"> 6.1. Measuring of RR, OR, AR, AF, and EF 7. Sampling Methods <ol style="list-style-type: none"> 7.1. Sample and Sampling 7.2. Source and data type 7.3. Sample size and technique sampling methods 7.4. Sampling methods which is suitable for farm in Indonesia

	<p>8. Diagnostic Test 1 and 2</p> <p>8.1. Diagnostic test for population</p> <p>8.2. Sensitivity and Spesifisity</p> <p>8.3. Positive and Negative Prediction Estimation</p> <p>9. Diagnostic Test 3 and 4</p> <p>9.1. Multi Diagnostic Test</p> <p>9.2. Kappa's Statistics</p> <p>9.3. Field Diagnostics Test</p> <p>10. Observational Study Association</p> <p>10.1. Association and power of Asosiasi cross sectional study, case – control study and cohort study.</p> <p>11. Monitoring Disease</p> <p>11.1. Monitoring of endemic disease</p> <p>11.2. Monitoring of epidemic disease</p> <p>12. Monitoring and Surveillance</p> <p>1.1. Similarity and difference of monitoring and surveillance</p> <p>1.2. Spesifics purpose of monitoring and surveillance</p> <p>13. Animal Health Economics</p> <p>13.1. Partial Farm Budgeting analysis</p> <p>13.2. Function and production analysis</p> <p>13.3. Gross Margin analysis</p> <p>13.4. B/C Ratio analysis</p>
Semester/term:	4/year 2
Module coordinator(s):	Prof. Dr. Bambang Sumiarto, DVM, MS, M.Sc.
Lecturer(s):	Prof. Dr. Bambang Sumiarto, DVM, MS., M.Sc.; Heru Susetya, DVM, MS, Ph.D; Dr. Widagdo Sri Nugroho, DVM, MS; Roza Azizah Primatika, S. Si., M.Si
Language:	Bahasa Indonesia
Classification within the curriculum:	Compulsory course
Teaching format/class hours per week during the semester:	2 hours lectures per week /semester and 8 hours of focus group discussion (FGD) during 4 weeks/ semester
Workload:	2 hours lecturer and 1 hours structural activities/week during 14 weeks; 1 credit /week of practice: 2 hours work in laboratorium, 1 hour report work at home; and 8 hours of FGD total 92 hours/ semester
Credit Points:	3
Requirements:	Biostatistics /semester 1, Veterinary Parasitology Disease/ Semester 3
Learning goals/competencies:	<p>a. Knowledge:</p> <ol style="list-style-type: none"> 1. Can explain the definition of veterinary epidemiology and the concept distinguishing between Evans and Koch postulates 2. Can explain data sources, data types, and usage in veterinary epidemiology 3. Can understand the meaning of the population, the difficulties, and the way out to get data from the population, explain the sample and its advantages and disadvantage 4. Can explain the role of determinant of host, agent, and environment and can calculate the sensitivity, specificity, positive and negative predictive value 5. Can explain the use of multiple testing 6. Can explain the difference in the proportion of rate and risk calculations in

	<p>the form of prevalence and incidence</p> <ol style="list-style-type: none"> 7. Can explain the similarities and differences between surveys, longitudinal studies, cross-sectional studies, cohorts and control cases, 8. Can calculate the exact associations for each study. 9. Can explain monitoring and surveillance, as well as similarities and differences 10. Can explain the procedures for disease control and management in the population 11. Can explain how diseases can decrease the productivity and livestock productivity. 12. Can to explain ways of calculating the production and reproduction losses of a livestock and livestock production <p>b. Analysis skills of:</p> <ol style="list-style-type: none"> 1. Can understand epidemiological concepts combined with problems and field data to support veterinary competence 2. Master diagnostic testing in population 3. Master the procedure of epidemic disease investigation, with the sequence of steps and details of step of the epidemic investigation. 4. Able to develop science and technology, especially field of veterinary epidemiology <p>c. Practical skill of:</p> <ol style="list-style-type: none"> 1. Able to obtain samples and several ways of obtaining samples for each of the purposes of epidemiological inquiry. 2. able to explain how to get samples as well as possible for the situation of farms in Indonesia 3. Able to calculate the risk and prevalence and incidence of an example in the field. 4. Able to calculate appropriate associations for cross-sectional studies, cohorts, and case-controls. 5. Can investigate outbreak disease, both holomiantic and prosodermic, applying the Reed-Frost model. 6. Can design and implement prevention, control, and disease control procedures in the population. <p>d. Managerial skill and knowledge transfer:</p> <ol style="list-style-type: none"> 1. Mastering the epidemiologic aspect as a principle of prevention, control, and disease prevention 2. Be able to compete and cooperate in the treatment of epidemiological problems or among other disciplines. 3. Can communicate thoughts and opinions especially in the prevention, control, and eradication of diseases in the population. 4. Be able to take action in case of an epidemic of illness. 5. Able to calculate the economic losses due to the onset of disease in the population. <p>e. Attitude</p> <ol style="list-style-type: none"> 1. have the curiosity and antusias to topic of each subject 2. have the attitude establishment and conclude the summary of discussion. 3. active in class and discussion session and reflects the discipline manner.
Content:	The course contents are the concept and application of Veterinary Epidemiology, Data on Population, Sample and Sampling, Diagnostic Testing, Observational study of prevalence and incidence of field study, investigation of epidemic and endemic disease, Monitoring and surveillance of disease control, and Economic analysis of disease risk and the method of calculating

	the losses by disease.
Study/exam achievements:	<p>Students are considered to be competent and pass if comply the 75% of lectures attendance, practice, and FGD requirements as stated in department and academic rules.</p> <p>Examination score :</p> <p>Laboratory practice 20%, (2), Focus Group discussion (FGD) 5%, Mid-Term Test 35%, and Final Test 40%.</p> <p>Final index:</p> <p>A : ≥ 75 A- : 72,5 A/B : 70 B+ : 67,5 B : 65 B - : 62,5 B/C: 60 C+ : 57,5 C : 55 C- : 52,5 C/D : 50 D+ : 47,5 D : 45 E : NA<45</p> <p>Notes: if absolute score cannot be applied, the calculation with relative score will be conducted.</p>
Literature:	<ol style="list-style-type: none"> 1. Pfeiffer, D., (2010). Veterinary Epidemiology An Introduction. 1st ed., Wiley-Blackwell 2. Dohoo, I., Martin, S.W., Stryhn, H., (2003). Veterinary Epidemiology Research. Published by AVC Inc. Canada. 3. Martin, S.W., Meek, A.H., Willeberg, P., (1987). Veterinary Epidemiology: Principles and Methods. Iowa States University Press. 4. Thrushfield, M., (1986). Veterinary Epidemiology. 1st ed., Butterworth. & Co. 5. Budiharta, S., (2000). Capita Selecta of Veterinary Epidemiology. 6. Workshop on Veterinary Epidemiology I and II, Bandung dan Malang, Indonesia
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