

Course Title	Anatomy II				
Course Code	VET-109				
Course Type	Required				
Level	Undergraduate				
Year / Semester	Year 1/ Semester 2 (Spring)				
Teacher's Name	Course Lead: Dr Kyriakos Spanoudes Contributor: Dr Catalina Cabrera				
ECTS	6	Lectures / week	3	Laboratories / week	2
Course Purpose and Objectives	<p>The main objectives of the course are to:</p> <ul style="list-style-type: none"> • teach the students the form and structure of the mammalian body and its parts. • help the students localize identify and properly name and describe the various tissues and organs in the canine body. 				
Learning Outcomes	<p>The following list provides the learning objectives (LOBs) that will be covered in the lectures and lab practicals of each week:</p> <p>Week 1</p> <p>LOBs covered during lectures:</p> <ol style="list-style-type: none"> 1. Describe the main abdominal muscles. 2. Discuss the main functions of the abdominal muscles. 3. Describe the innervation of the abdominal muscles. 4. Describe the fascial sheath of the M. rectus abdominus 5. Explain what is the Linea alba and discuss which muscles insert into it. 6. Describe the inguinal canal and explain which structures it contains 7. Describe the processus vaginalis peritonei 8. Describe the M. cremaster, its origin, function, and innervation. <p>Week 2</p> <p>LOBs covered during practical:</p> <ol style="list-style-type: none"> 9. Identify the muscles of the abdomen 10. Identify the innervation of the abdominal muscles 11. Identify the fascial sheath of the M. rectus abdominus 12. Identify the Linea Alba the oblique and transverse abdominal muscles and the M. rectus abdominis that insert into it, describe where the M. tendo prepubicus fuses into it. 13. Locate the umbilicus 14. Isolate the spermatic cord (in the male) 15. Identify the Anulus vaginalis by following the testicular blood vessels and the Ductus deferens to the abdominal wall. 16. Identify the M. cremaster covering the spermatic cord 				

17. Identify the Anulus vaginalis (in the female) by following the Lig. teres uteri to the abdominal wall.
18. Locate the inguinal canal

Week 3

LOBs covered during lectures:

19. Describe the components of the abdominal cavity and the borders of the abdominal cavity.
20. Describe Blood Supply and Venous Drainage of the Abdominal Viscera
21. Describe the abdominal autonomic nerves.
22. Describe the diaphragm.
23. Describe the peritoneum and its function.
24. Describe the omenta (greater and lesser) and their various functions.
25. Explain what the rotation of the stomach is
26. Describe the mesentery and what it comprises
27. Explain what the rotation of the intestine is
28. Describe the stomach (unilocular stomach), its position in the abdomen and its function
29. Explain what a gastric dilatation volvulus is and discuss the treatment.

LOBs covered during practical:

30. Identify the underlying anatomy of the main abdominal organs, using superficial physical landmarks and surface lines.
31. Plot the boundaries of the abdominal cavity on a mounted skeleton.
32. Identify the blood supply and venous drainage of all the abdominal viscera.
33. Locate the abdominal autonomic nerves
34. Identify the diaphragm, locate its insertion points.
35. Identify the peritoneum and the omenta (greater and lesser)
36. Locate the omental bursa and describe the blood vessels passing in it.
37. Identify the mesentery
38. Identify the stomach, recognize the curvature major, curvature minor
39. Recognize the mucosal lining of the stomach, notice it is homogenous and consists of a simple cylindrical epithelium with glands; the dog is therefore said to have a simple glandular stomach.

Week 4

LOBs covered during lectures:

40. Describe the surface anatomy, key anatomical features, anatomical relations, vascular supply, nerve supply, and histological structure the small intestine.
41. Name the three parts of the small intestine: Duodenum, Jejunum and Ileum. Explain, as the three parts are not clearly demarcated by their physical appearance, they are defined by other specific anatomical features.
42. Describe the three different parts of the duodenum.

