

BDS COURSE SYLLABUS

GENERAL HUMAN ANATOMY INCLUDING EMBRYOLOGY AND HISTOLOGY-1DS1010101

A) GOAL

The students should gain the knowledge and insight into the functional anatomy of the normal human head and neck, functional histology and an appreciation of the genetic basis of inheritance and disease, and the embryological development of clinically important structures, so that relevant anatomical & scientific foundations are laid down for the clinical years of the BDS course.

B) OBJECTIVES :

(a) KNOWLEDGE & UNDERSTANDING:

At the end of the 1M year BDS course in Anatomical Sciences the undergraduate student is expected to:

1. Know the normal disposition of the structures in the body while clinically examining a patient and while conducting clinical procedures.
2. Know the anatomical basis of disease and injury.
3. Know the microscopic structure of the various tissues, a pre-requisite for understanding of the disease processes.
4. Know the nervous system to locate the site of lesions according to the sensory and or motor deficits encountered.
5. Have an idea about the basis of abnormal development, critical stages of development, effects of teratogens, genetic mutations and environmental hazards.
6. Know the sectional anatomy of head neck and brain to read the features in radiographs and pictures taken by modern imaging techniques.
7. Know the anatomy of cardio-pulmonary resuscitation.

(b) SKILLS

1. To locate various structures of the body and to mark the topography of the living anatomy.
2. To identify various tissues under microscope.
3. To identify the features in radiographs and modern imaging techniques.
4. To detect various congenital abnormalities.

(C) INTEGRATION :

By emphasizing on the relevant information and avoiding unwanted details, the anatomy taught integrally with other basic sciences & clinical subjects not only keeps alive in the learner curious but also lays down the scientific foundation for making a better doctor, a benefit to the society.

This insight is gained in a variety of ways:

- 1) Lectures & small group teaching
- 2) Demonstrations
- 3) Dissection of the human cadaver
- 4) Study of dissected specimens

- 5) Osteology
- 6) Surface anatomy on living individual
- 7) Study of radiographs and other modern imaging techniques.
- 8) Study of Histology slides.
- 9) Study of embryology models
- 10) Audio-visual aids

Throughout the course, particular emphasis is placed on the functional correlation, clinical application & on integration with teaching in other bio dental disciplines.

(D) AN OUTLINE OF THE COURSE CONTENT:

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1. General anatomy: Introduction of anatomical terms and brief outline of various systems of the body.
2. Regional anatomy of head & neck with osteology of bones of head & neck, with emphasis on topics of dental importance.
3. General disposition of thoracic, abdominal & pelvic organs.
4. The regional anatomy of the sites of intramuscular & intra vascular injections, and lumbar puncture.
5. General embryology & systemic embryology with respect to development of head & neck.
6. Histology of basic tissues and of the organs of gastrointestinal, respiratory, Endocrine, excretory systems & gonads.
7. Medical genetics.

(E) FURTHER DETAILS OF THE COURSE :

I. INTRODUCTION TO :

1. Anatomical terms.
2. Skin, superficial fascia & deep fascia
3. Cardiovascular system, portal system collateral circulation and arteries.
4. Lymphatic system, regional lymph nodes
5. Osteology - Including ossification & growth of bones
6. Myology- Including types of muscle tissue & innervation.
7. Syndesmology- Including classification of Joints.
8. Nervous system

II. HEAD & NECK:

01. Scalp, face & temple, lacrimal apparatus
02. Neck - Deep fascia of neck, posterior triangle, suboccipital triangle, anterior triangle, anterior median region of the neck, deep structures in the neck.
03. Cranial cavity - Meninges, parts of brain, ventricles of brain, dural venous sinuses, cranial nerves attached to the brain, pituitary gland.
04. Cranial nerves - III, IV, V, VI, VII, IX, XII in detail.
05. Orbital cavity- Muscles of the eyeball, supports of the eye ball, nerves and vessels in the orbit.
06. Parotid gland.
07. Temporo mandibular joint, muscles of mastication, infra-temporal fossa, pterygo -palatine fossa.

