GROSSMONT COLLEGE

COURSE OUTLINE OF RECORD

Curriculum Committee Approval: 05/18/2021

GCCCD Governing Board Approval: 06/15/2021

BIOLOGY 140 – HUMAN ANATOMY

1. Course Number Course Title Semester Units

BIO 140 Human Anatomy 5

Semester Hours

3 hour lecture 48-54 hours 96-108 hours outside of class 6 hours laboratory 96-108 hours

240-270 total hours

2. Course Prerequisites

A “C” grade or higher or “Pass” in Bio 120 or equivalent. Only Nursing majors may fulfill the BIO 120 prerequisite with one year of high school biology with a lab.

All Bio 120 courses, course equivalents and high school biology with lab must be completed within last 7 years of enrollment in Bio 140.

Corequisite

None

Recommended Preparation

A “C” grade or higher or “Pass” in Math 90 and English 120.

3. Catalog Description

A study of the structure of the systems of the human body with emphasis divided between gross anatomy and the cellular detail (histology) of tissues and their evolutionary developments and relationships with other organisms.Cats or other suitable and available specimens are used as dissection specimens in the laboratory along with selected human organs and tissue slides, including cadaver and computer demonstrations. The course meets the anatomy requirement for baccalaureate degrees in nursing, a variety of paramedical fields, including physical and occupational therapy, and exercise science majors.

4. Course Objectives

The student will:

a. Identify the major structural components of the human body, both microscopic and macroscopic for all major organ systems and their homologous structures across selected mammalian species and sample organs using concepts based on Evolution by Natural Selection.

b. Apply correct anatomical terminology to the structures and processes studied, and to their relationships by correctly identifying and spelling the name (both orally and in written form) of a given structure.

c. Employ the techniques of dissection on a preserved cat or other suitable available preserved specimensand the techniques of microscopic study of prepared tissue slides.

d. Comprehend the structural and functional organization of tissues, organs, and organ systems in the human body.

e. Compare the processes and structures of the embryonic body to the ultimate adult structure for major organ systems.

f. Analyze injury and disease scenarios presented, and correctly deduce causes, processes, and structures involved.

g. Analyze specific anatomical features in both development and the adult form as a function of Evolution by Natural Selection.

h. Collect, organize, present and analyze anatomic data with respect to clinical situations (case studies, population studies, epidemiological studies).

i. Read, comprehend and analyze college level anatomy textbooks and primary scientific sources in the context of written assignments and oral presentations.

5. Instructional Facilities

1. Standard Classroom

b. Laboratory space with appropriate facilities

c. One microscope per student

d. Preserved specimens and models for dissection and demonstration

e. Slide sets of appropriate tissues

f. Assorted supplies for dissection

g. Video equipment for demonstrations of microscopic materials and dissections

6. Special Materials Required of Student

a. Dissecting kit including (at minimum) of 2 scalpels, 2 pairs of forceps, 4 dissecting needles and two blunt probes

b. Lab coat or apron

c. Disposable gloves

d. Goggles (optional)

7. Course Content

All course content is covered in both lecture and lab. There are no topics exclusively taught in lab.

a. The body plan.

1) The basic organization and orientation of the human body and comparisons to other mammals with respect to the concepts of Evolution by Natural Selection.

2) The change to bipedal erect posture and its implications for the organs of the body as explained by the Theory of Evolution by Natural Selection.

b. Cells and tissues.

1) Discussion and microscopic examination of representative cells and tissues of the human body.

2) General microscopic anatomy and its relationship to gross anatomy.

c. Human growth and development.

1) The development of a human during gestation and through adulthood.

2) The origin of major organ systems from the generalized or undifferentiated zygote.

3) The relationship between embryological events, particularly cell and tissue differentiation, and postnatal development into the adult human form.

d. Skeletal system.

1) The structure and function of the skeletal system and articular systems both microscopic and macroscopic.

e. Muscular System.

1) The structure of muscle tissue and the major muscles of the body, their actions, innervations, and blood supply. Concepts of mycology and kinesiology will be introduced.

f. Digestive system.

1) The organs of digestion and their structure and histology.

g. Respiratory system.

1) The macroscopic and microscopic structure of the lungs and associated organs

h. Endocrine system.

1) The glands of internal secretion, their location and structure with some emphasis on function.

i. Circulatory system.

1) Venous, arterial, and lymphatic vessels and their histology.

2) Blood as a tissue.

3) The macroscopic and microscopic structure of the heart.

j. Nervous system.

1) The central and peripheral nervous systems and their interrelationships with particular emphasis on the autonomic nervous system.

2) The structure of the brain and spinal cord.

k. Human Reproduction Systems.

1) The male and female organs of reproduction and their histology.

l. Urinary System.

1) The excretory organs of the body with particular emphasis on the macroscopic and microscopic structure of the kidney.

8. Method of Instruction

a. Lecture.

b. Laboratory exercises, including dissection, to be conducted individually and in cooperative lab groups.

c. Discussion within study groups.

d. Demonstration by instructor.

e. Peer-led oral discussions and presentations.

9. Methods of Evaluating Student Performance

a. Examinations to cover the major units; both essay and objective that assess factual recall of, conceptualization of and application of anatomic principles (including correct spelling of all anatomic terms from memory).

b. Laboratory “practical” examinations that include identification and spelling of anatomic structures.

c. Final comprehensive written examination.

d. Successful completion of individual homework and classroom assessments.

e. Reading quizzes assessing completion and comprehension of assigned textbook and primary literature.

f. Analysis of anatomic data presented in a variety of formats (population equations, statistics, graphs, figures and percentages).

g. Successful participation in and examinations on preserved dissected specimens.

10. Outside Class Assignments

1. Reading of text and laboratory books as assigned.
2. Laboratory study sessions with lab group as necessary.
3. Written homework including vocabulary and application of material.
4. Clinical Application Assignment which includes the following items:
5. introduction to application including: incidence, cause, average cost to patient
6. normal anatomy: including cells involved, normal growth and development
7. healing process: including cells involved, tissues repaired, integration of organ systems
8. treatment: including medication, therapy, surgery, etc. as appropriate
9. works cited: at least 3 non internet, academic references in APA citation style; student must also include 1 website reference.
10. Graphing samples and mathematical calculations of anatomic data as provided.

11. Representative Text(s)

* 1. Representative Text(s):

1. Martini, F. H., M. J. Timmons, M.J. Tallitsch. *Human Anatomy.*  9th edition, San Francisco: Prentice-Hall, 2018.

2) Eder D.J.,S.L. Kaminsky, and J.W. Bertram. *Laboratory Atlas of Anatomy and Physiology,* 6th edition*,* New York: McGraw-Hill, 2008.

b. Supplementary texts and workbooks:

None

Addendum: Student Learning Outcomes

Upon completion of this course, our students will be able to do the following:

a. Explain the interrelationship between structure and function.

b. Trace the pathway of blood through the heart and identify the relative oxygen content of the blood in each chamber.

c. Compare and identify the developmental outcomes of the three cell layers in the embryonic inner cell mass.

d. Properly identify and dissect structures on a preserved specimen.