HAN
Health Sciences

HAN 200: Human Anatomy and Physiology for Health Science I
This is the first course in a two-part sequence that introduces the study of human anatomy and physiology at cell, tissue, and organ system levels of organization, with emphasis on understanding disease processes associated with systems. Laboratory sessions include virtual on-line exercises designed to illustrate principles learned and computer simulations in physiology and anatomy dissection. (P/NC grade option is not available.) Open to non-HSC students.
Prerequisite: one BIO course
4 credits

HAN 202: Human Anatomy and Physiology for Health Science II
This is the second course in a two-part sequence that continues the study of human anatomy and physiology. Topics include the endocrine system, blood composition, the cardiovascular system, the lymphatic system, the immune system, the respiratory system, the digestive system, nutrition, the urinary system, the reproductive system, fluid, electrolyte, acid-base balance and heredity. Laboratory sessions entail virtual online exercises designed to illustrate principles learned and computer simulations in physiology and anatomy dissection. (P/NC grade option is not available) Open to non-HSC students.
Prerequisite: HAN 200
4 credits

HAN 300: Health Care Issues
Provides students with an overview of the organization of the health care delivery system. Includes the role of health care professionals and health care organizations. Explores issues regarding health care insurance, the uninsured and underserved, managed care and changes in the health care marketplace. Provides an overview of major diseases including epidemics, chronic and acute illness. Discusses the role of health promotion and disease prevention as well as alternative and complementary medicine. Restricted to HAN majors.
Prerequisite: Admission to Undergraduate Health Sciences Center program
3 credits

HAN 312: Human Anatomy, Health and Medical Language
Develops a deeper knowledge of human anatomy and a working medical vocabulary that applies to clinical scenarios. Builds on a foundation of anatomy and physiology. Emphasizes the interrelationships among human anatomy, body systems, pathophysiology and clinical medicine. Introduces the medical professionals and the technology utilized to diagnose and treat patients. (P/NC grade option is not available.) Open to non-HSC students.
Prerequisite: HAN 200 Corequisite: HAN 202
3 credits

HAN 333: Communication Skills
Introduces the principles of effective communication and stages of group development. Offers theory and practice of interpersonal communication and groups. Provides specific topics related to health care teams. Restricted to HAN majors.
Prerequisite: Admission to Undergraduate Health Sciences Center program
3 credits

HAN 335: Professional Ethics
Provides students with a framework for identifying ethical dilemmas in professional settings. Through the use of case studies and role-playing, students simulate ethical situations relating to confidentiality, informed consent and truth-telling, and explore various approaches for resolving these conflicts. Presents professional codes of ethics using small and large group discussions. Presents and discusses ethics-related topics such as genetics, transplants, cloning, advance directives, and health care accessibility. Restricted to HAN majors.
Prerequisite: Admission to Undergraduate Health Sciences Center program
3 credits

HAN 364: Issues in Health Care Informatics
Acquaints students with the use and application of personal computers and medical information systems used in health care. Emphasizes the optimization and customization potential of computer functions for standard and specialized tasks. Examines the present and potential use of the Internet in the health care arena. Presents the application of medical informatics to health care delivery though classroom demonstrations and discussions. Restricted to HAN majors.
Prerequisite: Admission to Undergraduate Health Sciences Center program
3 credits

HAN 383: Professional Writing
Comprehensive overview of the skill set required to write professional documents. Students will be required to communicate to a variety of audiences via letters, memos, electronically transmitted documents, grant proposals, researched essays, and brochures. Introduces students to software packages and other web-based resources. Restricted to HAN majors.
Prerequisite: Admission to Undergraduate Health Sciences Center program
3 credits

HAN 385: Professional Writing
Comprehensive overview of the skill set required to write professional documents. Students will be required to communicate to a variety of audiences via letters, memos, electronically transmitted documents, grant proposals, researched essays, and brochures. Introduces students to software packages and other web-based resources. Restricted to HAN majors.
Prerequisite: Admission to Undergraduate Health Sciences Center program
3 credits