- 08. Submandibular region
- 09. Walls of the nasal cavity, paranasal airsinuses
- 10. Palate
- 11. Oral cavity, Tongue
- 12. Pharynx (palatine tonsil and the auditory tube) Larynx.

OSTEOLOGY - Foetal skull, adult skull, individual bones of the skull, hyoid bone and cervical vertebrae

III. THORAX :

Demonstration on a dissected specimen of

- 1. Thoracic wall
- 2. Heart chambers
- 3. Coronary arteries
- 4. Pericardium
- 5. Lungs- surfaces ; pleural cavity
- 6. Diaphragm

IV. ABDOMEN :

Demonstration on a dissected specimen of

- 1. Peritoneal cavity
- 2. Organs in the abdominal & pelvic cavity.

V. CLINICAL PROCEDURES:

a) Intramuscular injections:

Demonstration on a dissected specimen and living person of the following sites of injection.

- 1. Deltoid muscle and its relation to the axillary nerve and radial nerve.
- 2. Gluteal region and the relation of the sciatic nerve.
- 3. Vastus lateralis muscle.

b) Intravenous injections & venesection:

Demonstration of veins in the dissected specimen and on a living person.

- 1. Median cubital vein
- 2. Cephalic vein
- 3. Basilic vein
- 4. Long saphenous vein

c) Arterial pulsations: Demonstration of arteries on a dissected specimen and feeling of pulsation of the following arteries on a living person.

- 1. Superficial temporal
- 2. Facial
- 3. Carotid
- 4. Axillary
- 5. Brachial
- 6. Radial
- 7. Ulnar
- 8. Femoral
- 9. Popliteal

10. Dorsalispedis

d) Lumbar puncture:

Demonstration on a dissected specimen of the spinal cord,
cauda equina & epidural space and the inter vertebral space between

L4 & L5 .

VI. EMBRYOLOGY:

Oogenesis, Spermatogenesis, Fertilisation, Placenta, Primitive streak, Neural crest, Bilaminar and trilaminar embryonic disc, Intra embryonic mesoderm – formation and fate, notochord formation & fate, Pharyngeal arches, pouches & clefts, Development of face, tongue, palate, thyroid gland, pituitary gland, salivary glands, and anomalies in their development, tooth development in brief.

VII. HISTOLOGY :**The Cell :**

Basic tissues - Epithelium, Connective tissue including cartilage and bone,

Muscle Tissue, Nervous tissue :

Peripheral nerve, optic nerve, sensory ganglion, motoneuron, Skin

Classification of Glands

Salivary glands (serous, mucous and mixed gland), Blood vessels,

Lymphoid tissue Tooth, lip, tongue, hard palate, oesophagus, stomach, duodenum, ileum, colon, vermiform appendix Liver, Pancreas, Lung, Trachea, Epiglottis, Thyroid gland, parathyroid gland, supra renal gland and pituitary gland, Kidney, Ureter, Urinary bladder, Ovary and testis.

VIII. MEDICAL GENETICS :

Mitosis, meiosis, Chromosomes, gene structure, Mendelism, modes of inheritance

RECOMMENDED BOOKS :

1. SNELL (Richard S.) Clinical Anatomy for Medical Students, Ed. 5, Little Brown & company, Boston.
2. R.J. LAST'S Anatomy- McMinn, 9th edition.
3. ROMANES (G.J.) Cunningham Manual of Practical Anatomy : Head & Neck & Brain Ed. 15. Vol. III, Oxford Medical publication.
4. WHEATER, BURKITT & DANIELS, Functional Histology, Ed. 2, Churchill Livingstone.
5. SADLER, LANGMAN'S, Medical Embryology, Ed. 6.
6. JAMES E ANDERSON, Grant's Atlas of Anatomy. Williams & Wilkins.
7. WILLIAMS, Gray's Anatomy, Ed. 38. Churchill Livingstone.
8. EMERY, Medical Genetics.