

ANESTHESIA (ANES)

ANES 199. Undergraduate Research. 1-18 Unit.

Allows for qualified students to undertake investigations sponsored by individual faculty members. Prerequisite: consent of instructor.

ANES 202. Anesthesiology and Pathophysiologic Implications for the Perioperative Patient. 1 Unit.

Provides participants a case-based review of organ physiology and an in-depth discussion of the pathophysiologic mechanisms during the perioperative period that affect outcome in surgical patients. All major organ systems will be discussed, and subjects such as airway management, ventilatory support, transfusion practices, pharmacology and the acute management of shock will be covered. This course provides useful information for all students involved or interested in acute care of the critically ill patient. Lecturers are Stanford anesthesia faculty and visiting guest faculty. Prerequisite: completion of first year curriculum is strongly encouraged.

ANES 203. Evaluating New Health Care Ventures: An Everyone Included Approach. 1-2 Unit.

With ever-growing innovation in healthcare, how do investors evaluate and fund new ventures in one of the most diverse, operationally complex and regulated industries? Health care investment is unique in its dynamic evolution across decades of scientific, business and regulatory development. How might patients, providers, technologists, and investors, which we define as our Stanford Medicine X Everyone Included, team model, help identify the best opportunities for the health care investor? This course focuses on how health care investors think and make strategic decisions, incorporating both changing financial metrics and qualitative investment theses. This colloquium will feature guest speakers including senior investment professionals, visionary business leaders and passionate new voices such as patient experts that have traditionally been absent from investment decisions. Students enrolling for 2 units prepare a final paper.

ANES 205. Engage and Empower Me: Myths and Truths of Designing for Patient Behavior. 2-3 Units.

Focus is on patient stories and real-life experiences of patient engagement, the neuroscience of behavior change and the principles of patient engagement. Together with patients, students participate in design sessions at Stanford's simulation center to create and test ways to modify behavior through design. Topics include the neuroscience behind motivating individuals into healthy behaviors, including patients in the care design process, how health educators, designers, techies and investors can improve success. Students enrolling for 3 units complete a class project.

ANES 207. Medical Acupuncture. 2 Units.

Acupuncture is part of a comprehensive system of traditional Chinese Medicine developed over the past two millennia. This course reviews the history and theoretical basis of acupuncture for the treatment of various diseases as well as for the alleviation of pain. Issues related to the incorporation of acupuncture into the current health care system and the efficacy of acupuncture in treating various diseases are addressed. Includes practical, hands-on sections.

ANES 208A. Data Science for Digital Health and Precision Medicine. 1-2 Unit.

How will digital health, low-cost patient-generated and genomic data enable precision medicine to transform health care? This Everyone Included, course from Stanford Medicine X and SHC Clinical Inference will provide an overview of data science principles and showcase real world solutions being created to advance precision medicine through implementation of digital health tools, machine learning and artificial intelligence approaches. This class will feature thought leaders and luminaries who are patients, technologists, providers, researchers and leading innovators from academia and industry. This course is open to undergraduate and graduate students. Lunch will be provided.

ANES 211. Themes in the History of Science and Medicine. 1 Unit.

Student lead: What exactly is a diagnosis, and what is the history of that term? Why do Institutional Review Boards exist, and what atrocities in human medical experimentation occurred to prompt their creation? What is the role of narrative, social construction, and storytelling in medicine? This course will shed light on the ways physicians and scholars grapple with these and other important questions through a series of lectures from historians and philosophers of science, as well as bioethicists and scholars of narrative medicine. These perspectives on how scientific knowledge emerges and changes over time offer invaluable insights and frameworks for anyone aspiring to practice medicine or contribute to the collective body of scientific knowledge.

ANES 215. Journal Club for Neuroscience, Behavior and Cognition Scholarly Concentration. 1 Unit.

Review of current literature in both basic and clinical neuroscience in a seminar format consisting of both faculty and student presentations.

ANES 280. Early Clinical Experience in Anesthesia. 1-2 Unit.

Provides an observational experience as determined by the instructor and student. Prerequisite: consent of instructor.

ANES 281. Medicine in Movies: The Illness Experience. 1 Unit.

