CHA 493B Anatomy Medical Education

Dates:	Section 1	8/24 – 9/18	Enrollment:	Max	4/section
	Section 2	9/21 – 10/16		Min	1/section
	Section 3	10/19 – 11/13			

IORs: Richard Tucker, PhD
Kenneth Beck, PhD
Douglas Gross, MD, PhD
Paul FitzGerald, PhD

Human Gross and Microscopic Anatomy would like to enroll 4th-year students in a series of 4-week special study modules emphasizing the integration of clinical and basic science content of Block 1 anatomy courses. Students would select Section 1 (August 24-September 20), Section 2 (September 21-October 18), or Section 3 (October 19-November 15). Topics covered in Human Anatomy and Microscopic Anatomy during these sections include:

Section 1: Upper Limb and Thorax (Human Anatomy), Connective Tissue, Blood, Muscle, Nerve, Cardiovascular System (Microscopic Anatomy).

Section 2: Abdomen, Pelvis and Perineum (Human Anatomy), Bone and Cartilage, Respiratory System, Endocrine Tissues (Microscopic Anatomy).

Section 3: Lower Limb, Face and Cranial Nerves (Human Anatomy), Immune System, Integument, Urinary System, GI Tract (Microscopic Anatomy).

SSM students will be expected to attend all of the lectures and laboratory sessions for CHA400 and CHA402 during the 4-week section (approximately 7 anatomy labs and 3 to 4 histology labs), and to tutor first-year students during the laboratory sessions. In addition, students will be asked to prepare and present a clinical correlate session to the first-year students in histology on a topic selected by the SSM student with the approval of the CHA402 IOR, and to prepare and present an evening review session emphasizing clinical correlates to the first-year students in anatomy prior to their midterm practical examination (anatomy midterm practical examinations fall on the last day of each section).

A note to prospective students: Yes, we want you back to help us teach, but we also want you to bring your fresh perspectives on the clinical relevance of the first-year material when you do! The review may help you, and hearing your presentations will certainly help us. The curriculum is different now, with histology and gross anatomy being taught at the same time in the fall. Also, anatomy is only offered on Tuesday and Thursdays (spread over 19 weeks instead of 9.5), and histology if offered just once or twice a week. Regular attendance in lecture and lab is mandatory (special exceptions can be made for residency interviews), as are the requirements for review sessions and clinical correlate sessions. However, starting this August the course will be offered in Sacramento, minimizing your ‘commute’!

EMR 493 Cardiac Arrest, Resuscitation, and Reperfusion

Dates: 11/2 – 11/13 & 4/26 – 5/7 Enrollment: Max 12
Min 6

IORs: David Barnes, MD
Erik G. Laurin, MD

This Special Study Module will focus on our current understanding of cardiac arrest, resuscitation and reperfusion. The module will be an in-depth study of the current evidence and practice of cardiocerebral resuscitation from cell to the bedside. Using the centers for Virtual Care, students will begin through participating in the care and resuscitation of a simulated cardiac arrest patient. They will then study the complex physiology that occurs during periods of no flow and low flow to the heart and brain. An evidenced based approach will be taken to examine the current practices in resuscitation. The physics of CPR, biphasic defibrillation, pharmacotherapy, controlled hypothermia are a sample of the many topics that will be reviewed. Students will revisit relevant basic science concepts that occur during no flow, low flow, and reperfusion. Various causes of cardiopulmonary arrest will also be reviewed. The history of CPR, its public health role, and the implementation of bystander resuscitation will be discussed. Post resuscitation care and issues focusing on reperfusion and cerebral resuscitation will conclude the sessions.

