College of San Mateo
Course Outline

☐ New Course  ☐ Update/No change  ☒ Course Revision (Minor)

Date: 12/8/11

Department:  Biology  Number:  250
Course Title:  Human Anatomy  Units:  4.0

Total Semester Hours  Lecture:  48  Lab:  48  Homework: 80  By Arrangement: 16

Length of Course  Grading
☒ Semester-long
☐ Short course (Number of weeks ___)
☐ Open entry/Open exit

☐ Letter
☐ Pass/No Pass
☐ Grade Option (letter or Pass/No Pass)

Faculty Load Credit (To be completed by Division Office; show calculations.):
48/16 = 3 FLCs lecture; 48/16 *.8 = 2.4 FLCs lab

1. **Prerequisite** (Attach Enrollment Limitation Validation Form.)
   BIOL 100, 110 or 130.

2. **Corequisite** (Attach Enrollment Limitation Validation Form.)
   none

3. **Recommended Preparation** (Attach Enrollment Validation Form.)
   Recommended Preparation: eligibility for ENGL 838/848 and completion of READ 400 or 405 with a grade of C or higher OR concurrent enrollment in READ 400, 405, or 415 OR appropriate skill level as indicated by the reading placement tests or other measures.

4. **Catalog Description** (Include prerequisites/corequisites/recommended preparation. For format, please see model course outline.)
   BIOL 250 Human Anatomy (4) Minimum of 48 lecture and 48 lab hours plus 16 hour by arrangement per term. Prerequisite: Biol 100, Biol 110, or Biol 130. Recommended Preparation: eligibility for ENGL 838/848 and completion of READ 400 or 405 with a grade of C or higher OR concurrent enrollment in READ 400, 405, or 415 OR appropriate skill level as indicated by the reading placement tests or other measures. Structure of the human body. Laboratory study and dissection of the human male and female. (Primarily intended for students of nursing, physiotherapy, physical education/kinesiology and related fields such as chiropractic. Elective for pre-dental, pre-medical, and pre-veterinary students.) Extra supplies may be required. Students may take either the BIOL 250-260 or the BIOL 265-266 series. (AA: Area E5a, CSU: Area B2/Area B3, UC: Area 5 B + 5C)

5. **Class Schedule Description** (Include prerequisites/corequisites/recommended preparation. For format, please see model course outline.)
   BIOL 250 Human Anatomy (4) Minimum of 48 lecture and 48 lab hours plus 16 hour by arrangement per term. Prerequisite: Biol 100, Biol 110, or Biol 130. Recommended Preparation: eligibility for
ENGL 838/848 and completion of READ 400 or 405 with a grade of C or higher OR concurrent enrollment in READ 400, 405, or 415 OR appropriate skill level as indicated by the reading placement tests or other measures. Structure of the human body. Laboratory study and dissection of the human male and female. (Primarily intended for students of nursing, physiotherapy, physical education/kinesiology and related fields such as chiropractic. Elective for pre-dental, pre-medical, and pre-veterinary students.) Extra supplies may be required. Students may take either the BIOL 250-260 or the BIOL 265-266 series. (AA: Area E5a, CSU: Area B2/Area B3, UC: Area 5 B + 5C)

6. **Student Learning Outcomes** (Identify 1-6 expected learner outcomes using active verbs.)

   Upon successful completion of the course, the student will be able to:
   - Identify the structures of the body by systems.
   - Relate the structure to the function of anatomic structures.
   - Manipulate cadaver dissections and other lab specimens to understand structural relationships in the body.
   - Demonstrate how aspects of normal functioning relate to clinical issues.

7. **Course Objectives** (Identify specific teaching objectives detailing course content and activities. For some courses, the course objectives will be the same as the student learning outcomes. In this case, “Same as Student Learning Outcomes” is appropriate here.)

   The course objectives are the same as the SLOs.

8. **Course Content** (Brief but complete topical outline of the course that includes major subject areas [1-2 pages]. Should reflect all course objectives listed above. In addition, a sample course syllabus with timeline may be attached.)

   1) Describe the hierarchal levels of life organization, the role of anatomy and the complementarity of structure and function. Assess anatomic nomenclature. Discuss embryologic development

   2) Illustrate the features of a working animal cell and describe the functions of the cellular components. Compare and contrast methods of cellular transport. Define gene and describe the role of genes in cell functioning. Discuss the purposes of mitosis. Analyze cell features required by different cell types.

   3) Distinguish and compare the types of tissues in the body: epithelial, connective, nervous, and muscle. Recognize and name microscopic samples of tissues and locate and provide functions for them. Distinguish between the different types of membranes in the body.