HAN 395: Radiation Physics in Medicine
Provides an introduction to radiological and radiation oncology physics for students interested in a career in either medical imaging or radiation therapy/oncology. Presents elements of mathematics and general physics relevant to the radiological sciences. Topics include production of radiation, radioactivity, interaction of radiations with matter, radiation detection, characteristics of high energy medical LINAC radiation, absorbed dose calculation and measurement, radiography, radionuclide imaging, imaging with ultrasound, imaging with magnetic resonance, and basic medical radiation safety. Restricted to HANBS students.
Prerequisite: Admission to Undergraduate Health Sciences Center program
4 credits

HAN 401: Radiobiology and Health Physics
Presents an overview of the biological effects of radiation by examining the interaction of radiation with matter, macromolecules, cells, tissue and the whole body. Studies the clinical impact of responses to radiation. Introduces students to radiation safety through topics such as biologic consequences of irradiation, regulatory limitation of exposure, methods for exposure minimization, and radiation monitoring. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: HAN 394
Prerequisite: Admission to HAN 400 level classes
3 credits

HAN 402: Radiographic Anatomy and Pathology
Provides basic radiographic anatomy from both the projection and cross sectional point of view. Introduces to basic disease processes, including the nature and causes of disease and injury. Examines these processes on medical images acquired through radiography, computed tomography, angiography, magnetic
HAN 394: Radiologic Procedures and Positioning I
Examines routine clinical radiographic positioning of the upper and lower extremities, shoulder, spine, chest, pelvis, skull, abdomen, and digestive and urinary systems. Includes portable studies, operating room applications, angiography and advanced imaging techniques. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: HAN 394

Prerequisite: Admission to HAN 400 level classes
3 credits

HAN 404: Radiology Instrumentation
Expands imaging physics into the area of Radiologic Technology. Studies the physical basis, construction, operation, and quality control of radiographic, fluoroscopic, computed radiographic, direct radiographic, digital subtraction, and computed tomography systems. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: HAN 394

Prerequisite: Admission to HAN 400 level classes
3 credits

HAN 405: Radiographic Technique
Focuses on production of radiographic image. Includes rationale for selection of technical factors, issues of image resolution and contrast, image receptor technology; film sensitometry; image intensification; film processing; grids; automatic exposure control; portable/surgical procedures; and basic contrast agent pharmacology, and administration directly related to the production of radiographic images. Presents an overview of the special modalities of computed radiography (CR), direct radiography (DR), fluoroscopy, digital fluoroscopy, digital subtraction angiography (DSA), computed tomography (CT), and picture archiving communication systems (PACS). Special emphasis is placed on reducing patient exposure to radiation. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: HAN 394

Prerequisite: Admission to HAN 400 level classes
3 credits

HAN 416: Special Issues in Emergency Care and Resuscitation
Explores issues in special patient population and areas in emergency care. Covers pediatric emergencies, obstetric emergencies, neonatology, and geriatric emergencies. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: Admission to HAN 400 level classes
3 credits

HAN 417: Cardiac Emergencies
Exposes students to concepts and issues critical to assessment and care of patients presenting with cardiac emergencies. Covers cardiovascular pathophysiology; cardiac patient assessment and management; cardiac electrophysiology; cardiopulmonary resuscitation; and advanced cardiac life support. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: Admission to HAN 400 level classes
3 credits

HAN 420: ICD-10-CM and ICD-10-PCS for Coders
Comprehensive overview of the practice and procedure of International Classification of Diseases, 10th Revision, Clinical Modification, Procedural Coding System, (ICD-10-CM and ICD-10-PCS) guidelines for coding and reporting in the hospital and physician's office. Topics include: accurately translating infectious, parasitic, body systems disease; physical and mental disorders, and procedures Uniform Hospital Discharge Data Set (UHDDS) definitions and ICD-10-CM-PCS codes to hospital records, identification of patient encounter types, and interpretation of health/medical records. Course will also cover supplementary classification such as V-Z codes. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: HAN 200, HAN 202, HAN 312

4 credits

HAN 421: Outpatient Coding
Comprehensive overview of the practice and procedures of the Current Procedural Terminology (CPT-4) code set. Includes interpreting conventions; formats and instructional notations; definitions of the classification system and CPT nomenclature. Applies basic guidelines from medical, surgical, evaluation/management, and diagnostic services to select medical procedures and services that require coding in the hospital and physician office. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: HAN 200, HAN 202, HAN 312