ANE 493A Applied Physiology and Pharmacology

Dates: 2/1 – 2/26 Enrollment: Max 8
Min 4

IOR: Neal Fleming, MD

This course will review and demonstrate the application of basic physiology and pharmacology to patient care. There will be an in-depth analysis of the physiology and pharmacology of the cardiovascular, pulmonary, nervous, renal and endocrine systems. The material will be taught with a combination of lectures (by faculty and students), "journal club" review of literature, and through practical application in the operating room and Center for Virtual Care. The students will spend 1.5 days/week in the OR one-on-one with one of the clinical anesthesiologists to learn how physiology and pharmacology are used to manage anesthetized surgical patients. Part of the module will be devoted to balancing physiologic-based patient care with economic demands. In addition, students will learn about prevention of medical errors, using the model developed within the specialty of anesthesiology. Students will read a core literature, consisting of 20-30 articles that cover the major highlights of each of the disciplines. Students will do web-based and library research on focused topics in physiology and pharmacology. This research will form the basis of the students' presentations and writing. Students will lead group discussions of their research using a journal club format. They will also present formal presentations using PowerPoint or a similar computer based presentation software.

GMD 493 Ethical, Legal and Social Issues in Clinical Genetics

Dates: 2/1 – 2/26 Enrollment: Max 10
Min 6

IORs: Ben Rich, JD, MD
Michael Wilkes, MD

Primary care physicians are challenged to develop the knowledge, communication skills and attitudes necessary to provide compassionate, knowledgeable, and expert care to patients who maybe at increased genetic risk for disease. Increasingly, these doctors are forced into situations that require a detailed understanding of ethics, legal and social issues. A series of core seminars will cover ethical and legal principles, epidemiology, and genetics. Students will learn about ten genetic conditions which have been selected to highlight certain ELSI content: Students will rotate through a genetic clinic with focus on three groups of patients (pregnant women, children and adults), and attend meetings of patient support groups and meet patients and families with our core conditions

PMR 493 Applied Musculoskeletal Anatomy: Sports & Spine

Dates: 2/1 – 2/29 Enrollment: Min 6
Max 14

IOR: Chris Shin, MD

Musculoskeletal problems are second only to the common cold in presenting complaints to primary care physicians (family practitioners, internists, and pediatricians). A strong grasp in musculoskeletal medicine is also important in the fields of orthopedics, neurosurgery, emergency medicine, rheumatology, PM&R as well as other fields in medicine.

This four week module will review the anatomy and biomechanics of the musculoskeletal system as well as its associated pathology. The students will be instructed on appropriate musculoskeletal exam techniques and a logical approach to the patient in the clinical setting. Morning sessions will consist of lectures (see below for topics), journal clubs, physical exam competency labs and case studies. Afternoons will be for self-study or clinical experiences in the sports clinic, spine clinic, interventional pain management, or the OR.

Student participation/interaction will be stressed. They will be expected to actively participate in and contribute to journal club and case conferences. The sports and spine clinics will provide a medium for the students to practice history taking and examination skills as it applies to musculoskeletal care.

At the end of the four week period the students will be given a written exam covering the various topics discussed in didactics. Additionally, there will be an observed structured clinical exam in which the students will be directly observed performing the musculoskeletal exam on a patient. The studentís competency will be assessed on the final examination in conjunction with their participation in journal club and case conferences.

PSY 493 Culture, Medicine and Society

Dates: 2/15 – 3/12 Enrollment: Max 8
Min 1

IORs: Russell Lim, MD, MEd
Hendry Ton, MD, MS

Recent major publications by the Institute of Medicine have documented health disparities in the United States based on ethnicity, controlling for socioeconomic status. These disparities arise from complex interactions between the biases, preferences, resources, and behaviors demonstrated by physicians and patients themselves. Cultural differences between patients and physicians can exacerbate these health disparities, as physicians unconsciously allow biases or stereotypes about ethnic communities to influence their practice patterns. Patients, likewise, may distrust or misunderstand the intention of physicians during their course of treatment.

In this module, students will learn about the epidemiological significance of health disparities and the barriers to equal access for health care for ethnic minority groups, such as language, insurance status, and health literacy. An understanding of the root causes of these inequities will require resources developed in medical anthropology, sociology, cultural psychiatry, and the humanities, which conceptualize Western Medicine as a socio-cultural system. The course will include four types of seminars 1) Epidemiology/Health Disparities; 2) Society.Culture, and Medicine 3) Cinema-education 4) Reflection/Integration. Students will learn to use and practice cutting edge cross-cultural tools such as the DSM-IV-TR Outline for Cultural Formulation and learn culturally competent communication skills to work more effectively with patients from diverse communities, such as ethnic groups, gender, sexual orientation, spirituality and religion, and complementary and alternative medicine, as well as historical information to inform their understandings of these groups. Students will rotate through ethnic-specific student-run clinics, community centers, and primary health clinic with diverse patient populations, and receive supervision from culturally competent providers, and prepare a presentation on an aspect of culture and medicine.

