



Course Code MED-201	Course Title Anatomy I	ECTS CREDITS 6
School Medical School	Semester Fall (Semester 3)	Prerequisites Completion of Year 1
Type of Course Required	Field Medicine	Language of Instruction English
Level of Course Undergraduate	Year of Study 2nd	Course Lead: Dr Petros Leptos Other Lecturers: Dr Panos Economou Dr Marios Tryfonidis Dr Andreas Roushias
Mode of Delivery Face-to-face	Work Placement N/A	Co-requisites None

Objectives of the Course:

The main objectives of this course are:

- To help students understand the human body and its constituent tissues and organs as well as their associated function.
- To help students recognize deviations from normal structure and function with the aim to diagnose abnormal clinical conditions caused by altered anatomy.

Learning Outcomes:

The following list provides the learning objectives (LOBs) that will be covered in the lectures and lab practicals of each week (please note that the learning objectives covered during the lectures of a particular week are also covered during the practical of the following week):

Week 1

LOBs covered during lectures:

1. Identify the underlying anatomy of the main abdominal organs, using superficial physical landmarks and surface lines.
2. Identify the different tissues of the body layers and the major viscera of the thoracic, abdominal and pelvic cavities.
3. Use appropriate anatomical terminology to describe the relationships between the major viscera and parts of the body.
4. 4. Identify the four chambers of the heart and the surfaces of the heart (anterior, posterior, base etc.).
5. Describe the normal flow of blood through the heart.
6. Identify the branches of the arch of the aorta (brachiocephalic artery, left common carotid artery, left subclavian artery) and the structures they supply.
7. Identify the branches of the descending thoracic aorta (paired posterior intercostal, bronchial, oesophageal, mediastinal arteries) and the structures they supply.
8. Describe the major relations of the ascending, arch, and descending thoracic aorta.

9. Describe the common variations of the branches of the arch of the aorta and their clinical significance.
10. Identify the azygos, hemiazygos and accessory hemiazygos veins and describe the communications of the azygos system with the caval system of veins.
11. Describe the function of the azygos venous system.

Week 2

LOBs covered during lectures:

12. Describe the coronary circulation.
13. Describe the relationship of the ligamentum arteriosum to the left vagus nerve.
14. Describe the location of the oesophageal and pulmonary plexuses and superficial and deep cardiac plexuses.
15. Identify the remnants of foetal structures present in the adult heart and great vessels (foramen ovale, fossa ovalis, ligamentum arteriosum).
16. Describe and identify the origin, branches and distribution of the anterior descending/ interventricular and circumflex branches of the left coronary artery.
17. Describe and identify the right coronary artery, the origin of its marginal and posterior interventricular branches and the regions of the heart they supply.
18. Outline how the blood supply to the heart varies between people.
19. Describe some common variations in supply and their clinical significance.

LOBs covered during practical:

1. Identify the underlying anatomy of the main abdominal organs, using superficial physical landmarks and surface lines.
2. Identify the different tissues of the body layers and the major viscera of the thoracic, abdominal and pelvic cavities.
3. Use appropriate anatomical terminology to describe the relationships between the major viscera and parts of the body.
4. Identify the four chambers of the heart and the surfaces of the heart (anterior, posterior, base etc.).
5. Describe the normal flow of blood through the heart.
6. Identify the branches of the arch of the aorta (brachiocephalic artery, left common carotid artery, left subclavian artery) and the structures they supply.
7. Identify the branches of the descending thoracic aorta (paired posterior intercostal, bronchial, oesophageal, mediastinal arteries) and the structures they supply.
8. Describe the major relations of the ascending, arch, and descending thoracic aorta.
9. Describe the common variations of the branches of the arch of the aorta and their clinical significance.
10. Identify the azygos, hemiazygos and accessory hemiazygos veins and describe the communications of the azygos system with the caval system of veins.
11. Describe the function of the azygos venous system.