Student lead: This virtual seminar will introduce students to films, documentaries, and shorts with medical and bioethical themes. Viewings will encourage students to examine their own pre-conceptions and evaluate topics that elucidate illness as subjectively experienced by providers, patients and their families. Movies will be viewed first by students, then class will convene via Zoom for discussion. This type of close viewing will not only allow participants to better answer the existential questions that illness provokes - what does it mean to experience suffering? to heal as well as treat? to contemplate morality? - but also encourages these future providers to incorporate effective communication techniques into their practices.

ANES 299. Directed Reading in Anesthesiology. 1-18 Unit.

Prerequisite: consent of instructor.

ANES 300A. Anesthesia Operating Room Clerkship. 5 Units.

VISITING: Open to visitors. TYPE OF CLERKSHIP: Elective. DESCRIPTION: This clerkship provides an introduction to the perioperative anesthetic management of the surgical patient. In this clinical setting, and under close faculty and resident supervision, students have an opportunity to learn and apply the principles of preoperative evaluation of patients, intraoperative monitoring techniques, assessment of vital organ status, pharmacology of anesthetic and related drugs, and immediate postoperative management. In addition, students have ample opportunity to learn and practice a variety of technical skills, including airway management and intravenous cannulation, which will be of value in any clinical specialty. Students are assigned to the operating room at the SUMC. Didactic lectures, clinical conferences, as well as anesthesia simulator course, will be offered throughout the rotation. Students will work closely with pre-assigned faculty and residents during the three-week clerkship. Please note: Visiting students must obtain approval from Ms. Yun Tao prior to applying for this clerkship. Please email requests to yuntao@stanford.edu. PREREQUISITES: A major clerkship in medicine or surgery is strongly recommended. PERIODS AVAILABLE: 3B-12B, full-time for 2 weeks. 3 students per period. CLERKSHIP DIRECTOR: Phillip Wang, M.D., phillipw@stanford.edu, 650-723-6412. CLERKSHIP COORDINATOR: Yun Tao, yuntao@stanford.edu, 650-724-1706, H-3580, Stanford Hospital. REPORTING INSTRUCTIONS: Where: Where: 500p OR front desk; Time: Mon 7:45 am. CALL CODE: 0. OTHER FACULTY: Stanford Department of Anesthesia Faculty. LOCATION: SUMC.

ANES 300B. Anesthesia Operating Room Clerkship. 5 Units.

VISITING: Open to visitors. TYPE OF CLERKSHIP: Elective. DESCRIPTION: Exposes students to the administration of anesthetics to surgical patients in the operating room. In this clinical setting, at the PAVAMC and under close faculty and resident supervision, students have an opportunity to learn and apply the principles of preoperative evaluation of patients, intraoperative monitoring techniques, assessment of cardiovascular and respiratory status, and the pharmacology of anesthetic and related drugs. In addition, students have ample opportunity to learn and practice a variety of technical skills, including airway management, endotracheal intubation, and intravenous and intra-arterial cannulation which would be of value in any clinical specialty. Please note: Visiting students must obtain approval from Ms. Yun Tao prior to applying for this clerkship. Please email requests to yuntao@stanford.edu. PREREQUISITES: A major clerkship in medicine or surgery is strongly recommended. PERIODS AVAILABLE: 3B-12, full-time for 2 weeks, 2 students per period. CLERKSHIP DIRECTOR: Natasha Funck, M.D. (650-493-5000 ext 64216). CLERKSHIP COORDINATOR: Yun Tao (650-724-1706), H-3583, Stanford Hospital. REPORTING INSTRUCTIONS: Where: PAVAHCS, Building 101, Room A3-205, 3rd Floor; Time: 8:30 am. CALL CODE: 0. OTHER FACULTY: VAPAMC Anesthesia Faculty. LOCATION: VAPAHCS.

ANES 300C. Anesthesia Operating Room Clerkship. 5 Units.