PMD 493 / SUR 493D Interdisciplinary Study of Gastrointestinal Cancer

Dates: 2/15 – 3/12 Enrollment: Max 8
Min 3

IORs: Vijay Khatri, MD
Boris Ruebner, MD
Ramez Saroufeem MD

The course content is an in depth study of gastrointestinal and hepatic and pancreatic cancer. The Emphasis will be on an integration of basic science and clinical medicine. The principal departments involved will be pathology (Drs. Ruebner and Saroufeem), surgical oncology, (Dr. Khatri), medical oncology and gastroenterology, (Drs. Tanaka and Urayama), radiology (Drs. Shelton, Hagge, Bijan and Naderi), and radiotherapy (Dr. Jenelle). As far as possible, follow-up case studies of individual patients will be emphasized which is not often possible in the present curriculum. The students will present some of these cases to the group at the end of the module.

Throughout the four weeks, students will be asked to attend the following regularly scheduled conferences: 1) GI Tumor Board (Dr. Khatri), 2) Hepatic Tumor Board (Dr. McGahan), 3) GI Pathology (Dr. Saroufeem), and 4) GI Radiology (Dr. Rosenquist).

During the first week the emphasis will be clinical. Students will be encouraged to see as many patients with GI cancer as possible and to select, with help from faculty, some of these for a comprehensive study and follow-up. The following 6 clinical experiences will be available: 1) Gastrointestinal consult services, 2) Gastrointestinal clinics (Dr. Urayama), medical oncology (Dr. Tanaka) and surgical oncology clinics (Dr. Khatri).

During the second week the emphasis will be on anatomic pathology and radiologic imaging. Drs. Saroufeem and Ruebner will review the pathology of the GI tract, liver and pancreas and the students will study relevant microscopic slides, provided by Drs. Jensen, Ruebner, and Saroufeem, in the Pathology Department.

During the third week students will concentrate on follow up of their patients. The relevance of basic science will be emphasized in a presentation of animal models of gastrointestinal cancer by Dr. Borowsky. Students will review chemotherapy protocols while attending Dr. Tanaka's clinic.

During the 4th week students will prepare presentations on the patients they have been following. They will also critically review journal articles which have struck them as important contributions to GI Cancer. Case presentations and a journal club will be scheduled at final group sessions.

MDS 493 Comparative Healthcare – International Special Study Module

Dates: March 2010 – Dates Flexible Enrollment: Max 4

IOR: Michael Wilkes, MD

During this 10-week rotation students will travel to several nations to focus on one of four content areas (chronic disease, mental health, maternal and child health, and emergency care). Once they choose their area they study how healthcare around that area is delivered in several countries with very different models of care. Prior to leaving they will learn the history of the country and a bit about their political, social and political structure. Students will spend time a number of countries and in the US writing up their projects.

Student time will be divided into three activities. Clinical work in one of their focus area will take up 50% of their time. They will spend 25% time studying health policy, access, prevention, disease management, etc. related to their focus area. The remaining 25% of their time will be spent meeting with Ministers of Health, Regional Health Directors, Hospital and Clinic Directors and others who can help them understand the political and social organization of health care in the host nation. Each student will write up a comparative paper for submission to a medical journal comparing their focus area across the three nations.