3 credits

HAN 422: Healthcare Reimbursement
Introduces the basics of healthcare reimbursement. Includes commercial, managed care and federal insurance plans and how reimbursement systems affect providers, payers and consumers. Emphasizes the prospective payment system, uniform hospital discharge data set, and utilizing inpatient coding knowledge to understand payment methodologies in acute care settings. Incorporates current reimbursement and payment issues mandated by the affordable care act, including accountable care organizations, value-based purchasing and recent PPS rules and regulations. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: HAN 200, HAN 202, HAN 312

3 credits

HAN 423: Coding Practicum
Focuses on application of knowledge and skills acquired in senior year course work. Students will code actual medical records including physician billing, facility emergency department, facility ambulatory surgery, and facility inpatient. Students will spend time with Clinical Documentation Improvement area to fully understand the physician query process and its interaction with coding. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: HAN 420, HAN 421, HAN 422, HAN 424, and HAN 489

6 credits

HAN 424: Pathophysiology for Healthcare Professionals
Provides broad but significant immersion in pathophysiology to develop an understanding of common conditions treated in the inpatient and ambulatory settings. Emphasizes a systems based approach to disease states. Highlights the pathophysiology, clinical presentation, diagnostic evaluation, and pharmacologic treatment and monitoring of the common diseases within each body system that coders encounter in the medical record. Restricted to students approved for appropriate senior year track in the Health Science major.
**HAN 426: Instrumentation for Nuclear Medicine Technology**
Expands on HAN 394 (Imaging Physics), specifically in the area of Nuclear Medicine Technology. Examines the physical basis, construction, operation and quality control of radiation detection, pulse height analysis, planar imaging, Single Photon Emission Tomography (SPECT) imaging and Positron Emission Tomography (PET) imaging devices. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: HAN 394
Prerequisite: Admission to HAN 400 level classes
3 credits

**HAN 427: Nuclear Medicine Procedures**
Covers principles, methods and instrumentation used in Nuclear Medicine imaging. Examines the preparation and performance of planar, Single Photon Emission Tomography (SPECT) and Positron Emission Tomography (PET) nuclear medicine imaging procedures. Provides information needed to perform a variety of imaging and/or functional studies (e.g. liver, spleen, hepatobiliary, gastric reflux, gastrointestinal bleeds, lung, endocrine, central nervous system). Presents in vitro nuclear medicine procedures. Principles of sensitivity, specificity, accuracy, and predictive values of diagnostic testing are also examined. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: HAN 394
Prerequisite: Admission to HAN 400 level classes
3 credits

**HAN 429: Radiopharmacy and Therapy in Nuclear Medicine**
Examines the production, labeling, quality control, clinical biodistribution, and application of radionuclide tracers for nuclear medicine imaging. Covers radionuclide and radiopharmaceutical characteristics that provide suitable imaging properties. Discusses various aspects of laboratory procedures (e.g. safe handling of radionuclides, radiation safety surveys, hot laboratory instruments, radiopharmaceutical preparation, quality control and sterile technique). Explores pathologies, radiopharmaceuticals, dosage calculation and administration, and patient management issues related to radionuclide therapy. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: HAN 394
Prerequisite: Admission to HAN 400 level classes
3 credits

**HAN 432: Introduction to Health Care Management**
Introduces students to the practices and theories of health care policy and management. Presents an overview of the trends in public policy and management techniques. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: Admission to HAN 400 level classes
3 credits

**HAN 434: Corporate Compliance and Regulation**
Provides an overview of recently enacted legislation requiring health care institutions' compliance programs. Introduces regulations and compliance including anti-trust, controlled substances, Americans with Disabilities Act, Occupational Safety and Health Act, Joint Commission on Accreditation of Health Care Organizations, Department of Health jurisdiction over hospitals and licensure requirements. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: Admission to HAN 400 level classes
4 credits

**HAN 435: Sales and Marketing in Health Care**
Introduces the essential aspects of marketing and sales in the changing health care world. Addresses the concept of marketing, the nature of marketing strategy and the environment in which marketing operates. Provides a framework for understanding the consumer, along with key selling methods. Topics include the "Four Ps" of marketing, promotional elements of marketing, the communication process, and personal selling. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: Admission to HAN 400 level classes
3 credits

