

MODULE HANDBOOK



**SCHOOL OF
VETERINARY
MEDICINE AND
BIOMEDICAL
SCIENCES**

2022



IPB University
— Bogor Indonesia —

BVS Program

**Bachelor
Veterinary
Science**

Table of Contents

Bachelor Veterinary Science (BVS) Program

1. IPB1110 Religion (Islam) 3 (2-1).	5
2. STK1111 Statistical and Data Analysis 3 (3-0)	8
3. IPB1106 Indonesian Language 2(1-1)	10
4. BIO1102 Basic Biology 3(2-1)	12
5. FIS1104 Physics Science and Technology 3(2-1)	14
6. IPB1108 English 2(1-1)	16
7. IPB1113 Innovative Agriculture 2(2-0)	19
8. IPB1112 Sport 1(0-1)	21
9. IPB110D Pancasila Education 1(1-0)	22
10. IPB110E Citizenship Education 1(1-0)	24
11. MAT 1102 Mathematics and Logical Thinking 3 (2-1)	26
12. EKO1101 Economics 2(2-0)	29
13. KPM1131 Sociology 2(2-0)	31
14. KOM1102 Computational Thinking 3(2-1)	34
15. KIM1104 Chemical Science and Technology 3(2-1)	36
16. FKH 1101 Veterinary Profession and Animal Welfare 2(1-1)	38
17. FKH 1201 Scientific Methodology 2(1-1)	40
18. FKH 1301 Aquatic Animal Health Management 2(2-0)	42
19. FKH 1302 Animal Behavioural Science 2(2-0)	44
20. FKH 1303 Laboratory Animal Health Management 2(2-0)	46
21. FKH 1304 Biomedical Instrumentation 2(2-0)	48
22. FKH 306 Wild Animal Health Management 2 (2-0)	50
23. FKH 1307 Poultry Health Management 2(2-0)	52
24. FKH 1401 Veterinary Ethics and Legislation 2(2-0)	54
25. AFF 1111 Veterinary Anatomy I 3(2-1)	56
26. AFF 1214 Veterinary Anatomy II 3 (2-1)	59
27. AFF 1216 Veterinary Topographic Anatomy 3(2-1)	62
28. AFF 1221 Veterinary Physiology I 3(2-1)	64
29. AFF 1222 Veterinary Physiology II 3(2-1)	66
30. AFF 1212 Veterinary Histology I 2(1-1)	68
31. AFF 1215 Veterinary Histology II 2(1-1)	70
32. AFF 1213 Embryology and Developmental Genetics 3 (2-1)	72
33. AFF 1331 Pharmacology I 2(2-0)	74
34. AFF 1332 Pharmacology II 3(2-1)	76
35. AFF 1433 Veterinary Toxicology 2(1-1)	78
36. AFF 224 Medical Biochemistry: 2(2:0)	82
37. IPH 1221 Veterinary Bacteriology and Mycology: 3(2-1)	84
38. IPH 1222 Veterinary Virology: 2(1:1)	87
39. IPH 1231 Veterinary Parasitology: Ectoparasite: 2(1-1)	89
40. IPH 1331 Veterinary Parasitology: Endoparasite:3(2-1)	91
41. IPH 1323 Medical Immunology: 2(2-0)	94
42. IPH 1311 Veterinary Public Health Science: 1(1-0)	96
43. IPH 1312 Hygiene of Food of Animal Origin: 3(2-1)	98
44. IPH 324 Bacterial and Mycotic Diseases: 3(2-1)	100
45. IPH 1325 Viral Diseases: 2(1-1)	104
46. IPH 1413 Zoonoses: 2(2-0)	106
47. IPH 1414 Veterinary Epidemiology and Economy: 3(2-1)	108
48. KRP 1311 Veterinary Clinical Diagnostics: 3(2-1)	111
49. KRP 1321 Veterinary General Surgery: 3(2-1)	113

50. KRP 1341 General Pathology: 3(2-1)	116
51. KRP 1331 Reproductive Science and Technology: 3(2-1)	119
52. KRP 1342 Systemic Pathology I: 2(2-0)	122
53. KRP 1312 Internal Medicine I: 2(2-0)	125
54. KRP 1323 Veterinary Advance Surgery I: 2(1-1)	127
55. KRP 1332 Obstetrics and Gynaecology: 3(2-1)	130
56. KRP 1443 Systemic Pathology II: 3(2-1)	132
57. KRP 1414 Internal Medicine II: 2(2-0)	134
58. KRP 1423 Veterinary Special Surgery II: 2(1-1)	136
59. KRP 1424 Veterinary Radiology: 2(1-1)	138
60. KRP 1313 Clinical Pathology: 2(1-1)	140
61. KRP 1444 Poultry Pathology: 2(2-0)	142
62. KRP 1415 Clinical Dietetics: 2(2-0)	144
63. KRP 1416 Clinical Demonstration: 1(0-1)	146
64. KRP 1451 Pharmaceutical Preparations and General Therapy: 2(1-1)	148
65. FKH 1405 Colloquium 1(0-1)	151
66. 1406 Seminar 1(0-1)	152
67. FKH 1407 Undergraduate Thesis 4(0-4)	153

1. IPB1110 Religion (Islam) 3 (2-1).

Module Name	Religion
Module level, if applicable	Beginner
Code, if applicable	IPB100
Subtitle, if applicable	-
Courses, if applicable	IPB1110 Religion
Semester(s) in which the module is taught	1st and 2nd (odd and even) Semester
Person responsible for the module	Dr. Hamzah, M.Si
Language	Indonesian
Relation to curriculum	Compulsory Courses for undergraduate program in IPB University
Teaching methods	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload (incl. contact hours, self-study hours)	<p>(Estimated) Total workload: 94.5 hours/semester</p> <p>Contact hours (please specify whether lecture, exercise, laboratory session, etc.):</p> <p>Lecture Class: 2 hours x 14 weeks = 28 hours/semester</p> <p>Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester</p> <p>Midterm and Final Exams: 2 hours x 2 sessions = 4 hours</p> <p>Practicum exam : 2 hours x 2 sessions = 4 hours</p> <p>Private study including examination preparation, specified in hours:</p> <p>Assignment: 1 hour x 14 weeks = 14 hours/semester</p> <p>Examination preparation: 9.5 hours/semester</p>
Credit points	<p>Theory : 2 SCH x 1.5 ECTS = 3 ECTS</p> <p>Practicum : 1 SCHx 2,5 x 1.5 ECTS = 3.75 ECTS</p> <p>Total = 6.75 ECTS</p>
Requirements according to the examination regulations	<ol style="list-style-type: none"> 1. Registered in this course 2. Minimum 80% attendance in this course

<p>Module objectives/intended learning outcomes</p>	<ol style="list-style-type: none"> 1. Able to explain the urgency of Islamic education and apply manners in seeking knowledge. (application) 2. Able to explain Islamic teachings comprehensively in the fields of Aqidah, Sharia, Morals and Da'wah and be able to correct erroneous understandings of Islamic teachings. (comprehension) 3. Able to explain the concept of science in Islam and eliminate the dichotomous attitude that opposes science and Islam. (understanding) 4. Able to explain the relationship between humans and religion in Islam, realize the truth of Islam by being tolerant of other religions 5. Able to be honest, disciplined, responsible and anti-corruption. 6. Able to read the Koran properly and diligently worship and carry out various activities according to Islamic rules
<p>Content</p>	<p>Courses that comprehensively discuss the main points of Islamic religious teachings to shape the character and literacy of Muslim scientists as a foundation for the development and implementation of science for the progress of the state and nation.</p> <p>This course consists of material on Islam and Knowledge, Man and Religion, Islamic Faith, Islamic Sharia, Morals and Da'wah. This course also discusses the applicability of Islamic values in everyday life.</p>
<p>Study and examination requirements and forms of examination</p>	<p>Cognitive: Midterm exam, Final exam, Quizzes, Assignments</p> <p>Psychomotor: Practice</p> <p>Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, language), (b) Being on time, (c) Effort.</p>
<p>Media employed</p>	<p>Classical teaching tools with white board and power point presentation</p>
<p>Reading list</p>	<p>Mandatory Reading; Al-Qur'an and Translations, Islamic Religious Education Guidebook compiled by TIM PAI-IPB</p> <p>Additional Readings;</p> <ol style="list-style-type: none"> 1. Miftah Faridz, 1999. Pokok-pokok ajaran Islam karya Mifta Faridz, Penerbit Pustaka. Jakarta 2. Yunahar Ilyas.1999. Kuliah Akhlak. LIPPI 3. Yusuf Qardhawy,1997.Pengantar Kajian Islam (terjmh.). Pustaka Kautsar. Jakarta. 4. Hamzah Yaqub,1996. Etika Islam. CV. Diponegoro. Bandung 5. Yunahar Ilyas.2002. Kuliah Aqidah Islam. LPDI

	<p>UMY.</p> <ol style="list-style-type: none">6. Yusuf Qardhawy.1996. Tahuhid dan Fenomena Kemusyrikan (terjmhn). Pustaka Progresif. Surabaya7. Shalih bin Fauzan. 1999. Kitab Tauhid I8. (terjemahan).Darul Haq. Jakarta. Ismail Fauzi. Al-Islam dan Ilmu Pengetahuan
--	--

2. STK1111 Statistical and Data Analysis 3 (3-0)

Module Name	Statistical and Data Analysis
Semester(s) in which the module is taught	1st and 2nd (odd and even) Semester
Person responsible for the module	Dr Ir I Made Sumertajaya, M.Si
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory Courses for undergraduate program in IPB University
Teaching methods	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 63 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 3 hours x 14 weeks = 42 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 3 hours/semester
Credit points	Theory : 3 SCH x 1.5 ECTS = 4.5 ECTS
Requirements according to the examination regulations	1. Registered in this course 2. Minimum 80% attendance in this course
Recommended prerequisites	-
Module objectives/intended learning outcomes	1. Students have the ability to generate, present and interpret information general from the data 2. Students have the ability to process simple data collection and management generate valid information
Content	This course explains the basic concepts of statistics, the understanding of several internal terms statistics (sample, population, data, etc.); various techniques of understanding data (data understanding), which include presentation and summary of data, exploration of the existence of extreme values, exploration of distribution patterns, exploration of comparisons between groups, and exploration of relationships between variables; modeling (modeling), that is includes associations, correlations and recognition of linear regression

	<p>models; understanding of several collection methods data, data management as well as several techniques of presenting information in the presentation of analysis results, which can be applied to various applied fields, such as Agriculture, Biology, Social, Business, and so on. Eye this course also forms the basis for courses for further statistics courses such as Data Analysis Categorical, Regression Analysis, Experiment Design, Quality Control Statistics, and Time Series Analysis.</p>
<p>Study and examination requirements and forms of examination</p>	<p>Cognitive: Midterm exam, Final exam, Quizzes, Assignments</p> <p>Psychomotor: Practice</p> <p>Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, language), (b) Being on time, (c) Effort.</p>
<p>Media employed</p>	<p>Classical teaching tools with white board and power point presentation</p>
<p>Reading list</p>	<ol style="list-style-type: none"> 1. Agresti A, Franklin C, Kingenberg B. 2018. Statistics: the art and science of learning from data. 2. Pearson – Harlow, England. Anderson DR, Sweeney DJ, Williams TA, Camm JD, Cochran JJ. 2018. Statistics for Bussiness and Economics, 13th ed. Cengage Learning. Boston. 3. Moore DS, McCabe GP, Craig BA. 2014. Introduction to the Practice of Statistics. WH Freeman and Company – New York, USA

3. IPB1106 Indonesian Language 2(1-1)

Module Name	Indonesian Language
Module level, if applicable	Beginner
Code, if applicable	IPB106
Subtitle, if applicable	-
Courses, if applicable	IPB106 Indonesian Language
Semester(s) in which the module is taught	Odd/Even Semester
Person responsible for the module	-
Lecturer	Team Teaching
Language	Indonesian
Relation to curriculum	Compulsory Courses for undergraduate program in IPB University
Type of teaching, contact hours	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload	(Estimated) Total workload: 73.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 1 hours x 14 weeks = 14 hours/semester Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 6,5 hours/semester
Credit points	Theory : 1 SCH x 1.5 ECTS = 1.5 ECTS Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS Total Credits: 5.25 ECTS
Requirements according to the examination regulations	1. Registered in this course 2. Minimum 80% attendance in this course
Recommended prerequisites	-
Module objectives/intended learning outcomes	1. be able to explain the concept of language, the history of the Indonesian language, the position of the Indonesian language, the functions of the Indonesian language; 2. able to explain and identify aspects of language, starting

	<p>from the simple level, namely spelling, vocabulary, sentences, paragraphs, to types of text;</p> <p>3. able to correct language errors;</p> <p>4. be able to use written and spoken Indonesian in accordance with the rules;</p> <p>5. mastering the skills and application of the steps for writing scientific papers which include the pre-writing, writing, and editing stages;</p> <p>6. able to carry out simple research and then compile it into a paper in accordance with the field of knowledge; as well as</p> <p>7. able to communicate verbally properly and correctly and be able to present research results.</p>
Content	<p>This course contains material that enhances a sense of national love in the form of the history of the Indonesian language. Material related to improving language skills in the form of effective sentence writing includes spelling, word choice, and structure. The material for reading and writing skills is in the form of techniques for composing paragraphs, composing texts, selecting readings, critical thinking, and compiling scientific papers. The material for oral language skills is in the form of an oral presentation. Student work in the form of outline paragraphs, paragraphs, types of text, slides, videos, and simple research papers.</p>
Study and examination requirements and forms of examination	<p>Cognitive: Midterm exam, Final exam, Quizzes, Assignments</p> <p>Psychomotor: Practice</p> <p>Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, language), (b) Being on time, (c) Effort.</p>
Reading List	-

4. BIO1102 Basic Biology 3(2-1)

Module Name	Basic Biology
Module level, if applicable	Beginner
Code, if applicable	BIO100
Subtitle, if applicable	-
Courses, if applicable	BIO100 Biology
Semester(s) in which the module is taught	1st or 2nd Semester
Person responsible for the module	
Lecturer	Team teaching Biology Department
Language	Indonesian
Relation to curriculum	Compulsory Courses for undergraduate program in IPB University
Type of teaching, contact hours	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload	(Estimated) Total workload: 94.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hours x 14 weeks = 28 hours/semester Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours Practicum Exams: 2 hours x 2 sessions = 4 hours Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 9.5 hours/semester
Credit points	Theory : 2 SCH x 1.5 ECTS = 3 ECTS Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS Total Credits: 6.75 ECTH
Requirements according to the examination regulations	1. Registered in this course 2. Minimum 80% attendance in this course
Recommended prerequisites	-

Module objectives/ intended learning outcomes	<p>Students after taking this course are able to:</p> <ol style="list-style-type: none"> 1. connecting phenomena encountered in life with biology 2. understand that it is necessary to manage Indonesia's biodiversity and always be a material consideration for every decision taken to solve problems that will impact the existence of Indonesia's biodiversity 3. imitate social attitudes, be able to express opinions and respect the opinions of others about biological knowledge and its application in everyday life 4. Developing a sense of love for the motherland after studying Indonesia's biodiversity and its prospects 5. Observing and explaining the diversity, structure and biological functions of organisms: monera, protists, fungi, plantae, animalia. 6. Observing and explaining the ecology: population, community, ecosystem and bioconservation
Content	<p>This course explains the theories and basic principles of biology that form the basis for further courses in the major / department. The lecture begins by explaining the scope of biology and the origins of life, then proceeding to the Midterm Examination, lectures explaining the structure and function of biology at the cellular level, genetics and its application in biotechnology. In the next section until the Final Examination, the lecture explains about biodiversity and biological functions at the level of organisms (monera, protists, fungi, plantae, and animalia), population, community, ecosystem, and conservation biology. Examples and the application of each topic are given to help students understand basic principles and theories.</p>
Study and examination requirements and forms of examination	<p>Cognitive: Midterm exam, Final exam, Quizzes, Assignments</p> <p>Psychomotor: Practice</p> <p>Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, language), (b) Being on time, (c) Effort.</p>
Media employed	<p>Classical teaching tools with white board and power point presentation</p>
Reading list	<p>Jane B. Reece, Lisa A. Urry, Michael L. Cain, Steven A. Wasserman, Peter V. Minorsky, Robert B. Jackson. 2014. Campbell Biology.10th. Pearson Education, Inc.</p> <p>Neil A. Campbell, Jane B. Reece. 2008. Biology 8th. Pearson Benjamin Cummings: San Francisco.</p>

5. FIS1104 Physics Science and Technology 3(2-1)

Module Name	Physics
Module level, if applicable	Beginner
Code, if applicable	FIS1104
Semester(s) in which the module is taught	1st (Odd) Semester
Person responsible for the module	Department of Physic
Language	Indonesian and English
Relation to curriculum	Compulsory Courses for undergraduate program in IPB University
Type of teaching, contact hours	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload	(Estimated) Total workload: 94.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hours x 14 weeks = 28 hours/semester Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours Practicum Exams: 2 hours x 2 sessions = 4 hours Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 9.5 hours/semester
Credit points	Theory : 2 SCH x 1.5 ECTS = 3 ECTS Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS Total Credits: 6.75 ECTH
Requirements according to the examination regulations	1. Registered in this course 2. Minimum 80% attendance in this course
Recommended prerequisites	-
Module objectives/intended learning outcomes	Student is able to use various physical formulations in the scope of solving simple physics problems and applying them to other fields.

Content	This course is taught to provide students with insight into the scope of mechanics, vibration waves, dynamics, electricity, electromagnetism and modern physics as well as providing a basis that is suitable for students who need basic physics.
Study and examination requirements and forms of examination	<p>Cognitive: Midterm exam, Final exam, Quizzes, Assignments</p> <p>Psychomotor: Practice</p> <p>Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, language), (b) Being on time, (c) Effort.</p>
Media employed	Classical teaching tools with white board and visual presentation material
Reading list	-

6. IPB1108 English 2(1-1)

Module Name	English
Module level, if applicable	Beginner
Courses, if applicable	IPB1108 English
Semester(s) in which the module is taught	1st Semester
Person responsible for the module	Team Teaching
Language	Indonesian and English
Relation to curriculum	Compulsory Courses for undergraduate program in IPB University
Type of teaching, contact hours	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload	<p>(Estimated) Total workload: 73.5 hours/semester</p> <p>Contact hours (please specify whether lecture, exercise, laboratory session, etc.):</p> <p>Lecture Class: 1 hours x 14 weeks = 14 hours/semester</p> <p>Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester</p> <p>Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions</p> <p>Private study including examination preparation, specified in hours:</p> <p>Assignment: 1 hour x 14 weeks = 14 hours/semester</p> <p>Examination preparation: 6,5 hours/semester</p>
Credit points	<p>Theory : 1 SCH x 1.5 ECTS = 1.5 ECTS</p> <p>Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS</p> <p>Total Credits: 5.25 ECTH</p>
Requirements according to the examination regulations	<ol style="list-style-type: none"> 1. Registered in this course 2. Minimum 80% attendance in this course
Recommended prerequisites	-
Module objectives/ intended learning outcomes	<ol style="list-style-type: none"> 1. Students are able to use English to communicate according to the needs of their time 2. Students have the ability to analyze English discourse to get the content/meaning contained in the discourse correctly.

	3. Students are able to choose the form of speech (language functions) according to their communication needs
Content	This course is structured to encourage students to be able to use English according to their needs and context. For this reason, grammatical structures, rhetorical models are introduced in constructing ideas, developing vocabulary, and forms of speech according to language functions in their respective contexts.
Study and examination requirements and forms of examination	Cognitive: Written test (Mid Test, Final Test, Assignment, Quiz) Psychomotor: Practice Affective: assessed from the element /variables achievement, namely :(a) Contributions (attendance, active, role, initiative, language) , (b) Being on time , (c) Effort.
Media employed	Classical teaching tools with white board and power point presentation
Reading list	<ol style="list-style-type: none"> 1. Abdulaziz, Helen Taylor, & Alfred D. Stover. 1980. Academic Challenges in Reading. Prentice-Hall, Inc. Englewood Cliffs, N.J. 2. Anson M. Chris, Schwegler A. Robert. 2001. The Longman Handbook for Writers and Readers, An Imprint of Addison Wesley Longman, Inc. 3. Dobbs, Carrie. 1989. Reading for a Reason. Prentice Hall Regents Englewood Cliffs, N.J. 4. Feverstein, Tamar and Miriam S. 1995. Enhancing Reading Comprehension in the Language Learning Classroom. Alta Book Center Pub. San Fransisco, California. 5. Grellet, Francois. 1981. A Practical Guide to Reading Comprehension Exercises. Cambridge University Press. 6. Hornby, A.S. 1991. Oxford Advanced Learner's Dictionary. Oxford UP. 7. Karen Blanchard et.al. 1997. For Your Information 3. Longman. 8. Kranhlee, Karl. 1976. Reading Together: A Reading Activities Text. St. Martin Press. 9. Labarca. Angela and James M. Hendrickson. 1984. Our Global Village. Harcourt Brace Jovanovich, Inc. 10. Latulippe, L.D. 1987. Developing Academic Reading Skills. Prentice Hall Regents, Englewood Cliffs, N.J. 11. Maingay, S. 1983. Making Sense of Reading: an Introduction to Reading Skills in English. Australia Nelson. 12. Marcelino, M. 1999. Materials for Foundations of Academic Writing Course. AMINEF, Jakarta. 13. Mickulecky, Beatrice S. 2004. More Reading Power, Reading for Pleasure, Comprehension Skills, Thinking Skills, Reading Faster. Pearson Education, Inc.

14. Oshima, Alice, and Ann Hogue. 1999. Writing Academic English. Longman.
15. Praninkas, Jean. 1975. Rapid Review of English Grammar. Prentice Hall.
16. Rowland, Black S. and Lisa Rosenthal. 1986. Academic English and Study Skills for International Students. Prentice Hall. N.J.
17. Skykes, J.B. 1989. The Concise Oxford Dictionary. Oxford UP.
18. The British Council. 1979. Reading and Thinking: Exploring Functions. Oxford UP.
19. Torres G, Eunice. Smith L. Michael. English for Fisheries Technology. National Bookstore, Inc.
20. Valerie Kay. 1985. Biological Sciences "Developing Reading Skill in English". Pergamon Press.
21. Woods, Enid Nolan and David Foll. 1986. Penguin Advanced Reading Skills. Penguin Book Ltd. England.
22. <https://en.wikipedia.org/wiki/Chart>
23. <https://en.wikipedia.org/wiki/Graph>
24. <https://www.ncsu.edu/labwrite/res/tablevsgraph/res-tablevsgraph.html>
25. http://www.diffen.com/difference/Communism_vs_Fascism
http://www.diffen.com/difference/DNA_vs_RNA

7. IPB1113 Innovative Agriculture 2(2-0)

Module Name	Innovative Agriculture
Module level, if applicable	Beginner
Courses, if applicable	IPB1113 Innovative Agriculture
Semester(s) in which the module is taught	1st Semester
Person responsible for the module	Prof. Dr. Ir. Hadi Susilo Arifin, M.S.
Language	Indonesian and English
Relation to curriculum	Compulsory module for undergraduate program in IPB University
Type of teaching, contact hours	Classical lecture using power point and module. Independent learning using class.ipb.ac.id .
Workload	(Estimated) Total workload: 42 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hours x 14 weeks = 28 hours/semester Midterm and Final Exam: 1.5 hours x 2 sessions = 3 hours total sessions Private study including examination preparation, specified in hours Assignment: 0.5 hour x 14 weeks = 7 hours/semester Examination preparation 4 hours/semester
Credit points	2 SCH x 1.5 = 3 ECTS
Requirements according to the examination regulations	1. Registered in this course 2. Minimum 80% attendance in this course
Recommended prerequisites	-
Module objectives/ intended learning outcomes	After taking this course, students is able to explain agriculture in a broad sense and the supporting sciences.