   4) Describe structures of the skin, hypodermis, and accessory structures. Recognize, name and provide functions for microscopic tissue samples and model components.

   5) Illustrate and identify components of bone tissue, the functions of the skeletal system. Describe bone formation in embryonic development. Discuss the factors that affect bone remodeling. Define joint classes by structure and movement. List and describe the key joints of the body. Compare and contrast synovial joint types. Analyze joint biomechanics of selected body joints. Recognize, name and define functions for bony structures of the skeleton.
6) Compare and contrast the three types of muscle tissue. Identify muscle tissue types under
the microscope. List and describe functions of the muscular system. Recognize the features of
skeletal muscle organs at the macroscopic and microscopic levels. Define and describe the
sliding filament theory of contraction, isometric and isotonic contractions, fast and slow twitch
fibers, muscle tone. Recognize, name and provide actions for selected muscles in the body (on
cadavers or models).

7) State the functions and organization of the nervous system. Identify and name components
of a neuron, types of glial cells, types of neurons. Describe the processes of nerve impulses and
synapses. Locate and describe the functions of brain and spinal cord structures. Describe the
motor and sensory pathways of nerves in the somatic and autonomic (visceral) divisions of the
nervous system. Recognize and analyze the functions of sensory receptors and their
components. Identify and name nervous system structures and histological features on models
and specimens.

8) Distinguish between endocrine and exocrine glands, protein and steroid hormones, second
messenger and gene activation mechanisms of signal transduction List and identify each
endocrine gland and describe the hormones released by that gland, the targets and functions of
each hormone. Describe the hypophyseal-portal system. Identify histological features of
selected endocrine glands.

9) State the functions of the circulatory system. Describe the components of blood, their
functions, and their origins. Illustrate the structure of the heart and trace the path of blood
through the heart in the cardiac cycle. Identify and describe the electrical conduction
pathways of the heart and relate these to and ECG. Compare and contrast the structure and
functions of arteries, veins, capillaries, and lymph vessels. List and describe the features of the
lymphatic system structures. Identify and name circulatory structures on cadavers, specimens,
models and slides.

10) Describe the functions of the respiratory system. Trace the path of air through the
conducting pathway, describing the route. Illustrate the respiratory interface. Describe the
mechanism of breathing.

11) Describe the characteristics and functions of the digestive system. Trace the path of food
and liquid from ingestion to defecation, describing the route. Describe the histological features
of the intestinal wall. Illustrate and describe the structure of the liver, pancreas, and
gallbladder.

12) Describe the characteristics and functions of the urinary system. Draw and describe the
gross kidney structure and the histological structures, the nephrons. Trace the pathway of
urine from the kidneys to the urethral orifices, describing the route.

13) Describe the characteristics and functions of the reproductive system. Illustrate the testes
and describe their functions. Trace the path of sperm from the testes to the urethral opening,
describing the route. Describe the structure and function of the prostate gland, the seminal
vesicles and the bulbourethral glands. Illustrate the ovaries, and describe their functions.
Trace the path of the egg to the uterus. Label a drawing or name structures of the uterus,
vagina, vulva, and mammary glands. Describe their functions.

9. Representative Instructional Methods (Describe instructor-initiated teaching strategies that
will assist students in meeting course objectives. Describe out-of-class assignments, required
reading and writing assignments, and methods for teaching critical thinking skills. If hours by
arrangement are required, please indicate the additional instructional activity which will be
provided during these hours, where the activity will take place, and how the activity will be supervised.)

Instructional Methodologies (Instructor-initiated learning strategies):

* Lecture accompanied by computerized demonstrations and presentation materials, transparencies, and other supplementary visual material
* Discussions
* Laboratory demonstrations
* Laboratory exploration of models and specimens

*TBA (To Be Arranged Hours): one hour per week to be conducted in the Open Anatomy Lab Center or the Integrated Science Center (ISC). This time is used to work with fellow students and biology faculty to develop and practice study skills that improve test taking success.

10. Representative Methods of Evaluation (Describe measurement of student progress toward course objectives. Courses with required writing component and/or problem-solving emphasis must reflect critical thinking component. If skills class, then applied skills.)

Multiple Methods of Evaluation (Measurements of students achievements):

* 3-5 lecture exams consisting of multiple-choice questions, fill-in questions, matching, and short answer and essay questions.
* Laboratory Practicums.
* Homework assignments.

11. Representative Text Materials (With few exceptions, texts need to be current. Include publication dates.)