VISITING: Open to visitors. TYPE OF CLERKSHIP: Elective. DESCRIPTION: This clerkship is an introductory course to anesthesiology at the Santa Clara Valley Medical Center. Clerkship students will be active participants during anesthesia cases and perform airway managements, intravenous cannulations, and administration of anesthetic agents. Students should expect considerable experiences with vascular cannulation during the first week of this clerkship. The second week will focus on airway management and administration of anesthesia. Please note: This clerkship accepts students from other medical institutions. In order to avoid overbooking, students who wish to do this clerkship MUST get pre-approval from clerkship director Dr. Lin before registering. Please email requests to yuntao@stanford.edu. PREREQUISITES: A major clerkship in medicine or surgery is strongly recommended. PERIODS AVAILABLE: 4B-12, full-time for 2 weeks or 4 weeks. 1 student per period. CLERKSHIP DIRECTOR: Mark Lin, M.D. (408-885-2604), mark.lin@hhs.sccgov.org. CLERKSHIP COORDINATOR: Yun Tao (650-724-1706), H-3580, Stanford Hospital. REPORTING INSTRUCTIONS: Where: SCVMC Department of Anesthesia Room 2M106, Kit Hardin (408) 885-3109; Time: 8:00 am. Please email a short statement explaining what you would like to get out of the rotation and what is your interest in Anesthesia to the Director prior to starting rotation. CALL CODE: 0. OTHER FACULTY: SCVMC Anesthesia Faculty. LOCATION: SCVMC.

ANES 300D. Anesthesia Operating Room Clerkship. 5 Units.

VISITING: Closed to visitors. TYPE OF CLERKSHIP: Elective. DESCRIPTION: Three weeks are spent learning theoretical and practical anesthetic fundamentals under the supervision of the anesthesiology staff at the Kaiser Permanente Medical Center, Santa Clara. The student will rotate with several anesthesiologists and thus receive a diverse exposure to anesthesia techniques and plans. Teaching during this rotation is intensive, didactic, and most importantly individualized; resulting in a rotation of value both to those considering anesthesiology as a future subspecialty and those who are not. Students on this clerkship are expected to prepare and deliver a presentation at one of the Departmental Noon Conferences, to prepare on a daily basis a topic for informal discussion with the attending anesthesiologist, and to attend all educational conferences offered by the Stanford University Hospital Anesthesiology Department. Basic textbook and supporting materials will be loaned to the student. An exit interview from the clerkship will be conducted to mutually exchange feedback regarding the rotation. PREREQUISITES: A major clerkship in medicine or surgery is required. PERIODS AVAILABLE: 1-12, full-time for 2 weeks or 4 weeks, 1 student per period. CLERKSHIP DIRECTOR: Jonathan Chow, M.D., 408-820-0607 pager. CLERKSHIP COORDINATOR: Yun Tao, 650-724-1706, H-3583, Stanford Hospital. REPORTING INSTRUCTIONS: Where: KPMC, 710 Lawrence Expressway, Dept 384, Santa Clara, CA 95051, 408-851-3836. Report to Susan Krause; Time: 8:00 am. CALL CODE: 2. OTHER FACULTY: Kaiser Santa Clara Anesthesiologist. LOCATION: KPMC.

ANES 300P. Pediatric Anesthesia Clerkship. 5 Units.

VISITING: Open to visitors. TYPE OF CLERKSHIP: Elective. DESCRIPTION: An introduction to the perioperative and intraoperative anesthetic management of the pediatric patient in a clinical setting. Under close supervision by faculty, fellows and residents, students learn and apply the principles of preoperative evaluation of pediatric patients, intraoperative monitoring techniques, assessment of vital organ status, pharmacology of anesthetic and related drugs, and immediate postoperative management. In addition, students will be exposed to many anesthetic procedures including arterial and central venous line placement, regional anesthesia and airway management. Opportunities to observe in the pediatric cardiac anesthesia venue and pediatric acute/chronic pain service are available if requested. Students are assigned to the operating room at LPCH and are notified by the clerkship director of the actual daily assignment the night before. Students will work closely with assigned faculty/fellows/residents during this 2-week clerkship. PREREQUISITES: Anes 300A. PERIODS AVAILABLE: 1-12, full-time for 2 weeks, 1 student per 2 week period. Please note: students who wish to do this clerkship MUST get pre-approval from clerkship director Dr. Olga Wolke before registering. Please email requests to yuntao@stanford.edu. CLERKSHIP DIRECTOR: Dr. Olga Wolke. CLERKSHIP COORDINATOR: Yun Tao, 650-724-1706, H-3583, Stanford Hospital. REPORTING INSTRUCTIONS: Where: Students should attend anesthesia grand rounds if their first day is a Monday. Grand rounds are held in the Li Kai Shing center auditorium starting at 6:45 am almost every Monday. Students should get in touch with the clerkship site director, Dr. Olga Wolke, by email oalbert@stanford.edu before they start to get specific instructions and assignments, as well as reading material, and for exceptions to the Monday morning Grand Rounds; Time: 6:45 am. CALL CODE: 2. OTHER FACULTY: Staff. LOCATION: LPCH.

