



POST-BACCALAUREATE PRE-MED PROGRAM COURSE DESCRIPTIONS

COURSE TITLE: CRITICAL THINKING
COURSE NUMBER: 5002
CREDIT HRS: 3

Course Description:

This course will develop critical skills in students, necessary for retaining and interpreting the concepts of biomedical science in preparation for the health professions. Students will acquire skills in verbal reasoning, critical reading, and analyzing pertinent facts. The first six weeks of the course will incorporate these strategies in preparation for the MCAT for those students who plan to sit for the exam.

COURSE TITLE: BIOCHEMISTRY
COURSE NUMBER: 5104
CREDIT HRS: 3

Course Description:

This course emphasizes biochemical compounds, processes and systems, designed to provide the student with sufficient coverage of biochemical principles to facilitate learning and understanding in other biomedical and clinical science courses studied in a medical school environment to include the following topics:

1. Protein Structure and Function
2. Metabolic basis of disease
3. Macromolecular synthesis (DNA, RNA, Protein, and Lipid)
4. Energy generation, storage, and retrieval by the body
5. Use biochemical concepts in the process of clinical problem solving
6. Correlate biochemical concepts with clinical presentations of (clinical) cases
7. Develop collegiality through teamwork with other students

COURSE TITLE: MEDICAL TERMINOLOGY I and II

COURSE NUMBER: 5205 (I); 5207 (II)

CREDIT HRS: 6 (over 2 semesters)

5205 - Medical Terminology I – 3 credits

5207 - Medical Terminology II – 3 credits

Course Description:

This online classroom course is specifically designed to:

- Improve vocabulary skills.
- Prepare students for advanced professional preparation courses by incorporating content taught in advanced medical and scientific courses.
- Provide students with multiple (3000) color medical pictures that will visually assist in understanding why specific word parts were selected to form the thousands of specialized compound Medical, Scientific, and English terms discussed in this course.
- Prepare students for professional school admission tests like the GRE, MCAT, PCAT & DAT.
- Provide the word part and compound term memorization, repetition, and reinforcement needed to assure mastery of this unique “Language of Medicine.”
- Provide an opportunity to study and replay the audio-visual online lectures and complete the self-testing activities at a convenient time.

COURSE TITLE: IMMUNOLOGY

COURSE NUMBER: 5308

CREDIT HRS: 3

Course Description:

This course emphasizes the principles and concepts of immunology as they pertain to clinical medicine, with a combination of didactic lectures, case-based and problem-based learning, and group presentations. Topics include cells and organs of the immune system, B and T cell development and activation, major histocompatibility complex, antigen processing and presentation, antibody diversity, tolerance, complement, cytokines, inflammation, hypersensitivity, vaccines, autoimmunity and immunodeficiency diseases, and host-pathogen interactions.

COURSE TITLE: HISTOLOGY/EMBRYOLOGY

COURSE NUMBER: 5410

CREDIT HRS: 3

Course Description:

This course emphasizes general principles and concepts of histology and embryology as they pertain to clinical medicine, with a combination of didactic lectures, small group discussions, independent study, assigned reading, and case-based and problem-based learning. This course guides students in learning the principles and facts about the macroscopic and microscopic anatomy of the cells, tissues, organs, and organ systems of the human body, the cellular biology of its components, and the relationships between the organization of structures and their function in tissues and organs. The course serves to provide a solid background in modern molecular and cellular biology which is the basis for a biological understanding of medicine.

COURSE TITLE: FIELD SEMINAR

COURSE NUMBER: 5512

CREDIT HRS: 3

Course Description:

The (medical mission) field seminar course will consist of seven to nine days in an international or Appalachian setting where populations have limited access to basic health care due to remote site location, poverty, or other factors. Students will accompany VCOM students and faculty on a trip. The field experience activities encompass all medical and non-medical elements of a mission trip. Non-medical elements may include attending meetings for planning the trip, packing and sorting medications and supplies, and village clinic site set-up. Medical elements may include attending clinical skill preparation sessions prior to the mission trip, assisting with triage and vital assessment, and communications in an exam room. Students may also be asked to participate in related mission trip activities where applicable, including nutrition programs, child care, distribution of shoes, clothes, or food, etc. All mission activities will be supervised by the Associate Vice President for International and Appalachian Outreach or jointly with the International Outreach Trip Manager. During the Field Experience, students are responsible to VCOM faculty, staff and preceptors and are expected to participate in all mission activities.

The student has a choice of a regional (Appalachian) or international site. The student is responsible for travel costs of flight and accommodations for the mission trip, and must sign all VCOM waivers prior to participating. VCOM will sponsor some of student costs for the international trip. All student participants must accept all liability for their own health and well-being if choosing the international site, as there are conditions in any foreign country that VCOM has no control over. Students should read all forms and must complete them with the International Health & Outreach office PRIOR to the (mission) field experience.

COURSE TITLE: MEDICAL ANATOMY

COURSE NUMBER: 5616

CREDIT HRS: 3

Course Description:

Students will study the structure of the human body; to include surface anatomy and diagnostic imaging, through regional study of prosected systems of the body. Students will study through lecture, lab and student directed activities. This information will be categorized into the study of each of the following human systems: musculoskeletal, autonomic & endocrine, cardiovascular, pulmonary, gastrointestinal, renal, and reproductive.

COURSE TITLE: NEUROSCIENCE
COURSE NUMBER: 5719
CREDIT HRS: 2

Course Description:

The goal of this course is to provide students with the knowledge regarding the structure and function of the nervous system. The course will include material on the central, peripheral, and autonomic nervous systems and their interactions with other systems in the human body.

COURSE TITLE: CELL PHYSIOLOGY
COURSE NUMBER: 5718
CREDIT HRS: 3

Course Description:

The goal of this course is to provide students with a balanced foundation in cellular and systemic physiology in preparation for advanced study in medical school. The emphasis is on understanding general physiological principles and how cellular and organ systems are integrated within the organism.

This course is designed to provide essential concepts in medical physiology for future career in medicine and medical research. This information will be categorized into six sections within one semester. Cell & Muscle Physiology, Autonomic & Endocrine Regulation of Body Systems, and Cardiovascular Physiology, Pulmonary, Gastrointestinal, Renal, and Reproductive Physiology will be covered. We will focus on normal physiological function of the major human organ systems and will discuss pathophysiology when it reinforces or highlights a particular physiological mechanism. Various approaches including lectures, lecture notes, learning objectives, recommended readings from textbooks and primary sources, large and small group conferences, clinical case examples, and formal self-studies.

COURSE TITLE: MICROBIOLOGY
COURSE NUMBER: 5818
CREDIT HRS: 3

Course Description:

Students will learn the structure, morphology, classification, isolation, identification, physiology, and life cycle of viruses, bacteria, fungi, and parasites. The course will focus on cell biology, genetics, virology, bacteriology, mycology, parasitology, and interactions with mammalian hosts. Examples will be given from medically important organisms with reference to the diseases they cause, their epidemiology and laboratory diagnosis. Minimal detail will be given to the clinical aspect of microbial or parasitic diseases or to the host's immune response during an infection.

COURSE TITLE: RESEARCH AND BIostatISTICS

COURSE NUMBER: 5920

CREDIT HRS: 3

Course Description:

Students will learn research techniques and biostatistics routinely used in clinical, biomedical and epidemiological research. Background material on the methods will be presented in lectures, and class will breakup to work in groups for discussion and group report preparation.