

# Gross Anatomy II Syllabus

**Course Number and Name:** AN2746 Gross Human Anatomy II

**Course Hours:** Lab and lecture

**Course Credits:** 7

Contact Information:

**Course Instructor:** Robert E. Routh, Ph.D

**Office Number and Building:**

**Office Hours – days / time:** Monday – Friday 9:00 a.m. – 5:00 p.m.

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**Course Materials:**

**Required Readings / Texts and or Articles:**

**Text:**

Title: Clinically Oriented Anatomy

Author: Keith L. Moore et al.

Edition: 6<sup>th</sup> Ed.

Publisher: Lippincott Williams & Wilkins

Date of publication: 2010

**Suggested Readings / Texts:**

**Text:**

Title: The Atlas of Anatomy

Author: Frank H. Netter, M.D.

Edition: 4<sup>th</sup> Ed.

Publisher: Saunders

Date of publication: June 2006

## **Course Description:**

Gross anatomy of the human body considering the thoracic cavity, heart, lungs, mediastinum, the abdomen, including the abdominal wall, GI tract, accessory organs, blood & nervous supply, pelvis, including the renal system, male and female anatomy, and neck, face, head, and cranial nerves. The laboratory portion of the course covers cadaver dissection.

## **CCE / TCC Competencies:**

Human anatomy II is designed to bridge the basic science principles of human anatomy to the essential chiropractic tools of physical exam, neuromuscular skills, diagnoses of disease, and chiropractic adjustment or manipulation. Therefore, the student must master each anatomical system being cognizant of its clinical applications.

## **Learning Outcomes:**

Learning outcomes are broad or global statements of what a learner is expected to know, understand and/or be able to demonstrate after a completion of the course. Learning outcomes should correlate with the number of contact hours. The more contact hours, the more learning outcomes. Usually there are 1 or 2 learning outcomes per contact hour. See Attachment #2 and Attachment #3 for specific examples.

Learning outcomes should be measurable, attainable and realistic. They may be found throughout the T.C.C. Graduate. If you are teaching a QEP course consult the QEP document.

## **Learning Objectives:**

Learning objectives are statements that will guide the student in the process of achieving the learning outcomes. In addition, there **must** be at least one objective for each outcome. A guide for writing good objectives should follow the SMART acronym.

### **Specific:**

1. Your objective is detailed and straightforward
2. Your objective leads to the results you are striving toward;
3. You avoid words like: enjoy, realize, and be aware of, which are more ambiguous; and,
4. You include more concrete words like: demonstrate, implement, produce and express.

### **Measurable:**

1. Your objective allows for you to track your progress;
2. You can demonstrate that you will know that a change has occurred; and,
3. Where possible, your objective quantifies your goal (e.g. increase fundraising target by 10%).

### **Achievable:**

1. You have the ability to accomplish this objective;
2. You have taken into consideration any limitations/constraints that may exist; and,
3. Your objective is appropriately related to what you will be doing during your activity.

### **Realistic:**

1. You have the resources and means to achieve your objective; and,
2. Your objective is relevant to you.

### **Timely:**

1. You have stated your time frame for achieving this objective; and,
2. You can achieve your goal within the given time frame.

**NOTE:**

Refer to **Attachment #1** as a guide when writing learning outcomes and objectives.

Refer to this link for a [Basic Science Syllabus](#)

Refer to this link for a Clinical Science Syllabus (To be attached)

**Teaching Philosophy:**

“Repetition is the key, the key is repetition”. This statement was forever expressed by Dr. O’Callahan at LSUHSC in Shreveport, LA while I was working towards my Ph.D.. The longer I teach the more convinced I see of this truth. During my class I will briefly teach you the process of learning. It will be covered in more detail in your neuroanatomy course. However, to go from short term, to intermediate, and finally long term memory the mind must “hold” information in a cognizant state for an extended period of time. This is why there is so much overlap between classes. Due to the physiology of learning I incorporate a “progressive” teaching style where every system is added to the next. In short, students in Gross Human Anatomy II will be continually tested on concepts from Gross Human Anatomy I. We will begin with the superficial back, then walls of the thorax and superficial back, then walls of the abdomen, walls of the thorax and superficial back, then upper & lower extremities, walls of the abdomen, walls of the thorax and superficial back. Then in the next semester these topics will once again be added to those specifically taught in that section.