ANES 302A. Obstetrical Anesthesia Clerkship. 5 Units.

VISITING: Open to visitors. TYPE OF CLERKSHIP: Elective. DESCRIPTION: Covers the following areas: a theoretical understanding of the physiology of normal pregnancy; pain mechanisms in labor; methods of analgesia and anesthesia with advantages and complications in normal and abnormal labor and pregnancy; and regional and general anesthesia as applied in obstetrics. Practical experience is provided in anesthetic techniques for the obstetrical patient, as permitted by patient load, the experience of the residents on the rotations and the complexity of the cases. Please note: Visiting students must obtain approval from Yun Tao prior to applying for this clerkship. Please email requests to yuntao@stanford.edu. PREREQUISITES: Six months of clinical clerkships, preferably including Anesthesia 300A, 300B, 300C, or 300D. PERIODS AVAILABLE: 1-12, full-time for 2 weeks. 1 student per period. CLERKSHIP DIRECTOR: Gillian Abir, M.D. CLERKSHIP COORDINATOR: Yun Tao (650-724-1706), H-3583, Stanford Hospital. REPORTING INSTRUCTIONS: Where: Delivery Room (must be arranged in advance with Dr. Abir); Time: 7:00 am. CALL CODE: 0. OTHER FACULTY: Obstetric Anesthesia Faculty. LOCATION: LPCH.

ANES 304A. Chronic Pain Management Clerkship. 5 Units.

VISITING: Open to visitors. TYPE OF CLERKSHIP: Selective 1. DESCRIPTION: Relates the anatomy, physiology, biochemistry and psychosocial components of pain to the understanding and care of patients with acute, chronic, or cancer pain. Students are involved with faculty on a one-to-one basis while interviewing, examining, and treating patients in the multidisciplinary outpatient Pain Management Clinic from 8am to 5pm. Several times a week there are multidisciplinary conferences at lunch evaluating complex patients and neuromodulation cases along with morning teaching. Students will gain exposure to the multidisciplinary management of pain. In clinic they will have the opportunity to see interventional procedures including diagnostic and therapeutic nerve blocks using ultrasound, psychological strategies for managing pain including biofeedback and cognitive behavioral therapy, physical therapy treatments focused on regaining movement, acupuncture as well as individualized medical care plans for patients with a wide array of pain disorders. Students may also observe epidural, spinal, and peripheral nerve blocks and observe procedures performed with fluoroscopy in the outpatient surgical center. In addition to the outpatient Pain Management Clinic, the Pain Management Services oversees the treatment of patients with postoperative pain, acute on chronic pain, and cancer pain on the Acute Pain Service which involves daily teaching and work rounds beginning at 7:00 am at the Stanford Hospital where students participate as part of a team in implementing multimodal and interventional management strategies including neuraxial and regional techniques for perioperative pain management. Please note: Visiting students must obtain approval from Yun Tao prior to applying for this clerkship. Please email requests to yuntao@stanford.edu. PREREQUISITES: Clinical experience. PERIODS AVAILABLE: 1-12, full time for 2 weeks or 4 weeks, 1-2 students per period. CLERKSHIP DIRECTOR: Anuj Aggarwal, M.D., akaggarw@stanford.edu. CLERKSHIP COORDINATOR: Yun Tao, 650-724-1706, yuntao@stanford.edu. REPORTING INSTRUCTIONS: Where: Contact Alexis Salas at adsalas@stanford.edu for instructions/directions; Time: 7:00 am. CALL CODE: 0. OTHER FACULTY: Pain Management Faculty. LOCATION: SUMC, SMOC.