Content	This course is designed and structured to take IPB University students to the world of agriculture in abroad sense.
Study and examination requirements and forms of examination	<p>Cognitive: Midterm exam, Final exam, Quizzes, Assignments</p> <p>Psychomotor: Practice</p> <p>Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort.</p>
Media employed	Classical teaching tools with white board and power point presentation
Reading list	<ol style="list-style-type: none"> 1. AHN: Buku PIP Author AHN (Book 1-Soft File) 2. KM: Buku Kumpulan Makalah (Book 2-Soft File) 3. TGM: Buku Tantangan Generasi Muda (Hard File)

8. IPB1112 Sport 1(0-1)

Module Name	Sport
Module level, if applicable	Beginner
Semester(s) in which the module is taught	1st/2nd Semester
Person responsible for the module	Team Teaching
Language	Indonesian and English
Relation to curriculum	Compulsory module for undergraduate program in IPB University
Type of teaching, contact hours	Type of teaching: Face to face lecture
Workload	(Estimated) Total workload: 52.5 hours/semester Practical class: 2.5 hours x 14 weeks = 35 hours Exam: 2 hours x 2 time = 4 hours Total = 4 hours Private study including examination preparation, specified in hours Assignment: 0.5 hour x 14 weeks = 7 hours/semester Examination preparation 6.5 hours
Credit points	Credit : 1 SCH x 2.5X1.5 ECTS = 3.75 ECTS
Requirements according to the examination regulations	1. Registered in this course 2. Minimum 80% attendance in this course
Recommended prerequisites	-
Module objectives/intended learning outcomes	students able to: 1. Mastering theoretical and practical concepts in sports in depth, and being able to formulate movement activities, especially in daily life or physical activity; 2. Show respect, excellence, friendship; 3. Develop and apply forms of sports training in everyday life.
Content	This course discusses and practices comprehensively regarding physical activity and movement in sports. Not only that, this course also provides students with experience in practicing, modifying, developing and evaluating sports techniques according to the material. In lectures various theoretical and practical approaches are discussed, so as to develop individuals emotionally and intellectually in practice including physical activity, formation of movement, character formation, and development of physical conditions.
Reading list	Bompa, T. O. (2009). <i>Disiplin Ilmu Pendukung dalam Teori dan Metodologi Latihan</i> . Jakarta: Rajawali. Bompa, T. O. (1999). <i>Periodization: theory of methodology of training, 4th ed. (champaign. IL: Human Kinetic)</i> . 258

9. IPB110D Pancasila Education 1(1-0)

Module Name	Pancasila Education
Module level, if applicable	Beginner
Courses, if applicable	IPB 1112 Sport
Semester(s) in which the module is taught	1st/2nd Semester
Person responsible for the module	Team Teaching
Language	Indonesian and English
Relation to curriculum	Compulsory module for undergraduate program in IPB University
Type of teaching, contact hours	Type of teaching: Face to face lecture
Workload	(Estimated) Total workload: 21 hours/semester Theory class: 1 hours x 14 weeks = 14 hours Exam: 1.5 hours x 2 time = 3 hours Private study including examination preparation, specified in hours Examination preparation 4 hours
Credit points	Credit : 1 SCH x 1 X1.5 ECTS = 1.5 ECTS
Requirements according to the examination regulations	3. Registered in this course 4. Minimum 80% attendance in this course
Recommended prerequisites	-
Module objectives/intended learning outcomes	students able to: build self-awareness as the next generation of the Indonesian nation that carries the mandate and human nature to always practice the values of Pancasila through the ability to interpret the essence of historical values (C2), the position and nature of the Pancasila precepts (C2), being proactive about the actual problems of the nation and state (C3), as well as applying Pancasila values in the mastery and development of science and technology for the development and progress of the Indonesian nation (C4).
Content	The Pancasila Education course as a compulsory subject aims to build and foster student attitudes, behavior, mindset, insight, knowledge, and skills that are in accordance with Pancasila values (religious, humanist, nationalist, cooperative, and just) through understanding Pancasila (1) historically, namely the history of the development of Pancasila thought; (2) philosophically, including Pancasila as a philosophical system, ethical system, national view of life, national ideology, the basis

	<p>of the state; (3) juridically, regarding the position of Pancasila in the laws and regulations, (4) Pancasila as a National Development Paradigm in the Political, Economic, Socio-Cultural, Defense and Security fields, and (5) The millennial generation action program in advancing the nation state of Indonesia (Actualization of the character of Pancasila values) in the form of assignments to make individual papers with the theme Implementation and Development of Pancasila Values which can Improve the Quality of Life in Society, Nation and State, including religious values (Religiosity), family values (humanist), harmony values (nationalist)), social values (cooperating), and justice values.</p>
<p>Reading list</p>	<ol style="list-style-type: none"> 1. Abdullah, Rozali, 1984, Pancasila sebagai Dasar Negara dan Pandangan Hidup Bangsa, CV. Rajawali, Jakarta. 2. Ali, As'ad Said, 2009, Negara Pancasila Jalan Kemaslahatan Berbangsa, Pustaka LP3ES, Jakarta. 3. Anshoriy, HM. Nasruddin, 2008, Bangsa Gagal: Mencari Identitas Kebangsaan, LKiS, Yogyakarta. 4. Bakry, Noor Ms., 2010, Pendidikan Pancasila, Pustaka Pelajar, Yogyakarta. 5. Kaelan, 2000, Pendidikan Pancasila, Paradigma, Yogyakarta. 6. Dodo, Surono dan Endah (ed.), 2010, Konsistensi Nilai-Nilai Pancasila dalam UUD 1945 dan Implementasinya, PSP-Press, Yogyakarta. 7. Kaelan, 2012, Problem Epistemologis Empat Pilar Berbangsa dan Bernegara, Paradigma, Yogyakarta. 8. Kusuma, A.B., 2004, Lahirnya Undang-Undang Dasar 1945, Badan Penerbit Fakultas Hukum Universitas Indonesia, Jakarta. 9. Latif, Yudi, 2011, Negara Paripurna: Historisitas, Rasionalitas dan Aktualitas Pancasila, PT Gramedia Pustaka Utama, Jakarta. 10. Nurdin, Encep Syarief, 2002, Konsep-Konsep Dasar Ideologi: Perbandingan Ideologi Besar Dunia, CV Maulana, Bandung. 11. Rindjin, Ketut, 2012, Pendidikan Pancasila untuk Perguruan Tinggi, PT. Gramedia Pustaka Utama, Jakarta. 12. Zubair, Achmad Charris, 1990, <i>Kuliah Etika</i>, Rajawali Pers, Jakarta.

10. IPB110E Citizenship Education 1(1-0)

Module Name	Citizenship Education
Module level, if applicable	Beginner
Courses, if applicable	IPB111 Citizenship Education
Semester(s) in which the module is taught	1st Semester
Lecturer	Team Teaching
Language	Indonesian and English
Relation to curriculum	Compulsory module for undergraduate program in IPB University
Type of teaching, contact hours	Type of teaching: Face to face lecture
Workload	(Estimated) Total workload: 21 hours/semester Theory class: 1 hours x 14 weeks = 14 hours Exam: 1.5 hours x 2 time = 3 hours Private study including examination preparation, specified in hours Examination preparation 4 hours
Credit points	Credit : 1 SCH x 1 X1.5 ECTS = 1.5 ECTS
Requirements according to the examination regulations	1. Registered in this course 2. Minimum 80% attendance in this course
Recommended prerequisites	-
Module objectives/intended learning outcomes	Student able: <ol style="list-style-type: none"> 1. Understand the four basic consensus and the importance of state defense awareness (C2). 2. Understanding the dynamics of implementing the 1945 Constitution and changes to the constitutional system (C2). 3. Applying the principles of democratization, regional autonomy, good governance, and anti-corruption character as an effort to improve the Indonesian nation's self-image in facing changes in the world order, and management of national resources for the prosperity of the Indonesian nation state (C3) 4. Identifying problems with the National Security conception approach and increasing national awareness of various threats in order to uphold the existence of the Unitary State of the Republic of Indonesia (C4).

Content	<p>The Citizenship Education course provides an understanding of the importance of awareness of defending the country for the next generation of the Indonesian nation in fighting for and maintaining the integrity of the Unitary State of the Republic of Indonesia through the mastery and application of science and technology based on 4 basic consensus, namely the values of Pancasila, the 1945 Constitution of the Republic of Indonesia, Unity in Diversity, and the Unitary State of the Republic of Indonesia. Realizing sustainable national development based on archipelago vision, national resilience and national vigilance in harmony with the principles of democratization, regional autonomy, good governance and anti-corruption character.</p>
Study and examination requirements and forms of examination	<p>Cognitive: Midterm exam, Final exam, Quizzes, Assignments</p> <p>Psychomotor: Practice</p> <p>Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort.</p>
Media employed	Classical teaching tools with white board and power point presentation
Reading list	<ol style="list-style-type: none"> 1. Rangkuti, P.A.,2016, Membangun Kesadaran Bela Negara, Bogor : (edisi ke2) IPB Press. 2. Mahmuzar, 2010, Sistem Pemerintahan Indonesia : Sebelum dan Sesudah Amandemen UUD 1945, Jakarta : Nusa Media. 3. Syakrani,2009, Implementasi Otonomi Daerah dalam Perspektif Good Governance, Jakarta : Pustaka Pelajar. 4. Pendidikan Kewarganegaraan untuk Perguruan Tinggi, Cet.1, Kemristek Dikti 5. Pendidikan Anti Korupsi Untuk Perguruan Tinggi, Nanang T.Puspito, Marcella Elwina (edit) Kemendikbud: 2011 6. Undang-Undang Dasar Negara Kesatuan Republik Indonesia tahun 1945 (yang telah diamandemen) 7. Undang-Undang No. 12 tahun 2006 tentang Kewarganegaraan Republik Indonesia 8. Undang-Undang No. 32 tahun 2004 tentang Pemerintahan Daerah 9. Undang-Undang No. 33 tahun 2004 tentang Perimbangan Keuangan 10. Undang-Undang No. 39 tahun 1999 tentang Hak Asasi Manusia

11. MAT 1102 Mathematics and Logical Thinking 3 (2-1)

Module Name	Mathematics and Logical Thinking
Module level, if applicable	Beginner
Courses, if applicable	MAT 1102 Mathematics and Logical Thinking
Semester(s) in which the module is taught	1st Semester
Person responsible for the module	Windiani Erliana
Lecturer	Team Teaching from Department of Mathematic
Language	Indonesian
Relation to curriculum	Compulsory module for undergraduate program in IPB University
Type of teaching, contact hours	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload	(Estimated) Total workload: 94.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hours x 14 weeks = 28 hours/semester Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours Practicum Exams: 2 hours x 2 sessions = 4 hours Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 9.5 hours/semester
Credit points	Theory : 2 SCH x 1.5 ECTS = 3 ECTS Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS Total Credits: 6.75 ECTH
Requirements according to the examination regulations	1. Registered in this course 2. Minimum 80% attendance in this course
Recommended prerequisites	-

Module objectives/intended learning outcomes	<ol style="list-style-type: none"> 1. Students can connect phenomena encountered in everyday life with Economics 2. Students can analyze the behavior of producers and consumers in the VUCA era and analyze the potential impact of policies issued by the government, especially policies in the agricultural sector (in a broad sense), both impacts related to consumers, producers, sectoral, and the macro economy . 3. Students are able to apply knowledge related to basic economic theory in solving problems or formulating decisions in various applied fields. 4. Students are able to express opinions and respect the opinions of others about knowledge of Economics and its applications in everyday life. 5. Growing a sense of love for the motherland in students after learning how to allocate limited resources in order to meet the needs of all Indonesian people.
Content	<p>This Mathematics and Logical Thinking course discusses the basic concepts of mathematics and some of the concepts used for applications that include introductory concepts to mathematical logic (informal error/fallacy in arguing), Propositional Logic, Predicate Logic, Argument, Proof with the Principle of Mathematical Induction mathematics, Combinatorics Theory (Permutation, Combination, Distribution), Sistem Linear Equation (solution, modeling & its application), Functions as a whole as a model (linear function, quadratic, piecemeal, exponential, meta- rhythm). Linear Programming and Its Applications</p>
Study and examination requirements and forms of examination	<p>Cognitive: Midterm exam, Final exam, Quizzes, Assignments</p> <p>Psychomotor: Practice</p> <p>Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort.</p>
Media employed	Classical teaching tools with white board and power point presentation
Reading list	<ol style="list-style-type: none"> 1. <i>Diklat Pengantar Matematika</i>. 2019. Departemen Matematika IPB. 2. G.C. Berresford, A.M. Rockett. 2013. <i>Brief Applied Calculus</i>, 6th Ed, Cengage Learning. 3. Rosen, KH. 2019. <i>Discrete Mathematics and Its Applications</i>. 8th Edition. Mc GrawHill, New York.

	<p>4. Copi IM, Cohen C, McMahon, K. 2011. <i>Introduction to Logic</i>, 14th Edition. Pearson Prentice Hall.</p> <p>5. M.L. Lial, R.N. Greenwell, N.P. Ritchie. 2017. <i>Calculus with Applications</i>, 11th Ed. Global Edition, Pearson.</p> <p>6. M.S. Engel, Bedford. 2014. <i>With Good Reason: An Introduction to Informal Fallacies</i>.</p> <p>7. P.D. Magnus. 2014. <i>Formally- An Introduction to Formal Logic</i>. Http://www.fecundity.com/logic.</p> <p>8. PR P. Morash. 1987. <i>Bridge to Abstract Mathematics</i>. Random House Inc. New York.</p> <p>9. R.P. Grimaldi. 2003. <i>Discrete and Combinatorial Mathematics</i>. 5th Edition. Pearson Addison Wesley, Boston.</p> <p>10. R.N. Aufman, J.S. Lockwood, R.D. Nation, D.K. Clegg. 2008. <i>Mathematical Thinking and Quantitative Reasoning</i>. Houghton Mifflin Co. Boston.</p> <p>11. Tan ST. 2008. <i>College Mathematics for the Managerial, Life, and Social Sciences</i>, 7th Ed, Thomson, Belmont.</p> <p>12. Taha HA. 2017. <i>Operations Research: An Introduction</i>. 10th Ed. Pearson, Edinburg</p>
--	--

12. EKO1101 Economics 2(2-0)

Module Name	Economics
Module level, if applicable	Beginner
Courses, if applicable	EKO1101 Economics
Semester(s) in which the module is taught	1st/2nd Semester
Lecturer	Team Teaching from Faculty of Economy and Management
Language	Indonesian
Relation to curriculum	Compulsory module for undergraduate program in IPB University
Type of teaching, contact hours	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload	(Estimated) Total workload: 42 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hours x 14 weeks = 28 hours/semester Midterm and Final Exam: 1.5 hours x 2 sessions = 3 hours total sessions Private study including examination preparation, specified in hours Assignment: 0.5 hour x 14 weeks = 7 hours/semester Examination preparation 4 hours/semester
Credit points	2 SCH x 1.5 = 3 ECTS
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course
Recommended prerequisites	-
Module objectives/intended learning outcomes	After attending this course, student is able to understand of economics as a branch of science, understand the behavior of households, companies

	and markets in economic decision making, understand macroeconomics, problems and the actual conditions of Indonesian macroeconomics.
Content	This course aims to encourage students to actualize themselves through theory-based creativity in the process of making economic decisions in various applied fields including agriculture, marine and tropical biosciences and to motivate students to carry out various innovations according to their scientific fields in overcoming resource scarcity. The theoretical basis that will be presented begins with providing insight to students about the phenomenon of resource scarcity in various aspects of life and the role of technology in overcoming resource scarcity, consumer and producer behavior in allocating resources efficiently in the VUCA era, the role of the digital economy in overcoming resource scarcity, pricing strategies in dealing with competition, indicators of national economic performance, as well as the government's role in stabilizing the economy (price, fiscal and monetary policies) so as to create social welfare
Study and examination requirements and forms of examination	<p>Cognitive: Midterm exam, Final exam, Quizzes, Assignments</p> <p>Psychomotor: Practice</p> <p>Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort.</p>
Media employed	Classical teaching tools with white board and power point presentation
Reading list	<ol style="list-style-type: none"> 1. Books for lecture class: 2. Lipsey. R. G., P. O Steiner, and D. D. Purpis. 1987. Economics. Harper International Edition. 3. Books for practical class: 4. Penuntun Responsi Ekonomi Umum. 2013. Departemen Ilmu Ekonomi (IE), Fakultas Ekonomi dan Manajemen (FEM). IPB. 5. Lipsey. R. G., P. O Steiner, and D. D. Purpis. 1987. Economics. Harper International Edition. 3 6. Gregory, M. 2006. Principles of Economics (Pengantar Ekonomi Mikro) Edisi 3. Salemba Empat.

13. KPM1131 Sociology 2(2-0)

Module Name	Sociology
Module level, if applicable	Beginner
Courses, if applicable	KPM1131 Sociology
Semester(s) in which the module is taught	Odd/Even Semester
Lecturer	Team Teaching from Faculty of Human Ecology
Language	Indonesian
Relation to curriculum	Compulsory module for undergraduate program in IPB University
Type of teaching, contact hours	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload	(Estimated) Total workload: 42 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hours x 14 weeks = 28 hours/semester Midterm and Final Exam: 1.5 hours x 2 sessions = 3 hours total sessions Private study including examination preparation, specified in hours Assignment: 0.5 hour x 14 weeks = 7 hours/semester Examination preparation 4 hours/semester
Credit points	2 SCH x 1.5 = 3 ECTS
Requirements according to the examination regulations	Registered in this course Minimum 80% attendance in this course
Recommended prerequisites	-
Module objectives/intended learning outcomes	<ol style="list-style-type: none"> 1. Students are able to describe the definition of the concept of sociology [reflected in the main points] 2. Students are able to provide examples of social facts based on empirical observations in Indonesia with sociological concepts. 3. Students are able to analyze social facts and empirical observations in Indonesia with sociological concepts to identify and solve social problems 4. Students have an attitude of curiosity, critical, inclusive, and concerned about social justice.

	5. Mastering the theoretical concepts of certain fields of knowledge and skills in general and the theoretical concepts of special sections in the fields of knowledge and skills in depth (KKNI for S1)
Content	Topics that will be discussed in the course include (1) Understanding Society Sociologically; (2) Social Interaction: Building Cooperation and Functioning Social Conflict; (3) Community Portrait seen through the Lens of Social Structure; (4) Diversity and Existence of Indonesian Culture; (5) Dynamics of Social Institutions; (6) Group Dynamics in a Changing Society (7) Bureaucracy and Corruption Prevention; (8) Power and Authority; (9) Communication knits Social Relations, (10) Patterns of Ecological Adaptation; (11) Ecological Creation and Ecological Modernization (12) Gender, Equality and Social Inclusion and (13) Social Change in the Flow of Globalization
Study and examination requirements and forms of examination	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, language), (b) Being on time, (c) Effort.
Media employed	Classical teaching tools with white board and power point presentation
Reading lists	<ol style="list-style-type: none"> 1. Berger PL. 1963. Invitation to Sociology. A Humanistic Perspective. New York: Anchor Books. 2. Brym RJ. 2009. Sociology as a Life or Death Issue. Canada: Nelson Education. 3. Charon JM. 1980. The Meaning of Sociology. US: Alfred Publishing Co. Inc. America. 4. Creswell JW. 2012. Research Design: Pendekatan Kualitatif, Kuantitatif dan Mixed. Yogyakarta: Pustaka Pelajar. 5. Durkheim E. 1966. The Rules of Sociological Method. Ed ke-8. Terjemahan oleh Sarah A. Solovay and John H. Mueller. New York and CollierMacMillan Limited. London: The Free Press. 6. Harper CL. 1989. Exploring Social Change. Englewood Cliffs, New Jersey, USA: Prentice-Hall Publisher. 7. Kinseng RA. 2017. Struktugensi: sebuah teori tindakan. Sodality: Jurnal Sosiologi Pedesaan.

	<p>5(2): 127137.</p> <ol style="list-style-type: none">8. Plummer K. 2010. <i>Sociology the Basics</i>. London: Routledge.9. Sibeon R. 2004. <i>Rethinking Social Theory</i>. London, Thousand Oaks, New Delhi: SAGE Publications.10. Suseno FM. 1999. <i>Pemikiran Karl Marx Dari Sosialisme Utopis ke Perselisihan Revisionisme</i>. Jakarta: Gramedia Pustaka Utama.11. Wallace RA, Wolf A. 2006. <i>Contemporary Sociological Theory. Expanding the Classical Tradition</i>. Ed ke-6, Prentice Hall, New Jersey: Pearson.12. Weber M. 1974. <i>The Theory of Social and Economic Organization</i>. New York: The Free Press
--	---

14. KOM1102 Computational Thinking 3(2-1)

Module Name	Computational Thinking
Module level, if applicable	Beginner
Courses, if applicable	KOM1102 Computational Thinking
Semester(s) in which the module is taught	1st Semester
Lecturer	Team Teaching from Department of Mathematic
Language	Indonesian and English
Relation to curriculum	Compulsory module for undergraduate program in IPB University
Type of teaching, contact hours	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload	(Estimated) Total workload: 94.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hours x 14 weeks = 28 hours/semester Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours Practicum Exams: 2 hours x 2 sessions = 4 hours Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 9.5 hours/semester
Credit points	Theory : 2 SCH x 1.5 ECTS = 3 ECTS Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS Total Credits: 6.75 ECTH
Requirements according to the examination regulations	3. Registered in this course 4. Minimum 80% attendance in this course
Recommended prerequisites	-
Module objectives/intended learning outcomes	1. Students have the ability to analyze problems and find solutions to these problems computational thinking approach 2. Students have knowledge of computational tools that can be used to solve problems

	B. Students understand the ethics of using various computational tools in solving problems.
Content	This course provides students with an overview of the VUCA world that will be faced by students in the future basis of computational literacy and ethics in using information technology. More specifically, this course explains the process of meeting and recognizing problem and solution formulation by focusing on important information into a generic solution (abstraction), problem solving includes the process of breaking down a problem into smaller sub-problems (decomposition), looking for similar patterns of a problem (pattern matching), and build a structured solution step (algorithm). This course shapes students' thinking patterns in expressing deep solutions a series of structured steps that can be carried out with the help of computing technology. After following this course students are expected be able to apply ways of solving problems through computational thinking methods (computational thinking).
Study and examination requirements and forms of examination	Cognitive: Midterm exam, Final exam, Quizzes, Assignments Psychomotor: Practice Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort.
Media employed	Classical teaching tools with white board and power point presentation
Reading list	1. David Riley, Kenny A. Hun. 2014. Computational Thinking for the Modern Problem Solver. Chapman & Hall. 2. Paul Curzon, Peter W McOwan. 2017. The Power of Computational Thinking. Games, Magic and Puzzles to Help You Become a Computational Thinker. World Scientific. 3. Karl Beeche. 2017. Computational Thinking: A beginner's guide to problem-solving and programming. BCS, The Chartered Institute for IT. 4. George Beekman, Ben Beekman. 2012. Digital Planet: Tomorrow's Technology and You 10e. Pearson. 5. V. Anton Spraul. 2012. Think Like a Programmer: An Introduction to Creative Problem Solving. No Starch Press. 6. Eric Freeman. 2018. Head First Learn to Code: A Learner's Guide to Coding and Computational Thinking. O'Reilly Media

15. KIM1104 Chemical Science and Technology 3(2-1)

Module Name	Chemistry
Module level, if applicable	Beginner
Code, if applicable	KIM101
Courses, if applicable	KIM1104 Chemical Science and Technol
Semester(s) in which the module is taught	1st Semester
Lecturer	Team Teaching
Language	Indonesian
Relation to curriculum	Compulsory module for undergraduate program in IPB University
Type of teaching, contact hours	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload	(Estimated) Total workload: 94.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hours x 14 weeks = 28 hours/semester Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours Practicum Exams: 2 hours x 2 sessions = 4 hours Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 9.5 hours/semester
Credit points	Theory : 2 SCH x 1.5 ECTS = 3 ECTS Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS Total Credits: 6.75 ECTH
Requirements according to the examination regulations	1. Registered in this course 2. Minimum 80% attendance in this course
Recommended prerequisites	-

Module objectives/intended learning outcomes	<ol style="list-style-type: none"> 1. Be able to understand Chemistry as the Central of Science for science and technology in the fields of agriculture, marine and tropical biosciences 2. Be able to apply the concept of chemistry to design the structure, dynamics and rate of change in living systems related to energy exploration for the future. 3. Able to communicate and express opinions and ideas logically to solve a problem and respect the opinions of others. 4. Able to collaborate and cooperate through group work with due regard to safety, occupational health and environmental aspects
Content	<p>This course encourages students to actualize Chemistry as a Central of Science for the foundation of science and technology in the fields of agriculture, marine and tropical biosciences. The theoretical foundation will begin by providing insight into the contribution of chemistry in the field of world technology, its relationship with other sciences, efficiency of atoms for product synthesis, dynamics and rate of change of products and utilization of products for the development of technology for the welfare of living things.</p>
Study and examination requirements and forms of examination	<p>Cognitive: Midterm exam, Final exam, Quizzes, Assignments</p> <p>Psychomotor: Practice</p> <p>Affective: Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort.</p>
Media employed	Classical teaching tools with white board and power point presentation
Reading list	<p>Suchocki J. 2007. Conceptual Chemistry: Understanding Our World of Atoms and Molecules. Ed. Ke-3. San Fransisco (US): Pearson Benjamin Cummings.</p>

16. FKH 1101 Veterinary Profession and Animal Welfare 2(1-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	Odd Semester
Person responsible for the module	drh. Fadjar Satrija, M.Sc., Ph.D.
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 73.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 1 hours x 14 weeks = 14 hours/semester Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 6,5 hours/semester
Credit points	Theory : 1 SCH x 1.5 ECTS = 1.5 ECTS Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS Total SKS : 5.25 ECTH
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<ol style="list-style-type: none"> 1. Students can explain the duties and authorities of the veterinarian profession related to animal health, animal welfare, and veterinary public health 2. Students can explain the scope of animal welfare as well as various animal welfare concepts (the Five Freedoms Principle and 3R / Replacement, Reduction, and Refinement) 3. Students can explain various welfare concerns that often occur in livestock, companion animals, animal transportation, laboratory animals, and wildlife in ex situ conservation

Content	<p>This course discusses the duties and authorities of the veterinary profession and its role in society related to animal health, animal welfare, and veterinary public health; Emphasis is placed on the duties and responsibilities of the profession relating to the implementation and maintenance of animal welfare. Furthermore, students will learn the definition and scope of animal welfare, as well as various animal welfare concepts, including the Five Freedoms and the 3R Principles; Welfare concerns that often occur in livestock, companion animals, laboratory animals, and wildlife in ex situ conservation</p>
Examination forms	<p>Midterm Exam : paper or online based test = 20% Final Exam : paper or online based test = 20% Problem-Based Learning Paper and Presentation = 40% Structured task = 10% Quiz = 10%</p>
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam, Problem-Based Learning Paper, Problem-Based Learning Presentation, and Quizzes. Psychomotor: - Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course.</p>
Reading list	<ol style="list-style-type: none"> 1. World Organisation for Animal Health [OIE]. 2012. Terrestrial Animal Health Code: Section 7. Animal Welfare. 21st Ed. 2. World Society for the Protection of Animals. 2013. Concepts in Animal Welfare. 3rd Edition.

