Med 530 Course B
Foundations of Medicine: Anatomy, Physiology, and Pathology
(4 units)
Master of Science in Global Medicine
Department of Medical Education Affairs
Keck School of Medicine
University of Southern California

Instructors: Dr. Monica G. Ferrini, Dr. Jorge N. Artaza.

USC blackboard (BB): available at https://blackboard.usc.edu/
– The syllabus, announcements, lecture slides, online homework assignments, and grades will be posted on BB.

Required Textbooks:

Suggested Textbook:

Course description
This course covers the basics of human anatomy (gross anatomy and histology), physiology (cellular physiology and different organ system areas), pathology (general, systemic and cellular pathology) and Microbiology (Microbial Diversity: Bacteria, Archaea, Virology; Microbial growth control and diagnostic microbiology). We will review the structure, function and diseases of the major organ systems of the human body, with an overview of disease prevention and extensive discussion of case studies for every body system. The course is given toward pre-Medical, Medical related majors and wireless-technology students.

Course Objectives
Upon completion of this course, students should be able to:
- Understand and use anatomical and medical terminology, recognize different types of tissues, glands and membranes.
- Learn and integrate the anatomy, physiology, and pathophysiology of the Integumentary System, Skeletal system, Muscular system, Nervous system, Endocrine, and identify symptoms, required pre-tests, confirmatory tests, and pathological conditions for these systems, and find alternatives for disease prevention.
- Use anatomical models, and computer simulation to understand body structure,
- Use tissue & organ specimens (slides) to understand human anatomy, pathology, and function for different tissues, and systems covered in this course.
- Compare and distinguish the basic groups of microbes, including prokaryotic microbes (Archaea, Bacteria), and Viruses, and eukaryotic microbes.
- Summarize common features of microbial pathogens, with emphasis on bacterial and viral pathogens.
Course Structure

Lectures

Students are responsible for all topics and issues discussed in the lectures, even if they are not covered in the textbook, the lectures will be posted on blackboard at least one day before the lecture.

Presentations assignments 20%

One or two presentations depending on the number of students of diseases will be assigned to each student at the beginning of the semester. Students will discuss signs and symptoms; other diseases that produce the same symptoms, risk factors, and diagnostic based on pre and post confirmatory tests, prevention method and therapeutic plan for that particular disease. Students can use different resources (Internet, literature, videos, etc.) to do the assignment. Questions about each presentation will be included in the final exam.

Homework & Online Laboratories

Will account for 10% of the final semester grade.
Each student is responsible for completion of his/her own assignment/s and submission by the assign due day and time. Late assignments will not be accepted.

Midterm exams and Final

– 2 in-class Midterms worth 40% (20% each), and a final exam worth 30% of your total grade.
– Midterms will have 50 questions, and the final exam will have 100 questions

Grading System:

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<th>Grading Scale</th>
<th>B+: 88-89%</th>
<th>C+: 78-79%</th>
<th>D+: 68-69%</th>
<th>F: &lt;59%</th>
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<tr>
<td>A: 93-100%</td>
<td>B: 83-87%</td>
<td>C: 73-77%</td>
<td>D: 63-67%</td>
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<tr>
<td>A+: 90-92%</td>
<td>B+: 80-82%</td>
<td>C+: 70-72%</td>
<td>D+: 60-62%</td>
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Faculty members reserve the right to update and change the syllabus as the term and class progresses so that the goals and objectives of the course can be met.

Lectures Time: __Tuesdays from 8:00 to 10:00 a.m. Room MCH 156.
__Wednesdays from 9:00 to 11:00 a.m. Room MCH 156.

Lectures Description:

Session 1: (1/14; 1/15) Course Overview: Organization of the Human Body
Topics of anatomy, topics of physiology, level of structural organization, necessary life functions, homeostasis, The language of anatomy: anatomical position and directional terms, Body plane and sections, Body cavities. Disease definition, Categories of Disease, Disease Risk Factors, Disease Terminology (Etiology, Idiopathic, Therapy, Nosocomial, Iatrogenic, Diagnosis vs. Prognosis, Symptoms vs. Signs vs. Syndrome
Reading: Chapter 1 Human Anatomy and Physiology 9th (2013) by Elaine Marieb & Katja Hoehn.
Session 2: (1/21) Tissues
Terms, structure & function, types (Epithelial and Connective Tissue)
Reading: Chapter 4 Human Anatomy and Physiology 9th (2013) by Elaine Marieb & Katja Hoehn.

Session 3: (1/22) Glands and Membranes
Overview of Membranes (Epithelial Membranes Connective Tissue Membranes), and Membranes.
Reading: Chapter 4 Human Anatomy and Physiology 9th (2013) by Elaine Marieb & Katja Hoehn.

Session 4: (1/28) The integumentary System
Overview of skin structure and function: epidermis, dermis, subcutaneous tissue. Accessories structure: glands, hair and nail
Reading: Chapter 5 Human Anatomy and Physiology 8th (2010) by Elaine Marieb & Katja Hoehn.

Session 5: (1/29) The Skeletal System 1
Overview of Classification of Bones, Gross Anatomy of Long Bone, Bone Marrow, Microscopic Anatomy of Bone, Types of Osseous Cells. Ossification.
Reading: Chapter 6 Human Anatomy and Physiology 9th (2013) by Elaine Marieb & Katja Hoehn.