Therefore, it is essential for the students to continually review previous anatomical systems in order to retain their knowledge. In addition, it is helpful if students will read the lectures before class. In that way, the student is not seeing the information for the first time. This will save the student a great deal of time studying and reviewing. By the end of Gross Human Anatomy I & II the student will be able to go into their other courses with confidence to learn physical exam, neuromuscular skills, diagnoses of disease, and chiropractic adjustment or manipulation.

**Student Responsibilities:**

The student has the responsibility of attending to their own learning and taking responsibility for their grade. The student should show up to class on time prepared to learn. Last, but not least, treat all your fellow classmates with respect. Your professor is here to help you.

## **Course Content and Outline:**

The following is a weekly *guide* to the topics covered throughout the semester. It also shows when the exams will be given. Keep in mind that all tests are cumulative.

**Week 1: Orientation, Lab Review, Anterior Thoracic Wall:** This lecture includes the boundaries of the thorax, the bony thorax and the bones which comprise it, thoracic wall, musculature, osteology, VAN, and lymphatics of the thorax.

**Lungs and Pleura:** This lecture includes the trachea, bronchial tree, lungs, pleura, bronchopulmonary segments, lymphatics, blood circulation, mechanisms of respiration, and clinical applications.

**Week 2: Pericardium & Heart:** This lecture includes pericardium, pericardial sinuses, heart surfaces, chambers of the heart, heart sounds, conducting system, nerve supply of the heart, coronary arteries & veins, and vascular disease.

**Mediastina:** This section involves the different divisions of the mediastinum and what structures are within each section.

**Week 3: Anterior Abdominal Wall, Peritoneal Cavity, & Inguinal Cavity:** These lectures will discuss the boundaries of the abdomen, the major landmarks of abdomen, the abdominal planes, regions, and quadrants, layers of the abdominal wall, muscles of the abdomen, their actions, and nerve supply, components of the rectus sheath, blood supply, venous drainage, nerve supply, and lymphatic drainage of abdominal wall, components of the inguinal canal, different types of hernias, intraperitoneal and retroperitoneal organs, the spaces and recesses of the peritoneal cavity and the peritoneal ligaments, contents of the median, medial, and lateral umbilical fold.

**GI tract:** This lecture will discuss the anatomy and blood and nerve supply of the esophagus, the clinical problems associated with the esophagus, including GERD and constrictions, the anatomy, blood and nerve supply to and lymphatics from the stomach, the clinical problems associated with the stomach, including gastric ulcers, the components of the small intestine and their anatomical differences, the blood and nerve supply to the small intestine and the lymphatic drainage, and the anatomy and blood and nerve supply to and lymphatic drainage from the components of the large intestine.

**Week 4: GI Tract (continued).**

**GI Accessory Organs:** This lecture will discuss the anatomy of the spleen and its blood supply, the anatomy of the pancreas, its blood supply and ducts, the anatomy of the liver, its surface landmarks, and ligaments, the classical and functional lobes of the liver and its blood supply and bile drainage, the structure of the gallbladder and the cystic duct, the following clinical problems of the GI system: Hiatal hernia, Colonic diverticulosis, Bowel obstruction, Meckel's diverticulum, Regional enteritis, Hirschsprung's disease, Appendicitis, Cirrhosis of the liver, Portal hypertension, Splenomegaly, Gallstones.

## **Week 5: Pre-Exam Review, Exam, and Post-Exam Review**

**Week 6: Renal:** This lecture considers the important functions of the kidney, the location of the kidney in the body, its general features, and its supportive tissue, the internal components of the kidney including the cortex, medulla, pelvis, and calyces, the vessels and nerves of the kidney, the nephron and its components, the structure of the ureter and urine flow, also understanding how kidney stones form and problems that these structures can cause, and finally a discussion on the structure of the urinary bladder and urethra.

**Reproduction: Pelvis & Perineum:** This lecture enumerates the bony landmarks of the pelvis, describes the component parts of the bony pelvis, the divisions of the bony pelvis, the joints and ligaments of the bony pelvis, differentiates between the male and female pelvis, describes the structures that form the walls of the pelvis, discusses the muscles of the pelvis as to their attachments, actions, and nerve supply, the formation and branches of the sacral plexus, the autonomic nerves that supply the pelvis, the arteries of the true pelvis, the venous and lymphatic drainage of the pelvis, the divisions of the perineum, the layers of the perineum, enumerates the structures found within the superficial and deep perineal spaces, the attachments of the Colle's fascia in relation to determining the flow of extravasated urine in patients with a ruptured urethra, the boundaries and contents of the ischioanal fossa, the formation and distribution of the perineal nerve, the location and contents of the pudendal canal, and the blood supply and lymphatic drainage of the perineum.