17. FKH 1201 Scientific Methodology 2(1-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	3 rd and 4 th (odd and even) Semester
Person responsible for the module	Drh. I Ketut Mudite Adnyane, M.Si, PhD, PAVet
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 73.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 1 hours x 14 weeks = 14 hours/semester Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 6,5 hours/semester
Credit points	Theory : 1 SCH x 1.5 ECTS = 1.5 ECTS Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS Total Credits: 5.25 ECTH
Required and recommended prerequisites for joining the module	Requires prerequisite course in Bahasa Indonesia and Statistical Method.
Module objectives/intended learning outcomes	Students can explain scientific philosophy, make experimental designs, present scientific and popular data based on scientific ethics and the rules to use laboratory animals. Students can explain writing procedures and make scientific proposals and present these result in the form of oral presentations and posters.
Content	This course explains scientific philosophy, procedures for library research and scientific writing, research/activity design and proposal writing, ethics in the use of experimental animals, data and presentation, abstract writing, creation of abstract and conclusions, scientific publications and popular scientific writing.

Examination forms	<p>Midterm Exam : paper or online based test = 20%</p> <p>Final Exam : paper or online based test = 20%</p> <p>Problem-Based Learning (Project proposal individual and group, presentation) : 50%</p> <p>Structure task = 5%</p> <p>Quiz = 5%</p>
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam, Group Project (Problem-Based Learning), and Problem-Based Learning Presentation</p> <p>Psychomotor: Practicums</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
Reading list	<ol style="list-style-type: none"> 1. Jones WP. 1977. Writing Scientific Papers and Reports. 6th Eds. WBC, Iowa. 2. Hannagan. TJ. 1982. Mastering Statistics. The Macmillan Press Ltd 3. Nazir M. 1988. Metode Penelitian. Ghalia Indonesia 4. [PPKI] Pedoman Penulisan Karya Ilmiah IPB. edisi 4. 2020. IPB Press. 5. Panduan PKM (Program Kreativitas Mahasiswa) Nasional tahun 2021.

18. FKH 1301 Aquatic Animal Health Management 2(2-0)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	5 th and 6 th (odd and even) Semester
Person responsible for the module	Dr. drh. Agustin Indrawati, M.Biomed
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Elective course for Bachelor Veterinary Science Program
Teaching methods	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 42 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hours x 14 weeks = 28 hours/semester Midterm and Final Exam: 1.5 hours x 2 sessions = 3 hours total sessions Private study including examination preparation, specified in hours Assignment: 0.5 hour x 14 weeks = 7 hours/semester Examination preparation 4 hours/semester
Credit points	2 SCH x 1.5 = 3 ECTS
Required and recommended prerequisites for joining the module	Requires prerequisite course in Veterinary Bacteriology and Mycology, and Veterinary Virology.
Module objectives/intended learning outcomes	Students can explain communicatively and interpretatively about the habitat and pathology of aquatic animals and their immune systems related to the incidence of infectious and non-infectious diseases and how to prevent and treat them.
Content	This course discusses the definition of aquatic animals related to Animal Husbandry and Animal Health Law, classifications and habitats of aquatic animals, and their benefits. Furthermore, students will also learn about various types of infectious and non-infectious diseases that are often found and their immune systems and how to prevent and treat them.
Examination forms	Midterm Exam : paper or online based test = 22% Final Exam : paper or online based test = 22% Problem-Based Learning Papers and Presentations = 50% Quiz = 6%

<p>Study and examination requirements</p>	<p>Cognitive: Midterm Exams, Final Exam, Problem-Based Learning Papers, Problem-Based Learning Presentations, and Quizzes.</p> <p>Psychomotor: -</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course.</p>
<p>Reading list</p>	<ol style="list-style-type: none"> 1. Moller H, Anders K. 1986. Diseases and Parasites of Marine Fishes. Verlag Möller Kiel German Federal Republic. 2. Woo PTK. 2006. Fish Diseases and Disorders, Volume 1 : Protozoan and Metazoan Infections. Second Edition. (UK): King's Lynn. 3. Buchmann K, J Bresciani 2001. Parasitic Diseases of Freshwater Trout. Denmark 4. Permen Kelautan dan Perikanan Nomor 37/PERMEN-KP/2019 5. Permen Kelautan dan Perikanan RI Nomor 13/PERMEN – KP/2019 6. Edward J, Noga. 1999. Fish Disease Diagnosis and Treatment. 7. Valerie English, Ronald j. Roberts and Nial R.B. 1994. Bacterial diseases of Fish 8. Francess MD, Leslie AD, Karyl RW. 2015. Handbook of Marine Mammal Medicine. 9. FAO. 2001. Finfish Diseases 10. OIE. 2009 .Manual of Diagnostic Tests for Aquatic Animals 11. Genten FE, Terwinghe AD. 2009, Atlas of Fish 12. Smith SA. 2019. Fish Disease and Medicine 13. Roberts RJ. 2012. Fish Pathology 14. Terio KD, McAloose JSt. 2018. Pathology of Wildlife and Zoo animals

19. FKH 1302 Animal Behavioural Science 2(2-0)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	5 th and 7 th (even) Semester
Person responsible for the module	Dr. Drh. Heru Setijanto, PAVet
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Elective course for Bachelor Veterinary Science Program
Teaching methods	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 42 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hours x 14 weeks = 28 hours/semester Midterm and Final Exam: 1.5 hours x 2 sessions = 3 hours total sessions Private study including examination preparation, specified in hours Assignment: 0.5 hour x 14 weeks = 7 hours/semester Examination preparation 4 hours/semester
Credit points	2 SCH x 1.5 = 3 ECTS
Required and recommended prerequisites for joining the module	Requires prerequisite course in Veterinary Physiology I.
Module objectives/intended learning outcomes	After completing this course, students can explain aspects of animal behaviour which include behavioural patterns, behavioural systems, social interactions and behavioural deviations, especially on livestock/pets. This course is the basis for studying veterinary sciences in general, especially in the fields of diagnostics, reproduction, veterinary public health and animal management/governance.
Content	This course discusses the many aspects of animal behaviour, especially livestock/pets. Topics covered include behavioural patterns, behavioural systems, social interactions and behavioural deviance. Also discussed are the typical behaviours of farm animals such as cows, goats, sheep, chickens and companion animals (pets).

Examination forms	<p>Midterm Exam : paper or online based test = 35%</p> <p>Final Exam : paper or online based test = 35%</p> <p>Problem-Based Learning Papers and Presentations = 15%</p> <p>Structure task = 10%</p> <p>Quiz = 5%</p>
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam, Problem-Based Learning Paper, Problem-Based Learning Presentation, and Individual Assignment.</p> <p>Psychomotor: -</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course.</p>
Reading list	<ol style="list-style-type: none"> 1. Jensen, P.(Ed). 2009. The Ethology of Domestic Animals: an Introductory Text. 2nd edition. CAB International. UK. 2. Hart, B.L. 1985. The Behavior of Domestic Animals. W.H. Freeman and Company. USA. 3. McFarland, D. 1985. Animal Behaviour: Psychology, Ethology and Evolution. Longman Scientific and Technical. UK. 4. Craig, J.V. 1981. Domestic Animal Behavior. Prentice-Hall, Inc. USA. 5. Hinde. R.A. 1970. Animal Behavior: A Synthesis of Ethology and Comparative Psychology. 2nd Edition. McGraw-Hill Book Company. USA.

20. FKH 1303 Laboratory Animal Health Management 2(2-0)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	5 th and 7 th (odd Semester)
Person responsible for the module	Dr. Drh. Sri Estuningsih, MSi, APVet
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Elective course for Bachelor Veterinary Science Program
Teaching methods	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 42 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hours x 14 weeks = 28 hours/semester Midterm and Final Exam: 1.5 hours x 2 sessions = 3 hours total sessions Private study including examination preparation, specified in hours Assignment: 0.5 hour x 14 weeks = 7 hours/semester Examination preparation 4 hours/semester
Credit points	2 SCH x 1.5 = 3 ECTS
Required and recommended prerequisites for joining the module	Requires prerequisite course in Veterinary Physiology I.
Module objectives/intended learning outcomes	After the completion of this course, students can explain the definition, classification, type, use, anatomy, physiology, maintenance and health management, laboratory animal disease, biomedical waste handling, handling, manipulation, sample collection, implementation of ethical principles and animal welfare including procedures for preparing appropriate research proposals for submission review the ethics of using laboratory animals.
Content	This course explains the definition, classification, type, use, anatomy, physiology, maintenance and health management, handling, manipulation, sample collection, disease, biomedical waste handling, animal welfare, as well as the submission of the ethical clearance approval process for the use of laboratory animals.
Examination forms	Midterm Exam : paper or online based test = 30% Final Exam : paper or online based test = 30% Problem-Based Learning Papers and Presentations = 40%

<p>Study and examination requirements</p>	<p>Cognitive: Midterm Exams, Final Exam, Problem-Based Learning Paper, Problem-Based Learning Presentation, and Individual Assignments</p> <p>Psychomotor: -</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course.</p>
<p>Reading list</p>	<ol style="list-style-type: none"> 1. Fox, J (Ed). 2015. Laboratory Animal Medicine 3rd Edition (in American College of Laboratory Animal Medicine Series). Academic Press. 2. National Research Council of the National Academies. 2011. The Guide for the Care and Use of Laboratory Animals 8th Edition. National Academic Press. 3. Hau, J and Schapiro SJ (Ed). 2011. Handbook of Laboratory Animal Science 3rd Edition, Volumes I-II. CRC Press.

21. FKH 1304 Biomedical Instrumentation 2(2-0)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	5 th and 7 th (odd Semester)
Person responsible for the module	Drh. Rr. Soesatyoratih, MSi
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Elective course for Bachelor Veterinary Science Program
Teaching methods	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 42 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hours x 14 weeks = 28 hours/semester Midterm and Final Exam: 1.5 hours x 2 sessions = 3 hours total sessions Private study including examination preparation, specified in hours Assignment: 0.5 hour x 14 weeks = 7 hours/semester Examination preparation 4 hours/semester
Credit points	2 SCH x 1.5 = 3 ECTS
Required and recommended prerequisites for joining the module	Requires prerequisite course in General Biology and General Physics.
Module objectives/intended learning outcomes	<ol style="list-style-type: none"> 1. Students can explain the functions and uses of various supporting tools in animal operations and care activity. 2. Students can explain the functions and uses of various supporting tools in laboratory activity.
Content	This course explains the functions and uses of various supporting devices and how to operate each device as well as its application to animals in an integrative and comprehensive way to support veterinary medicine.
Examination forms	Midterm Exam : paper or online based test = 20% Final Exam : paper or online based test = 20% Problem-Based Learning Papers and Presentations = 50% Quiz = 10%

<p>Study and examination requirements</p>	<p>Cognitive: Midterm Exams, Final Exam, Problem-Based Learning Paper, Problem-Based Learning Presentation, and Quizzes.</p> <p>Psychomotor: -</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course.</p>
<p>Reading list</p>	<ol style="list-style-type: none"> 1. Anita Sharma, Neelima Anup, Rakesh K. Tekade, Chapter 20 - Achieving sterility in biomedical and pharmaceutical products (part-I): thermal, chemical, and filtration sterilization, Editor(s): Rakesh K. Tekade, In Advances in Pharmaceutical Product Development and Research, The Future of Pharmaceutical Product Development and Research, Academic Press, 2020, Pages 695-788, ISBN 9780128144558 2. Biological Safety Cabinets 3. https://ehs.umich.edu/research-clinical/equipment-tools/biological-safety-cabinets/ 4. Disinfection and Sterilization 5. https://www.cdc.gov/infectioncontrol/guidelines/disinfection/index.html 6. Mualla F, Aubreville M, Maier A. Microscopy. 2018 Aug 3. In: Maier A, Steidl S, Christlein V, et al., editors. Medical Imaging Systems: An Introductory Guide [Internet]. Cham (CH): Springer; 2018. Chapter 5. Available from: https://www.ncbi.nlm.nih.gov/books/NBK546149/ doi: 10.1007/978-3-319-96520-8_5 7. Ohlendieck and Harding 2018 Centrifugation and Ultracentrifugation 8. https://www.nottingham.ac.uk/sczsteve/Ohlendieck%20and%20Harding%202018.pdf 9. Rizal A. 2014. Instrumentasi Biomedis. Graha Ilmu Yogyakarta 10. Seymour C and Novakovski TD. 2007. BSAVA of Canine and Feline Anaesthesia and Analgesia. 2 ed British Small Animal Veterinary Association 11. Water Purification Strategies in the Research Laboratory 12. https://www.labcompare.com/342322-Water-Purification-Strategies-in-the-Research-Laboratory/

22. FKH 306 Wild Animal Health Management 2 (2-0)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	5 th and 7 th (odd Semester)
Person responsible for the module	Dr. Drh. Ligaya ITA Tumbelaka, SpMP, MSc
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Elective course for Bachelor Veterinary Science Program
Teaching methods	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 42 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hours x 14 weeks = 28 hours/semester Midterm and Final Exam: 1.5 hours x 2 sessions = 3 hours total sessions Private study including examination preparation, specified in hours Assignment: 0.5 hour x 14 weeks = 7 hours/semester Examination preparation 4 hours/semester
Credit points	2 SCH x 1.5 = 3 ECTS
Required and recommended prerequisites for joining the module	Requires prerequisite course in Veterinary Anatomy and Veterinary Physiology I.
Module objectives/intended learning outcomes	Students can explain and compare the role of veterinarians in conservation medicine (4 medicine pillars: Promotive, Preventive, Curative and Rehabilitative) including in-situ and ex-situ design (environments: nutrition & cage design), behavior assessment, animal removal, breeding and immobilization.
Content	This course explains the definition, classification, anatomy, physiology and habitat of wildlife. Furthermore, students will learn about various types of diseases that are often found in wild animals and how to handle and prevent them.
Examination forms	Midterm Exam : paper or online based test = 20% Final Exam : paper or online based test = 20% Problem-Based Learning Papers and Presentations =50% Quiz =10%

<p>Study and examination requirements</p>	<p>Cognitive: Midterm Exams, Final Exam, Problem-Based Learning Papers, Problem-Based Learning Presentations, and Quizzes.</p> <p>Psychomotor: -</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course.</p>
<p>Reading list</p>	<ol style="list-style-type: none"> 1. Kusumawati D, Sarjana IKW . 2015. Buku Bahan Ajar Satwa Liar – Gadjah Mada University Press. 2. Alikodra HS. Teknik Pengelolaan Satwaliar. IPB Press. 3. Miller RE and Fowler ME. 2015. Fowler's Zoo and Wild Animal Medicine, Volume 8. Sunder's Publisher 4. Undang-Undang Republik Indonesia Nomor 18 Tahun 2009 Tentang Peternakan Dan Kesehatan Hewan 5. Undang-undang (UU) tentang Karantina Hewan, Ikan, dan Tumbuhan. 2019. 6. IUCN Red List of Threatened Species. https://www.iucn.org/resources/conservation-tools/iucn-red-list-threatened-species 7. Surtono T dan Mardistuti A. 2003. Pelaksanaan Cites di Indonesia. Jakarta : Japan International Coopertion Agency (JICA) 8. Menteri Lingkungan Hidup Dan Kehutanan Republik Indonesia. 2019. Peraturan menteri lingkungan hidup dan kehutanan Nomor p.22/ Menlhk/ Setjen/ Kum.1/5/2019 Tentang Lembaga konservasi 9. Menteri Lingkungan Hidup Dan Kehutanan Republik Indonesia. 1990. Undang-Undang Republik Indonesia Nomor 5 Tahun 1990 Tentang Konservasi Sumber Daya Alam Hayati Dan Ekosistemnya 10. Direktur Jenderal Perlindungan Hutan Dan Konservasi Alam. 2011. Peraturan Direktur Jenderal Perlindungan Hutan Dan Konservasi Alam Nomor : P. 9/IV-Set/2011 Tentang Pedoman Etika Dan Kesejahteraan Satwa Di Lembaga Konservasi

23. FKH 1307 Poultry Health Management 2(2-0)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	5 th and 7 th (odd Semester)
Person responsible for the module	Prof. drh. Ekowati Handharyani, MSi., PhD.
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Elective course for Bachelor Veterinary Science Program
Teaching methods	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 42 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hours x 14 weeks = 28 hours/semester Midterm and Final Exam: 1.5 hours x 2 sessions = 3 hours total sessions Private study including examination preparation, specified in hours Assignment: 0.5 hour x 14 weeks = 7 hours/semester Examination preparation 4 hours/semester
Credit points	2 SCH x 1.5 = 3 ECTS
Required and recommended prerequisites for joining the module	Requires prerequisite course in General Pathology.
Module objectives/intended learning outcomes	After completing this course, student can explain communicatively and interpretively the basic principles of poultry health management, namely sanitation, preventive action and control of disease incidence; and can carry out procedures for the implementation of poultry farming in an effort to increase production, prevent and control diseases in poultry farm/industries.

Content	<p>This course provides an understanding of poultry health management which includes several basic principles such as sanitation, disease prevention measures and disease control. The discussion of this course covers the host-agent relationship with the environment, livestock physical facilities, sources of infection and preventive measures, environmental sanitation and disinfection, flock and hatchery management, vaccination and monitoring, outbreak control (outbreak), as well as diagnostic procedures.</p>
Examination forms	<p>Midterm Exam : paper or online based test =50% Final Exam : paper or online based test = 50%</p>
Study and examination requirements	<p>Cognitive: Midterm Exams, and Final Exam Psychomotor: - Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course.</p>
Reading list	<p>-</p> <ol style="list-style-type: none"> 1. Saif et al. 2008. Disease of Poultry. 10th ed. Iowa Unive 2. Jordan FTW. 1990. Veterinary Pathology 6th ed. Williams 3. Cotran, RS. V. Kumar dan SL. Robin, 1994. Pathologic Basis Company, USA

24. FKH 1401 Veterinary Ethics and Legislation 2(2-0)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	8 th (even) Semester
Person responsible for the module	Prof. Srihadi Agungpriyono, DVM, PhD
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 42 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hours x 14 weeks = 28 hours/semester Midterm and Final Exam: 1.5 hours x 2 sessions = 3 hours total sessions Private study including examination preparation, specified in hours Assignment: 0.5 hour x 14 weeks = 7 hours/semester Examination preparation 4 hours/semester
Credit points	2 SCH x 1.5 = 3 ECTS
Required and recommended prerequisites for joining the module	Requires prerequisite course in Veterinary Parasitology: Endoparasite, Viral Diseases, Bacterial and Mycotic Diseases, Internal Medicine II, Veterinary Specialty Surgery I and II, as well as Veterinary Profession and Animal Welfare.
Module objectives/intended learning outcomes	After completing this course, student can explain and apply / practice ethics in attitude and behaviour and explain about the implementation of various veterinary activities and practices based on the applicable laws and regulations.
Content	This subject is compulsory for students of veterinary medicine. This course provides an insight into veterinary ethics and its implementation in various practical activities of veterinary profession in animal welfare, animal health, husbandry management, quality assurance of food of animal origin, animal quarantine and environmental health and their correlation with the laws and acts in veterinary practices.
Examination forms	Midterm Exam : paper or online based test = 25% Final Exam : paper or online based test = 25% Problem-Based Learning Paper and Presentation = 50%

<p>Study and examination requirements</p>	<p>Cognitive: Midterm Exams, Final Exam, Problem-Based Learning Paper, and Problem-Based Learning Presentation</p> <p>Psychomotor: -</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course.</p>
<p>Reading list</p>	<ol style="list-style-type: none"> 1. Tannenbaum J. 1989. Veterinary Ethics. 1st Edition. William & Wilkins. Baltimore 2. OIE 2009. OIE Guidelines in Veterinary Legislation. 3. UU Nomor 18 Tahun 2009 tentang Peternakan dan Kesehatan Hewan 4. UU Nomor 41 Tahun 2014 tentang Perubahan Atas Undang-Undang Nomor 18 Tahun 2009 Tentang Peternakan dan Kesehatan Hewan 5. UU Nomor 21 Tahun 2019 tentang Karantina Hewan, Ikan dan Tumbuhan 6. PP Nomor 95 Tahun 2012 tentang Kesehatan Masyarakat Veteriner dan Kesejahteraan Hewan 7. PP Nomor 47 Tahun 2014 tentang Pengendalian Dan Penanggulangan Penyakit Hewan 8. PP Nomor 3 tahun 2017 tentang Otoritas Veteriner 9. Permentan Nomor 14 Tahun 2017 tentang Klasifikasi Obat Hewan 10. Permentan Nomor 61 Tahun 2015 tentang Pemberantasan Penyakit Hewan 11. Permentan Nomor 03 Tahun 2019 tentang Pelayanan Jasa Medik Veteriner 12. Permentan Nomor 08 Tahun 2019 Tentang Pejabat Otoritas Veteriner dan Dokter Hewan Berwenang

25. AFF 1111 Veterinary Anatomy I 3(2-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	2 nd (even) Semester
Person responsible for the module	Dr. Drh. Chairun Nisa', M.Si, PAVet
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 94.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hours x 14 weeks = 28 hours/semester Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 1.5 hours x 4 sessions = 6 hours total sessions Practicum Exams: 1.5 hours x 4 sessions = 6 hours total sessions Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 5.5 hours/semester
Credit points	Theory : 2 SCH x 1.5 ECTS = 3 ECTS Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 Total Credits: 6.75
Required and recommended prerequisites for joining the module	Requires prerequisite course in General Biology.

<p>Module objectives/intended learning outcomes</p>	<p>Students are able to describe the structure and function of various connective tissues, cartilage, skeletal bones (osteology) with the type and movement of joints, skeletal muscles, and muscles in visceral organs, and their comparisons in some vertebrates animals.</p> <p>Students are able to explain the static structure and dynamic movement of animals as well as its comparison in other vertebrate animals, which are the basis for treatment in accordance within animal welfare principles.</p> <p>Students are able to describe the functional arrangement of neurons, the division of the central nervous system and the peripheral nervous system (spinal cord with spinal nerves, and the brain with cranial nerves), the autonomic nervous system in its role as a regulator of body functions, as well as its comparison in several vertebrate animals which forms the basis for appropriate treatment within the principles of animal welfare.</p> <p>Students are able to describe the structure and function of the sensory organs and their comparisons in some vertebrate animals which includes: skin and its derivatives (hair, nails, horns, sweat glands and udder glands), eyes, ears, nose and tongue, and their respective roles in shaping animal behaviour that are the basis for treatment in accordance with animal welfare principles.</p>
<p>Content</p>	<p>This course explains the locomotion system of animals, the functional structure of neurons, the central nervous system, the peripheral nervous system and the autonomic nervous system. In addition, it also discusses the integumentum communa which includes skin, nails and their derivatives, as well as the sensory organs like the eyes, ears, nose and tongue.</p>
<p>Examination forms</p>	<p>Midterm Exam (theory and practicum) : 50%</p> <p>Final Exam : paper or online based test : 40%</p> <p>Task structured : 5%</p> <p>Quiz : 5%</p>
<p>Study and examination requirements</p>	<p>Cognitive: Midterm Exams, Final Exam, Practicum Exams, Assignments</p> <p>Psychomotor: Practicums</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>

Reading list	<ol style="list-style-type: none">1. Angevine, J.B and C.W. Cotman. 1981. Principles of Neuroanatomy. New York: Oxford Univ.Press.2. Colville T, Bassert JM. 2002. Clinical Anatomy & Physiology for Veterinay Technicians. Missouri (US): Mosby Inc.3. Dyce KM., Sack WO, Wensing CGJ. 1996. Textbook of Veterinary Anatomy. Philadelphia: WB. Saunders Co.4. Getty R. 1975. Sisson and Grossman's. Anatomy of The Domestic Animal. 5 th edition. Philadelphia: WB. Saunders Co.5. Nurhidayat, Nisa' C, Agungpriyono S, Setijanto H, Novelina S, Supratikno. 2020. Didi Soesetiadi, Osteologi dan Miologi Veteriner. Bogor: IPB Press.
--------------	---

26. AFF 1214 Veterinary Anatomy II 3 (2-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	3 rd (odd) Semester
Person responsible for the module	Dr. Drh. Savitri Novelina, M.Si, PAVet
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 73.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 1 hours x 14 weeks = 14 hours/semester Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 6,5 hours/semester
Credit points	Theory : 2 SCH x 1.5 ECTS = 3 ECTS Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS Total Credits: 6.75 ECTH
Required and recommended prerequisites for joining the module	Requires prerequisite course in Veterinary Anatomy I.
Module objectives/intended learning outcomes	Students can describe the viscerum site, morphology and function of the organs in the circulation, respiration, digestion, urogenital and endocrine organ systems of domestic animals, livestock and poultry. Students can compare the viscerum site, morphology and function of the circulatory, digestive and urogenital organ systems in Pisces, amphibians and reptiles. Students can explain the approach of anatomical knowledge for animal treatments in diagnostics of internal medicine, surgical, reproductive, veterinary public health, pathology and animal welfare.

