

Supplementary material 1. Characterization of the compulsory (IMED2202) and the optional (IMED2283) anatomy courses (UWA, 2011).

Characteristics	Compulsory unit 7 points: IMED2202 “Normal systems”	“Option unit” 6 points: IMED2283 Dissection course
Enrolment, year of medical school	Compulsory, 2 nd year	Optional, self-selected, on a “first come-first serve basis” in parallel to IMED2202.
Attendees	All 170 students, including attendees of IMED2283. The other 2/3 of IMED2202 choosing option units (covering physiology, or biochemistry) either during 1 st (paralleling IMED2201) or 2 nd (paralleling IMED2202) semester	54 students doing the option unit in the 2 nd semester in parallel to IMED2202
Duration	13 weeks	13 weeks
<p>Preceding courses (1st year, 2nd year, 1st semester)</p> <p>Previous or parallel (2nd year 2nd semester, in <i>italics</i>) courses</p>	<p>Level 1, 1st semester: IMED1106 IMED1107</p> <p>Level 1, 2nd semester: IMED1100</p> <p>Level 1, Full year: IMED1113/IMED1114 IMED 1111/IMED1112</p> <p>Level 2, 1st semester: IMED2201</p> <p>Level 2, Full Year: IMED2231/<i>IMED2232</i> IMED2211/<i>IMED2212</i></p> <p>During Level 1 or 2:</p>	<p>Foundations of animal and human biology (4 points) Foundations of medical chemistry (3 points) Option (including physics) (6 points) Personal and professional development (PPD) unit, online modules</p> <p>Normal systems (Cardiovascular and respiratory system) (12 points)</p> <p>Molecules, genes and cells Part 1 and 2 (9 points) Foundations of clinical practice (Problem-based, Doctor, Health and Society, Doctor and Patient) Parts 1 and 2 (14 points)</p> <p>Normal systems (Digestive, endocrine and urogenital systems) (7 points)</p> <p>Normal systems Part 1, 2 (14 points): preparation for final exam (NS200) Foundations of clinical practice (Problem-based, Doctor and patient) Part 1, 2 (14 points) Short time placement in a community based clinical environment within the Metropolitan area</p>

Course structure	<p>Theoretical lectures Tuesday-Friday 45 minutes, held by faculty: 44 lectures of anatomy, 16 of physiology, 3 of biochemistry, 4 of physics, 3 unit coordination/feedback</p> <p>Practical course laboratory sessions of 2 hours/group, divided into 2 groups: 20 anatomy sessions, 11 neuroanatomy and head/neck sessions, additional physiology and neurophysiology sessions</p> <p>Friday clinical anatomy tutorials 1 hour/group, divided into 2 groups: student presentations, 31 issues, covering anatomy and clinical application</p>	<p>Theoretical tutorials Tuesday and Wednesday 45 min, held by student teams: 24 anatomy plenary lectures, clinical problem-based</p> <p>Practical course practical cadaver dissection sessions of 2 hours, all students: topographical aspects (25 Monday and Tuesday sessions, 50 hours in total), see Supplementary material 2</p> <p>Tutor-guided, self-directed learning</p>
Course contents	<p>Muskuloskeletal system (15 hours anatomy, 4 hours physiology, 3 hours biochemistry, 4 hours physics), Nervous system (22 hours anatomy, 12 hours physiology) Head and neck (7 hours anatomy) (Lecture topics, see Supplementary material 3)</p>	<p>Head and neck topography (50 hours) Thorax and back topography (50 hours) Abdominal and gluteal topography (50 hours) Upper limb topography (50 hours) Lower limb topography (50 hours)</p>
Teaching modalities	<p>Prosections Faculty-supervised regional dissections presented as poster Anatomical models Radiographic images Teaching material, book recommendations on the Learning Management System WebCT</p>	<p>Problem-based student lectures (with instructions) Faculty-supervised dissection Written dissection manual Course web site (Filgueira and Groscurth, 2010) Documentary film "Donated to Science"</p>
In-course assessments	<p>Continuous assessments CA1 after 4 weeks CA2 after 8 weeks CA3 after end of the course (practical assessment)</p>	<p>Readiness assurance tests Discussion and agreement on dissection result Peer- and teacher assessment of group presentation Final multiple choice question exam</p>
Assessment/examination covering the first 2 years (all 2 nd year students)	<p>Final integrated examination NS200 (IMED2232) covering all contents from the first 2 years (anatomy, histology, physiology, biochemistry)</p>	

Supplementary material 2.