Week 3

LOBs covered during lectures:

20. Briefly describe the anatomy of the coronary circulation.
21. Demonstrate knowledge of the gross anatomy of the heart and relate the gross anatomy of the heart to the surface markings.
22. Describe the sites for auscultation of the heart valves, using skeletal landmarks.
23. Identify the aortic and pulmonary semilunar valves and the right atrioventricular (tricuspid) and left atrioventricular (bicuspid/mitral) valves.
24. Describe the anatomical structures associated with heart valves (nodules, chordae, tendinae, papillary muscles, ostia).
25. Describe the sequence of opening and closing of the heart valves during the cardiac cycle, and identify the associated sounds detected during auscultation.

LOBs covered during practical:

12. Describe the coronary circulation.
13. Describe the relationship of the ligamentum arteriosum to the left vagus nerve.
14. Describe the location of the oesophageal and pulmonary plexuses and superficial and deep cardiac plexuses.
15. Identify the remnants of foetal structures present in the adult heart and great vessels (foramen ovale, fossa ovalis, ligamentum arteriosum).
16. Describe and identify the origin, branches and distribution of the anterior descending/ interventricular and circumflex branches of the left coronary art.
17. Describe and identify the right coronary artery, the origin of its marginal and posterior interventricular branches and the regions of the heart they supply.
18. Outline how the blood supply to the heart varies between people.
19. Describe some common variations in supply and their clinical significance.

Week 4

LOBs covered during lectures:

26. Describe the normal anatomy of the lungs.
27. Describe the normal anatomy of the trachea and its relations with surrounding organs.
28. Describe the thoracic skeleton and joints.
29. Identify the major structures of the thorax on medical images (true ribs, false ribs, manubrium, body and xiphoid process of the sternum, clavicle, scapula, muscles of the thoracic wall, boundaries and contents of the axilla).
30. Describe the normal appearance of the lungs on PA chest radiographs and on CT/MRIs.
31. Identify the major structures on normal medical images of the lungs (main bronchi, pleural cavity, etc.).
32. Give the surface markings and x-ray appearance of the lungs and pleura.
33. Describe the movements that take place during breathing.

LOBs covered during practical:

20. Briefly describe the anatomy of the coronary circulation.
21. Demonstrate knowledge of the gross anatomy of the heart and relate the gross anatomy of the heart to the surface markings.
22. Describe the sites for auscultation of the heart valves, using skeletal landmarks.
23. Identify the aortic and pulmonary semilunar valves and the right atrioventricular (tricuspid) and left atrioventricular (bicuspid/mitral) valves.
24. Describe the anatomical structures associated with heart valves (nodules, chordae, tendinae, papillary muscles, ostia).
25. Describe the sequence of opening and closing of the heart valves during the cardiac cycle, and identify the noise that is detected during auscultation.

Week 5

LOBs covered during lectures:

34. Describe the anatomy of the larynx (including vertebral levels) and its roles in digestion and voice production.
35. Describe the major groups of neck muscles.
36. Describe the major groups of neck muscles.
37. Recognise the anatomical landmarks for the insertion of a central venous line.
38. Describe and identify the origins, course and relations of the major arteries and veins in the neck.
39. Identify major neurovascular structures on medical images of the head and neck.
40. Describe the fascial layers of the neck (investing, pretracheal and prevertebral, and the carotid sheath).
41. Identify the intrinsic and extrinsic muscles of the larynx, and their functions.
42. Describe the innervation of omohyoid and digastric muscles and of the extrinsic and intrinsic muscles of the larynx.

LOBs covered during practical:

26. Describe the normal anatomy of the lungs.
27. Describe the normal anatomy of the trachea and its relations with surrounding organs.
28. Describe the thoracic skeleton and joints.
29. Identify the major structures of the thorax on medical images (true ribs, false ribs, manubrium, body and xiphoid process of the sternum, clavicle, scapula, muscles of the thoracic wall, boundaries and contents of the axilla).
30. Describe the normal appearance of the lungs on PA chest radiographs and on CT/MRIs.
31. Identify the major structures on normal medical images of the lungs (main bronchi, pleural cavity, etc.).
32. Give the surface markings and x-ray appearance of the lungs and pleura.
33. Describe the movements that take place during breathing.