Content	<p>This course explains the anatomy of the organs of the body of domestic animals which includes organs from blood and lymph circulation system, respiration system, digestion system, genitalia and urination system, as well as the endocrine system. This course also explains the anatomy of poultry organs which have a distinctive structure compared to other domestic animals.</p>
Examination forms	<p>Midterm Exam 1 : paper or online based test = 25% Final Exam : paper or online based test = 25% Problem-Based Learning Papers and Presentations = 30% Task = 10% Quiz =10%</p>
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam, Problem-Based Learning Paper, Problem-Based Learning Presentation, Individual Assignments, Practicum Exam 1-3, and Quizzes Psychomotor: Practicums Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course.</p>

<p>Reading list</p>	<ol style="list-style-type: none"> 1. Dyce KM, Sack WO, Wensing CJG. 2017. Textbook of Veterinary Anatomy. WB Saunders Co., Philadelphia. 2. Getty, R. 1975. Sisson and Grossman's Anatomy of The Domestic Animal. 5 th Eds. WB Saunders Co, Philadelphia. 3. [ICVGAN] International Committee on Veterinary Gross Anatomical Nomenclature. 2017. Nomina Anatomica Veterinaria. 6th ed. Hannover (DE): Editorial Committee of WAVA. 4. Nurhidayat, C. Nisa', S. Agungpriyono, H. Setijanto, S. Novelina, Supratikno, K.Sigit, 2013. Atlas Neuroangiologi dan Organologi Kambing. FKH IPB. IPB Press. Bogor 5. Nurhidayat, C. Nisa', S. Agungpriyono, H. Setijanto, S. Novelina, Supratikno, K.Sigit, 2013. Atlas Osteologi dan Miologi Veteriner. FKH IPB. IPB Press. Bogor 6. Nurhidayat, C. Nisa', S. Agungpriyono, H. Setijanto, S. Novelina, Supratikno, K.Sigit, 2013. Osteologi dan Miologi Veteriner. FKH IPB. IPB Press. Bogor 7. McLelland J. 1990. A Colour Atlas of Avian Anatomy. Wolf Publishing. England 8. May. 1970. Anatomy of the Sheep. University of Queensland Press. 9. Soesetiadi, D. 2005. Penuntun Praktikum Anatomi Veteriner II: Neuro-Angiologi dan Organologi. Laboratorium Anatomi, FKH-IPB 10. Setijanto, H. 1998. Diktat Kuliah Anatomi dan Histologi Unggas. Lab. Anatomi, Jurusan Anatomi, Fakultas Kedokteran Hewan IPB. Bogor. 11. Stanley HD, Goody PC, Evan SA, Stickland NC. 1996. Color Atlas of Veterinary Anatomy. Vol. 3. The Dog and Cat. Mosby. London.
---------------------	--

27. AFF 1216 Veterinary Topographic Anatomy 3(2-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	4 th (even) Semester
Person responsible for the module	Dr. Drh. Nurhidayat, MS, PAVet
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 94.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hours x 14 weeks = 28 hours/semester Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 1.5 hours x 4 sessions = 6 hours total sessions Practicum Exams: 1.5 hours x 4 sessions = 6 hours total sessions Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 5.5 hours/semester
Credit points	Theory : 2 SCH x 1.5 ECTS = 3 ECTS Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 Total Credits: 6.75
Required and recommended prerequisites for joining the module	Requires prerequisite course in Veterinary Anatomy II
Module objectives/intended learning outcomes	<ol style="list-style-type: none"> 1. Students can explain the topographic anatomical elements of the horse and dog bodies. 2. Students can link the topographic anatomical components to its clinical importance. 3. Students can elaborate the topographic anatomy knowledge in animal handling to achieve animal welfare efforts during future practices. 4. Students can implement the knowledge of topographic anatomy of animals to study other fields of veterinary sciences in general, but especially the diagnostics, surgical, and internal medicine field.

Content	This course explains the topographical anatomy elements or organs of several areas of the body in domestic animals, especially the forelegs and hind legs, head, and neck of horses and dogs.
Examination forms	Midterm Exam (theory and practicum) = 37% Final Exam (theory and practicum) =38% Problem-Based Learning Papers and Presentations = 30% Task = 20% Quiz = 5%
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam, Midterm Practicum Exam, Final Practicum Exam, Problem-Based Learning Papers, Problem-Based Learning Presentations, Individual Assignments, and Quizzes</p> <p>Psychomotor: Practicums</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
Reading list	<ol style="list-style-type: none"> 1. Dyce KM, Sack WO, Wensing CJG. 2017. Textbook of Veterinary Anatomy. WB Saunders Co., Philadelphia. 2. Getty, R. 1975. Sisson and Grossman's Anatomy of The Domestic Animal. 5th Eds. WB Saunders Co, Philadelphia. 3. [ICVGAN] International Committee on Veterinary Gross Anatomical Nomenclature. 2017. Nomina Anatomica Veterinaria. 6th ed. Hannover (DE): Editorial Committee of WAVA. 4. Nurhidayat, Nisa' C, Setijanto H, Agungpriyono S, C, Novelina S, Supratikno, Sigit K. 2018. Atlas Anatomi Topografi Kuda. IPB Press, Bogor 5. Popesko P. 1978. Atlas of Topographical Anatomy of the Domestic Animals. WB Saunders Co, Philadelphia. 6. Schumer A, H. Wilken. B Vollmerhaus. KH Habermehl. 1976. Lehrbuch der Anatomie der Haustiere. Band III. Verlag Pul Parey. Berlin und Hamburg. 7. Sigit K, Nurhidayat, Setijanto H, Agungpriyono S, Nisa' C, Novelina S, Supratikno. 2018. Anatomi Topografi Kuda. IPB Press, Bogor 8. Smith BJ, 1999, Canine Anatomy. Lippincott Williams and Wilkins A Walter Kluwer Co. Philadelphia. 9. Stanley HD, Goody PC, Evan SA, Stickland NC. 1996. Color Atlas of Veterinary Anatomy. Vol. 3. The Dog and Cat. Mosby. London. 10. Way RF, DG Lee. 1983. The Anatomy of the Horse. Breakthrough. Milwood, New York.

28. AFF 1221 Veterinary Physiology I 3(2-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	3 rd (odd) Semester
Person responsible for the module	Drh. Isdoni, M. Biomed
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 94.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hours x 14 weeks = 28 hours/semester Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 1.5 hours x 4 sessions = 6 hours total sessions Practicum Exams: 1.5 hours x 4 sessions = 6 hours total sessions Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 5.5 hours/semester
Credit points	Theory : 2 SCH x 1.5 ECTS = 3 ECTS Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 Total Credits: 6.75
Required and recommended prerequisites for joining the module	Requires prerequisite course in General Biology and General Biochemistry.
Module objectives/intended learning outcomes	After completing this course, students can understand and explain the processes and functions of the physiological system which includes the organization of physiology, cell physiology, nervous system, sensory system, endocrine system, muscle physiology, blood physiology and immune system in domestic animals in an integrated and comprehensive manner using the concept and physiological principles to support diagnosis in various other fields in veterinary medicine.

Content	<p>This course is given to students who already have general knowledge of biology, physics and chemistry. This course presents the basic functions of cells and their concepts and principles in biological control systems through a discussion of various animal physiologic systems. Lectures will cover the scope of physiology, cell structure and function, physiological concepts and principles of the nervous system, sensory system, endocrine system, muscle physiology, blood and body immune system. Each topic will also include a discussion of deviations in physiologic function that will result in the occurrence of a disease or disorder. At the end of the course, students can integrate all the topics obtained and be able to form the basis of veterinary science.</p>
Examination forms	<p>Midterm Exam (theory and practicum) = 15% Final Exam (theory and practicum) = 15% Problem-Based Learning Papers and Presentations = 50% Task = 15% Quiz = 5%</p>
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam, Practicum Exam, Problem-Based Learning Papers, Problem-Based Learning Presentations, Individual Assignments, and Quizzes</p> <p>Psychomotor: Practicums (laboratory sessions)</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
Reading list	<ol style="list-style-type: none"> 1. Cunningham, J. G. 2013. Textbook of Veterinary Physiology 5th Ed. WB. Saunders Company. 2. Sherwood L. 2007. Fisiologi Manusia Dari Sel ke Sistem. Ed 6. EGC, Jakarta. 3. Silverthorn DU. 2013. Human Physiology An Integrated Approach 6th ed. Pearson, Benjamin Cummings. San Francisco. 4. Reece. W.O (editors). 2015. Dukes' Physiology of Domestic Animals. 13th Ed. John Wiley & Sons, Inc. 5. Widmaier EP, Raff H, Strang KT. 2008. Vander's Human Physiology : The Mechanism of Body Function. 11thed. McGraw-Hill Publishing Company, New York.

29. AFF 1222 Veterinary Physiology II 3(2-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	4 th (even) Semester
Person responsible for the module	Dr. Drh. Aryani Sismin Satyaningtijas, MSc.
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 94.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hours x 14 weeks = 28 hours/semester Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 1.5 hours x 4 sessions = 6 hours total sessions Practicum Exams: 1.5 hours x 4 sessions = 6 hours total sessions Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 5.5 hours/semester
Credit points	Theory : 2 SCH x 1.5 ECTS = 3 ECTS Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 Total Credits: 6.75
Required and recommended prerequisites for joining the module	Requires prerequisite course in Veterinary Physiology I and Medical Biochemistry.
Module objectives/intended learning outcomes	After completing this course, students can explain the processes and functions of the physiological system which includes the cardiovascular system, respiratory system, digestive system, metabolism, growth and thermoregulation, excretory and osmoregulation systems as well as reproductive and lactation systems in domestic animals in an integrated and comprehensive manner using physiological concepts and principles to support diagnosis in the field of veterinary medicine.

Content	<p>This course is given to students that have obtained basic knowledge of biology, physics, chemistry and physiology I. This course combines the functions of each cell and organ in a unified functional system that is carried out in a coordinated and integrative manner. The systems discussed are the cardiovascular system, respiratory system, digestive system, metabolism, growth and thermoregulation, kidney and osmoregulation as well as reproduction and lactation. More in depth learning of physiological processes is carried out through practicum. Each topic will also include a discussion of deviations in physiologic function that will result in the occurrence of a disease or disorder. At the end of the lecture, students are expected to be able to integrate all the topics obtained and implement the understanding as basis for veterinary science knowledge.</p>
Examination forms	<p>Midterm Exam : 15% Final Exam and practicum exam : 25% Problem-Based Learning Papers and Presentations : 50% Quiz : 2.5% Task : 7.5%</p>
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam, Practicum Exam, Problem-Based Learning Papers, Problem-Based Learning Presentations, Individual Assignments, and Quizzes Psychomotor: Practicums (laboratory sessions) Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
Reading list	<ol style="list-style-type: none"> 1. Cunningham, J. G. 2013. Textbook of Veterinary Physiology 5th Ed. WB. Saunders Company. 2. Sherwood L. 2007. Fisiologi Manusia Dari Sel ke Sistem. Ed 6. EGC, Jakarta. 3. Silverthorn DU. 2013. Human Physiology An Integrated Approach 6th ed. Pearson, Benjamin Cummings. San Francisco. 4. Reece. W.O (editors). 2015. Dukes' Physiology of Domestic Animals. 13th Ed. John Wiley & Sons, Inc. 5. Widmaier EP, Raff H, Strang KT. 2008. Vander's Human Physiology : The Mechanism of Body Function. 11thed. McGraw-Hill Publishing Company, New York.

30. AFF 1212 Veterinary Histology I 2(1-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	3 rd (odd) Semester
Person responsible for the module	Dr. Drh. Sri Rahmatul Laila, S.KH
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 73.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 1 hours x 14 weeks = 14 hours/semester Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 6,5 hours/semester
Credit points	Theory : 1 SCH x 1.5 ECTS = 1.5 ECTS Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS Total Credits: 5.25 ECTH
Required and recommended prerequisites for joining the module	Requires prerequisite course in General Biology.
Module objectives/intended learning outcomes	<ol style="list-style-type: none"> 1. Student can explain the concept of histology and be able to explain and compare structure and functions of cells and basic tissues histologically. This includes epithelial tissues, connective tissues, muscles, and nerves 2. Students can use a microscope properly and correctly 3. Students can explain the general technique of making histological preparations and interpret a histological picture of tissue. 4. Students can identify and compare the structure of cells and basic tissues of the animal body histologically. 5. Students can make ground bone preparations.

Content	This course explains the basics of histology and the approximation methods used in histology to study the structure and components of basic tissues in animals as the basis of knowledge in studying organs and organ systems, as well as other veterinary science fields such as diagnostics, internal medicine, immunology and veterinary pathology.
Examination forms	Midterm Exam : 30% Final Exam : 30%: Problem-Based Learning Papers and Presentations : 25% Quiz : 5% Practicum Report : 10%
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam , Problem-Based Learning Papers, Problem-Based Learning Presentations, Individual Assignments, and Quizzes</p> <p>Psychomotor: Practicums (laboratory sessions)</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
Reading list	<ol style="list-style-type: none"> 1. Bacha WJ, Bacha LM. 1990. Color Atlas of Veterinary Histology. 2nd. Lippincott Williams & Wilkins. A Wolters Company. Tokyo. 2. Bergman RA, Afif AK, Heidger PM. 1996. Histology. WB Saunders Company. New York. 3. Bloom W, Fawcett DW. 1969. A Textbook of Histology. WB Saunders Company. New York. 4. Dellman HD. 1992. Textbook of Veterinary Histology. Lea and Febiger. Philadelphia. 5. Dellman HD, Carithers JR. 1996. Cytology and Microscopic Anatomy. Williams and Wilkins. Baltimore. 6. Habel RE, Biberstein EL. 1957. Fundamentals of The Histology of Domestic Animals. George Banta Company, Inc. 7. Ross MH, Romrell LJ, Kaye GI. 1995. Histology, A Text and Atlas. 3rd ed. Williams and Wilkins. Baltimor. 8. Telford IR, Bridgman CF. 1995. Introduction to Functional Histology. 2nd ed. Harper Collins College Publishers. New York.

31. AFF 1215 Veterinary Histology II 2(1-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	4 th (even) Semester
Person responsible for the module	Prof. Drh. Tutik Wresdiyati, PhD, PAVet
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 73.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 1 hours x 14 weeks = 14 hours/semester Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 6,5 hours/semester
Credit points	Theory : 1 SCH x 1.5 ECTS = 1.5 ECTS Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS Total Credits: 5.25 ECTH
Required and recommended prerequisites for joining the module	Requires prerequisite course in Veterinary Histology I.
Module objectives/intended learning outcomes	After this course, student can explain and compare the histological structure and function of the organ systems which includes the circulation system, lymphatic and immune system, respiratory system, digestive system, urination system, male and female reproductive system, endocrine system, as well as the integument, eyes and ears.
Content	This course explains the basic understanding of organology and histology of organs that make up systems in the body such as blood circulation system, lymphatic and immune system, respiratory system, digestive system, urinary system, reproductive system, endocrine system, as well as the integumentary system, eyes and ears.

Examination forms	Midterm Exam (Theory and Practicum) : 25% Final Exam (Theory and Practicum) : 25% Problem-Based Learning Papers and Presentations : 50%
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam, Problem-Based Learning Papers, Problem-Based Learning Presentations, Individual Assignments, and Quizzes</p> <p>Psychomotor: Practicums (laboratory sessions)</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
Reading list	<ol style="list-style-type: none"> 1. Bacha WJ, Bacha LM. 1990. Color Atlas of Veterinary Histology. 2nd. Lippincott Williams & Wilkins. A Wolters Company. Tokyo. 2. Bergman RA, Afif AK, Heidger PM. 1996. Histology. WB Saunders Company. New York. 3. Bloom W, Fawcett DW. 1969. A Textbook of Histology. WB Saunders Company. New York. 4. Dellman HD. 1992. Textbook of Veterinary Histology. Lea and Febiger. Philadelphia. 5. Dellman HD, Carithers JR. 1996. Cytology and Microscopic Anatomy. Williams and Wilkins. Baltimore. 6. Habel RE, Biberstein EL. 1957. Fundamentals of The Histology of Domestic Animals. George Banta Company, Inc. 7. Ross MH, Romrell LJ, Kaye GI. 1995. Histology, A Text and Atlas. 3rd ed. Williams and Wilkins. Baltimor. 8. Telford IR, Bridgman CF. 1995. Introduction to Functional Histology. 2nd ed. Harper Collins College Publishers. New York.

32. AFF 1213 Embryology and Developmental Genetics 3 (2-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	3 rd and 4 th (odd and even) Semester
Person responsible for the module	Drh. Mokhamad Fahrudin, PhD
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 94.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hours x 14 weeks = 28 hours/semester Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Practicum Exams: 2 hours x 2 sessions = 4 hours total sessions Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 9.5 hours/semester
Credit points	Theory : 2 SCH x 1.5 ECTS = 3 ECTS Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 Total Credits: 6.75
Required and recommended prerequisites for joining the module	Requires prerequisite course in General Biology.
Module objectives/intended learning outcomes	After taking this course, students can explain communicatively and interpretatively about the development of organ systems, congenital malformations, genetic factors that influence development, and related biotechnological applications.
Content	This course explains the process of growth and development of animals, starting from the origin and formation of gametes (gametogenesis), fertilization (fertilization), embryonic development (embryogenesis) and organ development (organogenesis) originating from the embryonic germ layer. In addition, genetic and environmental factors on growth and development are also discussed. Macroscopic and microscopic practicums are provided to support the understanding of each subject.

Examination forms	<p>Midterm Exam (Theory and Practicum) : 25%</p> <p>Final Exam (Theory and Practicum) : 25%</p> <p>Problem-Based Learning Papers and Presentations : 50%</p>
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam, Midterm Practicum Exam, Final Practicum Exam, Problem-Based Learning Papers, and Problem-Based Learning Presentations</p> <p>Psychomotor: Practicums (laboratory sessions)</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
Reading list	<ol style="list-style-type: none"> 1. Bellairs R, Osmond M. 2005. Atlas of Chick Development. Academic Press. 2. Gilbert SF. 2003. Developmental Biology. 7nd Ed. Sinaeur Associates Inc. Publisher. Massachusetts. 3. Hafez ESE. 2000. Reproduction in Farm Animal. 7th Ed. Lea & Febiger. Philadelphia. 4. Klug WS, Cummings MR, Spencer CA, Palladino MA. 2011. Concepts of Genetics. Pearson. 10th ed. Boston. USA 5. MacGeady TA, Quinn PJ, FitzPatrick, Ryan MT. 2004. Veterinary Embryology. Blackwell Publishing. 6. Noden DM, de Lahunta A. 1985. The Embriology of Domestic Animal, Developmental Mechanisms and Malformation. Williams & Wilkins. London. 7. Pritchard DJ. 1986. Foundation of Developmental Genetics. Taylor and Francis Ltd. London UK. 8. Sadler TW. 1991. Langman Embriologi Kedokteran. Ed. 5. EGC Penerbit Buku Kedokteran. Jakarta. 9. Schoenwolf GC. 1995. Laboratory Studies of Vertebrate and Invertebrate Embryos. 7th Ed. Prentice Hall, Englewood Cliffs. New Jersey. 10. Senger PL. 2003. Pathways to pregnancy and parturition. 2nd ed. Current Conceptions, Inc. Washington. USA. 11. Snustad DP, Simmons MJ. 2012. Principles of Genetics. 6th ed. John Willey & Sons, Inc. USA 12. Wolpert L, Beddington R, Jessel T, Lawrence P, Meyerowitz E, Smith J. 2002. Principles of Development. Oxford University Press. New York. USA.

33. AFF 1331 Pharmacology I 2(2-0)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	5 th (odd) Semester
Person responsible for the module	Dr. Drh. Aulia Andi Mustika, M.Si
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 42 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hours x 14 weeks = 28 hours/semester Midterm and Final Exam: 1.5 hours x 2 sessions = 3 hours total sessions Private study including examination preparation, specified in hours Assignment: 0.5 hour x 14 weeks = 7 hours/semester Examination preparation 4 hours/semester
Credit points	2 SCH x 1.5 = 3 ECTS
Required and recommended prerequisites for joining the module	Requires prerequisite course in Veterinary Physiology II.
Module objectives/intended learning outcomes	Students are able to apply the basic principles of pharmacology to select and make the right combination of drugs based on their target organ, class, mechanism of action, pharmacokinetics, indications, contraindications, administration, side effects, and toxicity.
Content	This course provides basic knowledge about drugs (pharmacology) which consists of the scope of pharmacology, general principles of drug action, how drugs work on systems and organs (pharmacodynamics), fate of drugs in the body (pharmacokinetics), and drug interactions as a basis for selecting, as well as making drug combinations that will be used clinically.
Examination forms	Midterm Exam : 20% Final Exam : paper or online based test : 20% Problem-Based Learning Papers and Presentations : 60%

<p>Study and examination requirements</p>	<p>Cognitive: Midterm Exams, Final Exam, Problem-Based Learning Papers, and Problem-Based Learning Presentations</p> <p>Psychomotor: -</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
<p>Reading list</p>	<ol style="list-style-type: none"> 1. Adams, R. H. 1995. Veterinary Pharmacology and Therapeutics. 7th Ed. Iowa State University Press/Ames, Iowa. 2. Brander, G. C. Pugh, D. M. Bywater, R. J. and Jenkins, W. L. 1977. 5th Ed. Bailliere Tindal, London. 3. Katzung, B. G. 1992. Basic and Clinical Pharmacology. 5th Ed. Appleton & Lange Norwalk, Connecticut. 4. Ganiswarna, S. G. Setyabudi, R. Suyatna, F. D. Purwatyastuti. dan Nafrialdi. 1995. Farmakologi dan Terapi. Ed. 4. Bagian Farmakologi Fakultas Kedokteran Universitas Indonesia, Jakarta. 5. Stockley, Ivan H. 1981. Drug interaction. Blackwell Scientific Publication

34. AFF 1332 Pharmacology II 3(2-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	6 th (even) Semester
Person responsible for the module	Drh. Min Rahminiwati, MS, PhD
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 94.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hours x 14 weeks = 28 hours/semester Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Practicum Exams: 2 hours x 2 sessions = 4 hours total sessions Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 9.5 hours/semester
Credit points	Theory : 2 SCH x 1.5 ECTS = 3 ECTS Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 Total Credits: 6.75
Required and recommended prerequisites for joining the module	Requires prerequisite course in Pharmacology I.
Module objectives/intended learning outcomes	After completing this course, students can explain the basics of chemotherapy as the basis for clinical use of drugs, drug classes and their applications, and through practical activities, students can administer drugs to experimental animals, identify drug action and explain their pharmacokinetics and pharmacodynamics.

Content	This course explains the dynamics and kinetics as well as the application of pharmacological chemotherapeutic drugs in the veterinary field, such as antimicrobial, antiparasitic, antineoplastic, immunopharmacology, growth-promoting vitamins and minerals. In addition, this lecture also discusses drug interactions that can affect the achievement of drug use, and the importance of using chemotherapeutic drugs wisely and responsibly to prevent the occurrence of resistance.
Examination forms	Midterm Exam : 20% Final Exam : paper or online based test : 20% Problem-Based Learning Papers and Presentations : 60%
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam, Practicum Exam, Problem-Based Learning Papers, Problem-Based Learning Presentations, Individual Assignments, and Quizzes</p> <p>Psychomotor: Practicums (laboratory sessions)</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
Reading list	<ol style="list-style-type: none"> 1. Adams, R. H. 1995. Veterinary Pharmacology and Therapeutics. 7th Ed. Iowa State University Press/Ames, Iowa. 2. Brander, G. C. Pugh, D. M. Bywater, R. J. and Jenkins, W. L. 1977. 5th Ed. Bailliere Tindal, London. 3. Katzung, B. G. 1992. Basic and Clinical Pharmacology. 5th Ed. Appleton & Lange Norwalk, Connecticut. 4. Ganiswarna, S. G. Setyabudi, R. Suyatna, F. D. Purwatyastuti. dan Nafrialdi. 1995. Farmakologi dan Terapi. Ed. 4. Bagian Farmakologi Fakultas Kedokteran Universitas Indonesia, Jakarta. 5. Stockley, Ivan H. 1981. Drug interaction. Blackwell Scientific Publication.