Time schedule of topographical regions of the dissection program, Monday, 10 a.m. to 12 noon, and Tuesday 11 a.m. to 1 p.m. MCQ: multiple choice question.

Week	Session	Head and Neck	Thorax and Back	Abdomen and Gluteal Region	Arm and Hand	Leg and Foot
1	Monday	Introduction	Introduction	Introduction	Introduction	Introduction
	Tuesday	Neck skin	Thorax skin	Abdomen skin	Cubital region skin	Anterior thigh skin
2	Monday	Head and neck subcutaneous layer	Thorax subcutaneous layer, deltoid-pectoral triangle	Abdomen, inguinal region subcutaneous layer	Cubital region subcutaneous layer	Anterior thigh subcutaneous layer
	Tuesday	Posterior triangle of the neck	Axillary region	Abdominal wall muscles and fascia	Cubital region muscles and tendons	Anterior thigh superficial fascial and muscle layer
3	Monday	Carotid triangle of the neck	Axillary region	Blood supply sup. mesenteric artery/vein	Cubital region supply structures	Femoral triangle
	Tuesday	Muscular triangle of the neck	Internal layer thorax and abdominal wall	Blood supply sup. mesenteric artery/vein	Ventral forearm skin	Anterior thigh deep layer
4	Monday	Submental and submandibular triangles	Anterior mediastinum	Blood supply inf. mesenteric artery/vein	Ventral forearm subcutaneous layer	Knee skin and subcutaneous layer
	Tuesday	Sternocleidomastoid region	Heart	Blood supply coeliac trunk and portal area	Ventral forearm muscles	Knee joint
5	Monday	Frontal region	Lungs and hilum	Duodenum, pancreas	Ventral forearm supply structures	Anterior lower leg skin and subcutaneous layer
	Tuesday	Temporal region	Lungs and hilum	Duodenum, pancreas	Palmar hand skin	Anterior lower leg deeper layer
6	Monday	Superficial facial region	Trachea	Aorta, vena cava, sympathetic trunk	Palmar hand subcutaneous layer	Anterior ankle skin and subcutaneous layer
	Tuesday	Superficial facial region	Oesophagus	Kidney and retroperitoneum	Palmar hand deep layers	Anterior ankle tendons and supply

7	Monday	Deep facial region	Posterior mediastinum	Renal pelvis and ureter	Ventral upper arm skin	Dorsal foot skin and subcutaneous layer
	Tuesday	Deep facial region	Posterior mediastinum	Posterior abdominal wall	Ventral upper arm subcutaneous layer	Dorsal foot deep layer
8	Monday	Anterior orbital cavity	Sympathetic trunk	Pelvic blood supply	Ventral upper arm deep layer	Plantar foot skin and subcutaneous layer
	Tuesday	Anterior orbital cavity	Internal intercostal space	Pelvic nerve supply	Ventral upper arm deep layer	Plantar foot deep layer
		<i>Holiday Break</i>	<i>Holiday Break</i>	<i>Holiday Break</i>	<i>Holiday Break</i>	<i>Holiday Break</i>
9	Monday	Internal cranium and brain	Back skin	Gluteal region skin	Posterior upper arm skin and subcutaneous layer	Posterior thigh skin and subcutaneous layer
	Tuesday	Internal cranium and brain	Back subcutaneous layer	Gluteal region superficial layer	Posterior upper arm deeper layer	Posterior thigh fascial and muscle layer
10	Monday	Internal cranium and brain	Back subcutaneous layer	Gluteal region superficial layer	Posterior forearm skin and subcutaneous layer	Posterior thigh supply structures
	Tuesday	Orbital cavity, superior approach	Back lumbar and thorax muscles	Gluteal region intermediate layer	Posterior forearm deep layer	Popliteal skin and subcutaneous layer
11	Monday	Orbital cavity, superior approach	Back lumbar and thorax muscles	Gluteal region intermediate layer	Posterior hand skin and subcutaneous layer	Popliteal region deep layer
	Tuesday	Orbital cavity, superior approach	Neck superficial layer	Gluteal region deep layer	Posterior hand deep layer	Posterior lower leg skin and subcutaneous layer
12	Monday	Inner and middle ear	Neck deep layer	Gluteal region deep layer	Fingers	Posterior lower leg deep layer
	Tuesday	Inner and middle ear	Neck deep layer	Perianal region	Fingers	Posterior ankle tendons, ligaments and joint
13	Monday	Revision/Discussion	Revision/Discussion	Revision/Discussion	Revision/Discussion	Revision/Discussion
	Tuesday	MCQ examination	MCQ examination	MCQ examination	MCQ examination	MCQ examination

