



# Human anatomy

1003211 – 17

## **Course lecturers:**

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When you have questions, concerns, or suggestions, please contact Dr. Khan by e-mail, call for an appointment, or catch me before or after class or lab.

## **Course Description, Objectives, and Format**

The combined course of Anatomy and Histology is designed to prepare the students with an understanding of the structural basis of the human body both at gross and microscopic levels. At the end of the course the students will be able to correlate and understand direct information of clinical bearing in their subsequent years.

### **The overall objectives of this course are to provide students with:**

- Understand and use anatomical terminology, anatomical position, planes, sections and regions.
- Understand the principle of various types of microscopes and their use for specific purposes as well as other tools to study the morphology of the human body.
- Comprehend the cellular basis of the morphological organization at the tissues, organs and systems levels
- Correlate the anatomical significance with the physiological functions and with the clinical conditions during subsequent years of study.

## **Lectures**

The emphasis is on developing an integrated concept; this is achieved by correlating the gross with the microscopic structure using models, prosected specimens and histology slides. Anatomical basis underlying a disease process is explained and discussed. Areas of clinical significance are dealt with in more detail. Lectures precede the practicals. Lectures and practicals will be, most of the times, combined into a '*Lecture-Practical*' where the students and the instructor will have a thorough interaction and discussion.

## **Prior Knowledge and Skills Required for This Course**

Some basic understanding of biological structure and function.

### **Roles and Responsibilities of Students and lecturers**

#### **Students are expected to;**

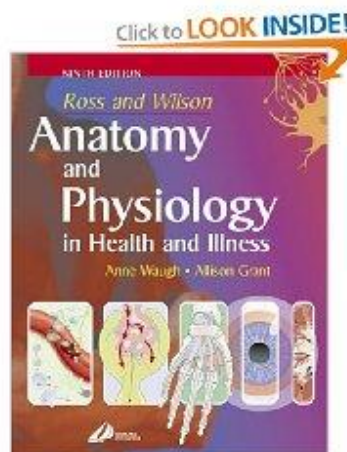
1. use all available resources to accomplish the learning objectives in each lecture and practical session, including:
  - a. attending all lecture
  - b. reading textbook assignments.
  - c. participating in lecture and asking questions when information is unclear or more information is needed.
  - d. performing assigned exercises working individually or in groups, as directed.
  - e. optimizing their learning strategies by trying the suggested “tips” and/or other ideas, and working with others.
  - f. asking for help from the course manager when they need it or even think they might need it.
2. notify the course manager as soon as they can if they are seriously ill or have an emergency that prevents them from attending
3. provide constructive feedback regarding the course on evaluation forms that will be provided at the end of the semester.
4. adhere to the faculty academic and professional rules.

### **Lecturer is expected to:**

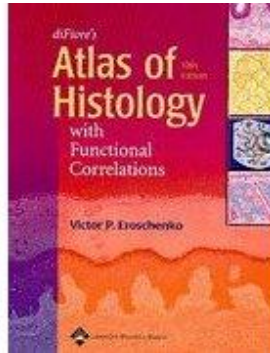
1. provide clear and informative lecture notes with learning objectives that focus on important points,
2. give clear, informative, and stimulating 60-minute lectures
3. answer questions either in or outside class or via e-mail or telephone.
4. compose thoughtful and fair exam questions that assess student learning and application of the course content.
5. directing the case sessions and facilitators to provide an effective learning experience in small group, team-oriented sessions.
6. providing answers and explanations to student inquiries regarding any aspect of the course.
7. providing advice and assistance to students for improving their learning strategies and performance in the course.
8. reviewing and implementing appropriate changes in the course based on student feedback and evaluations.

### **Learning Resources**

Required Textbook:



**Waugh A and Grant A (2004):** Ross and Wilkinson Anatomy and Physiology in Health and Illness. 11<sup>th</sup> Ed. Published by Churchill and Livingstone, London, UK.