Week 6

Lobs covered during lectures:

43. Identify the major features of the bony thorax: the features of a typical thoracic vertebra, typical and atypical ribs and the parts of the sternum.
44. Identify the vertebrosternal and vertebrochondral joints and their movements in respiration.
45. Identify the structures forming the thoracic inlet and thoracic outlet.
46. Describe the intercostal muscles (ext. and int. intercostals, and transversus thoracis).
47. Describe the gross structure of the pleural membranes, the pleural subdivisions (parietal and visceral) and the parietal pleural surfaces (costal, diaphragmatic, cupola, mediastinal).
48. Describe the origins, courses and areas of distribution of the vessels in relation to the ribs and costal cartilages and the costal pleura in intercostal spaces 1-11.
49. Describe the blood supply to the thoracic wall.
50. Describe the blood supply and lymphatic drainage of the visceral and parietal pleura.
51. Describe the innervation of the thoracic wall and of the visceral and parietal pleura.
52. Identify the roots and trunks of the brachial plexus in the posterior triangle.
53. Identify normal mediastinal contours on PA chest radiographs.
54. Describe the arrangement and contents of the superior, anterior, middle and posterior parts of the mediastinum.
55. Describe the boundaries of the mediastinum and its constituent parts.
56. Identify the following mediastinal structures and describe their anatomical relationships: oesophagus, trachea, carina & principal bronchi, ascending & descending thoracic aorta, aortic arch, phrenic nerves, vagus nerves, left recurrent laryngeal nerve, sympathetic trunk, pulmonary trunk & arteries, thoracic duct, tracheobronchial lymph nodes, brachiocephalic veins & superior vena cava, azygos and hemiazygous veins.
57. Identify normal mediastinal anatomy on sectional CT / MRI and anatomical sections.
58. Outline embryonic development, fetal maturation and perinatal changes.
59. Describe blood supply and drainage of the kidneys (noting variability).
60. Outline the innervation of the kidneys and ureters.
61. Outline the position, size and shape of the kidneys.
62. Describe ureters (course and level of their constrictions).
63. Describe the course and anatomical relations of ureters.
64. Outline the blood supply and innervation of the ureters.
65. Describe the anatomy of the bladder.
66. Outline the blood supply/drainage of the bladder.
67. Outline the innervation of the bladder.
68. Describe the internal anatomy of the bladder (trigone, rugae, detrusor muscle).
69. Describe the anatomy of the female urethra.
70. Outline the anatomical relations of the female urethra.
71. Describe the internal vs. external urethral sphincter.

72. Outline the anatomy of different parts of the male urethra.
73. Describe the anatomy of the prostate and the prostatic urethra.
74. Outline the openings of ejaculatory ducts.
75. Describe the urinary bladder (major features and relations in male and females).
76. Outline the course and anatomical relationships of the urethra in males and females).

LOBs covered during practical:

34. Describe the anatomy of the larynx (including vertebral levels) and its roles in digestion and voice production.
35. Describe the major groups of neck muscles.
36. Describe the major groups of neck muscles.
37. Recognise the anatomical landmarks for the insertion of a central venous line.
38. Describe and identify the origins, course and relations of the major arteries and veins in the neck.
39. Identify major neurovascular structures on medical images of the head and neck.
40. Describe the fascial layers of the neck (investing, pretracheal and prevertebral, and the carotid sheath).
41. Identify the intrinsic and extrinsic muscles of the larynx, and their functions.
42. Describe the innervation of omohyoid and digastric muscles and of the extrinsic and intrinsic muscles of the larynx.

Week 7

Midterm Exam

Week 8

LOBs covered during lectures:

77. Describe the bony anatomy of the oral cavity (mandible, soft palate, hard palate).
78. Describe the gross anatomy of the pharynx.
79. Identify the muscles of mastication.
80. Identify the blood supply and drainage of the foregut, midgut and hindgut (coeliac trunk-Left gastric, splenic, common hepatic arteries) & Lymphatic drainage of the oral cavity, salivary glands, pharynx, oesophagus, stomach, and duodenum.
81. Describe the innervation of the oesophagus (vagus), stomach, and duodenum: Viscera, Tongue, Salivary glands (Submandibular, Parotid, Sublingual) and their ducts, Pharynx, Oesophagus.
82. Describe the surface anatomy, key anatomical features, anatomical relations, vascular supply, nerve supply, and histological structure the foregut, midgut and hindgut.
83. Distinguish between retroperitoneal, secondarily retroperitoneal and peritoneal organs.

