

## Module Handbook

Nama modul:	Angiology and Neurology
Level modul:	Bachelor
Abbreviation, if applicable:	KHU 1012
Sub-Heading, if applicable	-
Courses included in the module, if applicable	-
Semester/term:	Second semester/First year
Module Coordinator(s):	Dwi Liliek Kusindarta, DVM., M.Sc., Ph.D.
Lecturer(s):	Dr. Hery Wijayanto, DVM., M.Sc. Dwi Liliek Kusindarta, DVM., M.Sc., Ph.D. Woro Danur Wendo, DVM., M.Sc.
Language:	Indonesian
Classifications within the curriculum:	Compulsory Course
Teaching Format/ class hours per weeks during the semester:	2 hours lecturer every weeks, 1 hours practicum (laboratory work) every weeks, 2 hours Focus Group Discussion (FGD) every 2 weeks
Workload	2 hours lecturer every weeks (in total 28 hours in 1 semester) and 2 hours practicum, 1 hour practicum reports, 16 hours FGD; in total 92 hours/ semester (1 semesters consist of 16 weeks)
Credit points:	3 (2/1)
Requirements	Osteology, arthrology, myology, and splanchnology
Learning goals/ competencies:	<p><b>a. Knowledge and understanding in terms of:</b></p> <ol style="list-style-type: none"> <li>1. Central nervous, peripheral nerves, somatic nerves, autonomic nerves (sympathetic and parasympathetic), sensory and motor</li> <li>2. Morphology of the nervous system which includes the morphology of the encephalon and spinal cord</li> <li>3. Cranial nerves and spinal nerves, including the types, properties and networks which are innervated</li> <li>4. Brachial plexus and innervation of the cranial extremities</li> <li>5. Lumbosacral plexus and innervation of the caudal extremities</li> <li>6. Sensory organs including the skin, eyes, ears, nose, and tongue</li> <li>7. The hearth (cor) morphology and blood vessels which exit or headed to hearth (cor)</li> <li>8. Blood vessels in the cranium, cervix, thorax, abdominal, and extremity areas as well as the supplied network</li> <li>9. Lymphatic system: lymph node / nodule, lymph center, and lymph gland</li> </ol> <p><b>b. Analytical ability or competence:</b></p> <ol style="list-style-type: none"> <li>1. To have an ability to explain the morphology of the encephalon, cranial nerves and relationships each part with another body system and the basic difference on various domestic animals</li> </ol>