43. Describe the Jejunum.
44. Describe the Ileum.
45. Describe the large intestine and its primary functions. Name its three parts.
46. Describe the cecum, discuss that the dog cecum is an artefact of evolution and has no known function.
47. Name the three parts of the colon.

LOBs covered during practical:

48. Identify the small intestine. Notice how it extends from the pylorus to the large intestine.
49. Try to distinguish the three parts of the small intestine.
50. Identify the duodenum that comprises of three parts.
51. Identify the Jejunum
52. Identify the Ileum.
53. Identify the large intestine, differentiate its three parts.
54. Locate the cecum.
55. Identify the three parts of the colon.
56. Describe the structures that can be palpated via a rectal examination in the male and the female.
57. Perform an ultrasound examination of the digestive system on a living animal.

Week 5**LOBs covered during lectures:**

58. Describe and demonstrate the surface anatomy of the liver.
59. Describe and the anatomical and functional lobes of the liver.
60. Describe the structures of the porta hepatis.
61. Describe, in general terms, the hepatic portal circulation.
62. Describe the structures that comprise the porto-caval anastomoses (oesophageal, umbilical, lumbar and rectal).
63. Describe the clinical significance of the porto-caval anastomoses
64. Describe the major components of the biliary tract (gall bladder, extrahepatic biliary ducts).
65. Describe the major features of the gallbladder (e.g. neck, fundus).
66. Describe the surface anatomy of the pancreas, name its functions (exocrine and endocrine)
67. Describe the major parts of the pancreas.
68. Describe the main (and accessory) pancreatic ducts- their course, and where they drain in the duodenum.
69. Describe the blood supply of the pancreas
70. Describe the spleen, its functions and major parts of the spleen (anterior and posterior borders, hilum).
71. discuss the fact that the spleen is not essential to life and splenectomy (the surgical removal of the spleen) is a fairly common procedure; however, this does impair the dog's defence mechanisms.
72. Identify the major visceral organs in X-rays (liver, pancreas spleen)

LOBs covered during practical:

73. Identify the liver
74. Identify the anatomical and functional lobes of the liver and the hepatic ligaments.
75. Identify the structures of the porta hepatis
76. Identify the structures that comprise the porto-caval anastomoses (oesophageal, umbilical, lumbar and rectal).
77. Identify the major components of the biliary tract (gall bladder, extrahepatic biliary ducts).
78. Identify the major features of the gallbladder (e.g., neck, fundus).
79. Identify the surface anatomy of the pancreas
80. Identify the major parts of the pancreas
81. Identify the main (and accessory) pancreatic ducts- their course, and where they drain in the duodenum
82. Identify the blood supply of the pancreas
83. Identify the major parts of the spleen (anterior and posterior borders, hilum).
84. Perform an ultrasound examination of the liver on a living animal.

Week 6

LOBs covered during lectures:

85. Discuss the osteology of the pelvis
86. Describe the muscles of the pelvic girdle
87. Describe the perineum, its function and the muscles of the perineum
88. Describe the pelvic diaphragm
89. Name the perineal muscles of the male.
90. Name the perineal muscles of the female.
91. Discuss the pelvic symphysis and its ligaments
92. Discuss the rectum and the anal canal

LOBs covered during practical:

93. Identify the various components of the pelvis
94. Identify the muscles of the pelvic girdle.
95. Identify the perineum
96. Identify the pelvic diaphragm
97. Locate the perineal muscles of the male
98. Locate the perineal muscles of the female.
99. Identify the pelvic symphysis and its ligaments.
100. Locate the rectum and the anal canal.

Week 7

LOBs covered during lectures:

101. Describe the position, size and shape of the kidneys.
102. Describe blood supply and drainage of the kidneys
103. Outline the innervation of the kidneys and ureters
104. Describe ureters (course and level of their constrictions).
105. Describe the course and anatomical relations of ureters.
106. Outline the blood supply and innervation of the ureters.
107. Describe the anatomy of the bladder.