Supplementary Material 3. Topics of faculty anatomy lectures of the compulsory course IMED2202.

Muskuloskeletal tract

1. Introduction, limb plan and development.
2. Axillary region, brachial plexus.
3. Muscles and joints - general principles.
4. Bone development and growth.
5. Shoulder joint and girdle.
6. Anatomy of the hand.
7. Clinical anatomy of the upper limb.
8. Lower limb: Overall plan.
9. Hip and knee joints.
10. Ankle and foot.
11. Dermatomes and myotomes of the limbs.
12. Regional anatomy of the vertebral column.
13. Clinical Anatomy of the vertebral column.
14. Functional anatomy: Walking - I.
15. Functional anatomy: Walking – II.

Nervous system

1. Introduction to CNS.
2. Spinal cord.
3. Meninges, dural venous sinuses, CSF.
4. Development and histology of the nervous system.
5. Blood supply of CNS.
6. Anatomy of somatosensory system.
7. Anatomy of the brainstem.
8. Thalamus and cerebral cortex.
9. Anatomy of motor pathways I.
10. Anatomy of motor pathways II.
11. Anatomy of the eye and the orbit.
12. Eye movements, Cranial nerves III, IV and VI, Cavernous sinus.
13. Temporal bone and the ear.
14. Anatomy of the visual system.
15. Auditory and vestibular pathways.
16. Cranial nerves V, VII.
17. Cranial nerves I, IX, X, XI and XII.
18. Autonomic nervous system - anatomy.
19. Postnatal plasticity.
20. Hypothalamus and limbic system.
21. Aging, trauma and repair in the nervous system.
22. Applied/surgical anatomy of the cranial cavity.

Head and neck

1. Head and neck: General plan, muscles, fasciae.
2. Temporomandibular joint and mastication.
3. Clinical anatomy of the temporal bone and ear.
4. Anatomy of the larynx and pharynx.
5. Head and neck: Lymphatic drainage, clinical importance.

Supplementary material 5.

Selection from the voluntary anonymous online questionnaire returned by 21 students.

IMED2202: compulsory prosection-based course.

IMED2283: optional dissection-based course, 54 participants.

Note that students of the optional course also attended the compulsory course and had to pass continuous assessments and final examination *IMED2232* (course number of the official final examination NS200, after the 2nd undergraduate year, integrating all topics from anatomy, histology, physiology and biochemistry), compare also Supplementary material 1.