## **Week 7: Reproduction: Pelvis & Perineum, and**

**Male Reproduction:** Describe the following structures pertaining to the testes: tunica albuginea, tunica vaginalis, lobules of the testis, seminiferous tubules. Also, this lecture will discuss the functions of the testis, the blood supply, lymphatic drainage and nerve supply of the testis, the anatomical basis of varicocele, the parts of the epididymis, the functions of the epididymis, the blood supply, lymphatic drainage, and nerve supply of the epididymis, the course of the spermatic cord, the coverings of the spermatic cord, the structures that are involved in the cremasteric reflex, discussion on the contents of the spermatic cord, ductus deferens, the parts of the penis, the functions of the penis, the blood supply, lymphatic drainage, and nerve supply of the penis, the layers of the wall of the scrotum, the blood supply, lymphatic drainage, and nerve supply of the scrotum, the location of the seminal vesicles, the formation of the ejaculatory ducts, the blood supply and nerve supply of the accessory organs of the male reproductive system, the prostate gland with regard to its: anatomical relations, location, and lobes. Finally this lecture will discuss the anatomical basis of urinary obstruction experienced by patients with benign prostatic hypertrophy.

**Week 8: Female Reproduction:** This lecture will describe the ovary with regard to its: location, supports, and function, the appearance of the ovary before puberty and following puberty, the blood supply, lymphatic drainage, and nerve supply of the ovary, the parts of the fallopian (uterine) tube, the functions of the uterine tube, the blood supply, lymphatic drainage, and nerve supply of the uterine tube. Also, this lecture will cover the uterus with regard to its location, parts, and function, the wall and cavity of the uterus, an anteverted and anteflexed uterus, the major and minor supports of the uterus, the blood supply, lymphatic drainage, and nerve supply of the uterus, the anatomical basis of injury to the ureter during surgery on the uterus, the vagina

including the vaginal fornices, the functions of the vagina, the blood supply, lymphatic drainage, and nerve supply of the vagina, the clinical significance of the posterior fornix. This lecture will describe the parts of the clitoris, labia majora, labia minora, vestibule, the blood supply, lymphatic drainage, and nerve supply of the external genitalia, and finally the greater and vestibular glands.

### **Week 9: Pre-Exam Review, Exam, and Post-Exam Review**

**Week 10: Superficial Face:** This lecture will delineate the anatomical regions of the face, scalp and associated landmarks, specifically name the cutaneous innervation of the face, name the subdivisions of the trigeminal nerve, designating which divisions are sensory and which division possess a motor component, describe the *clinically significant muscles of facial expression* innervated by the facial nerve. This lecture will also describe the course of the motor branches of the facial nerve, discuss the facial features associated with Bell's palsy, describe the lymphatic drainage from the scalp and facial regions, describe the origin of the arterial blood supply to the face and name the specific branches of the facial artery, and finally describe the venous drainage of the face and its association with the ophthalmic veins.

**Neck & Cervical Triangles:** This lecture will discuss the triangles of the neck, their boundaries and contents, the superficial muscles of the lateral neck region, the muscles of the anterior neck region, e.g., strap muscles, and provide their attachments and innervations, and describe the fascia of the neck and discuss its clinical importance.

**Temporal Fossa, Parotid Region, & TMJ:** This lecture will describe the temporal fossa, its boundaries and contents, discuss the structures forming the "parotid bed", describe the parotid gland, and name the structures embedded either within the gland or positioned in very close proximity to it, describe the temporomandibular joint with all its associated structures: the capsule, ligaments, nerves, blood vessels, and lymphatic drainage, describe and trace the course of the mandibular division of the trigeminal nerve (CN V<sup>3</sup>), its branches and function of each branch, describe and trace the maxillary artery and be able to describe the area and structures supplied by each branch.

**Scalp & Skull:** This lecture will delineate the region of the scalp, and describe its various layers, describe the blood supply, venous, and lymphatic drainage patterns of the scalp, name the bones of the skull and describe their articulations, name the major sutures of the skull and locate the fontanelles of a neonate skull, and locate important features associated with the individual cranial bones, e.g., foramina, processes, etc.

### **Week 11: Infratemporal Fossa,**

**Cranial Vault:** This lecture will describe the features of the cranial vault, e.g., fosses, foramina, and name the major structures that are contained by or pass through these structures.