**HAN 436: Continuous Quality Improvement in Health Care**
Provides basic principles associated with Total Quality Management (TQM) and Continuous Quality Improvement (CQI). Aids identification and quality problem-solving found in all health care organizations utilizing CQI tools and techniques. Through the use of case studies, current events, and textbook materials, students will learn how to identify problems, recommend improvements, and collect data to demonstrate process improvement. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: Admission to HAN 400 level classes
3 credits

**HAN 440: Introduction to Community Health Education**
Introduces students to the foundation of planning, implementing and evaluating community-based health education programs. Presents classic theories of health education including the social learning theory, health belief model, and the attribution theory. Reviews relevant health education programs. Examines various learning styles and skills. Basic health education models are introduced and critiqued through individual and group projects. Reviews health education professional organizations and associations. Each student is required to design a health education program for a selected population. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: Admission to HAN 400 level classes
3 credits

**HAN 443: Aging and Disability**
Provides comprehensive overview of aging and disability. Includes introduction to the field of geriatrics, age related disabilities, and the experiences of people with disabilities as they age. Presents an interdisciplinary perspective. Incorporates social, environmental, cultural, economic and historical issues related to disability and aging. Film, narrative, biography and guest speakers provide students with first-hand accounts of elders with disabilities. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: Admission to HAN 400 level classes
3 credits

**HAN 446: Disability Health and Community**
Provides a comprehensive view of health and community concerns experienced by people with disabilities. Explores historical analysis, biomedical discourse, cultural critique, and field research to understand the evolution of medical practices, cultural
beliefs, and social structures influencing the treatments, services, and opportunities available to people with disabilities in the United States and internationally. Includes gender, sexuality, race, poverty, "invisible disabilities", eugenic sterilization, assisted suicide topics. Guest speakers will facilitate a multi-layered understanding of the issues faced by people with disabilities and their families. Restricted to students approved for appropriate senior year track in the Health Science major.

Prerequisite: Admission to HAN 400 level classes
3 credits

HAN 447: Children with Disabilities
Provides a comprehensive overview of the theories of child development and issues related to children with developmental spectrum disorders, neurodevelopmental disorders, and communication and learning disorders. Includes behavioral, developmental, language, medical, motor and sensory needs of children with developmental disabilities. Restricted to students approved for appropriate senior year track in the Health Science major.

Prerequisite: Admission to HAN 400 level classes
3 credits

HAN 448: Disability and Employment
Presents a comprehensive overview of the Disability and Employment field. Explores pertinent employment-related legislation, the vocational rehabilitation system, the structure of existing governmental and not-for-profit programs, and current disability employment practices, through the use of didactic and experiential techniques. Emphasizes the key roles of placement professionals. Provides individualized learning opportunities for individuals with disabilities who happen to be job seeking. Restricted to students approved for appropriate senior year track in the Health Science major.

Prerequisite: Admission to HAN 400 level classes
3 credits

HAN 449: Project in Disability Studies
Students will develop independent projects in topic area of disability studies. They will be required to develop a set of readings, engage in a minimum of 15 hours of experiential learning [in the form of community site-visits, volunteerism, or internships]. Course instructors and assigned mentors will assist students during bi-weekly group meetings and by scheduled appointments. Restricted to students approved for appropriate senior year track in the Health Science major.

Prerequisite: Admission to HAN 400 level classes
4 credits

HAN 450: Introduction to Public Health
Introduces the principles and practices of public health, including definitions and concepts, history and development, determinants of health, and ethical and legal aspects of public health. Orient students to various public health settings such as local and state health departments, not-for-profit community organizations, and agencies for special populations. Provides students with basic knowledge and skills for conducting community needs assessment with diverse populations. Addresses infectious disease control, environmental health, chronic disease control, tobacco and drug control, maternal and child health, women's health, and injury control topics. Restricted to students approved for appropriate senior year track in the Health Science major.