1. *How helpful was anatomical dissection for IMED2202 tests and exams?*
extremely helpful: **15** somehow helpful: **6**
2. *Have you given lecture-like presentations before you did IMED2283?*
yes: **7** no: **14**
3. *Have you assessed your peers before you did it in IMED2283?*
yes: **11** no: **10**
4. *Have you been assessed by peers before you were in IMED2283?*
Yes: **11** no: **10**
5. *How helpful was the choice of topics for the group presentations for the IMED2202 exams and tests?*
extremely helpful: **7** very helpful: **13** not helpful: **1**
6. *How helpful was the choice of topics for the group presentations for the IMED2232/NS200 integrated exam?*
extremely helpful: **6** very helpful: **13** not helpful: **2**
7. *How helpful were the group presentations themselves for the IMED2202 tests or exams?*
extremely helpful: **6** very helpful: **13** not helpful: **2**
8. *How helpful were the group presentations for the IMED2232/NS200 integrated exam?*
extremely helpful: **6** very helpful: **13** not helpful: **2**
9. *The guideline for the group presentation was*
clear and easy to follow: **21** not very clear: **0** do not remember: **0**
10. *The guideline for assessing the group presentations was*
very clear and easy to follow: **20** not very clear: **1** do not remember: **0**
11. *How much time did you use for preparing the group presentation?*
less than 1 hour **0** 1 to 3 hours **1** 3 to 5 hours **7**
5 to 10 hours **11** more than 10 hours **2**
12. *The workload for the IMED2283 Dissection unit was*
too much **1** just right **20** low **0** very low **0**
13. *The workload for the group presentation was*
too much **1** just right **19** low **1** very low **0**
14. *Support by the teacher for the preparation of the group presentation was*
adequate **21** not required **0** not available **0**
15. *Support by teacher during the presentation session (set up, technical problems, question time) was*
very accommodate **17** not adequate **0** not given **0** not required **4**
16. *How was workload for preparation of group presentations divided between group members?*
equally divided between group members **18**
work done by one member mainly **1**
work done by 2 members mainly **2**
17. *Preparation for the group presentation was*
very interesting and satisfactory **19**
necessary, but did not like it **2**

18. *The setting (lecture theatre, being at the front, giving a Power point presentation) for the group presentation was*
- | | |
|--|----|
| routine-like | 7 |
| new to me, but easy to cope with | 3 |
| somehow stressful beforehand, but easy once doing it | 11 |
| very stressful before, during and afterwards | 0 |
19. *How often did you meet with your group members for preparation of the group presentation?*
- | | |
|--|---|
| we met as a group just for the presentation | 0 |
| we met once before the presentation | 3 |
| we met twice before the presentation | 7 |
| we met 3 times before the presentation | 6 |
| we met more than 3 times before the presentation | 5 |
20. *The team work for preparing the group presentation was*
- | | |
|--|----|
| routine-like team work | 10 |
| satisfactory, because I got to know better other peers | 6 |
| satisfactory, because it improved my team-working skills | 4 |
| very difficult, because team members did not match well | 1 |
| difficult, because I did not like the other members | 0 |
21. *What about conflicts in the team during the preparation for the group presentation?*
- | | |
|--|----|
| There were no problems or conflicts | 13 |
| there were some problems conflicts between team members, but they were easy to solve | 7 |
| there were some problems/conflicts, but most were solved | 0 |
| there were severe problems, difficult to solve | 1 |
22. *As an audience member, the group presentations were*
- | | |
|--|----|
| a unique learning experience | 14 |
| better than lectures by teachers | 4 |
| boring | 0 |
| not as efficient as lectures by teachers | 3 |
23. *Satisfaction with own group presentation?*
- | | |
|---|----|
| I was very pleased with my presentation | 12 |
| my presentation was routine-like | 3 |
| I could have done better with my presentation | 6 |
24. *I would give my group presentation a grade (out of 100%)?*
- | | | | | | | | |
|---------------|---|--------|---|---------------|---|--------|----|
| more than 95% | 0 | 90-95% | 2 | 85-90% | 3 | 80-85% | 13 |
| 75-80% | 2 | 70-75% | 1 | less than 70% | 0 | | |
25. *The criteria for peer-assessing the group presentations were*
- | | | | | | |
|----------|----|------------------|---|--|---|
| adequate | 13 | random or biased | 0 | adequate, but weighting was questionable | 8 |
|----------|----|------------------|---|--|---|
26. *Are or were you concerned that peer assessment would be different from teacher assessment?*
- | | |
|--|---|
| Not concerned | 9 |
| concerned that teacher assessment would be harsher | 8 |
| concerned that peer assessment would be harsher | 4 |
27. *Did peer assessment of group presentations improve your own presentation skills?*
- | | | | |
|-----|----|----|---|
| Yes | 17 | no | 4 |
|-----|----|----|---|
28. *Assessing presentations by peers improved my own learning?*
- | | | | |
|-----|----|----|---|
| Yes | 17 | no | 4 |
|-----|----|----|---|