108. Outline the blood supply/drainage of the bladder.
109. Outline the innervation of the bladder.
110. Describe the internal anatomy of the bladder (trigone, rugae, detrusor muscle).
111. Describe the anatomy of the female urethra.
112. Outline the anatomical relations of the female urethra
113. Describe the internal vs. external urethral sphincter.
114. Outline the anatomy of different parts of the male urethra.
115. Describe the anatomy of the prostate and the prostatic urethra.
116. Outline the openings of ejaculatory ducts.
117. Describe the urinary bladder (major features and relations in male and females).
118. Outline the course and anatomical relationships of the urethra in males and females).

LOBs covered during Practical:

119. Outline the position, size and shape of the kidneys.
120. Describe blood supply and drainage of the kidneys (noting variability).
121. Outline the innervation of the kidneys and ureters.
122. Outline the position, size and shape of the kidneys.
123. Describe ureters (course and level of their constrictions).
124. Describe the course and anatomical relations of ureters.
125. Outline the blood supply and innervation of the ureters.
126. Describe the anatomy of the bladder.
127. Outline the blood supply/drainage of the bladder.
128. Outline the innervation of the bladder.
129. Describe the internal anatomy of the bladder (trigone, rugae, detrusor muscle).
130. Describe the anatomy of the female urethra.
131. Outline the anatomical relations of the female urethra.
132. Describe the internal vs. external urethral sphincter.
133. Outline the anatomy of different parts of the male urethra.
134. Describe the anatomy of the prostate and the prostatic urethra.
135. Outline the openings of ejaculatory ducts.
136. Describe the urinary bladder (major features and relations in male and females).
137. Outline the course and anatomical relationships of the urethra in males.
138. Perform an ultrasound examination of the urinary system on a living animal.

Week 8

LOBs covered during lectures:

139. Describe the major features of the male reproductive organs (scrotum, testis, epididymis).
140. Describe the major constituents of the spermatic cord
141. Outline the descent of the testes from the posterior abdominal wall, through the inguinal canal, into the scrotum.
142. Describe and identify the origin, course, embryological significance, and relations of the testicular arteries and veins.

143. Describe the role of cremasteric muscle, dartos muscle and pampiniform plexus of veins in maintaining the optimum temperature for spermatogenesis.
144. Describe the role of cremasteric muscle, dartos muscle and pampiniform plexus of veins in maintaining the optimum temperature for spermatogenesis.
145. Describe the major features of the urethra in males (prostatic, membranous and spongy)
146. Describe the major features of the prostate gland.
147. Describe the location and function of the bulbourethral gland.
148. Describe the major components of the penis (corpora cavernosa, corpus spongiosum, glans penis etc.), their location and function.
149. Describe the os penis, discuss its advantages.
150. Describe the prepuce.
151. Describe the process of insemination (erection, emission and ejaculation).
152. Describe the process of urinary catheterization in males.

LOBs covered during Practical:

153. Identify the major features of the male reproductive organs (scrotum, testis, epididymis).
154. Identify the major constituents of the spermatic cord
155. Identify the cremasteric muscle, dartos muscle and pampiniform plexus.
156. Identify the major features of the urethra in males (prostatic, membranous and spongy) and the os penis.
157. Identify the prostate gland
158. Identify the blood supply to and from the prostate gland (prostatic venous plexus).
159. Identify and describe the location and function of the bulbourethral gland.
160. Identify the major components of the penis (corpora cavernosa, corpus spongiosum, glans penis etc.), their location and function.
161. Identify the os penis
162. Identify the prepuce
163. Identify the boundaries and relations of the inguinal canal in males.
164. Perform an ultrasound examination of the male reproductive tract on a living animal.