	<ol style="list-style-type: none"> <li>2. To have an ability to explain the morphology of the spinal cord, spinal nerves, and relationships organs / tissues are innervated.</li> <li>3. To have an ability to explain the name / type of nerves based on morphology, location and organ which are innervated</li> <li>4. Able to explain the various sensory organs in domestic animals.</li> <li>5. To have an ability to explain the morphology of hearth (cor) and also the parts of the hearth; To have an ability to explain the basic differences of the hearth on a variety of domestic animals</li> <li>6. To have an ability to explain blood vessels in the cranium area, cranial extremities, caudal extremities, thorax and abdomen along with the area supplied; and able to explain differences in various domestic animals including morphology and location.</li> <li>7. To have an ability to describe the lymphatic system components, able to describe the structure, morphology and topography of primary and secondary lymphoid organs: thymus, bursa fabricius, bone marrow, lien, lymph node / lymph nodes, including lympho centers, and lymph vessels.</li> </ol> <p><b>c. Practical skills:</b></p> <ol style="list-style-type: none"> <li>1. To demonstrate an ability of basic skills how to take an encephalon, spinal cord and various ganglia; To demonstrate an ability to identify the parts of encephalon, spinal cord and various ganglia</li> <li>2. To demonstrate an ability to do a preparation and identification of cranial and spinal nerves and also the innervated tissue which innervated by the nerves</li> <li>3. To demonstrate an ability to do a preparation and identification the parts of the hearth</li> <li>4. To demonstrate an ability to do a preparation and identification of blood vessel and tissue which is supplied by the vessels</li> <li>5. To demonstrate an ability to do a preparation and identification of sensory and parts of its.</li> </ol> <p><b>d. Managerial and Transferable Skill</b></p> <ol style="list-style-type: none"> <li>1. Independent, creative and innovative in enhancing knowledge by utilizing information technology and other resources to improve knowledge and understanding</li> <li>2. Able to work and learn in groups or teams to improve the skills and knowledge</li> <li>3. Able to communicate his or her knowledge and opinions both on oral and writing</li> </ol> <p><b>e. Attitude</b></p> <ol style="list-style-type: none"> <li>1. Faithful and fearful to God Almighty,</li> <li>2. Honest, fair, integrity, and polite,</li> </ol>
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	<ol style="list-style-type: none"> <li>3. Proficient, academic, and professional,</li> <li>4. Curious (curiosity), innovative, dynamic, and efficient,</li> <li>5. Appreciate the originality of ideas, concepts, and other discoveries,</li> <li>6. Appreciate the interdisciplinary efforts in exploring, utilizing and conserve natural resources</li> <li>7. Give an attention and could appreciate the views and opinions of others.</li> </ol>
Content	<ol style="list-style-type: none"> <li>1. Central nervous system (Encephalon and Spinal cord),</li> <li>2. The peripheral nervous system</li> <li>3. (The cranial nerves and innervation area, cranium and cervix, Spinal nerve, brachial plexus, lumbosacral plexus, autonomic nerves and enteric nerves)</li> <li>4. Sensory organs (Vision, Smell, Hearing, Taste, and Feeler)</li> <li>5. The Cardiovascular (Cor, Vascularization of cranium-cervix, Vascularization of the abdominal thorax, Vascularization of cranial extremities, Vascularization of caudal extremities)</li> <li>6. The lymphatic system</li> </ol>
Study/ exam achievement:	<p>Assessment of students includes practicum, Focus group Discussion (FGD), Mid Term Examination, and Final Examination.</p> <p>Quizzes held at the beginning or end of the meeting are preferred to evaluate discipline (attendance, presenting signature correction), hours of attendance, and understanding. The quiz value for the final consideration item on changing the value of a number to a letter grade.</p> <p>The final value composition is: 15% FGD, 25% Practicum, and 30% midterm examination + 30% final examination.</p> <p>The FGD assessment component includes: attitude (discipline of arrival, dress order and way of discussion), discussion and understanding activities.</p> <p>The practicum component includes: pretest and / or post test values, and responses (practice test, preparatory identification).</p> <p>Final indexed is defined as follow:</p> <p>A : 100 &gt;NA ≥75  A- : 75 &gt;NA ≥72.5  A/B : 72.5 &gt;NA ≥ 70  B+ : 70 &gt;NA ≥67.5  B : 67.5 &gt;NA ≥65  B- : 65 &gt;NA ≥62.5  B/C : 62.5 &gt;NA ≥60  C+ : 60 &gt;NA ≥57.5  C : 57.5 &gt;NA ≥55</p>

	<p>C- : <math>55 &gt; NA \geq 52.5</math>  C/D : <math>52.5 &gt; NA \geq 50</math>  D+ : <math>50 &gt; NA \geq 47.5</math>  D : <math>47.5 &gt; NA \geq 45</math>  E : <math>NA &lt; 45</math>  (absolue score)</p>
Forms of Media:	Power point slides and LCD projectors, whiteboard, laboratory
Literature:	<ol style="list-style-type: none"> <li>1. Sisson, S., Grossman, JD., Getty, R., Sisson and Grossman's the Anatomy of the Domestic Animals</li> <li>2. Konig, HE., Liebich, H., Veterinary Anatomy of Domestic Mammals: Textbook and Colour Atlas</li> <li>3. Miller, ME., Evans, HE., Christensen, GC., Miller's Anatomy of the Dog</li> <li>4. Budras, KD., Sack, WO., Rock, S., Horowitz, A., Berg, R., Anatomy of the Horse</li> <li>5. Budras, KD., Habel, RE., Mulling, CKW., Greenough, PR., Jahmaker, G., Richer, R., Starke, D., Bovine Anatomy: An Illustrated Text</li> </ol>
Notes:	if absolute score on the Final Examination cannot be applied, the calculation with relative score will be conducted.