35. AFF 1433 Veterinary Toxicology 2(1-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	7 th (odd) Semester
Person responsible for the module	Dr. Drh. Andriyanto, M.Si
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Classical lecture using power point and module. Independent learning using class.ipb.ac.id.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 73.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 1 hours x 14 weeks = 14 hours/semester Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 6,5 hours/semester
Credit points	Theory : 1 SCH x 1.5 ECTS = 1.5 ECTS Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS Total Credits: 5.25 ECTH
Required and recommended prerequisites for joining the module	Requires prerequisite course in Pharmacology II.

<p>Module objectives/intended learning outcomes</p>	<ol style="list-style-type: none"> 1. Students can explain the basics of veterinary toxicology 2. Students can explain the characteristic, clinical symptoms, diagnosis and control of poisoning by organic compounds in animals and poisoning by minerals and inorganic substances (acids, bases, ammonium compounds, and urea). 3. Students can explain chemicals that can cause carcinogenesis, teratogenesis, and infertility. 4. Students can explain the important toxins present in plants and the mechanisms and causes of photosensitization and cyanogenic plants. 5. Students can explain chemicals added to food along with their diagnosis and treatment. 6. Students can explain heavy metals and radioactive materials that have the potential to cause poisoning, their clinical symptoms, mechanisms of toxicity, diagnoses and treatment options. 7. Students can explain the characteristic, clinical symptoms, diagnosis and management of pesticide poisoning. 8. Students can explain the characteristic, clinical symptoms, diagnosis and management of poisoning due to the application of drugs that have certain specificity towards certain species. 9. Students can explain matters relating to environmental toxicology, the mechanism of poisons, the effects of toxins on environmental health and their prevention. 10. Students can understand general rules regarding practicum, rules and know the veterinary and written practicum exams, as well as assignments (reports). 11. Students can understand the activity of local protective and irritant compounds, testing techniques and toxic effects on the mucosa and skin of experimental animals. 12. Students can understand the application technique of pharmacological compound absorption testing. 13. Students can understand the detoxification function test done in experimental animals through the application of organic compounds toxicants and their measurement techniques through the onset and duration of anaesthetic substances. 14. Students can understand hematotoxic poisoning testing, including the identification of symptoms, treatment and introduction of poisons in treating pesticide poisoning and diagnostic techniques, as well as identification of organic phosphate compounds in vitro. 15. Students can understand the cyanide poisoning test and the administration of antidotes, as well as the examination of its contents in plant samples and animal organs of
---	--

	<p>animals suspected of having cyanide poisoning.</p> <p>16. Students can understand experiments for testing toxic substances that alter red blood cell surface through the mechanism of concentration differences and surface tension.</p> <p>17. Students can understand drug poisoning testing (strychnin) by looking at clinical symptoms and antidotes.</p> <p>18. Students can understand Thomson and Weil's LD50 test method on frogs and/or mice.</p> <p>19. Students can understand the toxicant LC50 test method.</p> <p>20. Students can understand the application of the Reinch test for the identification of heavy metals through the specific chelating colors formed between heavy metal salts and copper plates.</p> <p>21. Students can understand the application of in vitro tests for chemical and physical antidotes of heavy metals and through these reactions, practicum participants can assess the effectiveness of the antidotes.</p> <p>22. Students can present the results of the practicum that has been carried out.</p>
Content	<p>This course discusses the basics of toxicology, chemical poisoning, plant poisoning, pesticide poisoning, food poisoning, metalloid poisons and radioactive materials, carcinogenic and teratogenic materials, environmental toxicology, and legislation on toxic substances.</p>
Examination forms	<p>Midterm Exam : paper or online based test : 20%</p> <p>Final Exam : paper or online based test : 20%</p> <p>Problem-Based Learning Papers and Presentations : 60%</p>
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam, Practicum Exam, Problem-Based Learning Papers, Problem-Based Learning Presentations, Individual Assignments, and Quizzes</p> <p>Psychomotor: Practicums (laboratory sessions)</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>

<p>Reading list</p>	<ol style="list-style-type: none"> 1. Clarke, M. L. Harvey, D.G. and Humphrys, D. J. 1981. Veterinary Toxicology. 2th Ed. English Language Book Society and Bailliere Tindal. London (4-13) 2. B. Lu, F. C. Toksikologi Dasar. Asas, organ sasaran dan penilaian resiko. UI Press, Jakarta 1995 (1-81) 3. C. Klaassen, C. D. Amdur, M. O. and Doull, J. 1986. Cassarett and Doull's Toxicology. The Basic Science of Poisons. 3th Ed. Macmillan Publising Company. New York. (3,64) 4. D. Brander, Bywater, P. Jenkins. 1991. Veterinary Applied Pharmacology and Therapeutics. 3th Ed. 5. Hodgson, E. 2000. Textbook of modern Toxicology. 2th Ed. International Mc Graw Hill Book Co. Singapore. (1-95; 295-305) 6. Hyde, W. Kiesey, P. Ross, F. Stahr, H. M. 1977. Analitical Toxicology Methods Manual. Iowa State University Press. Iowa. (4-13)
---------------------	---

36. AFF 224 Medical Biochemistry: 2(2:0)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	3 rd (odd) Semester
Person responsible for the module	Dr. Drh. Ronald Tarigan, M.Si
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, problem-based learning group paper and presentation assignments, as well as independent learning through individual assignments from the provided handout, PowerPoint, other references that are relevant and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 42 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hour x 14 weeks = 28 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Private study including examination preparation, specified in hours: Assignment: 0,5 hour x 14 weeks = 7 hours/semester Examination preparation = 4 hours/semester
Credit points	2 SCH x 1.5 = 3 ECTS
Required and recommended prerequisites for joining the module	Requires prerequisite course in General Biochemistry.
Module objectives/intended learning outcomes	After completing this course, students can understand and explain the biochemical processes of life that occur in the animal body related to animal health and disease processes.
Content	This course presents the basics of biochemistry, enzymology, endocrinology, carbohydrate, fat and protein metabolism, metabolism integration, body tissue formation, free radicals and antioxidants, as well as drug metabolism and detoxification. Each topic will also include a discussion on the deviation of the body's biochemical status which will result in the occurrence of a disease or disorder. At the end of the course, students can integrate all the topics obtained and can form the basis for veterinary science.

Examination forms	<p>Midterm Exam : paper or online based test : 25%</p> <p>Final Exam : paper or online based test : 25%</p> <p>Problem-Based Learning Papers and Presentations : 50%</p>
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam, Problem-Based Learning Papers, Problem-Based Learning Presentations, and Individual Assignments.</p> <p>Psychomotor: -</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
Reading list	<ol style="list-style-type: none"> 1. Engelking LR. 2015. Textbook of Veterinary Physiological Chemistry 3rd Edition, Academic Press 2. Kenoko et al. Clinical Biochemistry of Domestic Animals 6th Edition, Academic Press

37. IPH 1221 Veterinary Bacteriology and Mycology: 3(2-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	3 rd and 4 th (odd and even) Semester
Person responsible for the module	Drh. Titiek Sunartatie, MS
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, practicum classes, presentation, and independent learning through problem-based learning group assignments, individual assignments, and quizzes. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	<p>(Estimated) Total workload: 94,5 hours/semester</p> <p>Contact hours (please specify whether lecture, exercise, laboratory session, etc.):</p> <p>Lecture Class: 2 hours x 14 weeks = 28 hours/semester</p> <p>Practicum Class (laboratory sessions): 2.5 hours x 14 weeks = 35 hours/semester</p> <p>Midterm and Final Exam: 2 hours x 2 sessions = 4 hours total sessions</p> <p>Midterm and Final Practicum Exam: 2 hours x 2 sessions = 4 hours total sessions</p> <p>Private study including examination preparation, specified in hours:</p> <p>Assignment: 1 hour x 14 weeks = 14 hours/semester</p> <p>Examination preparation = 9,5 hours/semester</p>
Credit points	<p>Theory : 2 SCH x 1.5 ECTS = 3.0 ECTS</p> <p>Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS</p> <p>Total Credits: 6.75 ECTH</p>
Required and recommended prerequisites for joining the module	Requires prerequisite course in General Biology and General Biochemistry.

<p>Module objectives/intended learning outcomes</p>	<ol style="list-style-type: none"> 1. Students can explain about the life of bacteria and fungi and their role as agents of infectious diseases 2. Students can explain mechanism of action of antibacterial and antifungal ingredients as well as the basic principles of laboratory diagnosis of diseases caused by bacterial and fungal infections 3. Students can explain basic microbiology techniques for laboratory diagnosis of diseases caused by bacterial and fungal infections
<p>Content</p>	<p>This course provides an understanding of the basics on the life of bacteria and fungi as well as their role as agents of infectious diseases. The content in this course includes the history, characteristics, classification, growth and reproduction, metabolism, genetics, virulence factors of bacteria and fungi; mechanism of action of antibacterial and antifungal ingredients; and the basic principles of laboratory diagnostics. Practicum is provided in the laboratory to learn basic microbiological techniques which include microscopy, staining, media preparation, sterilization, culture techniques and basic techniques for identifying bacteria and fungi.</p>
<p>Examination forms</p>	<p>Midterm Exam : paper or online based test : 15% Final Exam : paper or online based test : 15% Midterm Practicum Exam : paper or online based test : 7.5% Final Practicum Exam : paper or online based test : 7.5% Problem-Based Learning Papers and Presentations : 50% Quiz : 5%</p>
<p>Study and examination requirements</p>	<p>Cognitive: Midterm Exam, Final Exam, Midterm Practicum Exam, Final Practicum Exam, Problem-Based Learning Papers, Problem-Based Learning Presentations, Individual Assignment, and Quizzes. Psychomotor: Practicums (laboratory sessions) Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>

<p>Reading list</p>	<ol style="list-style-type: none"> 1. Carter GR, JR Cole. 1990. Diagnostic Procedures in Veterinary Bacteriology and Mycology. Academic Press, Inc. Sandiego, CA. 2. Carter GR, MM Chengapa and AW Roberts. 1995. Essentials of Veterinary Microbiology. Williams & Wilkins, Baltimore, PA. 3. Kwon-Chung KJ, JE Bennet. 1992. Medical Mycology. Lea & Febiger, Philadelphia. 4. Salyer AA, DD Whitt. 1994. Bacterial Pathogenesis, A Molecular Approach, ASM Press, Washington, DC. 5. Tortora GJ, BR Funke. 1998. Microbiology an Introduction. Benjamin Cummings Publishing Company, Inc. Menlo Park, CA. 6. Quinn PJ, ME Carter, WJ Donnely and FC Leonard. 2001. Veterinary Microbiology and Microbial Diseases. Oxford, UK. 7. Cappucino JG, N Sherman. 1987. Microbiology, a Laboratory Mannual. The Benjamin/Cummings Publishing Company, Inc, Menlo Park, CA 8. Lay BW. 1994. Analisis Mikroba di Laboratorium. Rajawali Press, Jakarta 9. Carter GR, JR Cole. 1990. Diagnostic Procedures in Veterinary Bacteriology and Mycology. Academic Press, Inc. San Diego, CA 10. Al-Doory Y. 1980. Laboratory Medical Mycology. Lea and Febiger, Philadelphia.
---------------------	---

38. IPH 1222 Veterinary Virology: 2(1:1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	3 rd and 4 th (odd and even) Semester
Person responsible for the module	Dr. drh. Sri Murtini, M.Si
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, practicum classes, presentation, and independent learning through problem-based learning group assignments. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	<p>(Estimated) Total workload: 73.5 hours/semester</p> <p>Contact hours (please specify whether lecture, exercise, laboratory session, etc.):</p> <p>Lecture Class: 1 hours x 14 weeks = 14 hours/semester</p> <p>Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester</p> <p>Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions</p> <p>Private study including examination preparation, specified in hours:</p> <p>Assignment: 1 hour x 14 weeks = 14 hours/semester</p> <p>Examination preparation: 6,5 hours/semester</p>
Credit points	<p>Theory : 1 SCH x 1.5 ECTS = 1.5 ECTS</p> <p>Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS</p> <p>Total Credits: 5.25 ECTH</p>
Required and recommended prerequisites for joining the module	Requires prerequisite course in General Biology and General Biochemistry.
Module objectives/intended learning outcomes	Students can explain general knowledge about viruses and their role as agents of infectious diseases and the factors that influence the onset of disease, mechanism of action of antiviral agent, as well as the principles of laboratory diagnosis due to viral infection.

Content	<p>This course provides basic knowledge about viruses in their physical, chemical and biological characteristics, their mechanism of reproduction (virus propagation) and their role as the cause of animal diseases and their role in life in general. The course is enriched with laboratory practicums that study virus isolation and identification techniques including culturing techniques and serological identification.</p>
Examination forms	<p>Midterm Exam : paper or online based test : 12.5% Final Exam : paper or online based test : 12.5% Midterm Practicum Exam : 12.5% Final Practicum Exam : : 12.5% Problem-Based Learning Papers and Presentations : 50%</p>
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam, Midterm Practicum Exam, Final Practicum Exam, Problem-Based Learning Papers and Presentations, and Quizzes. Psychomotor: Practicums (laboratory sessions) Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
Reading list	<p>Murphy FA, Gibbs, EPJ, Horzinek MC, Studdert MJ. 1999. Veterinary Virology. 3rd edition. San Diego (US): Academic Press.</p>

39. IPH 1231 Veterinary Parasitology: Ectoparasite: 2(1-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	3 rd and 4 th (odd and even) Semester
Person responsible for the module	Prof. Dr. Drh. Upik Kesumawati Hadi, MS
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, practicum classes, presentation, and independent learning through group assignments and discussions outside of class. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 73.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 1 hours x 14 weeks = 14 hours/semester Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 6,5 hours/semester
Credit points	Theory : 1 SCH x 1.5 ECTS = 1.5 ECTS Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS Total Credits: 5.25 ECTH
Required and recommended prerequisites for joining the module	Requires prerequisite course in General Biology, Veterinary Anatomy I.
Module objectives/intended learning outcomes	Students can explain the concepts of parasites and parasitism, the factors that influence them and identify various types of ectoparasites that are important for animal/community health, ranging from classification, morphology, habitat and life cycle, important behaviors, as well as the philosophy and ways of controlling them.

Content	This course discusses the concepts of parasites and parasitism, the factors that influence them, and various types of ectoparasites that are important for animal/community health, ranging from classification, morphology, habitat and life cycle, the behavior of importance, as well as philosophy and ways of controlling them. Collection, processing, and identification techniques are also discussed at the end of the lecture.
Examination forms	Midterm Exam : 25% Final Exam : 25% Problem-Based Learning Papers and Presentations : 50%
Study and examination requirements	Cognitive: Midterm Exams, Final Exam, Practicum Exams, Group Problem-Based Learning Papers and Presentations Psychomotor: Practicums (laboratory sessions) Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course
Reading list	<ol style="list-style-type: none"> 1. Hadi, U.K & S. Soviana. 2017. EKTOPARASIT: Pengenalan, Identifikasi dan Pengendalian. IPB Press. Bogor 2. Hadi, U.K., S. Soviana, D.J. Gunandini & Supriyono. 2013. ATLAS VETERINER. IPB Press. Bogor 3. Hadi, U.K., D.J. Gunandini, S. Soviana, & S.H. Sigit. 2017. Panduan Identifikasi Ektoparasit: Bidang Medis dan Veteriner. Edisi 2. IPB Press. Bogor 4. Harwood, R.F. & M.T. James. 1979. Entomology in Human & Animal Health. 7th. Ed. Mc.Millan Publ. Co. 5. Sigit, S.H, Hadi U.K. 2006. Hama Permukiman Indonesia. Pengenalan, Biologi dan Pengendalian. Unit Kajian Pengendalian Hama Permukiman. Fakultas Kedokteran Hewan IPB. Bogor 6. Soulsby, E.J.L. 1989. Helminths, Arthropods, and Protozoa of Domesticated Animals. Bailliere Tindall. London

40. IPH 1331 Veterinary Parasitology: Endoparasite:3(2-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	5 th and 6 th (odd and even) Semesters
Person responsible for the module	Dr. drh. Elok Budi Retnani, MS
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, practicum classes, presentation, and independent learning through individual and group assignments. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	<p>(Estimated) Total workload: 94,5 hours/semester</p> <p>Contact hours (please specify whether lecture, exercise, laboratory session, etc.):</p> <p>Lecture Class: 2 hours x 14 weeks = 28 hours/semester</p> <p>Practicum Class (laboratory sessions): 2.5 hours x 14 weeks = 35 hours/semester</p> <p>Midterm and Final Exam: 2 hours x 2 sessions = 4 hours total sessions</p> <p>Midterm and Final Practicum Exam: 2 hours x 2 sessions = 4 hours total sessions</p> <p>Private study including examination preparation, specified in hours:</p> <p>Assignment: 1 hour x 14 weeks = 14 hours/semester</p> <p>Examination preparation = 9,5 hours/semester</p>
Credit points	<p>Theory : 2 SCH x 1.5 ECTS = 3.0 ECTS</p> <p>Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS</p> <p>Total Credits: 6.75 ECTH</p>
Required and recommended prerequisites for joining the module	Requires prerequisite course in General Pathology or taken during the same semester together.

<p>Module objectives/intended learning outcomes</p>	<p>to explain taxonomy, morphology, life cycle, pathogenesis, and diagnosis of diseases caused by Protozoa Phylum: Sarcodina.</p> <p>to explain taxonomy, morphology, life cycle, pathogenesis, and diagnosis of diseases caused by Protozoa Ciliata and Flagellate.</p> <p>to explain taxonomy, morphology, life cycle, pathogenesis, and diagnosis of diseases caused by Apicomplexan parasites.</p> <p>to learn independently, think critically, creatively, communicatively, argumentatively and collaborate to explain and understand the life cycle, pathogenesis, and diagnosis of important protozoal/zoonotic diseases in hosts 1: domestic animals, wild animals, aquatic animals (SGD/Case Study/PBL)</p>
<p>Content</p>	<p>This course covers the basic concepts of parasites and parasitism, taxonomy, morphology, and biology, as well as diseases caused by protozoa and helminth infections in domestic, wildlife, and aquatic animals that are economically and/or publicly relevant. The pathogenesis, clinical signs, distribution, and control of the disease are all discussed. The purpose of the practicum is to help students comprehend the identification, confirmation, and control of endoparasites</p>
<p>Examination forms</p>	<p>Midterm Exam : paper or online based test :25%</p> <p>Final Exam : paper or online based test : 25%</p> <p>Midterm and Final Practicum Exams : 20%</p> <p>Problem-Based Learning Papers and Assignments : 30%</p>
<p>Study and examination requirements</p>	<p>Cognitive: Midterm Exams, Final Exam, Practicum Exams, Group Problem-Based Learning Paper and Presentations</p> <p>Psychomotor: Practicums (laboratory sessions)</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>

<p>Reading list</p>	<ol style="list-style-type: none"> 1. Kusumamihardja, S. 1992. Parasit dan Parasitosis pada Hewan Ternak dan Hewan Piaraan di Indonesia. PAU Bioteknologi IPB. Bogor. 2. Soulsby, E.J.L. 1986. Helminths, Arthropods and Protozoa of Domesticated Animals. Bailliere Tindall. London. 3. Nobel ER, Nobel GA, Schad GA, MacInnes AJ. 1989. Parasitology. The biology of animal parasites. Lea & Febiger Philadelphia London. 4. Bowman DD, Lynn RC, Eberhard ML, Alcaraz A. 2003. Georgis' Parasitology for Veterinarians. (Eds 8th). Elsevier (USA). 5. Levine, N.D. 1985. Protozoologi Veteriner. Gadjah Mada University Press. 6. Ashadi, G. Dan Partosoedjono. 1992. Penuntun Laboratorium Parasitologi I, PAU-IPB. 7. Adam, K.M.G.J. Paul and V.Zaman. 1971 Medical and Veterinary, Protozoology, Edinburg
---------------------	--

41. IPH 1323 Medical Immunology: 2(2-0)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	5 th and 4 th (odd and even) Semester
Person responsible for the module	Dr. Drh. Ni Luh Putu Ika Mayasari
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion session, and independent learning through quizzes. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 42 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hour x 14 weeks = 28 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Private study including examination preparation, specified in hours: Assignment: 0,5 hour x 14 weeks = 7 hours/semester Examination preparation = 4 hours/semester
Credit points	2 SCH x 1.5 = 3 ECTS
Required and recommended prerequisites for joining the module	Requires prerequisite course in Veterinary Bacteriology and Mycology and Veterinary Virology or taken together with this course during the same semester.
Module objectives/intended learning outcomes	<ol style="list-style-type: none"> 1. Students can explain the immune system/defense mechanism and its disorders 2. Students can explain about biological materials such as vaccines and sera 3. Students can read and explain the results of serological tests
Content	This course covers general knowledge of immune reactions to foreign bodies (microorganisms and non-microorganisms), infection mechanisms, antigen-antibody reactions, hypersensitivity reactions, immune system disorders, serological tests, and vaccine manufacture and use of vaccines.

Examination forms	<p>Midterm Exam : paper or online based test : 20%</p> <p>Final Exam : paper or online based test : 20%</p> <p>Quiz : 10%</p> <p>Problem-Based Learning Papers and Assignments : 50%</p>
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam, and Quizzes.</p> <p>Psychomotor: -</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
Reading list	<ol style="list-style-type: none"> 1. Tizard, IR. 2013. Veterinary Immunology. 9th Edition. Elsevier Saunders 2. DeFranco AL, Locksley RM, Robertson M. 2007. Immunity: The Immune Response in Infectious and Inflammatory Disease. New Science Press Ltd

42. IPH 1311 Veterinary Public Health Science: 1(1-0)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	5 th (odd) Semester
Person responsible for the module	Dr. Drh. Hadri Latif, MSi
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, and independent learning through group assignments. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 21 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 1 hours x 14 weeks = 14 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Examination preparation = 3 hours/semester
Credit points	1 SCH x 1.5 = 1.5 ECTS
Required and recommended prerequisites for joining the module	Requires prerequisite course in Bacteriology and Mycology, Virology
Module objectives/intended learning outcomes	<ol style="list-style-type: none"> 1. Students can explain the general concept of public health and its relationship with veterinary medicine 2. Students can identify health problems, pollution, biosecurity that related to public health 3. Students can describe the incidence of antimicrobial resistance, the role of the guarantee system food safety in the supply and trade of food of animal origin, and approaches one health/eco health in public health 4. Students can compare various study methods used in public health 5. Students have an honest, cooperative, and communicative attitude.

Content	This course discusses the meaning of health and public health, the role of veterinary medicine in public health, the factors and causes of disease that affect public health, as well as efforts to improve health. This course also covers pollution of livestock waste and animal product business units, biosecurity, antimicrobial resistance, food safety assurance system of animal origin as well as introducing the concept of One Health and ecohealth for public health. In addition, the study methodology and biostatistics on public health are also discussed.
Examination forms	Midterm Exam : paper or online based test :40% Final Exam : paper or online based test : 40% Group asignment: 20%
Study and examination requirements	Cognitive: Midterm Exams, Final Exam, and Group Assignments Psychomotor: - Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course
Reading list	<ol style="list-style-type: none"> 1. Dainur. 1992. Materi-materi Pokok Ilmu Kesehatan Masyarakat. Penerbit Widya Medika. Jakarta 2. IS Arvnitoyannis. 2009. HACCP and ISO 22000 Application to Food of Animal Origin. Ames, Iowa (US): Wiley-Blackwell 3. J Zinsstag, E Schelling, D Waltner-Toews, M Whittaker, M Tanner (Editors). 2015. One Health: The Theory and Practice of Inegrated Health Approach. Wallingford, Oxfordshire (UK): CABI 4. Notoadmojo S. 1997. Ilmu Kesehatan Masyarakat. Penerbit Rineka Cipta. Jakarta 5. Smillie WG. 1995. Public Helth its Promise for The Future. The Macmillan Company. New York. USA 6. The Macmillan Company. 1960. An Introduction to Public Health 3rd ed. Publisher Brett-Macmillan. USA 7. Waltner-Toews D. 2011. EcoHealth: A Primer. Veterinarians without Borders. Kanada 8. Humaida R. 2014. Strategy to handle resistance of antibiotics. J Major

43. IPH 1312 Hygiene of Food of Animal Origin: 3(2-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	6 th (even) Semester
Person responsible for the module	Dr.med.vet. Drh. Denny Widaya Lukman, MSi
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, practicum classes, and independent learning through individual assignments. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	<p>(Estimated) Total workload: 94,5 hours/semester</p> <p>Contact hours (please specify whether lecture, exercise, laboratory session, etc.):</p> <p>Lecture Class: 2 hours x 14 weeks = 28 hours/semester</p> <p>Practicum Class (laboratory sessions): 2.5 hours x 14 weeks = 35 hours/semester</p> <p>Midterm and Final Exam: 2 hours x 2 sessions = 4 hours total sessions</p> <p>Midterm and Final Practicum Exam: 2 hours x 2 sessions = 4 hours total sessions</p> <p>Private study including examination preparation, specified in hours:</p> <p>Assignment: 1 hour x 14 weeks = 14 hours/semester</p> <p>Examination preparation = 9,5 hours/semester</p>
Credit points	<p>Theory : 2 SCH x 1.5 ECTS = 3.0 ECTS</p> <p>Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS</p> <p>Total Credits: 6.75 ECTH</p>
Required and recommended prerequisites for joining the module	Requires prerequisite course in Bacteriology and Mycology, Virology, Veterinary Public Health

<p>Module objectives/intended learning outcomes</p>	<ol style="list-style-type: none"> 1. Students can explain the quality and safety of food of animal origin, especially milk, meat, eggs, honey, swallow's nest, and fish and their impact on consumer health, including good hygiene practices for food of animal origin. 2. Students can explain the application of animal welfare principles in slaughterhouses for ruminants, pigs, and poultry. 3. Students can identify deviations in the quality and safety of food of animal origin. 4. Students can explain and communicate to the public and/or stakeholders about ensuring the safety, health, integrity, and halalness of food products of animal origin, especially milk, meat, eggs, honey, swallow nests, and fish. 5. Students have an honest, cooperative, and communicative attitude.
<p>Content</p>	<p>The content discusses hygiene of food of animal origin, especially milk, meat, eggs, honey, swallow's nest, and fish, including composition, characteristics, good production and handling methods, application of animal welfare, important microorganisms in food of animal origin, and damage or spoilage. Also discussed about the health problems of consumers due to consuming milk and its processed products as well as several ways of processing milk, as well as subclinical mastitis from the aspect of veterinary public health.</p>
<p>Examination forms</p>	<p>Midterm Exam : paper or online based test : 30% Final Exam : paper or online based test : 40% Midterm and Final Practicum Exams : 30%</p>
<p>Study and examination requirements</p>	<p>Cognitive: Midterm Exams, Final Exam, Practicum Exams, and Assignments Psychomotor: Practicums (laboratory sessions) Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
<p>Reading list</p>	<ol style="list-style-type: none"> 1. Barbut S. 2016. The Science of Poultry and Meat Processing. Guelph (CA): University of Guelph. 2. Divisi Kesmavet dan Epidemiologi. 2020. Bahan Kuliah Higiene Pangan Asal Hewan. Bogor (ID): Divisi Kesmavet dan Epidemiologi FKH IPB. 3. Gracey JF, Collins DS, Huey RJ. 1999. Meat Hygiene. London (UK): WB Saunders. 4. Mine Y, Ed. 2008. Egg Bioscience and Biotechnology. New Jersey (US) John Wiley 5. Wastra P, Wouters JTM, Geurts TJ. 2006 Dairy Science and Technology. Boca Raton, Florida (US):CRC Pr.