SUR 493C / HPH 493 Care of the Critically Ill Surgical Patient: Use of Physiological Principles

Dates: 3/29 – 4/23 Enrollment: Max 10
Min 5

IORs: James Holcroft, MD
Peter M. Cala, PhD

The first purpose of the course is to re-visit some physiological principles and see how they can be used to understand some common surgical problems. The second purpose is to go from understanding of the problems to treatment. The first group of principles to be covered will include alterations in membrane transport in shock, ischemia, and reperfusion and the consequences of these alterations on acid base balance, fluid balance, and dysfunction of the lungs, liver, gut and musculoskeletal system in the critically ill surgical patient. The second group of principles to be covered will include the alterations in microvascular fluid flux that develop in the critically ill surgical patient. As with the alterations in membrane transport, the consequences of these alterations on patient care will be discussed. Lastly, the course will cover an overview of the cardiovascular system in terms of impedance matching between a pulsatile energy source (the ventricles) and a vasculature with both compliant and resistive components. The implications of this matching on cardiovascular thermodynamics in patient care will be discussed.

The course will consist of a series of seminars and teaching sessions in the Surgical Intensive Care Unit at the medical center in Sacramento. No papers will be required but Socratic teaching methods will be used, and it is expected that the students in the seminar will read the assigned materials and will be ready to participate in discussions about the material and about how these concepts affect patient care.

HON 493 Cancer as a Process

Dates: 3/29 – 4/23 Enrollment: Max 10
Min 5

IORs: Marlene von Friederichs Fitzwater, PhD
Fred Meyers, MD

Surveys of U.S. physicians show deficiencies in cancer detection and counseling skills; thus, there is a compelling need to enhance the opportunities for learning more about cancer prevention and control and counseling techniques for patient behavior change. There is also the need to introduce upcoming physicians to the expanding landscape of oncologic care. The areas of cancer diagnosis, treatment, symptomatic management, and palliative medicine have been widening in the recent years with new breakthroughs and advances. This module will cover cancer as a process, beginning with risks and prevention (including an overview of disparities in screening rates); preneoplasia; microinvasion; treatment options including surgical and radio therapy; metastases and systemic therapy; pain medicine and palliative care; and cancer communication (doctor/patient and professional / professional) including the latest research on health literacy and cancer communication. The format of the course includes traditional lectures, student-led case discussions of current articles, and problem-based learning. A Second Year Fellow in Oncology will be appointed each year to provide mentorship to students in the selection of a topic for independent reading leading to a final paper.

OBG 493 / CAR 493 Basic Science Principles Relating to Gender Specific Medicine

Dates: 4/12 – 5/7

Enrollment: Max 12
Min 4

IORs: Richard Sweet, MD
Amparo Villablanca, MD

Gender based biology is the field of scientific inquiry devoted to identifying the biological and physiological differences between men and women. Sex differences that are found at the system, organ, tissue, cellular, sub-cellular, and molecular level, as well as sex differences in response to pharmacology and therapeutics, are increasingly recognized to account for important gender differences in the prevalence and severity of a broad range of diseases, disorders, and conditions. This SSM, will explore basic science principles of gender biology important at every stage of life, health and disease, and for translating basic science knowledge into improved medical practice and therapies. The four-week module will consist of a combination of didactic lectures, group discussion, assigned reading, student presentations, and selected clinical case studies that will be linked and integrated for each topic.

The module will cover topics that include:

- Immunity and autoimmunity; why the greater prevalence in women (Dr. Gershwin, Sweet and Dankekar)
- Gender differences in cardiovascular disease (Dr. Villablanca)
- Bone metabolism and osteoporosis in men and women (Dr. Lane)
- The intrauterine environment and its relationship to disease risk later in life (Dr. Towner, Sweet)
- Biology of gynecologic malignancies (Dr. Leizerowitz)
- Pros and Cons of hormone therapy and the unifying hormone hypothesis (Dr. Turgeon and Robbins)
- Metabolic determinants of obesity, diabetes, and other insulin resistance states (Dr. Berglund and Kasim-Karakas)
- Lipoprotein interactions with the vascular wall and their contribution to vascular pathobiology (Dr. Rutledge)
- Molecular biology of atherosclerosis: sex and hormone regulation (Dr. Turgeon and Villablanca)

At completion of the module, the students will have the ability to critically evaluate the results of published writings; understand clinical, physiological and molecular principles of gender-based biology; and apply those principles to the study of human disease.