ANES 306A. Critical Care Core Clerkship. 5 Units.

VISITING: Closed to visitors. TYPE OF CLERKSHIP: Required. DESCRIPTION: Provides experience managing adult patients in a critical care unit. Students learn how to optimize care for the acutely ill patient and participate in the multidisciplinary approach to complex patients. Teaching emphasizes the review of basic organ physiology, the ability to determine the pathophysiologic mechanisms involved in critical illness, and the formulation of a physiologic based treatment plan. Students gain experience with the implementation of monitoring and therapeutic devices used in the intensive care units and begin to become adept at the evaluation, stabilization and management of the most critically ill patients expected to be encountered in today's acute care hospitals. Ward rounds, bedside evaluation and treatment, and individual interactions with attending, fellows and residents are part of the educational process. Assignments will be made either to the Stanford Medical-Surgical ICU Service, Stanford Surgical ICU Service, or the Palo Alto Veterans Administration Hospital Medical-Surgical ICU Service. Student preferences for a particular adult ICU site will be given consideration but cannot be guaranteed. Absences during the 306A clerkship: Students must contact the 306A Clerkship Director to obtain explicit advance approval for any planned absence from the clerkship. Unanticipated absences for illness or emergency must be communicated to the Clerkship Director as promptly as possible. Students with more than 2 days of unexcused absences (i.e., 3-5 days) will be required to make up one week at a later date. If the absence is longer than this, the time would be proportionately increased. Taking extra night or weekend call may not be considered a suitable substitute for missing weekdays during the clerkship. Arrangements to make up missed time must be made by the student with the 306A Clerkship Director. Students who anticipate missing a week (i.e., 5 weekdays) or more of the 306A Clerkship are encouraged to reschedule this clerkship during a different period. Students who miss either of the half-day ICU Medical Student Simulator courses will need to make these experiences up at a later date in order to receive a passing grade for this clerkship. Students who are absent from the Death-and-Debriefing required didactic will need to make up this aspect of the curriculum in order to receive a passing grade for this clerkship. PREREQUISITES: Med 300A and Surg 300A. Exceptions to the pre-requisites can be requested through the clerkship director. PERIODS AVAILABLE: P1-12, full-time for 4 weeks. 8 students per period. CLERKSHIP DIRECTOR: Erin Hennessey, M.D. & Juliana Barr, M.D., 650-493-5000 X64452, PAVAMC (112A), Building 101, Room A-321. CLERKSHIP COORDINATOR: Bernadette F. Carvalho, berniec@stanford.edu. REPORTING INSTRUCTIONS: Where: TBA; Time: TBA. CALL CODE: 4. OTHER FACULTY: Staff. LOCATION: SUMC, PAVAMC.

ANES 306P. Critical Care Core Clerkship. 5 Units.

VISITING: Closed to visitors. TYPE OF CLERKSHIP: Required.