**Oral Cavity, Pharynx/ Deep Neck & Visceral Structures:** This lecture will discuss the boundaries, components, muscles, vasculature of the mouth, the structure, vasculature, and sensory innervation of the tongue, the components, boundaries, vasculature, and nerve supply of the nasal cavity, the paranasal sinuses, their drainage, blood and nerve supply, the boundaries, components and nerve and blood supply of the pharynx, the components of the larynx and trachea, the musculature, nerves, arteries, and veins of the deep neck, and the position and function of thyroid and parathyroid glands.

**Week 12: External Brainstem Structures:** This lecture describes the boundaries and major subdivisions of the brainstem, distinguishes external features associated with each segment of the brainstem, describes the structural features of the rhomboid fossa, names of the cranial nerves and their point of exit or entry into the brainstem, describes the major internal structures including the location and functional classification of the various cranial nerve nuclei. It also describes the clinically important sensory pathways that traverse the brainstem, i.e., dorsal column - medial lemniscal pathway, dorsal and ventral trigeminothalamic tracts, the anterolateral system (spinothalamic tracts) and the spinocerebellar pathways. Finally, this lecture describes the somatotopic arrangement (topology) of the fiber bundles of the medial lemniscus, trigeminothalamic tracts, medial longitudinal fasciculus and anterolateral system (spinothalamic tracts) in the brainstem.

**Internal Brainstem Structures:** This lecture describes the major internal structures including the location and functional classification of the various cranial nerve nuclei. Describes the clinically important sensory pathways that traverse the brainstem, i.e., dorsal column - medial lemniscal pathway, dorsal and ventral trigeminothalamic tracts, the anterolateral system (spinothalamic tracts) and the spinocerebellar pathways. Describes the somatotopic arrangement (topology) of the fiber bundles of the medial lemniscus, trigeminothalamic tracts, medial longitudinal fasciculus and anterolateral system (spinothalamic tracts) in the brainstem. Describes the somatotopic arrangement and position of the fiber bundles of the clinically important corticobulbar and corticospinal tracts in the brainstem. Describes the relative positions of the fiber bundles comprising the cerebellar peduncles. Describes the classic brainstem syndromes: Parinaud's, Benedickt's, Claude-Weber, Millard-Gubler, Midpontine Base Syndrome, Foville's, Dejerine's and Wallenberg's

**Week 13: Cranial Nerves:** This lecture will name and designate the 12 cranial nerves, discuss the important functional components of each cranial nerve, discuss each cranial nerves pathway through the skull, and clinical manifestations of their disruption.

### **Week 14 & 15: Final Exams**

#### ***Remember:***

***This is a tentative outline and may be altered for the benefit of the class.***

***The 15 week trimester is divided into 13 weeks of course work followed by 2 weeks of finals.***

**Grade Method and Scale:** (This is the policy of TCC and must not be altered.) Faculty has the discretion for setting the policy of rounding up or down and should be included in this section.

#### TCC Grading Scale

A = 90 - 100

B = 80 - 89

C = 70 - 79

F = below 70

**Method of Assessment:**

Students will be assessed by:

Multiple Choice

Short answer

**POLICY INFORMATION:**

**Attendance Policy:** (This is the policy of TCC and must not be altered.)

Regular and punctual attendance of all scheduled classes and laboratories is expected. A student is subject to academic penalty if absences exceed 10%. Absences exceeding 20% subject a student to dismissal from a course. Three incidences of tardiness may constitute an absence. If justifiable cause can be shown for the absenteeism, the student may be permitted to make up missed assignments and maintain enrollment in the class. During the course of their internship, students will be required to be in attendance at the clinic throughout the normal trimester vacation periods unless the clinic is closed. The hours from these periods will be added to the student's clinic requirements.

Also, state the actual attendance policy as it applies to your course. Attendance is based on contact hours and differs from course to course. Therefore, you may want to specifically indicate how many absences will meet the criteria of 10% of absences and 20% of absences.

**Missed Examinations:** (This is the policy of TCC and must not be altered.)

Students must notify faculty before missing any examination. If an examination is missed for good and sufficient reason **and** the student has notified the faculty member in advance, a make-up examination may be given subject to a fee of \$40.00. The fee for the make-up examination is a minimum of \$75.00 if a standardized patient is required for the exam. Additional required standardized patient hours may increase this \$75.00 minimum fee. All intra-term examination must be made up prior to final examinations. Missed final examinations must be made up within the first week of the next semester. A student may be allowed a maximum of two missed examination dates for good and sufficient reason per trimester. These two missed examination dates are for all enrolled courses in a trimester, not for each individual course. Any request for additional make-up examinations will require documentation substantiating the absence and must be approved by the Dean of Academic Affairs.