**Di Fiore Atlas of Human Histology (2002):** Lea and Febiger, Philadelphia, USA

## **Tips for Learning**

1. Briefly review your lecture notes before the lecture to get an idea of the material that will be covered, the degree of difficulty of the material, and how much detail is included in the notes. Look at the learning objectives to get an idea of the most important information that you are responsible for learning and that will serve as the focus for exam questions.
2. Attend the lectures. The lecture presentations re-enforce, enhance, and clarify the lecture concepts.
3. Keep up! Review the lecture as soon as you can after the lecture to make sure you understand the material; pay particular attention to the learning objectives. Read the required textbook for additional and alternative presentations of information. If you have questions, or just don't get it, ask for help.
4. Be an "active learner"! Consolidate the most important concepts and facts into a form that **YOU** are most likely to understand and retain, i.e. a summary chart or flow—include. Be creative and make it fun! Divide the work with your study partners and share your study-aids. Try giving a minilecture to yourself (on the car or while you're walking) or to your study partners—can you discuss the important points in your own words without looking at your notes? You will remember your own version of the information better than trying to memorize your lecturer's version.
5. If you do not do well on the first exam, please contact your lecturer immediately to determine how to improve your learning strategy.

## **Examinations**

There will be six exams in MCQs format with one best answer. Exam questions will focus on the learning objectives students are expected to master from material presented in the lectures and textbook

Exam 1 (in week 4) covers material from Lecture 1 through 3.

Exam 2 (in week 10) covers material from Lecture 4 through 6.

Final practical Exam (in week 16) covers material presented in the practical sessions.

Final theory (in week 17) cover material from lecture 1 through 15.

After each exam (especially the 1<sup>st</sup> one!), evaluate your performance and learning/study strategies. Did your performance reflect the effort you made and your confidence in knowing the material before the exam? Analyze the questions you missed, along with the challenges and responses, and try to figure out why you missed each one, e.g. couldn't remember the information, misunderstood the information, couldn't apply your knowledge to a problem solving question. Once you identify specific problems, you can implement specific solutions. If you want help with this type of evaluation, contact your lecturer.

## **Summative Evaluation and Grading**

Final grades are based on grades earned for each of the 6 periodical exams, the lab exam and final theory exam.

Distribution of the marks for these exams are as follow:

- Two quizzes, 20% of the final grades
- Research activities 20% of final grade
- Final Practical Exam 20% of final grade.
- Final theory exam 40 % of final grade.

Letter grades are based on the following final numeric grades:

**A** Excellent 90 - 100

**B** Very Good 80 – 89

**C** Good 70 – 79

**D** Pass 60- 69

**F** Fail 59 and below

# LECTURES OF ANATOMY

## Second Year laboratory science Students

	<i>LECTURE</i>	<i>PRACTICAL</i>
<i>Week 1</i>	<p style="text-align: center;"><b><i>Introduction to the subject:</i></b>            Anatomy: definition, branches, significance, methods of study            Basic terminology, anatomical position, planes, regions            Organization of the human body: Cell, tissues and organs            Use of microscopes and basics of tissue processing            Cell review and basic tissues: Epithelium, Connective, Muscular and Nervous tissues  <i>Clinical Reference (CR): Response of the cells and cellular organelle in disease process</i></p>	Use of microscope and Microtechniques
<i>Week 2</i>	<p style="text-align: center;"><b><i>Musculoskeletal system:</i></b>            Classification of bones and joints            Axial and appendicular skeleton            Terms of movement            Muscle groups and their actions  <i>CR: Fractures, dislocations, paralysis of muscle groups</i></p>	Demonstration and discussion on models, dissected specimens and histology slides.
<i>Week 3</i>	<p style="text-align: center;"><b><i>Respiratory system:</i></b>            General organization and gross features: Respiratory passages, nose, pharynx, larynx, trachea, lungs, pleura, bronchi, bronchioles and alveoli            Histology of the respiratory tract            Fine structure of the alveoli            Blood-air barrier  <i>CR: Respiratory tract infections and inflammation, Pneumonia, Pleural effusion, Asthma, Emphysema, Bronchial cancer</i></p>	Demonstration and discussion on models, dissected specimens and histology slides.
<i>Week 4</i>	<p style="text-align: center;"><b><i>Cardiovascular system:</i></b>            General organization and gross features of the heart, aorta and its branches            Histological structure of the blood vessels and heart            Capillaries            The Blood</p>	Demonstration and discussion on models, dissected specimens and histology slides.