DESCRIPTION: During this rotation, students provide care for critically ill children at Packard Children's Hospital. The rotation consists of a 4-week block in the NICU or the PICU. The Pediatric Intensive Care Unit (PICU) is a busy 36-bed academic unit that teaches students to recognize and care for critically ill children. The patients are comprised of medical, surgical, and trauma patients from within LPCH or by referral from other hospitals throughout Northern California. The medical admissions cover a broad range of disease processes and the surgical patients represent diverse pathologies from general and sub-specialty focused procedures. Students will learn the pathophysiology of critical illness in children, understand the many monitoring devices used in the ICU, and become familiar with the various treatment modalities available for organ failure ranging from mechanical ventilation to ECMO. The basic differences in both pathophysiology and management of critically ill children as compared to adults should also become apparent. The Neonatal Intensive Care Unit (NICU) offers an intensive experience in the management of premature and acutely ill term neonates admitted from the delivery room, community physicians' offices, and an active referral service that draws from throughout Northern and mid-coastal California. The rotation emphasizes delivery room experience and newborn resuscitation skills, daily management of common newborn problems, and the special follow-up needs of NICU graduates. Exposure to advanced therapies including mechanical ventilation, extracorporeal membrane oxygenation, nitric oxide therapy, and hypothermia occurs routinely. An active maternal-fetal medicine service, pediatric surgery, and various pediatric subspecialty services support the NICU. Education in both units will occur via daily morning rounds, caring for patients, scheduled didactic sessions, and interactions with ICU attendings, fellows, and residents. Absences during the 306P clerkship: Students must contact the 306P Clerkship Director to obtain explicit advance approval for any planned absence from the clerkship. Students who anticipate missing a week (i.e., 5 weekdays) or more of the 306P Clerkship are encouraged to reschedule this clerkship during a different period. Unanticipated absences for illness or emergency must be communicated to the Clerkship Director as promptly as possible. Students with more than 2 days of unexcused absences (i.e., 3-5 days) will be required to make up one week at a later date. If the absence is longer, the time will be proportionately increased. Taking extra night or weekend call may not be considered a suitable substitute for missing weekdays during the clerkship. Arrangements to make up missed time must be made by the student with the 306P Clerkship Director. Students who miss either of the half-day-long ICU Medical Student Simulator courses will need to make these experiences up at a later date in order to receive a passing grade for this clerkship. Students who are absent from the Death-and-Debriefing required didactic will need to make up this aspect of the curriculum in order to receive a passing grade for this clerkship. PREREQUISITES: Peds 300A and Surg 300A. PERIODS AVAILABLE: 1-12, full-time for 4 weeks. Maximum 3 students per period (2 PICU, 1 NICU). CLERKSHIP DIRECTOR: NICU-Christine Johnson, M.D., clcjohns@stanford.edu; PICU-Saraswati Kache, M.D., skache@stanford.edu. CLERKSHIP COORDINATOR: Bernadette F. Carvalho, berniec@stanford.edu. REPORTING INSTRUCTIONS: Where: PICU: If assigned to Team-A, report to on service Attending physician / PICU fellow in PICU, LPCH Main 420 Team room 4th floor; If assigned to Team-B, report to on service Attending physician / PICU fellow in PICU, LPCH Main 320 Team room 3rd floor, NICU: Report to on service Attending physician / NICU fellow in NICU, LPCH West 2nd floor; Time: TBA. CALL CODE: 4. OTHER FACULTY: Staff. LOCATION: LPCH.

ANES 307A. Cardiovascular Anesthesia Clerkship. 5 Units.

VISITING: Open to visitors (Current COVID protocols at SOM restrict visiting students, subject to change). TYPE OF CLERKSHIP: Elective.

DESCRIPTION: A two-week clerkship that gives the student exposure to the principles and practice of cardiovascular anesthesia, including applied cardiovascular physiology and pharmacology. You will work in the cardiac operating room and cath lab with faculty, fellows and residents, providing care to adult patients undergoing cardiac and vascular procedures. You will gain experience in the preoperative evaluation of compensated and decompensated (sick) patients; clinical application of physiologic principles (e.g., myocardial oxygen balance and ventricular function curves); applied monitoring; use of potent inotropic, vasodilator and other hemodynamic drugs; application of cardiac pathophysiology to clinical care; considerations for urgent/emergent, minimally invasive, and catheter based procedures; and may assist in placement of monitoring lines and devices. Please note: Visiting students must obtain approval from Yun Tao prior to applying for this clerkship. Email requests to yuntao@stanford.edu. PREREQUISITES: Anesthesia 300A, 300B, 300C, or 300D plus 6 months of clinical clerkships. PERIODS AVAILABLE: 1-12, full time for 2 weeks, 2 students per period. CLERKSHIP DIRECTOR: Dr. Albert Tsai. CLERKSHIP COORDINATOR: Yun Tao (650-724-1706), H-3583, Stanford Hospital. REPORTING INSTRUCTIONS: Where: Contact Dr. Albert Tsai and Yun Tao one week prior to confirm time and location. Typically Stanford Hospital operating room front desk; Time: 6:45am. CALL CODE: 0. OTHER FACULTY: Staff. LOCATION: SUMC.