44. IPH 324 Bacterial and Mycotic Diseases: 3(2-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	7 th and 6 th (odd and even) Semester
Person responsible for the module	Drh. Usamah Afiff, MSc
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, practicum classes, presentation, and independent learning through problem-based learning group assignments, practicum group assignments and quizzes. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	<p>(Estimated) Total workload: 94,5 hours/semester</p> <p>Contact hours (please specify whether lecture, exercise, laboratory session, etc.):</p> <p>Lecture Class: 2 hours x 14 weeks = 28 hours/semester</p> <p>Practicum Class (laboratory sessions): 2.5 hours x 14 weeks = 35 hours/semester</p> <p>Midterm and Final Exam: 2 hours x 2 sessions = 4 hours total sessions</p> <p>Midterm and Final Practicum Exam: 2 hours x 2 sessions = 4 hours total sessions</p> <p>Private study including examination preparation, specified in hours:</p> <p>Assignment: 1 hour x 14 weeks = 14 hours/semester</p> <p>Examination preparation = 9,5 hours/semester</p>
Credit points	<p>Theory : 2 SCH x 1.5 ECTS = 3.0 ECTS</p> <p>Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS</p> <p>Total Credits: 6.75 ECTH</p>
Required and recommended prerequisites for joining the module	Requires prerequisite course in Bacteriology and Mycology, Immunology and General Patology

<p>Module objectives/intended learning outcomes</p>	<ol style="list-style-type: none"> 1. Students can explain the role of infectious diseases, develop techniques for diagnosis, prevention, and eradication of infectious diseases of bacterial origin 2. Students can explain how to diagnose, and identify the causative agents of infectious diseases caused by Bacillus and Clostridium 3. Students can explain, diagnose, and identify the causative agent of infectious diseases caused by Brucella 4. Students can explain, diagnose, and identify the causative agents of infectious diseases caused by Pasteurellaceae 5. Students can explain, diagnose, and identify the causative agents of infectious diseases caused by Mycobacterium and Mycoplasma 6. Students can explain, diagnose, and identify the causative agents of infectious diseases caused by Salmonella and Escherichia 7. Students can explain, diagnose, and identify the causative agents of infectious diseases caused by Streptococcus and Staphylococcus 8. Students can explain the definition of mykal disease; interaction of agent, host, and environment; disease grouping based on the affected tissue; antifungal mechanism of action. 9. Students can explain how to diagnose and identify disease-causing agents, etiology, epidemiology, pathogenesis, disease symptoms, disease prevention, and eradication of diseases caused by Microsporum, Trichophyton, and Epidermophyton. 10. Students can explain how to diagnose and identify disease-causing agents, etiology, epidemiology, pathogenesis, disease symptoms, disease prevention, and eradication of diseases caused by Aspergillus and Mucorales. 11. Students can explain how to diagnose and identify disease-causing agents, etiology, epidemiology, pathogenesis, disease symptoms, disease prevention, and eradication of diseases caused by yeasts: Candida, Malassezia, and Cryptococcus. 12. Students can explain how to diagnose and identify disease-causing agents, etiology, epidemiology, pathogenesis, disease symptoms, disease prevention, and eradication of diseases caused by dimorphic fungi: Histoplasma, Blastomyces, Coccidioides, and Sporothrix. 13. Students can explain how to diagnose and identify disease-causing agents, etiology, epidemiology, pathogenesis, disease symptoms, disease prevention, and eradication of diseases caused by mycotoxins (aflatoxin and ochratoxin). 14. Students can explain how to diagnose and identify disease-
---	--

	<p>causing agents, etiology, epidemiology, pathogenesis, disease symptoms, disease prevention, and eradication of diseases caused by other mycotoxins (Zearalenone, Fumonisin, T2 Toxin, Patulin, and Citrinin).</p> <p>15. After laboratory sessions, students can explain general microbiology techniques, interpretation of results to diagnose diseases caused by bacteria and fungi in the laboratory</p>
Content	<p>This course provides an understanding of infectious diseases of bacterial and fungal origin which are socio-economically and politically important (strategic diseases) in Indonesia and for international animal health. In this course, the topics covered include: etiology, disease symptoms, pathogenesis, diagnosis, epidemiology, prevention and eradication of infectious diseases. This course also provides information on ways to isolate and identify bacteria and fungi that cause disease to confirm the diagnosis during laboratory sessions.</p>
Examination forms	<p>Midterm Exam : paper or online based test : 15%</p> <p>Final Exam : paper or online based test : 15%</p> <p>Quiz Practicum: 5%</p> <p>Practicum assignment : 15%</p> <p>Problem-Based Learning Papers and Presentations : 50%</p>
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam, Practicum Exams, Problem-Based Learning Papers, Problem-Based Learning Presentations, Group Practicum Assignments, and Quizzes.</p> <p>Psychomotor: Practicums (laboratory sessions)</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>

<p>Reading list</p>	<ol style="list-style-type: none"> 1. Carter GR, Cole JR. 1990. Diagnostic Procedures in Veterinary Bacteriology and Mycology. San Diego (US): Academic Press, Inc. 2. Carter GR, Chengapa MM, Roberts AW. 1995. Essentials of Veterinary Microbiology. Baltimore (US): Williams & Wilkins. 3. Chute HL. 1991. Fungal infection. Calnek BW, editor. Di dalam: Disease of Poultry. Ames (US): Iowa State University Pr. Ames. Hlm. 326-329. 4. Hoerr FJ. 1991. Mycotoxicosis. Calnek BW, editor. Disease of Poultry. Ames (US): Iowa State University Pr. Hlm. 884-915. 5. Jelinek CF, Pohland AE, Wood GG. 1989. Worldwide Occurrence of Mycotoxicosis in food and feed. Journal of the Association of Official Analytical Chemists (USA) 72(2): 223-230. 6. Kwon-Chung KJ, Bennet JE. 1992. Medical Mycology. Philadelphia (US): Lea and Febiger. 7. Mim CA, Playfair JHL, Roitt IM, Wakelin D, Willionis R. 1993. Medical Microbiology 8. Salyer AA, Whitt DD. 1994. Bacterial Pathogenesis, A Molecular Approach. Washington D.C. (US): Asm Pr. 9. Tortora GJ, Funke BR. 1998. Microbiology, an Introduction. San Francisco (US): Benjamin/Cummings Publishing Company, Inc. 10. Quinn PJ, Carter ME, Donnelly WJ, Leonard FC. 2001. Veterinary Microbiology and Microbial Diseases. Oxford (UK): Blackwell Science.
---------------------	---

45. IPH 1325 Viral Diseases: 2(1-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	7 th and 6 th (odd and even) Semester
Person responsible for the module	Drh. Surachmi Setiyaningsih, Ph.D
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, practicum classes, presentation, and independent learning through individual and group problem-based learning assignments. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 73.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 1 hours x 14 weeks = 14 hours/semester Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 6,5 hours/semester
Credit points	Theory : 1 SCH x 1.5 ECTS = 1.5 ECTS Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS Total Credits: 5.25 ECTH
Required and recommended prerequisites for joining the module	Requires prerequisite course in Veterinary Virology, Medical Immunology, and Systemic Pathology.
Module objectives/intended learning outcomes	Students can explain communicatively and interpretively the aetiology, epidemiology, transmission, pathogenesis, clinicopathology, and diagnostic procedures using various techniques and able to perform at least one technique to detect several types of viruses in the context of prevention, control and monitoring of viral diseases in animals.

Content	This course provides an understanding of diseases caused by viruses which are socio-economically and politically important both in Indonesia and in international animal health world. The discussion of this course covers aetiology, epidemiology, transmission, pathogenesis, clinicopathology, diagnosis, as well as control and prevention of viral diseases. Practicum is provided in the form of laboratory practice (PCR diagnostic technique), group discussions and presentations on various detection and diagnosis techniques for various animals due to viral infections.
Examination forms	Midterm Exam (Theory and Practicum): 50% Final Exam (Theory and Practicum) : 50%
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam, Group Problem-Based Learning Papers and Presentations, as well as Individual Assignments</p> <p>Psychomotor: Practicums (laboratory sessions)</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
Reading list	<p>a. MacLachlan NJ and Dubovi EJ (Editors), 2017. Fenner's Veterinary Virology, 5th edition, Elsevier.</p> <p>b. Swayne DE, et al. (Editors), 2020. Diseases of Poultry. 14th edition. John Wiley & Sons, Inc.</p> <p>c. OIE. Manual of diagnostic tests and vaccines for terrestrial animals. https://www.oie.int/en/what-we-do/standrards/codes-and-manuals/terrestrial-manual-online-access/. Accessed 29 April 2021.</p> <p>d. OIE. Manual of diagnostic tests and vaccines for aquatic animals. https://www.oie.int/en/what-we-do/standrards/codes-and-manuals/aquatic-manual-online-access/. Accessed 29 April 2021.</p> <p>e. MSD Veterinary Manual. https://www.msdrvetermanual.com/. Accessed 18 April 2021.</p> <p>f. US Department of Health and Human Services, 2020. Biosafety in Microbiological and Biomedical Laboratories. 6th edition. https://www.cdc.gov/labs/pdf/SF__19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf. Accessed 18 April 2021.</p> <p>g. Christian RA, et al. (Editors), 2012. Nonhuman Primates in Biomedical Research, Vol.2, 2 nd edition. Diseases. Academic Press, USA.</p>

46. IPH 1413 Zoonoses: 2(2-0)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	7 th (odd) Semester
Person responsible for the module	Dr. drh. Trioso Purnawarman, MSi
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, presentation, and independent learning through problem-based learning group assignments. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 42 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hour x 14 weeks = 28 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Private study including examination preparation, specified in hours: Assignment: 0,5 hour x 14 weeks = 7 hours/semester Examination preparation = 4 hours/semester
Credit points	2 SCH x 1.5 = 3 ECTS
Required and recommended prerequisites for joining the module	Requires prerequisite course in Bacterial and Mycological Disease, Viral Disease, Hygiene of Animal Origin
Module objectives/intended learning outcomes	After completing this course, students can explain about several zoonotic diseases caused by bacteria, viruses, fungi, protozoa, helminths, rickettsiae, and prions, their modes of transmission, as well as preventive and control measures.
Content	This course discusses the characteristic and traits of causes (etiology) of zoonotic diseases, epidemiology, pathogenesis, their modes of transmission, prevention and control; current trends and problems of disease caused by bacteria, viruses, fungi, protozoa, helminths, rickettsiae, and prions that can be transmitted from animals to humans. The discussion focuses on diseases found in Indonesia, which threaten public health and are economically detrimental.

Examination forms	<p>Midterm Exam : paper or online based test : 25%</p> <p>Final Exam : paper or online based test : 25%</p> <p>Problem-Based Learning Papers and Presentations : 50%</p>
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam, Problem-Based Learning Papers, and Problem-Based Learning Presentations</p> <p>Psychomotor: -</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
Reading list	<p>Acha PN, Szyfres B. 2003. Zoonoses and Communicable Diseases Common to Man and Animals. Third Edition (3 volume). Washington: Pan American Health Organization.</p>

47. IPH 1414 Veterinary Epidemiology and Economy: 3(2-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	7 th and 8 th (odd and even) Semester
Person responsible for the module	Drh. Abdul Zahid, MSi
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, practicum classes, presentation, and independent learning through individual and group problem-based learning assignments. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	<p>(Estimated) Total workload: 94,5 hours/semester</p> <p>Contact hours (please specify whether lecture, exercise, laboratory session, etc.):</p> <p>Lecture Class: 2 hours x 14 weeks = 28 hours/semester</p> <p>Practicum Class (laboratory sessions): 2.5 hours x 14 weeks = 35 hours/semester</p> <p>Midterm and Final Exam: 2 hours x 2 sessions = 4 hours total sessions</p> <p>Midterm and Final Practicum Exam: 2 hours x 2 sessions = 4 hours total sessions</p> <p>Private study including examination preparation, specified in hours:</p> <p>Assignment: 1 hour x 14 weeks = 14 hours/semester</p> <p>Examination preparation = 9,5 hours/semester</p>
Credit points	<p>Theory : 2 SCH x 1.5 ECTS = 3.0 ECTS</p> <p>Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS</p> <p>Total Credits: 6.75 ECTH</p>
Required and recommended prerequisites for joining the module	Requires prerequisite course in Statistic

<p>Module objectives/intended learning outcomes</p>	<ol style="list-style-type: none"> 1. Students can explain the meaning, scope, objectives and role of epidemiology in the field of veterinary medicine 2. Students can explain basic concepts and approaches used in epidemiology 3. Students can use epidemiological parameters to measure disease expression in the population 4. Students can perform epidemiological data management and analysis 5. Students can apply sampling techniques in epidemiological studies 6. Students can apply the procedure for diagnostic testing, the purpose and use of the test in determining disease status 7. Students can apply the objectives and types of observational studies to measure the level of disease and investigate the causes of disease in the population 8. Students can apply the pattern of causality between risk factors and disease incidence 9. Students can apply the monitoring and surveillance system according to the diseases control program 10. Students can carry out simulated investigations of infectious animal disease outbreaks 11. Students can apply the concept of animal disease control and eradication 12. Students can apply the basic concepts of veterinary economics and their calculation techniques 13. Students can calculate the economic impact of animal diseases and the benefits of their control 14. Students can explain the concepts and components of risk analysis in the context of importing animals and animal products
<p>Content</p>	<p>This course discusses the concept of veterinary epidemiology which includes the meaning, objectives and interests of epidemiology in the field of veterinary medicine; the concept and ecology of disease in populations; disease measurement techniques and disease data management in the population; observational and molecular studies in animal disease investigations; diagnostic test technique; survey techniques, monitoring and surveillance of animal diseases; outbreak investigations; analysis of the risk of imports of animals and animal products, and; planning and economic analysis of animal disease control programs.</p>

Examination forms	<p>Midterm Exam : paper or online based test : 25%</p> <p>Final Exam : paper or online based test : 25%</p> <p>Problem-Based Learning Papers and Presentations : 40%</p> <p>Assignment : 10%</p>
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam, Practicum Exams, Assignments</p> <p>Psychomotor: Practicums</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
Reading list	<ol style="list-style-type: none"> 1. Dohoo I, Martin W. dan Stryhn H. 2003. Veterinary Epidemiologic Research. Canada: AVC Inc. 2. Martin SW, Meek AH, Willeberg P. 1988. Veterinary Epidemiology. USA: Iowa State University Press 3. Putt SNH, Shaw APM, Woods AJ, Tyler L, James AD. 1988. Veterinary Epidemiology and Economic in Africa. ILCA Manual No.3. VEERU. University of Reading, England 4. Salman MD. 2003. Animal Disease Surveillance and Survey Systems. Iowa: Iowa State Press. 5. Thrusfield M. 2005. Veterinary Epidemiology 3th ed. Berlin: Blackwell Science.

48. KRP 1311 Veterinary Clinical Diagnostics: 3(2-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	5 th (odd) Semester
Person responsible for the module	Dr. Drh. Retno Wulansari, M.S
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, practicum classes, presentation, and independent learning through individual and group problem-based learning assignments. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	<p>(Estimated) Total workload: 94,5 hours/semester</p> <p>Contact hours (please specify whether lecture, exercise, laboratory session, etc.):</p> <p>Lecture Class: 2 hours x 14 weeks = 28 hours/semester</p> <p>Practicum Class (laboratory sessions): 2.5 hours x 14 weeks = 35 hours/semester</p> <p>Midterm and Final Exam: 2 hours x 2 sessions = 4 hours total sessions</p> <p>Midterm and Final Practicum Exam: 2 hours x 2 sessions = 4 hours total sessions</p> <p>Private study including examination preparation, specified in hours:</p> <p>Assignment: 1 hour x 14 weeks = 14 hours/semester</p> <p>Examination preparation = 9,5 hours/semester</p>
Credit points	<p>Theory : 2 SCH x 1.5 ECTS = 3.0 ECTS</p> <p>Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS</p> <p>Total Credits: 6.75 ECTH</p>
Required and recommended prerequisites for joining the module	Requires prerequisite course in aff 311, aff 336, aff 224
Content	This course discusses the systematics of performing a physical examination on animals to evaluate their condition to diagnose functional abnormalities, as well as to conduct sampling for laboratory evaluation

<p>Module objectives/intended learning outcomes</p>	<p>Explain the definition and scope of clinical diagnostic</p> <p>Explain the definition of signalment and anamnesis, and perform examination to gather necessary information for performing clinical diagnostics</p> <p>Explain and perform general examination to establish general clinical condition (status present) of animal</p> <p>Explain and perform the examination of the skin, hair coat, mucosal membrane and lymph nodes to evaluate the animal's condition in order to diagnose functional abnormalities</p> <p>Explain and perform examination of the ears, eyes and to determine the age of animals based on physical examination, to evaluate their condition in order to diagnose functional abnormalities, as well as to conduct sampling for laboratory evaluation.</p> <p>Explain and perform examination of the organs of the respiratory system to evaluate functional abnormalities, as well as to conduct sampling for laboratory evaluation.</p> <p>Explain and perform examination of the organs of the circulatory and cardiovascular system to evaluate functional abnormalities, as well as to conduct sampling for laboratory evaluation</p> <p>Explain and perform examination of the organs of the digestive system to evaluate functional abnormalities, as well as to conduct sampling for laboratory evaluation</p> <p>Explain and perform examination of the organs of the urogenital system to evaluate functional abnormalities, as well as to conduct sampling for laboratory evaluation</p> <p>Explain and perform examination of the limbs, musculoskeletal and nerve to evaluate functional abnormalities</p>
<p>Examination forms</p>	<p>Midterm Exam : 35%</p> <p>Final Exam : 35%</p> <p>Practicum : 30%</p>
<p>Study and examination requirements</p>	<p>Cognitive: Midterm Exams, Final Exam, Practicum Exams, Assignments</p> <p>Psychomotor: Practicums</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
<p>Reading list</p>	<p>1. Kelly, W.R. 1984. Veterinary Clinical Diagnosis , 3rd.Ed. Bailliere Tindall London</p> <p>2. Radostits, O.M., Blood, D.C., Gay, C.C. 1994. Veterinary Medicine. Bailliere tindall London</p>

49. KRP 1321 Veterinary General Surgery: 3(2-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	5 th (odd Semester)
Person responsible for the module	<u>Dr. Budhy Jasa Widyananta MSi</u>
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, practicum classes, presentation, and independent learning through individual and group problem-based learning assignments. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	<p>(Estimated) Total workload: 94,5 hours/semester</p> <p>Contact hours (please specify whether lecture, exercise, laboratory session, etc.):</p> <p>Lecture Class: 2 hours x 14 weeks = 28 hours/semester</p> <p>Practicum Class (laboratory sessions): 2.5 hours x 14 weeks = 35 hours/semester</p> <p>Midterm and Final Exam: 2 hours x 2 sessions = 4 hours total sessions</p> <p>Midterm and Final Practicum Exam: 2 hours x 2 sessions = 4 hours total sessions</p> <p>Private study including examination preparation, specified in hours:</p> <p>Assignment: 1 hour x 14 weeks = 14 hours/semester</p> <p>Examination preparation = 9,5 hours/semester</p>
Credit points	<p>Theory : 2 SCH x 1.5 ECTS = 3.0 ECTS</p> <p>Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS</p> <p>Total Credits: 6.75 ECTH</p>
Required and recommended prerequisites for joining the module	Requires prerequisite course in Topography Anatomy

<p>Module objectives/intended learning outcomes</p>	<p>Understand, be able to explain and be able to apply the concepts of aseptic, sterilization, disinfection and antisepsis as well as identify the personnel involved in it, in the context of pre, peri and post-surgery</p> <p>Understand, be able to explain and be able to identify the use of surgical instruments based on function</p> <p>Understand, be able to explain and sequence the stages of pre, peri and post-surgical procedures (tools, rooms, animals and operators), as well as analyze the meaning of pre-surgical veterinary examination results</p> <p>Understand, be able to explain surgical support equipment based on function</p> <p>Understand, be able to explain various types of drug preparations based on the route of drug administration, explain and perform the venesection technique</p> <p>Identify types of thread based on usage, use of sewing patterns based on tissue type and condition and can perform sewing patterns</p> <p>Understand and explain the causes of postoperative infection, as well as consideration of the choice of antibiotics and analgesics</p> <p>Explain the stages of wound healing, understand the technique</p> <p>dressings, physiotherapy according to the type of wound or trauma</p> <p>Understand and be able to explain anesthetic preparations and techniques according to animal conditions and surgical procedures, identify the advantages and disadvantages of anesthetic preparations based on how they work and anesthetic effects both on small animals, exotic laboratories of large animals and wild animals</p> <p>Understand the principles of soft tissue surgery, laparotomy technique</p> <p>Understand the principles of hard tissue surgery, especially fracture surgery (type of fracture, diagnosis, fixation method)</p> <p>Synthesize lectures and put them in the form of identification of the stages of soft tissue surgical procedures (ovariohysterectomy, enterotomy and cystotomy) pre, peri and post</p> <p>Synthesize lectures and put them in the form of identification of the stages of hard tissue surgical procedures (caudectomy and fracture) pre, peri and post</p>
---	--

Content	This course can explain an aseptic operating environment, the use of operating equipment, operating support equipment, operating room, peri, post and intraoperative patient care as well as anesthetic management and monitoring and pain management and physiotherapy methods in animals.
Examination forms	Midterm Exam : paper or online based test : 12% Final Exam : paper or online based test : 10% Problem-Based Learning Papers and Presentations : 66% Assignment : 12%
Study and examination requirements	Cognitive: Midterm Exams, Final Exam, Practicum Exams, Assignments Psychomotor: Practicums Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course
Reading list	<ol style="list-style-type: none"> 1. McCurnin DM, Joanna MB. 2002. <i>Clinical Textbook for Veterinary Technicians</i>. 6th ed. Elsevier Sabre Foundation. 2. Leahy JR, Pat B. 2002. <i>Animal Restraint</i>. Philadelphia. 3. Busch SJ. 2006. <i>Small Animal Surgical Nursing. Skill and Concepts</i>. Elsevier Mosby. Inc 4. Barbara L. Christe. 2009. <i>Introduction to Biomedical Instrumentation (The Technology of Patient Care)</i>. Indiana University Purdue University Indianapolis: Cambridge University Press. 5. Catherine <i>et al.</i> 2007. <i>Animal Physiotherapy</i>. 6. Hall LW. 1977. <i>Wright's Veterinary Anaesthesia and Analgesia</i>. 7th ed. Baillife Tindal. 7. Knueven D. 2008. <i>The Holistic Health Guide</i>. 8. Fossum TW. 2013. <i>Small Animal Surgery</i>. 4th ed. Missouri (US): Elsevier 9. Novakovski TD, de Vries M, Seymour C. 2016. <i>BSAVA Manual of Canine and Feline Anaesthesia and Analgesia</i>. 3rd ed. Quedgeley (UK): BSAVA