## RPKPS Angiologi dan Neurologi

Nama Modul:	Angiologi dan Neurologi
Program studi:	Sarjana S1
Singkatan/kode:	KHU 1012
Sub-Heading, if applicable	-
Courses included in the module, if applicable	-
Semester/ Periode:	Semester 2/ Tahun Pertama
Koordinator:	drh. Dwi Liliek Kusindarta, M.P., Ph.D.
Pengajar:	Dr. drh. Hery Wijayanto, M.P. drh. Dwi Liliek Kusindarta, M.P., Ph.D. drh. Woro Danur Wendo, M.Sc.
Bahasa pengantar:	Bahasa Indonesia
Klasifikasi mata kuliah dalam kurikulum :	Mata Kuliah Wajib
Format tatap muka/ jumlah jam dalam seminggu selama 1 semester:	2 jam kuliah setiap minggu, 1 jam praktikum setiap minggu, dan 2 jam Focus Grup Discussion (FGD) setiap 2 minggu sekali
Beban Kerja:	2 jam mengajar/tatap muka (1 semester ( 14 minggu)) dan 1 sks / praktikum (1 semester): 2 jam praktikum, 1 jam kerja struktural (laporan praktikum), 8 jam FGD ; total 92 jam/ semester
Jumlah sks:	3 (2/1)
Prasyarat:	Osteologi, arthrologi, miologi dan splanchnologi
Tujuan pembelajaran/ kompetensi :	<p><b>a. Pengetahuan dan Pemahaman (<i>knowledge and understanding</i>) dalam hal</b></p> <ol style="list-style-type: none"> <li>1. Pengertian/definisi saraf pusat, saraf tepi, saraf somatik, saraf otonom (simpatik dan parasimpatik), sensorik, motorik.</li> <li>2. Morfologi sistem saraf yang meliputi morfologi encephalon dan medula spinalis dan bagian-bagiannya.</li> <li>3. Saraf cranial dan saraf spinal, jenis, sifat serta jaringan yang dipersarafi.</li> <li>4. Plexus brachialis dan persarafan pada extremitas cranial.</li> <li>5. Plexus lumbosacral dan persarafan pada extremitas caudal.</li> <li>6. Organ sensorik yang meliputi mata, telinga, hidung, lidah, kulit.</li> <li>7. Morfologi, topografi cor dan bagian-bagiannya serta pembuluh darah yang keluar atau menuju ke cor.</li> <li>8. Pembuluh darah pada daerah cranium, cervix, thorax, abdomen, dan extremitas serta jaringan yang disuplai.</li> <li>9. Sistem limfatika : thymus, bursa fabricius, bone marrow, lien, nodus/nodus limfatikus, termasuk limfo center, dan vasa-vasa limfatik</li> </ol> <p><b>b. Kemampuan analisis (<i>ability/ intellectual skill</i>)</b></p>

	<ol style="list-style-type: none"> <li>1. Mampu menjelaskan morfologi bagian encephalon, saraf cranial dan hubungan setiap bagiannya dengan sistem tubuh yang lain dan perbedaan dasar pada berbagai hewan domestik</li> <li>2. Mampu menjelaskan morfologi medula spinalis, saraf spinal, dan hubungan organ/jaringan yang disarafi.</li> <li>3. Mampu menjelaskan nama/jenis saraf berdasar morfologi, lokasi dan organ yang disarafi.</li> <li>4. Mampu menjelaskan berbagai organ sensorik dan strukturnya pada hewan domestik.</li> <li>5. Mampu menjelaskan morfologi cor dan bagian-bagiannya dan perbedaan dasar pada berbagai hewan domestik.</li> <li>6. Mampu menjelaskan pembuluh darah pada daerah cranium, ekstremitas cranial, caudal, thorax dan abdomen beserta daerah disuplai dan mampu menjelaskan perbedaan pada berbagai hewan domestik meliputi morfologi dan lokasi.</li> <li>7. Mampu menjelaskan (deskriptif maupun dengan gambar) komponen sistem limfatik, mampu mendeskripsikan struktur, morfologi dan topografi organ limfoid primer maupun sekunder : thymus, bursa fabricius, bone marrow, lien, nodus/nodus limfatikus, termasuk limfo center, dan vasa limfatik.</li> </ol> <p><b>c. Keterampilan praktek (<i>practical skill</i>)</b></p> <ol style="list-style-type: none"> <li>1. Memiliki keterampilan dasar pengambil encephalon, medula spinalis dan berbagai ganglia serta mengidentifikasi bagian-bagiannya</li> <li>2. Memiliki keterampilan preparasi dan identifikasi saraf cranial dan spinal serta jaringan yang diinervasi</li> <li>3. Memiliki keterampilan preparasi dan identifikasi bagian-bagian cor</li> <li>4. Memiliki keterampilan preparasi pembuluh darah dan identifikasi pembuluh darah beserta jaringan yang disuplai</li> <li>5. Memiliki keterampilan preparasi organ sensorik dan identifikasi bagian-bagiannya</li> </ol> <p><b>d. Kemampuan Manajerial dan Alih Ilmu (<i>Managerial &amp; Transferable skill</i>)</b></p> <ol style="list-style-type: none"> <li>1. Mandiri, kreatif dan inovatif dalam menambah wawasan pengetahuan dengan memanfaatkan teknologi informasi dan sumber referensi lain untuk meningkatkan pengetahuan dan pemahaman</li> <li>2. Mampu bekerja dan belajar secara berkelompok/tim untuk meningkatkan keterampilan dan pengetahuan</li> <li>3. Mampu menyampaikan pengetahuan dan pendapatnya secara lisan dan tertulis</li> </ol>
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	<p><b>e. Sikap (<i>attitude</i>)</b></p> <ol style="list-style-type: none"> <li>1. Beriman dan bertakwa kepada Tuhan Yang Maha Esa,</li> <li>2. Jujur, adil, berintegritas, dan santun,</li> <li>3. Cakap, akademis, dan profesional,</li> <li>4. Ingin tahu (<i>curiosity</i>), inovatif, dinamis, dan efisien,</li> <li>5. Menghargai keorisinalan ide, konsep, dan penemuan lainnya,</li> <li>6. Menghargai upaya interdisiplin dalam mengeksplorasi, memanfaatkan dan melestarikan sumber daya alam, dan</li> <li>7. Memperhatikan dan dapat menghargai pandangan dan pendapat orang lain.</li> </ol>
Materi:	<ol style="list-style-type: none"> <li>1. Sistem saraf pusat (Encephalon, Medula spinalis, Sistem saraf tepi)</li> <li>2. Sistem saraf pusat (Encephalon, Medula spinalis, Sistem saraf tepi, Saraf cranial dan saraf yang menginervasi region cranium dan cervix, Saraf spinal, plexus brachialis, Saraf spinal, plexus lumbosacral, Saraf otonom dan saraf enteric)</li> <li>3. Organ sensorik (Pengelihat, Pembau, Pendengaran, Pengecap, Peraba)</li> <li>4. Cardiovascular (Cor, Vascularisasi pada cranio-cervix, Vascularisasi pada thorax abdomen, Vascularisasi pada extremitas cranial, Vascularisasi pada extremitas caudal)</li> <li>5. Sistem limphatica</li> </ol>
Penilaian studi/ pencapaian:	<p>Penilaian mahasiswa meliputi praktikum, FGD, UTS, dan UAS.</p> <p>Kuis yang diadakan pada awal atau akhir pertemuan lebih diutamakan untuk mengevaluasi kedisiplinan (kehadiran, koreksi presensi tanda tangan), jam kehadiran, dan pemahaman.</p> <p>Nilai kuis untuk bahan pertimbangan akhir pada perubahan nilai angka ke nilai huruf.</p> <p>Komposisi nilai akhir adalah: FGD 15 %, Praktikum 25%, dan UTS + UAS 60%.</p> <p>Komponen penilaian FGD meliputi: attitude (kedisiplinan kedatangan, ketertiban berpakaian dan cara berdiskusi), aktifitas diskusi dan pemahaman.</p> <p>Komponen praktikum meliputi: nilai pretest dan atau post test, dan responsi (ujian praktikum, identifikasi preparat).</p> <p>Index nilai adalah sebagai berikut:  A : 100 &gt; NA ≥ 75</p>