84. Identify the paracolic gutters and the hepatorenal pouch.
85. Identify the blood supply and drainage of the intestines and related structures & lymphatic drainage of the intestines and related structures.
86. Describe the innervation of the intestines and related structures: Viscera, Duodenum, Pancreas, Jejunum (distinguishing features), Ileum (distinguishing features), Caecum, Vermiform appendix, Colon (ascending, transverse, descending, and sigmoid), Rectum and anal canal.
87. Describe the structures that can be palpated via a rectal examination in the male and the female.

LOBs covered during practical:

43. Identify the major features of the bony thorax: the features of a typical thoracic vertebra, typical and atypical ribs and the parts of the sternum.
44. Identify the vertebrosternal and vertebrochondral joints and their movements in respiration.
45. Identify the structures forming the thoracic inlet and thoracic outlet.
46. Describe the intercostal muscles (ext. and int. intercostals, and transversus thoracis).
47. Describe the gross structure of the pleural membranes, the pleural subdivisions (parietal and visceral) and the parietal pleural surfaces (costal, diaphragmatic, cupola, mediastinal).
48. Describe the origins, courses and areas of distribution of the vessels in relation to the ribs and costal cartilages and the costal pleura in intercostal spaces 1-11.
49. Describe the blood supply to the thoracic wall.
50. Describe the blood supply and lymphatic drainage of the visceral and parietal pleura.
51. Describe the innervation of the thoracic wall and of the visceral and parietal pleura.
52. Identify the roots and trunks of the brachial plexus in the posterior triangle.
53. Identify normal mediastinal contours on PA chest radiographs.
54. Describe the arrangement and contents of the superior, anterior, middle and posterior parts of the mediastinum.
55. Describe the boundaries of the mediastinum and its constituent parts.
56. Identify the following mediastinal structures and describe their anatomical relationships: oesophagus, trachea, carina & principal bronchi, ascending & descending thoracic aorta, aortic arch, phrenic nerves, vagus nerves, left recurrent laryngeal nerve, sympathetic trunk, pulmonary trunk & arteries, thoracic duct, tracheobronchial lymph nodes, brachiocephalic veins & superior vena cava, azygos and hemiazygos veins.
57. Identify normal mediastinal anatomy on sectional CT / MRI and anatomical sections.
58. Outline embryonic development, fetal maturation and perinatal changes.
59. Describe blood supply and drainage of the kidneys (noting variability).
60. Outline the innervation of the kidneys and ureters.
61. Outline the position, size and shape of the kidneys.
62. Describe ureters (course and level of their constrictions).
63. Describe the course and anatomical relations of ureters.

64. Outline the blood supply and innervation of the ureters.
65. Describe the anatomy of the bladder.
66. Outline the blood supply/drainage of the bladder.
67. Outline the innervation of the bladder.
68. Describe the internal anatomy of the bladder (trigone, rugae, detrusor muscle).
69. Describe the anatomy of the female urethra.
70. Outline the anatomical relations of the female urethra.
71. Describe the internal vs. external urethral sphincter.
72. Outline the anatomy of different parts of the male urethra.
73. Describe the anatomy of the prostate and the prostatic urethra.
74. Outline the openings of ejaculatory ducts.
75. Describe the urinary bladder (major features and relations in male and females).
76. Outline the course and anatomical relationships of the urethra in males and females).