ANES 340A. Medical-Surgical Intensive Care Unit Clerkship. 5 Units.

VISITING: Open to visitors. TYPE OF CLERKSHIP: Elective. DESCRIPTION: Designed to give medical students an in-depth exposure to critical care medicine focusing on advancement to the manager level for complex, critically ill patients. It offers students an opportunity to apply physiologic and pharmacologic principles utilizing sophisticated monitoring techniques to the care of critically ill patients. Students will gain exposure to a variety of primary principal problems. Students will participate in daily rounds in which they will serve as the primary provider for their patients. Students will also spend time with the triage team in which they will respond to rapid response calls, code sepsis calls, and code blues. This component of the rotation will allow the student to experience caring for the undifferentiated patient. Students are closely supervised in total patient care and gain experience in a variety of technical skills including bedside ultrasound, venous access, and arterial access. Students will participate in bedside sedation procedures with the perioperative anesthesia service as needed for the care of their patients. Although pulmonary, hemodynamic, and renal aspects of care are stressed, experience in all phases of surgical and medical patient care are provided. Students wishing to do this clerkship must get approval from Bernadette Carvalho first before registering. PREREQUISITES: Anesthesia 306A for Stanford medical students; Internal Medicine and Surgery core clerkship for visiting students. PERIODS AVAILABLE: 1-12, full time for 4 weeks, 1 student per period. CLERKSHIP DIRECTOR: Erin Hennessey, M.D. CLERKSHIP COORDINATOR: Bernadette F. Carvalho, berniec@stanford.edu. REPORTING INSTRUCTIONS: Where: E2 300P (Medical-Surgical ICU at Stanford); Time: 6:00 am. CALL CODE: 4. OTHER FACULTY: R. Askklason, G. Dhillon, J. Levitt, J. Lorenzo, F. Mihm, T. Mitarai, P. Mohabir, R. Pearl, M. Ramsay, N. Rizk, A. Rogers, S. Ruoss, A. Weinacker, J. Wilson. LOCATION: SUMC.

ANES 340B. Medical-Surgical Intensive Care Unit Clerkship. 5 Units.

VISITING: Open to visitors. **TYPE OF CLERKSHIP:** Elective. **DESCRIPTION:** This clerkship provides experience managing adult patients in a critical care unit at the Palo Alto Veterans Administration Hospital Medical-Surgical ICU Service. Students learn how to optimize care for the acutely ill patient and the multidisciplinary approach to complex patients. The patients admitted to the ICU represent a variety of service lines including primary medicine, neurology, neurosurgery, general surgery, and cardiothoracic surgery. Teaching emphasizes the review of basic organ physiology, the ability to determine the pathophysiologic mechanisms involved in critical illness, and the formulation of a physiologic based treatment plan. Students gain experience with the implementation of monitoring and therapeutic devices used in the intensive care units and begin to become adept at the evaluation, stabilization and management of the most critically ill patients expected to be encountered in today's acute care hospitals. Ward rounds, bedside evaluation and treatment, and individual interactions with attending, fellows and residents are part of the educational process. Students will participate in emergency teams, code teams, and in-situ simulation events. Students wishing to do this clerkship must get approval from Bernadette Carvalho first before registering. **PREREQUISITES:** Anesthesia 306A for Stanford medical students; Internal Medicine and Surgery core clerkship for visiting students. **PERIODS AVAILABLE:** 1-12, full time for 4 weeks, 1 student per period. **CLERKSHIP DIRECTOR:** Juliana Barr, M.D., 650-493-5000 x64452, Building 1, Room F315, PAVAMC 112A. **CLERKSHIP COORDINATOR:** Bernadette F. Carvalho, berniec@stanford.edu. **REPORTING INSTRUCTIONS:** Where: PAVAMC, MSICU, 3rd Floor; Time: 6:00 am. **CALL CODE:** 4. **OTHER FACULTY:** Staff. **LOCATION:** PAVAMC.

ANES 370. Medical Scholars Research. 4-18 Units.

Provides an opportunity for student and faculty interaction, as well as academic credit and financial support, to medical students who undertake original research. Enrollment is limited to students with approved projects.