	<p>A- : 75 &gt;NA <math>\geq</math>72.5  A/B : 72.5 &gt;NA <math>\geq</math> 70  B+ : 70 &gt;NA <math>\geq</math>67.5  B : 67.5 &gt;NA <math>\geq</math>65  B- : 65 &gt;NA <math>\geq</math>62.5  B/C : 62.5 &gt;NA <math>\geq</math>60  B/C : 62.5 &gt;NA <math>\geq</math>60  C+ : 60 &gt;NA <math>\geq</math>57.5  C : 57.5 &gt;NA <math>\geq</math>55  C- : 55 &gt;NA <math>\geq</math> 52.5  C/D : 52.5 &gt;NA <math>\geq</math>50  D+ : 50 &gt;NA <math>\geq</math>47.5  D : 47.5 &gt;NA <math>\geq</math>45  E : NA &lt; 45</p> <p>(Nilai absolut)</p>
Media penyampaian materi:	Power point slides dan LCD projectors, whiteboard, laboratory
Referensi:	<ol style="list-style-type: none"> <li>1. Sisson, S., Grossman, JD., Getty, R., Sisson and Grossman's the Anatomy of the Domestic Animals</li> <li>2. Konig, HE., Liebich, H., Veterinary Anatomy of Domestic Mammals: Textbook and Colour Atlas</li> <li>3. Miller, ME., Evans, HE., Christensen, GC., Miller's Anatomy of the Dog</li> <li>4. Budras, KD., Sack, WO., Rock, S., Horowitz, A., Berg,R., Anatomy of the Horse</li> <li>5. Budras, KD., Habel, RE., Mulling, CKW., Greenough, PR., Jahmaker, G., Richer,R., Starke,D., Bovine Anatomy: An Illustrated Text</li> </ol>
Catatan:	jika penilaian absolut tidak tercapai pada saat ujian akhir maka akan dilakukan perhitungan menggunakan nilai relatif (rata-rata kelas).