50. KRP 1341 General Pathology: 3(2-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	5 th (odd) Semester
Person responsible for the module	Prof. Drh. Bambang Pontjo Priosoeryanto, MS, Ph.D, APVet, DACCM prak
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, practicum classes, presentation, and independent learning through individual and group problem-based learning assignments. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	<p>(Estimated) Total workload: 94,5 hours/semester</p> <p>Contact hours (please specify whether lecture, exercise, laboratory session, etc.):</p> <p>Lecture Class: 2 hours x 14 weeks = 28 hours/semester</p> <p>Practicum Class (laboratory sessions): 2.5 hours x 14 weeks = 35 hours/semester</p> <p>Midterm and Final Exam: 2 hours x 2 sessions = 4 hours total sessions</p> <p>Midterm and Final Practicum Exam: 2 hours x 2 sessions = 4 hours total sessions</p> <p>Private study including examination preparation, specified in hours:</p> <p>Assignment: 1 hour x 14 weeks = 14 hours/semester</p> <p>Examination preparation = 9,5 hours/semester</p>
Credit points	<p>Theory : 2 SCH x 1.5 ECTS = 3.0 ECTS</p> <p>Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS</p> <p>Total Credits: 6.75 ECTH</p>
Required and recommended prerequisites for joining the module	Requires prerequisite course in aff 226, aff 215, aff 214, iph 322 atau bersamaan

<p>Module objectives/intended learning outcomes</p>	<p>Explaining the general mechanism of pathological changes in the process of cell death and cellular adaptation in several animal species.</p> <p>Explaining the general mechanism of pathological changes in the process of inflammation and wound healing in several animal species</p> <p>Explaining several macroscopic, microscopical pathogenesis of tissue changes due to circulatory disorders in several animal species</p> <p>Explaining several macroscopic, microscopical pathogenesis of tissue changes due to growth and tumor disorders in several animal species</p> <p>Explaining several macroscopic, microscopical pathogenesis of tissue changes due to immunological disorders in several animal species</p> <p>Explaining several macroscopic, microscopical pathogenesis of tissue changes due to intrinsic factors</p> <p>Explaining several macroscopic, microscopical pathogenesis of tissue changes due to extrinsic factors</p>
<p>Content</p>	<p>This course explains the basic cell and tissues changes and reactions in the process and mechanisms of various diseases in various animal species including degenerations, necroses, pigmentation disorders, circulatory disorders, disturbances of growth, neoplasia, inflammation, wound healing process, disorders of immune system, and diseases causes by internal and external factors</p>
<p>Examination forms</p>	<p>Midterm Exam : paper or online based test : 35%</p> <p>Final Exam : paper or online based test : 35%</p> <p>Practical Exam : 30%</p>
<p>Study and examination requirements</p>	<p>Cognitive: Midterm Exams, Final Exam, Practicum Exams, Assignments</p> <p>Psychomotor: Practicums</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>

Reading list	<ol style="list-style-type: none">1. Cheville N. 2006. Introduction to Veterinary Pathology. 3r ed. Willey Blackwell2. Jubb KVF, PC Kennedy and N Palmer. 1992. Pathology of Domestic Animals 4th Ed. Academic Press, Inc.3. Cotran, RS. V. Kumar dan SL. Robin, 1994. Pathologic Basis of Disease 5th Ed. WB Saunders Company, USA4. Carlton WW and MD McGavin. 1995. Thomson's Special Veterinary Pathology. 2nd Ed. Mosby Year Book.5. Damjanov I. 1996. istopathology. A color atlas and text book. Williams & Wilkins6. Jones TC, RD Hunt and NW King. 1997. Veterinary Pathology 6th Ed. Williams & Wilkins.7. McGavin MD, James F. Zachary. 2006. Pathologic Basis of Veterinary Disease. 4th Ed .Mosby
--------------	--

51. KRP 1331 Reproductive Science and Technology: 3(2-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	5 th (odd) Semester
Person responsible for the module	Dr. drh. Ligaya ITA Tumbelaka SpMP, MSc prak
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, practicum classes, presentation, and independent learning through individual and group problem-based learning assignments. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	<p>(Estimated) Total workload: 94,5 hours/semester</p> <p>Contact hours (please specify whether lecture, exercise, laboratory session, etc.):</p> <p>Lecture Class: 2 hours x 14 weeks = 28 hours/semester</p> <p>Practicum Class (laboratory sessions): 2.5 hours x 14 weeks = 35 hours/semester</p> <p>Midterm and Final Exam: 2 hours x 2 sessions = 4 hours total sessions</p> <p>Midterm and Final Practicum Exam: 2 hours x 2 sessions = 4 hours total sessions</p> <p>Private study including examination preparation, specified in hours:</p> <p>Assignment: 1 hour x 14 weeks = 14 hours/semester</p> <p>Examination preparation = 9,5 hours/semester</p>
Credit points	<p>Theory : 2 SCH x 1.5 ECTS = 3.0 ECTS</p> <p>Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS</p> <p>Total Credits: 6.75 ECTH</p>
Required and recommended prerequisites for joining the module	Requires prerequisite course in Embryology and Development Genetic, Physiology II

<p>Module objectives/intended learning outcomes</p>	<p>Students are able to explain semen physiology and genital behavior in males and semen collection and evaluation techniques</p> <p>Students are able to connect knowledge of anatomy and physiology of male reproduction</p> <p>Students were able to explain puberty in both male and female animals and the mating season</p> <p>Students are able to explain the physiology of the reproductive process of female animals: the sex behavior of female animals, estrus cycles, mating, breeding, birth and females ready to rebreed</p> <p>Students are able to connect knowledge of anatomy and reproductive physiology of females</p> <p>Students are able to identify primary and metabolic reproductive hormones</p> <p>Students are able to explain hormonal regulation in the reproductive process of animals male and female as well as the implementation of hormonal knowledge (reproductive therapy and management)</p> <p>Students are able to summarize hormonal knowledge of hormonal regulation in the reproductive process of adult female animals</p> <p>Students are able to identify primary and metabolic reproductive hormones</p> <p>Students are able to explain the technique of implementing artificial insemination procedures and managing their efficacy</p> <p>Students are able to identify the important principle in the success of artificial insemination technology</p> <p>Students are able to explain embryo cryopreservation methods for embryo transfer and procedures for the implementation of the In Vitro Fertilization program</p>
<p>Content</p>	<p>This course studies the physiology and integral coordination functions of the reproductive organs of female and male animals, the mechanism of integration of the work of the reproductive endocrine glands and their hormones, which are directed as the basis for the application of reproductive technology methods (bio) as well as the handling of midwifery and countermeasures of breeding in the framework of animal development and breeding.</p>
<p>Examination forms</p>	<p>Midterm Exam (Theory and Practicum): 15%</p> <p>Final Exam (Theory and Practicum): 15%</p> <p>Quiz : 10</p> <p>Practicum Report : 10%</p> <p>Problem-Based Learning Papers and Presentations : 50%</p>

<p>Study and examination requirements</p>	<p>Cognitive: Midterm Exams, Final Exam, Practicum Exams, Assignments</p> <p>Psychomotor: Practicums</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
<p>Reading list</p>	<ol style="list-style-type: none"> 1. Hafez, E.S.E. 2000. Reproduction in Farm Animals. 6th Ed. Lea & Febiger, Philadelphia. 2. McDonald, L.E. 1989. Veterinary Endocrinology and Reproduction. 4th Ed. Lea & Febiger, Philadelphia. 3. Senger, P.L. 2012. Pathways to Pregnancy and Parturition. 3rd Edition. Current Conceptions, Inc. Redmon, OR 97756. 4. Schatten H, Constantinescu GM. 2007. Comparative Reproductive Biology. Blackwell Publishing Professional, Iowa, USA 5. Toelihere MR. 1979. Fisiologi reproduksi pada ternak. Angkasa. Bandung 6. Arfiantin R I. 2012. Teknik Koleksi dan Evaluasi Semen pada Hewan. IPB Press. 7. Susilawati T. 2013. Pedoman Inseminasi buatan pada ternak. Tim UB Press 8. Badan Penelitian Dan Pengembangan Pertanian. 1999/199. Inseminasi buatan pada ayam buras. Instalasi Penelitian Dan Pengkajian Teknologi Pertanian. Dki Jakarta

52. KRP 1342 Systemic Pathology I: 2(2-0)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	6 th (even) Semester
Person responsible for the module	Dr. Drh. Eva Harlina, MSi, APVet No prak
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, practicum classes, presentation, and independent learning through individual and group problem-based learning assignments. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 42 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hour x 14 weeks = 28 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Private study including examination preparation, specified in hours: Assignment: 0,5 hour x 14 weeks = 7 hours/semester Examination preparation = 4 hours/semester
Credit points	2 SCH x 1.5 = 3 ECTS
Required and recommended prerequisites for joining the module	Requires prerequisite course in General Pathology

	<p>explain the pathogenesis and various macroscopic and microscopic tissue changes in the organs of the digestive system due to infectious and non- infectious diseases.</p> <p>Explain the pathogenesis and various tissue changes macroscopically and microscopically in the liver and pancreas due to infectious and non-infectious diseases.</p> <p>Explain the pathogenesis and various macroscopic and microscopic tissue changes in the organs of the circulatory system due to infectious and non-infectious diseases.</p> <p>Explain the pathogenesis and various macroscopic and microscopic tissue changes in the respiratory system organs due to infectious and non-infectious diseases.</p> <p>Explain the pathogenesis and various macroscopic and microscopic tissue changes in the skin system organs due to infectious and non-infectious diseases.</p> <p>Explain the pathogenesis and various tissue changes macroscopically and microscopically in the eye and ear organs due to infectious and non-infectious diseases</p>
Content	<p>This course explains the causes, stages of disease occurring in cells and tissues macroscopically and microscopically in various organ systems of organ systems of circulation, respiration, digestion, skin, liver, and pancreas, as well as eyes and ears associated with their clinical importance in various animal species.</p>
Examination forms	<p>Midterm Exam : paper or online based test : 50%</p> <p>Final Exam : paper or online based test : 50%</p>
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam, Practicum Exams, Assignments</p> <p>Psychomotor: Practicums</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>

<p>Reading list</p>	<ol style="list-style-type: none"> 1. Cheville N. 2006. Introduction to Veterinary Pathology. 3^r ed. Willey Blackwell 2. Jubb KVF, PC Kennedy and N Palmer. 1992. Pathology of Domestic Animals 4th Ed. Academic Press, Inc. 3. Cotran, RS. V. Kumar dan SL. Robin, 1994. Pathologic Basis of Disease 5th Ed. WB Saunders Company, USA 4. Carlton WW and MD McGavin. 1995. Thomson's Special Veterinary Pathology. 2nd Ed. Mosby Year Book. 5. Damjanov I. 1996. istopathology. A color atlas and text book. Williams & Wilkins 6. Jones TC, RD Hunt and NW King. 1997. Veterinary Pathology 6th Ed. Williams & Wilkins. 7. McGavin MD, James F. Zachary. 2006. Pathologic Basis of Veterinary Disease. 4th Ed .Mosby
---------------------	--

53. KRP 1312 Internal Medicine I: 2(2-0)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	6 th (even) Semester
Person responsible for the module	Drh. Agus Wijaya, PhD
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, practicum classes, presentation, and independent learning through individual and group problem-based learning assignments. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 42 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hour x 14 weeks = 28 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Private study including examination preparation, specified in hours: Assignment: 0,5 hour x 14 weeks = 7 hours/semester Examination preparation = 4 hours/semester
Credit points	2 SCH x 1.5 = 3 ECTS
Required and recommended prerequisites for joining the module	Requires prerequisite course in Diagnostic Clinic
Module objectives/intended learning outcomes	After learning of this subject, student could explain the definition, cause, clinical symptom, how to make diagnosis, diagnosis, prognosis and treatment of some diseases on the skin and hair, eyes and ears,

Content	<p>This subject explains about some abnormalities that happened on the sick animal. The abnormalities discussion are as follows : cause, clinical symptoms, clinical and laboratory diagnosis, differential diagnosis, prognosis and treatment of the abnormalities that have characteristics, such as, hereditary, congenitally and acquired or acquise on some systems as follows : skin and hair, eyes and ears organ system, respiration, circulation, and digestive systems.</p>
Examination forms	<p>Midterm Exam : paper or online based test Final Exam : paper or online based test Problem-Based Learning Papers and Presentations</p>
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam, Practicum Exams, Assignments Psychomotor: Practicums Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
Reading list	<ol style="list-style-type: none"> 1. Cheville N. 2006. Introduction to Veterinary Pathology. 3r ed. Willey Blackwell 2. Jubb KVF, PC Kennedy and N Palmer. 1992. Pathology of Domestic Animals 4th Ed. Academic Press, Inc. 3. Cotran, RS. V. Kumar dan SL. Robin, 1994. Pathologic Basis of Disease 5th Ed. WB Saunders Company, USA 4. Carlton WW and MD McGavin. 1995. Thomson’s Special Veterinary Pathology. 2nd Ed. Mosby Year Book. 5. Damjanov I. 1996. istopathology. A color atlas and text book. Williams & Wilkins 6. Jones TC, RD Hunt and NW King. 1997. Veterinary Pathology 6th Ed. Williams & Wilkins. 7. McGavin MD, James F. Zachary. 2006. Pathologic Basis of Veterinary Disease. 4thEd .Mosby

54. KRP 1323 Veterinary Advance Surgery I: 2(1-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	7 th and 6 th (odd and even) Semester
Person responsible for the module	Dr. Drh. Gunanti, MS
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, practicum classes, presentation, and independent learning through individual and group problem-based learning assignments. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 73.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 1 hours x 14 weeks = 14 hours/semester Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 6,5 hours/semester
Credit points	Theory : 1 SCH x 1.5 ECTS = 1.5 ECTS Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS Total Credits: 5.25 ECTH
Required and recommended prerequisites for joining the module	Requires prerequisite course in General Surgery

<p>Module objectives/intended learning outcomes</p>	<p>Accuracy of students in explaining definitions, clinical symptoms, causes and pathogenesis of male, female, digestive, eye, ear, cosmetic and orthopedic urogenital surgery cases</p> <p>The accuracy of students to explain the reasons for choosing certain diagnostic techniques for male, female urogenital, digestive, eye, ear, cosmetic and orthopedic surgery</p> <p>The accuracy of students in explaining the reasons for choosing anesthesia in cases of male, female, digestive, eye, ear, cosmetic and orthopedic urogenital surgery (advantages, advantages, side effects and dosage accuracy)</p> <p>The accuracy of students explaining step by step surgical procedures for male, female urogenital, digestive, eye, ear, cosmetic and orthopedic surgical cases</p> <p>The accuracy of students explaining the relationship between surgical procedures and possible complications that occur</p> <p>The accuracy of the students explained the reasons for carrying out certain postoperative treatments for certain urogenital surgery cases.</p> <p>Synthesize lecture materials and internalize them in selected surgical cases (male urogenital, female urogenital, digestive, eye, ear, cosmetic and orthopedic)</p> <p>Scientific discussion in groups to analyze selected surgical cases (male urogenital, female urogenital, digestive, eye, ear, cosmetic and orthopedic)</p>
<p>Content</p>	<p>This course discusses surgical diseases; urinaria, genitalia, digestion, eyes, ears, orthopedics, and cosmetics in small animals, especially dogs and cats, more specifically regarding the preoperative, surgical and postoperative stages of the surgical procedure.</p>
<p>Examination forms</p>	<p>Midterm Exam : paper or online based test : 10%</p> <p>Final Exam : paper or online based test : 10%</p> <p>Problem-Based Learning Papers and Presentations : 50%</p> <p>Practicum : 30%</p>
<p>Study and examination requirements</p>	<p>Cognitive: Midterm Exams, Final Exam, Practicum Exams, Assignments</p> <p>Psychomotor: Practicums</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>

<p>Reading list</p>	<ol style="list-style-type: none"> 1. Bright RM, <i>et al.</i> 2008. <i>Handbook of Small Animal Practice</i> 5th ed. Missouri (US): Saunders Elsevier. 2. Dunn JK. 2000. <i>Text Book of Animal Medicine</i>. China (CHN): Saunders. 3. Fossum TW, Hedlund CS, Hulse DA, Johnson AL, Seim III HB, Willard MD, Carroll GL. 2002. <i>Small Animal Surgery</i>. Ed 2nd. Missouri (US): Mosby. 4. Foster ME, Morris-Stiff G. 2001. <i>Teknik Bedah Umum</i>. Jakarta (ID): Farmedia. 5. Harari J. 2004. <i>Small Animal Surgery Secrets</i>. 2nd ed. Pennsylvania (US): Elsevier. 6. Hedlund CS, Donald AH, Ann LJ, Howard BS, Michael DW, Gwendolyn LC. 2002. 2nd ed. <i>Small Animal Surgery</i>. Mosby of Elsevier. 7. Hoad J. 2006. <i>Minor Veterinary Surgery. A Handbook for Veterinary Nurses</i>. China (CHN): Butterworth Heinemann Elsevier. 8. Johnson Al, Dunning D. 2005. <i>Atlas of Orthopedic Surgical Procedures of The Dog and Cat</i>. Missouri (US): Saunders Elsevier. 9. Mann FA, Constantinescu GM, Yoon HY. 2011. <i>Fundamentals of Small Animal Surgery</i>. New Delhi (I): Blackwell Pb. 10. Piermattei D, Flo G, DeCamp C. 2006. Brinker, Piermattei, and Flo's <i>Handbook of Small Animal Orthopedics and Fracture</i>. 4th ed. Missouri (US): Saunders Elsevier. 11. Tobias, KM. 2010. <i>Manual of Small Animal Soft Tissue Surgery</i>. 1st ed. Iowa (US): Blackwell Pb.
---------------------	--

55. KRP 1332 Obstetrics and Gynaecology: 3(2-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	6 th (even) Semester
Person responsible for the module	Drh. M. Fakhrol Ulum, M.Si, Ph.D
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, practicum classes, presentation, and independent learning through individual and group problem-based learning assignments. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	<p>(Estimated) Total workload: 94,5 hours/semester</p> <p>Contact hours (please specify whether lecture, exercise, laboratory session, etc.):</p> <p>Lecture Class: 2 hours x 14 weeks = 28 hours/semester</p> <p>Practicum Class (laboratory sessions): 2.5 hours x 14 weeks = 35 hours/semester</p> <p>Midterm and Final Exam: 2 hours x 2 sessions = 4 hours total sessions</p> <p>Midterm and Final Practicum Exam: 2 hours x 2 sessions = 4 hours total sessions</p> <p>Private study including examination preparation, specified in hours:</p> <p>Assignment: 1 hour x 14 weeks = 14 hours/semester</p> <p>Examination preparation = 9,5 hours/semester</p>
Credit points	<p>Theory : 2 SCH x 1.5 ECTS = 3.0 ECTS</p> <p>Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS</p> <p>Total Credits: 6.75 ECTH</p>
Required and recommended prerequisites for joining the module	Requires prerequisite course in Veterinary Reproductive Science and Technology

Module objectives/intended learning outcomes	Able to explain aspects of midwifery, including the pregnancy process, diagnosis of pregnancy, abnormalities that accompany pregnancy, postpartum care (puerperium), case recognition of teratology, and reproductive surgical techniques, various aspects of animal proficiency includes reproductive efficiency, postpartum period abnormalities, anatomical and functional disorders of male and female animal reproduction, the role of environment and nutrition in reproductive function, and group reproductive management.
Content	Pregnancy, Partum. Pathology of pregnancy, the complication of postpartum, Puerperium (postpartum until the cycle returns) and metabolic disorder, Reproductive surgery, Teratology, Anatomical reproductive disorder, functional reproductive disorder, inflammation of the uterine, Reproductive management of cattle
Examination forms	Midterm Exam : 25 % Final Exam : 25 % Quiz: 4 % Task : 7% Problem-Based Learning Papers and Presentations : 39%
Study and examination requirements	Cognitive: Midterm Exams, Final Exam, Practicum Exams, Assignments Psychomotor: Practicums Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course
Reading list	<ol style="list-style-type: none"> 1. Bearden, H. J., & Fuquay, J. W. (1984). Applied animal reproduction. Reston Publishing Company, Inc.. 2. Cupps, P. T. (Ed.). (1991). Reproduction in domestic animals. Elsevier. 3. Hafez, E. S. E., & Hafez, B. (Eds.). (2013). Reproduction in farm animals. John Wiley & Sons. 4. Noakes, D. E., Parkinson, T. J., & England, G. C. (2018). Arthur's Veterinary Reproduction and Obstetrics-E-Book. Elsevier Health Sciences. 5. Peters, A. R., & Ball, P. J. H. (1987). Reproduction in cattle. Butterworths. 6. Pineda, M. H., & Dooley, M. P. (2003). McDonald's veterinary endocrinology and reproduction (No. Ed. 5). Iowa state press.

56. KRP 1443 Systemic Pathology II: 3(2-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	7 th (odd) Semester
Person responsible for the module	drh. Vetrizah Juniantito Ph.D.
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, practicum classes, presentation, and independent learning through individual and group problem-based learning assignments. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	<p>(Estimated) Total workload: 94,5 hours/semester</p> <p>Contact hours (please specify whether lecture, exercise, laboratory session, etc.):</p> <p>Lecture Class: 2 hours x 14 weeks = 28 hours/semester</p> <p>Practicum Class (laboratory sessions): 2.5 hours x 14 weeks = 35 hours/semester</p> <p>Midterm and Final Exam: 2 hours x 2 sessions = 4 hours total sessions</p> <p>Midterm and Final Practicum Exam: 2 hours x 2 sessions = 4 hours total sessions</p> <p>Private study including examination preparation, specified in hours:</p> <p>Assignment: 1 hour x 14 weeks = 14 hours/semester</p> <p>Examination preparation = 9,5 hours/semester</p>
Credit points	<p>Theory : 2 SCH x 1.5 ECTS = 3.0 ECTS</p> <p>Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS</p> <p>Total Credits: 6.75 ECTH</p>
Required and recommended prerequisites for joining the module	Requires prerequisite course in Systemic Pathology I
Module objectives/intended learning outcomes	Able to explain various tissue changes due to various causes of infectious and non-infectious diseases from the nervous, lymphoreticular, urinary, genital, endocrine, bone and muscle system organs in various animals.

Content	The courses explain the causes, stages of disease occurring in cells and tissues macroscopically and microscopically in various organ systems of the nervous, lymphoreticular, urinary, genital, endocrine, bone and muscle associated with clinical importance in various animal species..
Examination forms	Midterm Exam Theory : 25% Midterm Exam Practicum : 10% Final Exam Theory : 25% Final Exam Practicum : 10% Problem-Based Learning Papers and Presentations : 30%
Study and examination requirements	Cognitive: Midterm Exams, Final Exam, Practicum Exams, Assignments Psychomotor: Practicums Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course
Reading list	1. Jubb KVF, PC Kennedy and N Palmer. 1992. Pathology of Domestic Animals 4th Ed. Academic Press, Inc. 2. Cotran, RS. V. Kumar dan SL. Robin, 1994. Pathologic Basis of Disease 5th Ed. WB Saunders Company, USA 3. Carlton WW and MD McGavin. 1995. Thomson's Special Veterinary Pathology. 2nd Ed. Mosby Year Book. 4. Damjanov I. 1996. Histopathology. A color atlas and text book. Williams & Wilkins 5. Jones TC, RD Hunt and NW King. 1997. Veterinary Pathology 6th Ed. Williams & Wilkins. 6. McGavin MD, James F. Zachary. 2006. Pathologic Basis of Veterinary Disease. 4th Ed. Mosby

57. KRP 1414 Internal Medicine II: 2(2-0)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	7 th (odd) Semester
Person responsible for the module	Dr. drh. Retno Wulansari M.Si.
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, practicum classes, presentation, and independent learning through individual and group problem-based learning assignments. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 42 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hour x 14 weeks = 28 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Private study including examination preparation, specified in hours: Assignment: 0,5 hour x 14 weeks = 7 hours/semester Examination preparation = 4 hours/semester
Credit points	2 SCH x 1.5 = 3 ECTS
Required and recommended prerequisites for joining the module	Requires prerequisite course in Veterinary Internal Medicine I
Module objectives/intended learning outcomes	Able to explain definition, cause, pathogenesis, diagnosis, differential diagnosis, prognosis, and therapy in domestic animals acquired diseases as follows genital, urinary, endocrine and metabolism, musculoskeletal, hemopoiesis, and nerves system Students have a leadership spirit, be able to communicate politely and well, respect clients and team, and be responsible for work both independently and in a team
Content	This course learning acquired diseases in domestic animals. The main disorder topic elucidated is disease name, cause, pathogenesis, clinical sign, diagnosis (clinical and laboratory), differential diagnosis, prognosis, and therapy in genital, urinary, endocrine, metabolism, musculoskeletal, hemopoietic, and nerves systems.