	<p><i>CR: Atherosclerosis, Coronary heart disease, Angina, Myocardial infarction, Pericardial effusion, Hypertension, Aneurysm, Varicose veins, Anemia, Polycythemia, Leukocytosis, Leukopenia, Eosinophilia</i></p>	
Week 5	<p><b><i>Lymphatic system:</i></b>  General and histological features of the:  Lymph node  Spleen  Thymus  Tonsils  <i>CR: Inflammation of lymph nodes, enlargement of spleen, splenectomy, T-lymphocytes, Immune system</i></p>	Demonstration and discussion on models, dissected specimens and histology slides.
Week 6-7	<p><b><i>Digestive system:</i></b>  General organization and gross features of the gut tube:  Oral cavity, tongue, teeth, salivary glands, esophagus, stomach, small and large intestine, liver, gall bladder and pancreas  Portal circulation  Histology of the gut tube  Gross features and histology of the liver and gall bladder  Concept of the liver lobule  Gross features and histology of the pancreas  <i>CR: Gastroesophageal reflux, Peptic ulcer, Malabsorption syndrome, Hemorrhoids, Acute pancreatitis, Diabetes mellitus, Liver cirrhosis, Portal hypertension</i></p>	Demonstration and discussion on models, dissected specimens and histology slides.
Week 8	<p><b><i>Urinary system:</i></b>  General organization and gross features: kidneys, ureters, urinary bladder and urethra  Histological structure of the kidney, ureter and urinary bladder  Detailed structure of the nephron  Filtration barrier  <i>CR: Nephrotic syndrome, Hypertension, Kidney stones, Diabetes insipidus</i></p>	Demonstration and discussion on models, dissected specimens and histology slides.
Week 9	<p><b><i>Endocrine system:</i></b>  General organization and gross features: Pituitary, thyroid, parathyroid and adrenal glands  Histological structure  <i>CR: Acromegaly and Giantism, Goiter, Addison's disease, hyper- and hypo-functioning of the glands</i></p>	Demonstration and discussion on models, dissected specimens and histology slides.
Week 10	<p><b><i>Male reproductive system:</i></b>  General organization and gross features: Testis, epididymis, ductus deferens, prostate, seminal vesicles, ejaculatory ducts and penis</p>	Demonstration and discussion on models, dissected specimens and histology slides.

	<p>Histological structure Spermatogenesis Blood-testis barrier <i>CR: Azoospermia and hypospermia, varicocele, hydrocele, benign prostatic enlargement, prostatic cancer</i></p>	
Week 11-12	<p><b><i>Female reproductive system:</i></b> General organization and gross features: ovaries, uterine tubes, uterus, vagina and vulva Histological structure Ovarian and Endometrial cyclic changes Hormonal correlation <i>CR: Pregnancy and contraception, Irregular menstrual cycles, cervical cancer, Exfoliative cytology.</i></p>	Demonstration and discussion on models, dissected specimens and histology slides.
Week 13-14	<p><b><i>Nervous system:</i></b> General organization and gross features of the brain and spinal cord, Meninges and cerebrospinal fluid Central and peripheral nervous systems Autonomic nervous system Main sensory and motor cortical areas of the brain Major descending and ascending pathways in the central nervous system Cranial and spinal nerves Histological structure of the neuron and synapses <i>CR: Alzheimer's disease, Accidents and injuries. Paralysis, meningitis, lumbar puncture</i></p>	Demonstration and discussion on models, dissected specimens and histology slides.
Week 15	<p><b><i>Special senses:</i></b> General organization and gross features: Eye, ear, nose and skin Histological structure of the skin <i>CR: Corneal transplant, radial keratotomy, Retinal detachment, tonometry, ophthalmoscopy, contact lenses, color blindness, deafness, tympanic membrane rupture, deep sea diving, sinusitis, acne, rashes</i></p>	Demonstration and discussion on models, dissected specimens and histology slides.