Session 6: (2/4) Laboratory and presentation session: Tissues histology, connective tissue and skin diseases.
Observation of epithelial and connective tissues and muscle slides under the microscope. Presentation of the following connective tissue diseases: Marfan syndrome and Ehlers-Danlos. Presentation of skin diseases: Psoriasis, Vitiligo and skin cancer. Students will present a description of the symptoms, other diseases that produce the same symptoms, confounding symptoms and factors, risk factors, pre and post confirmatory tests, prevention method and therapeutic plan for that case.

Session 7: (2/5) The Skeletal System 2
Reading: Chapter 7 Human Anatomy and Physiology 9th (2013) by Elaine Marieb & Katja Hoehn.

Session 8: (2/11) The Skeletal system 3

Session 9: (2/12) The Muscular System I
Overview of the anatomy and physiology of the muscular system in the body (tissue and structure of muscles, with overview of different muscles in the body). Muscle contraction.
Reading: Chapter 9 Human Anatomy and Physiology 9th (2013) by Elaine Marieb & Katja Hoehn.

Session 10: Midterm 1 (2/18). Includes sessions 1 to 8.
Session 11: (2/19) The Muscular System II
Continue the muscular system anatomy and physiology.
Reading: Chapter 10 Human Anatomy and Physiology 9th (2013) by Elaine Marieb & Katja Hoehn.

Session 12: (2/25) Muscular & skeletal disease presentations:
Presentations of the following diseases: Osteoporosis, Paget disease, Osteoarthritis, Rheumatoid arthritis, Duchenne muscle dystrophy, myastenia gravis.

Session 13: (2/26) The Nervous System I:
Histology of the nervous system, membrane potentials, synapses, neurotransmitter and their receptors Transmission of Nerve Impulses: Axonal Transmission, Role of Myelin in Impulse Conduction,
Reading: Chapter 11 Human Anatomy and Physiology 8th (2013) by Elaine Marieb & Katja Hoehn.

Session 14: (3/4) The Nervous System II-A: The Brain & Cranial Nerves

Spinal cord structure and function; spinal nerves; Transmission of Nerve Impulses, reflexes, and different diseases that affect spinal cord. Reading Chapter 12 & 13. Human Anatomy and Physiology 9th (2013) by Elaine Marieb & Katja Hoehn.

Session 16: (3/11) Autonomic nervous system
Comparison of somatic and autonomic nervous system; ANS anatomy: parasympathetic and sympathetic; visceral reflexes Neurotransmitter and receptors; Effect of drugs; interactions of the autonomic divisions. Control of the autonomic function
Reading: Chapter 14 Human Anatomy and Physiology 9th (2013) by Elaine Marieb & Katja Hoehn.

Session 17: (3/12) The Nervous System laboratory and Student presentations
Brain Injuries and Lesions (Concussion, Contusion, Cerebral edema), Meningitis, Encephalitis, Hydrocephalus, Cerebrovascular Accident (Stroke), Brain Tumors (Glioma, meningioma), Epilepsy, Degenerative Diseases (Alzheimer’s, Parkinson’s Disease), Amyotrophic Lateral Sclerosis

Spring Recess March 17-22

Session 18: (3/25) Midterm 2

Session 19: (3/26) The Endocrine System I
Session 20: (4/1) The Endocrine System II
The Adrenal Glands, Hormones of the Adrenal Medulla (Epinephrine/ Norepinephrine), Hormones of the Adrenal Cortex (Glucocorticoids, Mineralocorticoids, and Sex hormones), The Pancreas, Islets of Langerhans, Pineal Gland, Thymus, Hormones of the Ovaries (Estrogens, Progesterone), Hormones of the Testes (Androgens), Other Hormone-Producing Tissues & Organs (stomach & small intestine, Kidneys, Heart, Placenta), Prostaglandins (PG) “Tissue
Reading: Chapter 17 Human Anatomy and Physiology 9th (2013) by Elaine Marieb & Katja Hoehn.

Session 21: (4/2) The Endocrine System presentations.
Physio EX Endocrine lab simulation; Disorders of endocrine system. Student presentations on Acromegalia, Cushing syndrome, Addison's disease, prolactinomas, Diabetes insipidus, Goiter, Graves disease.
Reading: Chapter 17 Human Anatomy and Physiology 9th (2013) by Elaine Marieb & Katja Hoehn.

Session 22: (4/8) Microbial Diversity, the evolutionary tree of life: Bacteria, Archaea, and Eukarya.

Session 23: (4/9) The Other Bacteria

Session 26: (4/15) Viruses & Virology

Session 27: (4/16) Microbial Growth Control

Session 28: (4/22) Microbial interactions with Humans

Session 29: (4/23) Diagnostic Microbiology
Session 30: (4/29) Person-to-Person Microbial diseases

Session 31: (4/30) Microbial diseases: Presentations of the following microbial related diseases: Hepatitis, Mononucleosis, Anthrax, Pseudomona infection, Chlamydia, Leprosy,

Study Days (No sessions) May 3-6

Session 32: Final Exam Wednesday, May 7 from 9:00 to 11:00 a.m. Room TBD.

Students with Disabilities
Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be certain the letter is delivered to the instructor as early in the semester as possible. DSP is located in on the University Park campus in STU 301 and is open 8:30 a.m. – 5:00 p.m., Monday through Friday. The phone number is (213) 740-0776.

Statement on Academic Integrity

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one’s own academic work from misuse by others as well as to avoid using another’s work as one’s own. All students are expected to understand and abide by these principles. Scampus, the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A: http://www.usc.edu/dept/publications/SCAMPUS/gov/
Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be an suspicious of academic dishonesty. The Review process can be found at http://www.usc.edu/student-affairs/SJACS/