Week 9

LOBs covered during lectures:

88. Describe the surface anatomy of the liver.
89. Describe the surface anatomy of the gallbladder.
90. Identify the liver.
91. Describe the location of the liver.
92. Describe and identify the major features of the liver.
93. Describe and identify the anatomical and functional lobes of the liver.
94. Describe and identify the structures of the porta hepatis.
95. Describe, in general terms, the hepatic portal circulation.
96. Describe and identify the structures that comprise the porto-caval anastomoses (oesophageal, umbilical, lumbar and rectal).
97. Describe the clinical significance of the porto-caval anastomoses.
98. Identify the major components of the biliary tract (gall bladder, extrahepatic biliary ducts).
99. Describe and identify the major features of the gallbladder (e.g. neck, fundus).
100. Describe and identify the origins, courses and areas of supply for the coeliac trunk and its 3 major branches (common hepatic, left gastric, splenic arteries).
101. Describe and identify the division of the peritoneal cavity into the greater and lesser sacs.
102. Describe and identify the subdivisions of the greater sac (suprahepatic recesses, hepatorenal pouch, paracolic gutters, and spaces around the root of the small intestinal mesentery).
103. Describe and identify the omental (epiploic) foramen and bursa (lesser sac).

LOBs covered during practical:

77. Describe the bony anatomy of the oral cavity (mandible, soft palate, hard palate).

78. Describe the gross anatomy of the pharynx.
79. Identify the muscles of mastication.
80. Identify the blood supply and drainage of the foregut, midgut and hindgut (coeliac trunk-Left gastric, splenic, common hepatic arteries) & Lymphatic drainage of the oral cavity, salivary glands, pharynx, oesophagus, stomach, and duodenum.
81. Describe the innervation of the oesophagus (vagus), stomach, and duodenum: Viscera, Tongue, Salivary glands (Submandibular, Parotid, Sublingual) and their ducts, Pharynx, Oesophagus.
82. Describe the surface anatomy, key anatomical features, anatomical relations, vascular supply, nerve supply, and histological structure the foregut, midgut and hindgut.
83. Distinguish between retroperitoneal, secondarily retroperitoneal and peritoneal organs.
84. Identify the paracolic gutters and the hepatorenal pouch.
85. Identify the blood supply and drainage of the intestines and related structures & lymphatic drainage of the intestines and related structures.
86. Describe the innervation of the intestines and related structures: Viscera, Duodenum, Pancreas, Jejunum (distinguishing features), Ileum (distinguishing features), Caecum, Vermiform appendix, Colon (ascending, transverse, descending, and sigmoid), Rectum and anal canal.
87. Describe the structures that can be palpated via a rectal examination in the male and the female.

Week 10

LOBs covered during lectures:

104. Describe the surface anatomy of the pancreas.
105. Identify the pancreas.
106. Describe and identify the major parts of the pancreas (head, uncinate process, body, tail).
107. Describe and identify the major relations of the pancreas.
108. Describe and identify the main (and accessory) pancreatic ducts- their course, and where they drain in the duodenum (major and minor hepatopancreatic ampullae).
109. Describe and identify the blood supply of the pancreas.
110. Identify the spleen.
111. Describe and identify the major parts of the spleen (anterior and posterior borders, hilum).
112. Describe and identify the major relations of the spleen.
113. Identify the major visceral organs in CT/MRIs (liver, pancreas spleen).

LOBs covered during practical:

88. Describe the surface anatomy of the liver.
89. Describe the surface anatomy of the gallbladder.
90. Identify the liver.
91. Describe the location of the liver.
92. Describe and identify the major features of the liver.
93. Describe and identify the anatomical and functional lobes of the liver.

94. Describe and identify the structures of the porta hepatis.
95. Describe, in general terms, the hepatic portal circulation.
96. Describe and identify the structures that comprise the porto-caval anastomoses (oesophageal, umbilical, lumbar and rectal).
97. Describe the clinical significance of the porto-caval anastomoses.
98. Identify the major components of the biliary tract (gall bladder, extrahepatic biliary ducts).
99. Describe and identify the major features of the gallbladder (e.g. neck, fundus).
100. Describe and identify the origins, courses and areas of supply for the coeliac trunk and its 3 major branches (common hepatic, left gastric, splenic arteries).
101. Describe and identify the division of the peritoneal cavity into the greater and lesser sacs.
102. Describe and identify the subdivisions of the greater sac (suprahepatic recesses, hepatorenal pouch, paracolic gutters, and spaces around the root of the small intestinal mesentery).
103. Describe and identify the omental (epiploic) foramen and bursa (lesser sac).