Prerequisite: Admission to HAN 400 level classes
3 credits

HAN 452: Epidemiology and Biostatistics
Provides students with the basic knowledge and skills for studying diseases of individuals and groups. Introduces biostatistical approaches and skills for collecting and organizing data of communities to meet health needs. Addresses epidemiological concepts, limitations and resources. Through the use of case studies, students study various epidemiological models used regionally, nationally and internationally. Includes discussions about ethical situations related to research and statistical studies. Restricted to students approved for appropriate senior year track in the Health Science major.

Prerequisite: Admission to HAN 400 level classes
3 credits

HAN 453: Research Methods in Public Health
Focuses on the details of public health research design. Guides students through a step-by-step approach through qualitative, comparative, and quantitative research designs and analysis methods. Students will learn the language of research, various methods for conducting research and how to identify and synthesize research literature. Builds on concepts covered in the other courses in the public health/community health concentration. Restricted to students approved for appropriate senior year track in the Health Science major.

Prerequisite: Admission to HAN 400 level classes
4 credits

HAN 456: Behavioral and Social Aspects of Health
Introduces social and behavioral factors as determinants of health. Explores theories of human and group behavior and health behavior change models through lecture and case study. Explores the dynamics between health behaviors and culture, gender, age and socioeconomic status. Students study various inventory tools for measuring health-related knowledge and methods for measuring behavior change. Restricted to students approved for appropriate senior year track in the Health Science major.

Prerequisite: Admission to HAN 400 level classes
3 credits

HAN 462: Developing Health Information Systems
Introduces students to fundamental hardware and software concepts, operating systems, GUI or desktop environments and system development life cycles. Reviews Windows applications such as spreadsheet, database, forms, queries and reports. Restricted to students approved for appropriate senior year track in the Health Science major.

Prerequisite: Admission to HAN 400 level classes
4 credits

HAN 464: Health Information Systems Management
The course includes organizational change issues in health care environments, resource management (inventory, tracking and acquisition) and the role of policy formulation. Consumer issues, standards and security and the provision of health information resources to healthcare workers will also be covered. Relevant applications and issues related to health services will also be explored. Restricted to students approved for appropriate senior year track in the Health Science major.

Prerequisite: Admission to HAN 400 level classes
3 credits

HAN 466: Applied Health Care Informatics
Provides overview of the role of information systems in health care organizations. Emphasizes the integration of evidence-based research into clinical decision-making and the influence of information systems on health outcomes. Explores technical,
organizational and cost-benefit issues related to health care information systems, including clinical decision-support, integrated networking and distributed computing technologies, telemedicine applications and artificial intelligence solutions. Through a combination of classroom-based seminars, group case studies, and computer laboratory exercises, students will develop and exercise analytical skills for appraising health information systems, as well as acquire practical experience using biomedical research databases, desktop application software, and electronic communication systems. Restricted to students approved for appropriate senior year track in the Health Science major.

**Prerequisite:** Admission to HAN 400 level classes

**3 credits**

**HAN 472: Emergency Response to Hazardous Materials and Terrorism**

Students will learn how healthcare providers recognize and respond to hazardous material (HAZMAT) and terrorist incidents. Includes management strategies for hazardous materials incidents; identification of on-scene indicators of a suspicious incident; recognition of the tactics and objectives of terrorism; and scene/ perimeter control issues unique to a terrorist incident. Restricted to students approved for appropriate senior year track in the Health Science major.

**Prerequisite:** Admission to HAN 400 level classes

**3 credits**

**HAN 473: Industrial Hygiene**

Introduces basic concepts of industrial hygiene. Presents the methodology and procedures that professionals in the field use to identify, measure, and correct hazards in the work environment. Restricted to students approved for appropriate senior year track in the Health Science major.

**Prerequisite:** Admission to HAN 400 level classes

**3 credits**

**HAN 474: Hazardous Materials, Emergency Response and Environmental Auditing**

Concentrates on the nature of hazardous materials and how they are handled in the workplace. Presents the fundamentals of emergency response planning and how to perform environmental audits. Restricted to students approved for appropriate senior year track in the Health Science major.

**Prerequisite:** Admission to HAN 400 level classes

**4 credits**

**HAN 475: Medical Emergencies**

Presents concepts and issues critical to assessment and care of patients presenting with medical emergencies. Covers pathophysiology, medical patient assessment, and management of medical emergencies. Restricted to students approved for appropriate senior year track in the Health Science major.