Examination forms	<p>Midterm Exam : paper or online based test : 45%</p> <p>Final Exam : paper or online based test : 50%</p> <p>Assignment : 5%</p>
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam, Practicum Exams, Assignments</p> <p>Psychomotor: Practicums</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
Reading list	<ol style="list-style-type: none"> 1. Blood DC, Radostits OM, Henderson JA. 2000. Veterinary Medicine. 8th ed. 2. Davies C, Shell L. 2002. Common Small Animal Diagnoses. An Algorithmic Approach. Philadelphia: WB Saunders Company. Hlm 6-9, 72-75, 92-93, 130-133, 138-141, 194-199. 3. Ettinger SJ, Feldman EC. 1983. Textbook of Veterinary Internal Medicine. 4th Ed. by W.B. Saunders Comp. 4. Lavach. 1990. Large Animal Ophthalmology. Vol 1. The Mosby Comp. 5. Morgan RV. 2008. Handbook of Small Animal Practice. Ed ke-5. Vol 2.4. Blowey RWAD, Weaver, 1991. A Colour Atlas of Diseases & Disorders of Cattle. Wolfe Publishing Ltd. 6. Price SA dan Wilson LMC. 2006. Pathophysiology. The Concept of Clinical Disease Processes. Ed ke-6. Jakarta: Penerbit Buku Kedokteran EGC. 7. Stockham SL, Scott MA. 2002. Fundamentals of Veterinary Clinical Pathology. State Avenue, Ames, Iowa: A Blackwell Publishing Company. 8. Susan, E.A. 2000. The Merck Veterinary Manual. Published by Merck & Co. Corp. White House Station N.J. USA

58. KRP 1423 Veterinary Special Surgery II: 2(1-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	7 th and 6 th (odd and even) Semester
Person responsible for the module	Drh. R. Harry Soehartono, MAppSc., Ph.D prak
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, practicum classes, presentation, and independent learning through individual and group problem-based learning assignments. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 73.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 1 hours x 14 weeks = 14 hours/semester Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 6,5 hours/semester
Credit points	Theory : 1 SCH x 1.5 ECTS = 1.5 ECTS Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS Total Credits: 5.25 ECTS
Required and recommended prerequisites for joining the module	Requires prerequisite course in General Surgery
Module objectives/intended learning outcomes	Have the skills to explain the anesthesia process, risks and handling during surgery Have the skills to study the performance of cows and horses in leg erection, locomotion and lameness Have the skills to identify surgical disease cases in various regions of large animals
Content	This course discusses cases of surgical disease and recognizes various surgical techniques based on region, anesthesia, fractures and tumors in large animals.

Examination forms	<p>Midterm Exam : paper or online based test : 20%</p> <p>Final Exam : paper or online based test : 20%</p> <p>Practicum exam : 10%</p> <p>Problem-Based Learning Papers and Presentations : 50%</p>
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam, Practicum Exams, Assignments</p> <p>Psychomotor: Practicums</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
Reading list	<ol style="list-style-type: none"> 1. Adams .OR. (1987). <i>"Lameness in Horses"</i>. Lea & Febiger; 3rd edition 2. Greenoy. P.R. (1981). <i>"Lamness in Cattle"</i>. 3. Baxter GM. (2011) <i>"Adams and Stashak's Lameness in Horse"</i>. 4. Leslie <i>et.al.</i> (1977). <i>"Horse Shoeing Theory and Hoof Care"</i>. 5. Frank ER. (1981). <i>"Veterinary Surgery"</i>. Burgess Publishing Company. 6. Denoix JM. (2014). <i>"Biomechanics and Physical Training of the Horse"</i>. 7. Rooney JR. (1969). <i>"Biomechanics of Lameness in Horse"</i>. 8. Anneli Drummond-Hay. (1977). <i>"Horse Sense"</i>. 9. Lisa Mason's. <i>"Horse Massage"</i>. CD -Tutorial 10. Mc Gowan <i>et.al.</i> (2007) <i>"Animal Physioterapy"</i>. 11. Roger Blowey <i>"TV-Vet BOOK Horse"</i>. 12. Roger Blowey <i>"TV-Vet BOOK Cattle"</i>. 13. <i>"Roger Blowey "TV-Vet BOOK Sheep"</i>. 14. Rossdale DR. (1989). <i>"Veteinary Notes for Horse Owners"</i>. 15. Tony Pavord and Marcy Pavord (2009). <i>"Complete Equine Veterinary Manual"</i>. 16. e-Books 17. E-Video (You-Tube)

59. KRP 1424 Veterinary Radiology: 2(1-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	7 th and 6 th (odd and even) Semester
Person responsible for the module	Prof. drh. Deni Noviana, PhD, DAiCVIM
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, practicum classes, presentation, and independent learning through individual and group problem-based learning assignments. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 73.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 1 hours x 14 weeks = 14 hours/semester Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 6,5 hours/semester
Credit points	Theory : 1 SCH x 1.5 ECTS = 1.5 ECTS Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS Total Credits: 5.25 ECTH
Required and recommended prerequisites for joining the module	Requires prerequisite course in Diagnostic ClinC
Module objectives/intended learning outcomes	After completing this course, students will be able to explain the physics of radiation as a basis for diagnostic radiography (radiography), the principle of pulse-echo in ultrasound diagnostics, radiographic equipment, ultrasound equipment, quality control of radiographic films, the position of radiography, application of contrast media, and reading/interpretation of radiographs of the skull, spine extremities, thorax and abdomen
Content	This course describes how to use the electromagnetic radiation and sound waves in diagnosing animal diseases.

Examination forms	<p>Midterm Exam : paper or online based test : 20%</p> <p>Final Exam : paper or online based test : 20%</p> <p>Problem-Based Learning Papers and Presentations : 60%</p>
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam, Practicum Exams, Assignments</p> <p>Psychomotor: Practicums</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
Reading list	<ol style="list-style-type: none"> 1. Penninck dan d'Anjou. 2015. <i>Atlas of Small Animal Ultrasonography</i>. Iowa (US): John Wiley & Sons, Inc. 2. Thrall. 2002. <i>Textbook of Veterinary Radiology</i>. Philadelphia (US): Saunders Elsevier. 3. Kealy <i>et al.</i> 2011. <i>Diagnostic Radiology and Ultrasonography of the Dog and Cat</i>. Missouri (US): Saunders Elsevier. 4. Mannion P. 2006. <i>Diagnostic Ultrasound In Small Animal Practice</i>. Danvers (US): Blackwell Publishing Oxford. 5. Noviana D. 2017. <i>Atlas of Normal Radiography in Dogs and Cats</i>. Bogor (ID): IPB Press. 6. Noviana D. 2018. <i>Diagnostik Ultrasonografi pada Hewan Kecil</i>. Bogor (ID): IPB Press. 7. Noviana D. 2014. <i>Pencit</i>

60. KRP 1313 Clinical Pathology: 2(1-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	7 th and 6 th (odd and even) Semester
Person responsible for the module	Dr. drh. Anita Esfandiari M.Si.
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, practicum classes, presentation, and independent learning through individual and group problem-based learning assignments. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 73.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 1 hours x 14 weeks = 14 hours/semester Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 6,5 hours/semester
Credit points	Theory : 1 SCH x 1.5 ECTS = 1.5 ECTS Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS Total Credits: 5.25 ECTH
Required and recommended prerequisites for joining the module	Requires prerequisite course in general Pathology, Topography Anatomy, Physiology II

<p>Module objectives/intended learning outcomes</p>	<p>Able to explain abnormalities in healthy and sick animals based on physical, cellular, and biochemical changes in metabolites in various body fluids.</p> <p>Able to perform, categorize, and explain the types of laboratory examinations and the principle of the laboratory examinations carried out.</p> <p>Able to interpret and communicate the data laboratory from animals that did laboratory examination</p> <p>Able to analyze and explain the diagnosis from laboratory examinations data</p>
<p>Content</p>	<p>This course will discuss physical, cellular, and biochemical abnormalities of metabolites in various excrete of the animal body, including blood, urine, feces, and the cause and effect of such abnormalities.</p>
<p>Examination forms</p>	<p>Midterm Exam : paper or online based test : 35%</p> <p>Final Exam : paper or online based test : 35%</p> <p>Practicum : 30%</p>
<p>Study and examination requirements</p>	<p>Cognitive: Midterm Exams, Final Exam, Practicum Exams, Assignments</p> <p>Psychomotor: Practicums</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
<p>Reading list</p>	<ol style="list-style-type: none"> 1. Stockham SL. & MA Scott. 2008. Fundamentals of Veterinary Clinical Pathology 2. Kaneko JJ. 1998. Clinical Biochemistry of Domestic Animals 3. Coles E.H. 1986 Veterinary Clinical Pathology 4. Jain NC. 1993. Essential of Veterinary Hematology. Lea & Febiger. Philadelphia. 5. Duncan JR. 1992. Veterinary Laboratory Clinical Pathology. The Iowa state University Press Ames. Iowa

61. KRP 1444 Poultry Pathology: 2(2-0)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	8 th (even) Semester
Person responsible for the module	Dr. Drh. Sri Estuningsih, MSi, APVet
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, practicum classes, presentation, and independent learning through individual and group problem-based learning assignments. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 42 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hour x 14 weeks = 28 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Private study including examination preparation, specified in hours: Assignment: 0,5 hour x 14 weeks = 7 hours/semester Examination preparation = 4 hours/semester
Credit points	2 SCH x 1.5 = 3 ECTS
Required and recommended prerequisites for joining the module	Requires prerequisite course in Systemic Pathology II

<p>Module objectives/intended learning outcomes</p>	<p>Describes about euthanasia and poultry necropsy techniques</p> <p>Describes the tissue changes of the respiratory organ system due to disease</p> <p>Describes the tissue changes of the digestive organ system due to disease</p> <p>Describes various conditions of tissue changes from the lymphoreticular, locomotor and skin organ systems due to disease</p> <p>Describes about the tissue changes due to systemic infectious diseases</p> <p>Describes the tissue changes caused by disease with multifactorial agents</p> <p>Describes the tissue changes caused by tumors, metabolic disorders, and toxins</p> <p>Disease changes due to diseases caused by viral, bacterial, fungal, metabolic, tumor, and toxin</p>
<p>Content</p>	<p>This course explains the gross pathology (macroscopic) and histopathological changes (microscopic) in various infectious and non-infectious diseases that attack poultry (chicken and various types of birds) as well as their handling and prevention.</p>
<p>Examination forms</p>	<p>Midterm Exam : paper or online based test : 25%</p> <p>Final Exam : paper or online based test : 25%</p> <p>Problem-Based Learning Papers and Presentations : 50%</p>
<p>Study and examination requirements</p>	<p>Cognitive: Midterm Exams, Final Exam, Practicum Exams, Assignments</p> <p>Psychomotor: Practicums</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
<p>Reading list</p>	<p>Saif et al. 2008. Disease of Poultry. 10th ed. Iowa University Press.</p> <p>Jordan FTW. 1990. Veterinary Pathology 6th ed. Williams & Wilkins.</p> <p>Cotran, RS. V. Kumar dan SL. Robin, 1994. Pathologic Basis of Disease 5th ed. WB Saunders Company, USA</p> <p>Damjanov I. 1996. Histopathology A color atlas and text book. Williams & Wilkins</p> <p>Jubb KVF, PC Kennedy and N Palmer. 1992. Pathology of Domestic Animals 4th ed. Academic Press, Inc.</p> <p>McGavin MD, Zachary JF. Pathologic Basis of Veterinary Disease</p>

62. KRP 1415 Clinical Dietetics: 2(2-0)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	7 th and 8 th (odd and even) Semester
Person responsible for the module	Dr. drh. Sus Derthi Widhyari, MSi
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, practicum classes, presentation, and independent learning through individual and group problem-based learning assignments. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 42 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 2 hour x 14 weeks = 28 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Private study including examination preparation, specified in hours: Assignment: 0,5 hour x 14 weeks = 7 hours/semester Examination preparation = 4 hours/semester
Credit points	2 SCH x 1.5 = 3 ECTS
Required and recommended prerequisites for joining the module	Requires prerequisite course in Principle Nutrition Science
Module objectives/intended learning outcomes	After finished this course, students can explain nutrients necessary and apply for management (clinical dietetic solving) in all domestic animal species based on disease or organ damage.
Content	This course explains about the clinical dietetics of domesticated animals, based on their risk factors, diseases as well as organ abnormality. In general, each topic covered in this course will discuss the following: definition, etiology, symptoms, clinical manifestation, pathophysiology, clinical and laboratory diagnostics, differential diagnosis, therapeutic and clinical dietetics solution (dietary management).

Examination forms	<p>Midterm Exam : paper or online based test :20%</p> <p>Final Exam : paper or online based test : 20%</p> <p>Problem-Based Learning Papers and Presentations : 50%</p> <p>Assignment : 10%</p>
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam, Practicum Exams, Assignments</p> <p>Psychomotor: Practicums</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
1. Reading list	<ol style="list-style-type: none"> 1. Case LP, Daristotle L, Hayek M, Raasch MF. 2011. Canine and Feline Nutrition. 3rd Ed. 2. Mosby Elsevier 3. Davies C, Shell L. 2002. Common Small Animal Diagnoses. An Algorithmic Approach. 4. Philadelphia: WB Saunders Company. Hlm 6-9, 72-75, 92-93, 130-133, 138-141, 5. 194-199. 6. Ettinger SJ, Feldman EC. 1983. Textbook of Veterinary Internal Medicine. 4th Ed. by 7. W.B. Saunders Comp. 8. Hand et al, 2000. Small Animal Clinical Nutrition, 4th Edition. Walsworth Publish 9. Company, Marceline, Missouri. 10. Morgan RV. 2008. Handbook of Small Animal Practice. Ed ke-5. Vol 2.4. Blowey 11. RWAD, Weaver, 1991. A Colour Atlas of Diseases & Disorders of Cattle. Wolfe 12. Publishing Ltd. 13. 6. Pibot P et al., 2008. Encyclopediao of Feline Clinical Nutrition

63. KRP 1416 Clinical Demonstration: 1(0-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	8 th (even) Semester
Person responsible for the module	Dr. drh. Sus Derthi Widhyari, MSi
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, practicum classes, presentation, and independent learning through individual and group problem-based learning assignments. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 52.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Assignment: 1 hour x 3 weeks = 6 hours/semester Examination preparation = 7.5 hours/semester
Credit points	1 SCH x 2.5 x 1.5 = 3.75 ECTS
Required and recommended prerequisites for joining the module	Requires prerequisite course in krp411, krp323, krp421
Module objectives/intended learning outcomes	After completing this course, students can explain and demonstrate procedures for obtaining diagnosis of various cases of essential diseases in various domestic animals in the field, in laboratory, and through audiovisual and explain therapy for various cases.
Content	This course explains various topics of livestock and companion animals based on the type of disease or organ damage. In general, the clinical demonstration topic discussed is the case of essential diseases in various domestic animals directly in the field, in the laboratory and or through audiovisual including definitions, causes, symptoms and clinical manifestations, the pathophysiology of disease/disorders, diagnosis (clinical and laboratory), differential diagnosis, as well as therapy in pets based on the type of disease or organ damage

Examination forms	<p>Midterm Exam : paper or online based test : 25%</p> <p>Final Exam : paper or online based test : 25%</p> <p>Problem-Based Learning Papers and Presentations : 50%</p>
Study and examination requirements	<p>Cognitive: Midterm Exams, Final Exam, Practicum Exams, Assignments</p> <p>Psychomotor: Practicums</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
Reading list	<ol style="list-style-type: none"> 1. Davies C, Shell L. 2002. Common Small Animal Diagnoses. An Algorithmic Approach. Philadelphia: WB Saunders Company. Hlm 6-9, 72-75, 92-93, 130-133, 138-141, 194-199. 2. Ettinger SJ, Feldman EC. 1983. Textbook of Veterinary Internal Medicine. 4th Ed. by W.B. Saunders Comp. 3. Hand <i>et al</i>, 2000. Small Animal Clinical Nutrition, 4th Edition. Walsworth Publish Company, Marceline, Missouri. 4. Morgan RV. 2008. Handbook of Small Animal Practice. Ed ke-5. Vol 2.4. Blowey RWAD, Weaver, 1991. A Colour Atlas of Diseases & Disorders of Cattle. Wolfe Publishing Ltd. 5. Pibot P <i>et al.</i>, 2008. Encyclopedi of Feline Clinical Nutrition 6. Price SA dan Wilson LMC. 2006. Pathophysiology. The Concept of Clinical Disease Processes. Ed ke-6. Jakarta: Penerbit Buku Kedokteran EGC.

64. KRP 1451 Pharmaceutical Preparations and General Therapy: 2(1-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	7 th and 8 th (odd and even) Semester
Person responsible for the module	Dr. Lina Noviyanti Sutardi, S.Si, Apt, M.Si prak
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to-face lecture classes with the help of video screenings and discussion sessions, practicum classes, presentation, and independent learning through individual and group problem-based learning assignments. This course has been provided with handouts, PowerPoint, other references that are relevant, and audio-visual content created for this course.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 73.5 hours/semester Contact hours (please specify whether lecture, exercise, laboratory session, etc.): Lecture Class: 1 hours x 14 weeks = 14 hours/semester Practicum Class: 2.5 hours x 14 weeks = 35 hours/semester Midterm and Final Exams: 2 hours x 2 sessions = 4 hours total sessions Private study including examination preparation, specified in hours: Assignment: 1 hour x 14 weeks = 14 hours/semester Examination preparation: 6,5 hours/semester
Credit points	Theory : 1 SCH x 1.5 ECTS = 1.5 ECTS Practicum : 1 SCH x 2.5 x 1.5 ECTS = 3.75 ECTS Total Credits: 5.25 ECTH
Required and recommended prerequisites for joining the module	Requires prerequisite course in Toxicology

<p>Module objectives/intended learning outcomes</p>	<p>Explaining the definition of pharmacy and veterinary pharmacy, comparing veterinary pharmaceutical dosage forms and human drug dosage forms, detailing the classification of veterinary drugs, applying the basic principles of veterinary pharmaceutical dosage forms.</p> <p>Explain and apply solid dosage forms, understand and solve problems with dosage forms, formulations, manufacturing methods and evaluation methods for solid dosage forms</p> <p>Explain and apply semisolid dosage forms, understand and solve problems with dosage forms, formulations, manufacturing methods and evaluation methods for semisolid dosage forms</p> <p>Explain and apply liquid dosage forms, understand and solve problems of preparation, formulation, manufacturing methods and how to evaluate liquid dosage forms</p> <p>Explain and apply sterile preparations, understand and solve problems with dosage forms, formulations, manufacturing methods and how to evaluate sterile preparations</p> <p>Explain and apply aerosol preparations, understand and solve dosage problems, formulations, manufacturing methods and how to evaluate aerosol preparations</p> <p>Explain and apply cosmetic preparations, understand and solve problems with dosage forms, formulations, manufacturing methods and how to evaluate cosmetic preparations</p> <p>Explain and apply herbal preparations, understand and solve problems with dosage forms, formulations, manufacturing methods and how to evaluate herbal preparations</p> <p>Explain and apply Cara Pembuatan Obat Hewan yang Baik (CPOHB), understand registration procedures and supervision of veterinary pharmaceutical dosage forms. Recognize and be interested in the market share of veterinary pharmaceutical products.</p> <p>Explain and apply, understand and solve problems related to non-pharmaceutical therapy</p>
<p>Content</p>	<p>This course studies the general theory of veterinary pharmaceutical dosage forms, basic principles of veterinary pharmaceutical dosage forms, circulating veterinary drug classes, distribution and control of veterinary drugs, problems of veterinary pharmaceutical dosage forms, formulations, manufacturing methods and Good manufacturing practice for veterinary drugs (<i>Cara Pembuatan Obat Hewan yang Baik/CPOHB</i>), application of aerosol preparations, sterile preparations, veterinary cosmetics, natural medicines, and non-pharmaceutical therapy.</p>

<p>Study and examination requirements</p>	<p>Cognitive: Midterm Exams, Final Exam, Practicum Exams, Assignments</p> <p>Psychomotor: Practicums</p> <p>Affective: Assessed from the element/variables achievement, namely contributions (attendance, active participation, role, initiative, language), being on time, and effort during the course</p>
<p>Reading list</p>	<ol style="list-style-type: none"> 1. Kementerian Kesehatan.1995. Farmakope Indonesia. Edisi Empat. Jakarta. 2. Kementerian Kesehatan. 2014. Farmakope Indonesia. Edisi Lima. Jakarta. 3. Dirjen POM RI. 1987. Cara Pembuatan Obat Yang Baik dan Benar, Edisi Kedua, Jakarta. 4. Kementerian Pertanian. 2008. Farmakope Obat Hewan Indonesia, Jakarta. 5. Tranggono RI, Latifah F. 2007. Buku Pegangan Ilmu Pengetahuan Kosmetik. Gramedia Pustaka Utama. Jakarta. 6. Suharmi S, Murini T. 2009. Bentuk Sediaan Obat. Bagian Farmasi Kedokteran Fakultas Kedokteran UGM. Yogyakarta 7. Didona N. 2013. Sediaan dan Dosis Obat. Penerbit Erlangga. Jakarta. 8. Gibson M. 2009. Pharmaceutical Preformulation and Formulation, Second Edition, Informa Health Care, New York. 9. Harborne JB. 1987. Metode Fitokimia. ITB Press. Bandung. 10. Howard C. A. 2010. Bentuk Sediaan Farmasetis dan Sistem Penghantaran Obat, Edisi sembilan, Penerbit EGC, Jakarta. 11. Voight R, 1996, Teknologi Farmasi, Edisi Kedua, Gajah Mada Press, Yogyakarta. 12. Barel AO., Paye M., Maibach HI, 2009, Handbook of Cosmetics Science and Technology, Third Edition, Informa, New York. 13. Government regulation regarding the classification, registration, distribution, use, and control of veterinary drugs. 14. Relevant scientific publication articles

65. FKH 1405 Colloquium 1(0-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	7 th and more (odd and even) Semester
Person responsible for the module	Dr Wahono Esthi Prasetyaningtyas, M.Si
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to- face discussion sessions, pre-research and writing final research proposal , Oral Presentation and Discussion
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 52.5 hours/semester Discussion: 1 hours x 14 weeks = 14 hours/semester writing research proposal: 2.5 hours x 14 sessions = 42 hours total Preparation : 2.5 hours/semester Oral Presentation and discussion = 1 hours/semester
Credit points	1 SCH x2.5x 1.5 = 3.75 ECTS
Required and recommended prerequisites for joining the module	Requires prerequisite in all courses
Module objectives/intended learning outcomes	Students can explain communicatively and interpretively their research.
Content	Content of undergraduate thesis depend on the research
Examination forms	Presentation and oral examination : 100%
Study and examination requirements	Cognitive: discussion about topic research Psychomotor: presentation
Reading list	[PPKI] Pedoman Penulisan Karya Ilmiah IPB. edisi 4. 2020. IPB Press.

66. 1406 Seminar 1(0-1)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	8 th and more (odd and even) Semester
Person responsible for the module	Dr Drh Ronald Tarigan, M.Si
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to- face discussion sessions, research and writing final project, Oral Presentation and Discussion
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 52.5 hours/semester Discussion: 1 hours x 14 weeks = 14 hours/semester writing research proposal: 2.5 hours x 14 sessions = 42 hours total Preparation : 2.5 hours/semester Oral Presentation and discussion = 1 hours/semester
Credit points	1 SCH x2.5x 1.5 = 3.75 ECTS
Required and recommended prerequisites for joining the module	Requires prerequisite in all courses
Module objectives/intended learning outcomes	Students can explain communicatively and interpretively their research.
Content	Content of undergraduate thesis depend on the research
Examination forms	Presentation and oral examination : 100%
Study and examination requirements	Cognitive: discussion about topic research Psychomotor: presentation
Reading list	[PPKI] Pedoman Penulisan Karya Ilmiah IPB. edisi 4. 2020. IPB Press.

67. FKH 1407 Undergraduate Thesis 4(0-4)

Module designation	Bachelor Veterinary Science Program
Semester(s) in which the module is taught	8 th and more (odd and even) Semester
Person responsible for the module	Dr Drh Wahono Esthi Prasetyaningtyas, M.Si
Language	Indonesian (regular class), English (international class)
Relation to curriculum	Compulsory course for Bachelor Veterinary Science Program
Teaching methods	Face-to- face discussion sessions, research and writing final project.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 210 hours/semester Discussion: 2.5 hours x 14 weeks = 35 hours/semester Research: 8 hours x 14 weeks = 112 hours/semester writing final project: 2.5 hours x 14 sessions = 35 hours total Preparation for final exam : 25 hours Final Exam : 3 hours
Credit points	4 SCH x 2.5 x 1.5 = 15 ECTS
Required and recommended prerequisites for joining the module	Requires prerequisite in all courses
Module objectives/intended learning outcomes	Students can explain communicatively and interpretively their research.
Content	Content of undergraduate thesis depend on the research
Examination forms	Presentation and oral examination : 100%
Study and examination requirements	Cognitive: final exam Psychomotor: research
Reading list	[PPKI] Pedoman Penulisan Karya Ilmiah IPB. edisi 4. 2020. IPB Press.