Week 11

LOBs covered during lectures:

114. Identify the hypothalamus, posterior and anterior pituitary gland.
115. Identify and describe the anatomy of the thyroid gland.
116. Identify and describe the anatomy of parathyroid glands.
117. Identify and describe the anatomy of the adrenal cortex, adrenal medulla.
118. Identify and describe the anatomy of the pancreatic islets.
119. Identify and describe the anatomy of the ovary and testis.
120. Describe the anatomy of adipose tissue.

LOBs covered during practical:

104. Describe and identify the surface anatomy of the pancreas.
105. Identify the pancreas.
106. Describe and identify the major parts of the pancreas (head, uncinate process, body, tail).
107. Describe and identify the major relations of the pancreas.
108. Describe and identify the main (and accessory) pancreatic ducts- their course, and where they drain in the duodenum (major and minor hepatopancreatic ampullae).
109. Describe and identify the blood supply of the pancreas.
110. Identify the spleen.
111. Describe and identify the major parts of the spleen (anterior and posterior borders, hilum).
112. Describe and identify the major relations of the spleen.
113. Identify the major visceral organs in CT/MRIs (liver, pancreas spleen).

Week 12

LOBs covered during lectures:

121. Describe the basic organisation and function of the lymphatic system.
122. Describe the structure of the lymphatic vessels in comparison with veins.
123. Describe the flow of lymph from peripheral lymphatic vessels into the thoracic duct or right lymphatic duct.
124. Describe the anatomy of the major lymphatic organs.
125. Describe the classification of lymphoid organs into primary and secondary, based on function.
126. Identify the primary and secondary lymphoid organs in the body.
127. Describe the places in the body that Mucosal Associated Lymphoid Tissues (MALT) may be found, including large, organised named collections of MALT such as Peyer's patches, tonsils and in the appendix.
128. Describe the organisation and function of lymph nodes.

LOBs covered during practical:

114. Identify the hypothalamus, posterior and anterior pituitary gland.
115. Identify and describe the anatomy of the thyroid gland.
116. Identify and describe the anatomy of parathyroid glands.
117. Identify and describe the anatomy of the adrenal cortex, adrenal medulla.
118. Identify and describe the anatomy of the pancreatic islets.
119. Identify and describe the anatomy of the ovary and testis.
120. Describe the anatomy of adipose tissue.
121. Describe the basic organisation and function of the lymphatic system.
122. Describe the structure of the lymphatic vessels in comparison with veins.
123. Describe the flow of lymph from peripheral lymphatic vessels into the thoracic duct or right lymphatic duct.
124. Describe the anatomy of the major lymphatic organs.
125. Describe the classification of lymphoid organs into primary and secondary, based on function.
126. Identify the primary and secondary lymphoid organs in the body.
127. Describe the places in the body that Mucosal Associated Lymphoid Tissues (MALT) may be found, including large, organised named collections of MALT such as Peyer's patches, tonsils and in the appendix.
128. Describe the organisation and function of lymph nodes.

Course Contents:

- Introduction to Anatomy
- Cardiovascular System
- Respiratory System
- Renal and Urinary System
- Gastrointestinal System
- Endocrine System
- Hematopoietic and Lymphoreticular System

Learning Activities and Teaching Methods:

Lectures and Practicals.

Assessment Methods:

Midterm Exam (25%), Practical Exam (15%) and Final Exam (60%). Assessment is by Single Best Answers (SBAs) and Short Answer Questions (SAQs).

Required Textbooks/Reading:

Authors	Title	Edition	Publisher	Year	ISBN
Moore, Keith L.	Clinically oriented anatomy	7 th Int'l edition	Lippincott Williams & Wilkins	2014	9781451184471

Recommended Textbooks/Reading:

Authors	Title	Edition	Publisher	Year	ISBN
Dudek, Ronald W.	High yield: gross anatomy	5 th Edition	Lippincott Williams & Wilkins	2014	9781451190236
Chung, K.W. , Chung, H. & Halliday, N.L.	BRS Gross Anatomy	8 th Edition	Lippincott Williams & Wilkins	2014	9781451193077