ANES 398A. Special Clinical Elective in Anesthesia. 5 Units.

VISITING: Open to visitors. **TYPE OF CLERKSHIP:** Elective. **DESCRIPTION:** Provides an opportunity for a student in the clinical years to have an individualized clinical experience in Anesthesia. The student may elect to arrange a clerkship either with a specific faculty member or gain experience in a particular select area of Anesthesia not readily available by clerkship designation. The duration and content of the clerkship will be decided upon by the student and a faculty preceptor in the Department of Anesthesia. Arrangement and inquiries regarding this clerkship should be made with Dr. Phillip Wang. Please note: Students cannot add 398A clerkships directly to their fishbowl schedules through the regular shuffles. Please contact Caroline Cheang in the Office of Medical Student Affairs at cheang@stanford.edu or 650-498-7619 with the faculty preceptor's name and email address to add this clerkship. **PREREQUISITES:** Consent of the designated Faculty preceptor. **PERIODS AVAILABLE:** 1-12. **CLERKSHIP DIRECTOR:** Phillip Wang, M.D., phillipw@stanford.edu. **CLERKSHIP COORDINATOR:** Yun Tao, yuntao@stanford.edu, 650-724-1706, H-3580, Stanford Hospital. **REPORTING INSTRUCTIONS:** Where: TBA (designated faculty preceptor); Time: TBA. **CALL CODE:** 2. **OTHER FACULTY:** Staff. **LOCATION:** SUMC, PAVAMC, SCVMC, KPMC.

ANES 399. Graduate Research. 1-18 Unit.

Students undertake investigations sponsored by individual faculty members. Problems related to metabolism, toxicity, and mechanisms of anesthesia; pharmacologic studies involving pain management; the genetic and molecular basis of hemodynamic insufficiency. Animal studies may be included. Interested students should contact Drs. Trudell, MacIver, Clark, Giffard, Patterson, Angelotti, Drover, Chu, or Angst.

ANES 70Q. Critical Illness: Patients, Physicians, and Society. 3 Units.

Examines the various factors involved in shaping the critical care illness experience for three groups of people: the clinicians, the patients, and patients' families. Medical issues, economic forces and cost concerns, cultural biases, and communication errors can all influence one's perception. Helps students understand the arc of critical illness, and how various factors contribute to the interactions between those various groups. Includes an immersion experience (students are expected to round with clinicians in the ICU and to attend Schwartz rounds, a debriefing meeting about difficult emotional situation) and a mentoring experience (with critical care fellows), in addition to routine class work.

ANES 72Q. The Art of Medical Diagnosis. 3 Units.

The Art of Medical Diagnosis: Enhancing Observational Skills through the Study of Art is an interactive, multidisciplinary undergraduate course that explores various ways in which studying art increases critical observational skills vital for aspiring health care providers. Students will be introduced to the concept of 'Visual Thinking Strategies' through classroom, art creation, and museum based activities. Students will apply these skills to both works of art and medical cases. Significant focus will be on engaging in group discussions where they will collaboratively use visual evidence to generate and defend hypothesis. Drawing and sketching from life will play a critical role in honing observational skills through weekly assignments, workshops, and a final project. The interactive nature of this course pivots students away from a typical lecture based course to a self-directed learning experience.

ANES 74Q. Mending a broken heart: The Anatomy, Physiology and Psychology of congenital heart disease. 3 Units.

Congenital heart defects are the most common type of birth defects and with improvements in surgical techniques and medical care these babies are living longer and healthier lives. Data indicates that approximately 1 million US children and 1.2million US adults are living with congenital heart disease. Treating congenital heart disease requires an intimate understanding of complex embryology, anatomy and physiology. In this seminar we will look at the fascinating spectrum of anatomical changes that occur in some common congenital heart defects and how these changes can be corrected with various surgical procedures and medical care. Lectures will draw from real patient cases and students will have the opportunity to visit the Stanford Anatomy Lab, engage with virtual reality models of the heart, learn the basics of cardiac ultrasound, and hear from some of the frontline anesthesiologists, surgeons, cardiologists and patients who straddle the line between life and death on a daily basis.