Week 9

LOBs covered during lectures:

165. Describe the major features of the internal female reproductive organs (ovaries, uterine horns, uterus, cervix, vagina and vulva).
166. Describe the innervation of the ovaries, uterine tubes, uterus, cervix, vagina, vulva and clitoris.
167. Describe the clinical significance of the blood supply, innervation and lymphatic drainage from the ovaries, uterine horns, uterus, cervix and vagina.

168. Describe the origin, course and relations of the uterine and ovarian arteries.
169. Describe the advantages of ovary hysterectomy.
170. Describe, in general terms, the autonomic innervation of the urinary bladder, in micturition and maintenance of continence.
171. Describe the anatomy of the urethra in relationship to continence and catheterization.

LOBs covered during Practical:

172. Identify the major features of the internal female reproductive organs (ovaries, uterine tubes, uterus, cervix, vagina, vulva and clitoris).
173. Identify the innervation of the ovaries, uterine tubes, uterus, uterine horns, cervix, vagina and vulva.
174. Identify the origin, course and relations of the uterine and ovarian arteries.
175. Identify the relationship of uterine artery and ureter and the importance of this relation in hysterectomy.
176. Identify the major supports for the uterus
177. Perform an ultrasound examination of the female reproductive tract on a living animal.

Week 10

LOBs covered during lectures:

178. Describe the bony components of the Pelvic limb
179. Outline the static support of the knee and ankle joints (ligaments and joint capsule).
180. Describe the articular cartilage and menisci of the knee.
181. Describe the musculature, fascia and cartilage of the knee and ankle.
182. Describe the muscles moving the knee joint.
183. Describe the muscles moving the ankle joint.
184. Describe the muscles of the foot.
185. Describe the innervation of knee joint and the musculature involved in moving the knee.
186. Describe the innervation of knee joint and the musculature involved in moving the ankle
187. Identify the salient features of the bones and joints of the pelvic limb on radiographs.

LOBs covered during Practical:

188. Identify all the joints of the Pelvic limb on a dissected specimen.
189. Identify the capsule, ligaments and any other components of each joint on a dissected specimen
190. Describe each joint and its various components
191. Describe the attachments, extensions and compartments of each joint's capsule.
192. Plot the attachments of each ligament on a skeleton.
193. Explain the function of each ligament
194. Palpate each joint and indicate its extent on the living animal.
195. Explain the innervation of the pelvic limb.
196. Identify the nerves of the pelvic limb on a dissected specimen

	197. Plot the course of each nerve on a skeleton and on a dissected specimen. 198. Identify the arteries and veins of the pelvic limb 199. Plot the courses of the arteries and veins and the positions of the lymph nodes on a skeleton and on a dissected specimen. 200. On a living animal (outside the lab), palpate the blood vessels and lymph nodes listed in this section.					
Prerequisites	Anatomy I	Required	None			
Course Content	<ul style="list-style-type: none"> • The abdomen • Pelvis & perineum • Urological system • Pelvic limb 					
Teaching Methodology	Frontal lectures combined with clinical work, dissection labs in small groups					
Bibliography	Authors	Title	Edition	Publisher	Year	ISBN
	Baljt Singh	Dyce, Sack, and Wensing's Textbook of Veterinary Anatomy	5th	Saunders	2017	978-0323442640
	Howard Evans, Alexander de Lahunta	Guide to the Dissection of the Dog	8th	Saunders	2016	978-0323391658
	Alexander de Lahunta	de Lahunta's Veterinary Neuroanatomy and Clinical Neurology	5th	Saunders	2021	978-0323696111
	Arthur S. King	Physiological and Clinical Anatomy of the Domestic Mammals: Central Nervous System v. 1	1st	Wiley-Blackwell	1987	978-0198541875

	Mahmoud Mansour, Ray White, Joe Rowe	Guide to Ruminant Anatomy: Dissection and Clinical aspects	1st	Wiley-Blackwell	2017	978-1119051022
Assessment	Attendance 10%, Practical exam 30%, final exam 60%					
Language	English					