State any other **guidelines and regulations** as it specifically applies to your course and may include the following

Cell phone

Exam procedures

Walking in late

Student responsibilities

Leaving early

Wandering in and out of class

Dress code

Use of computers in class

Others

Attachment #1:

To simplify the process of developing learning outcomes and objectives follow the procedure below.

**Definition:** A **domain** is a classification of knowledge and or clinical activity.

1. Determine if you are measuring a cognitive domain, a psychomotor domain or an attitudinal domain.
2. Under that domain determine which level of knowledge you are trying to assess. When viewing the charts below consider each “**level**” (noted in the grey boxes) as relating to the learning outcomes.
3. Courses that occur early in the curriculum should use level 1 and 2 action verbs while courses that occur later in the curriculum should use level 3 and 4 action verbs or those in a higher level.
4. It is very important that the verbs being considered are measurable
5. Those listed below are just a few of the possibilities.

**Cognitive or Thinking Domain:** Skills in the **cognitive domain** revolve around knowledge, comprehension, and critical thinking of a particular topic.

Level 1 - Recall		Level 2 - Interpretation		Level 3 - Problem-solving	
Knowledge - Requires learner to recall information	Comprehension - Requires learner to understand meaning	Application - Requires learner to use material in new way	Analysis - Requires the learner to break down material into component parts and describe its organizational structure	Synthesis - Requires learner to put together parts to create a new whole	Evaluation - Requires learner to judge the value or quality of material based on clearly defined criteria
1. Define	1. Describe	1. Apply	1. Analyze	1. Create	1. Assess
2. List	2. Discuss	2. Demonstrate	2. Compare	2. Design	2. Diagnose
3. Name	3. Explain	3. Interpret	3. Contrast	3. Formulate	3. Justify
4. Recall	4. Locate	4. Predict	4. Differentiate	4. Manage	4. Recommend
5. State	5. Summarize	5. Utilize	5. Solve	5. Synthesize	5. Support

Note: some verbs may be applicable within more than one category.

**Psychomotor (Skills) Domain:** Skills in the **psychomotor domain** describe the ability to physically manipulate a tool or instrument like a hand or a hammer.

Psychomotor objectives usually focus on change and/or development in behavior and/or skills.

Level 1 - Perception	Level 2 - Imitation	Level 3 - Practice	Level 4 - Adaptation
Requires learner to use the senses to obtain cues that guide motor activity	Requires learner to perform an action as demonstrated (imitation, trial and error)	Requires learners to perform learned skills habitually with confidence and proficiency	Requires learners to modify application of skill to fit special requirements or problems
1. Detect	1. Assemble	1. Assemble	1. Adapt
2. Isolate	2. Construct	2. Construct	2. Alter
3. Differentiate	3. Measure	3. Measure	3. Change
	4. Organize	4. Organize	4. Design
			5. Originate

Note: some verbs may be applicable within more than one category.

**Attitudinal or Affective (Valuing) Domain:** Skills in the **affective domain** describe the way people react emotionally and their ability to feel another living thing's pain or joy. Affective objectives typically target the awareness and growth in attitudes, emotion, and feelings.

The affective domain is concerned with changes (growth) in interests, attitudes and values.

Level 1 Receiving	Level 2 Responding	Level 3 Valuing	Level 4 Organization	Level 5 Internalization
Requires learner shows awareness of the benefits of a particular value, attitude or interest	Requires learner to show awareness of the benefits of a particular value, attitude or interest	Requires learner to attach personal worth to a particular value, attitude or interest	Requires learner to determine how new values, interests and attitudes relate to those already held	Requires learner to respond consistently according to a set of values
1. Accept	1. Choose	1. Complete	1. Consider	1. Administer
2. Follow	2. Demonstrate	2. Evaluate	2. Facilitate	2. Criticize
3. Listen	3. Discuss	3. Justify	3. Investigate	3. Enhance
4. Observe	4. Identify	4. Propose	4. Recommend	4. Question
5. Receive	5. Select	5. Suggest	5. Synthesize	5. Solve

Note: some verbs may be applicable within more than one category.