CHA 493 / SUR 493 Clinically-Oriented Anatomy

Dates: 4/12 – 5/7 Enrollment: Min 4
Max 8

IORs: Thomas Blankenship, PhD
Vijay Khatri, MD

This four week course will review selected aspects of the anatomy of the head and neck, thoracic cavity, abdomen, pelvis, extremities, vascular system, peripheral nervous system and central nervous system**.** The focus will be the understanding of anatomy related to common surgical procedures. Faculty will choose no more than 3 key operations that highlight the anatomy of each region. The module is structured to have a 3 hour morning block that begins with a 30-45 minute didactic presentation by the faculty, followed by faculty demonstrations of the dissections. Students will engage in self study of the regional anatomy and operation guidelines in the afternoon using the dissections, prosections and anatomy/surgical videos/CDs. Every Wednesday afternoon, students will be required to perform one of the procedures on the undissected side of the cadaver, or alternatively, in the case of the body cavities, demonstrate this or the normal anatomy to other students and one of the instructors. On the first and second Fridays, students will take turns attending interventional radiology sessions and the OR. There will be a didactic presentation on interventional radiology, followed by opportunities for observing procedures. On the third Friday, students will attend Endoscopy suite to learn endoscopic anatomy of the G.I. tract. In the fourth week, the morning will be spent reviewing cross-sectional anatomy using imaging studies. In the afternoon, they will attend pathology grossing room to review the gross anatomy of resected anatomical parts.

PHA 493 Are You Ready for the Future of Medicine?

Dates: 4/12 – 5/7 Enrollment: Min 5
Max 10

IORs: David Segal, PhD

The day is rapidly approaching when individuals will be able to obtain their entire personal genetic sequence. Already, companies are forming to provide individuals medical information based on their genomic data. The question is: will you be ready? This 4-week module will focus on the techniques and clinical applications of medical genomics. Topics will include an introduction to the human genome, bioinformatics and databases, human genetic variation, genetic testing, gene therapy, microarrays, pharmacogenomics / toxicogenomics, proteomics, and the ethics of medical genomics. Instruction will be in the format of lectures, discussions of readings, computer-based assignments, and practical hands-on experience in which students will learn a little about their own genetic material through performing analyses such as PCR (DNA), microarray (RNA), mass spectrometry (protein). Practical work will be performed in the state-of-the-art teaching facilities at the UC Davis Genome and Biomedical Sciences Facility on the Davis campus. By the end of the course, you will know what a SNP can tell you about disease susceptibility, diagnosis, treatment, and reducing the estimated 100,000 deaths and 2 million hospitalizations that occur each year in the United States as the result of adverse drug response.

GMD 493A Doctoring 4 SSM

Dates: Year Long (Concurrent with Doctoring 4)

IOR: Frazier Stevenson, MD

1. Work with Block 1 and 2 faculty to develop and lead small group seminars in basic science courses.
2. Offer office hours/tutoring to year 1 students, using knowledge of learner styles to appropriately tailor the sessions.
3. Understand and demonstrate principles of effective lecture delivery on a self-selected topic in basic medical science. Prepare and deliver a 20 minute mini-lecture to demonstrate competence.

Outline of SSM Course Hours
(In Addition To and Beyond the Doc 4 Requirements)

Type	Hours	Description
Seminar A	4	Teaching/Learning theory, lecture technique, small group techniques
Seminar B	12	Student mini-lectures on selected basic science topics
Small group teaching	16	Small groups in Micro, MERN, or Basic Path
Orientation or case development for small group teaching	8	Orientation or case development for small group teaching
Lecture attendance in year 1 courses	6	Preparation for small group sessions
Office Hours/Tutoring	8	Tutoring for MS1 students. You schedule the times, which will be announced to the class. You can work in pairs to create more structured reviews if you like.

Seminars:

Seminar A (Week 1) will be a preliminary series of lecture/discussions on effective lecture and small group technique, learning theory, and ways of tailoring your teaching to student learning types.

Seminar B (Week 2) will be a series of 20 minute mini-lectures done by the SSM students on a basic science topic of their choice, followed by 10 minutes of critique and discussion. Be thinking about your topic.