**Prerequisite:** Admission to HAN 400 level classes

**3 credits**

**HAN 476: Internship in Environmental Health**

Provides students with a working knowledge of clinical monitoring devices and their applications. Reviews mathematical formulas and calculations used in clinical applications of physiologic concepts. Restricted to students approved for appropriate senior year track in the Health Science major.

**Prerequisite:** Admission to HAN 400 level classes

**3 credits**

**HAN 477: Medical Emergencies**

Presents concepts and issues critical to assessment and care of patients presenting with medical emergencies. Covers pathophysiology, medical patient assessment, and management of medical emergencies. Restricted to students approved for appropriate senior year track in the Health Science major.

**Prerequisite:** Admission to HAN 400 level classes

**3 credits**

**HAN 478: Internship in Environmental Health**

Provides students with a working knowledge of clinical monitoring devices and their applications. Reviews mathematical formulas and calculations used in clinical applications of physiologic concepts. Restricted to students approved for appropriate senior year track in the Health Science major.

**Prerequisite:** Admission to HAN 400 level classes

**3 credits**

**HAN 480: Introduction to Pathology**

Pathology is the branch of medicine devoted to the study and understanding of disease. This course will introduce the student to the concept of disease. The types of growth, causative factors and biological behavior of neoplastic diseases are discussed. Staging procedures are introduced. Restricted to students approved for appropriate senior year track in the Health Science major.

**Prerequisite:** Admission to HAN 400 level classes

**3 credits**

**HAN 481: Introduction to Pathology**

Introduces the basics of the anesthesia specialty. Defines the role of the anesthesia specialist as an integral part of the patient care team. Through the use of lecture, video, tour, and hand-on demonstration, students will gain a working knowledge of how to assist anesthesiologists and anesthesiologists in the acquisition, preparation and application of equipment and supplies required for the administration of anesthesia. Restricted to students approved for appropriate senior year track in the Health Science major.

**Prerequisite:** Admission to HAN 400 level classes

**2 credits**

**HAN 482: Introduction to Pathology**

Introduces the basics of the anesthesia specialty. Defines the role of the anesthesia specialist as an integral part of the patient care team. Through the use of lecture, video, tour, and hand-on demonstration, students will gain a working knowledge of how to assist anesthesiologists and anesthesiologists in the acquisition, preparation and application of equipment and supplies required for the administration of anesthesia. Restricted to students approved for appropriate senior year track in the Health Science major.

**Prerequisite:** Admission to HAN 400 level classes

**2 credits**

**HAN 483: Cardiopulmonary Physiology for Anesthesia Technology**

Familiarizes students with the anatomical structures and physiological mechanisms and functions of the cardiopulmonary system. Reviews mathematical formulas and calculations used in clinical applications of physiologic concepts. Restricted to students approved for appropriate senior year track in the Health Science major.

**Prerequisite:** Admission to HAN 400 level classes

**3 credits**

**HAN 484: Clinical Monitoring**

Provides students with a working knowledge of clinical monitoring devices and their applications. Reviews mathematical formulas and calculations used in clinical applications of physiologic concepts. Restricted to students approved for appropriate senior year track in the Health Science major.

**Prerequisite:** Admission to HAN 400 level classes

**3 credits**
application to clinical settings. Covers duties of anesthesia technologist including the provision of technical support to professional staff in order to facilitate anesthesia departmental function. Student develops skills to maintain and organize the anesthesia environment, equipment and supplies. Restricted to students approved for appropriate senior year track in the Health Science major. 
Prerequisite: Admission to HAN 400 level classes
1 credit

HAN 486: Principles and Practice of Radiation Therapy
Introduces student to the practice and technical aspects of radiation therapy. An overview of cancer to include: statistics, epidemiology, etiology, patient education and assessment, and pharmacology and drug administration. Radiation therapy techniques specific to anatomical site will be demonstrated and treatment outcome statistics discussed. Explores treatment options available to cancer patients. Introduces practice and technical aspects of radiation therapy, including techniques specific to anatomical sites and treatment outcome statistics and options available to cancer patients. Includes cancer statistics; epidemiology; etiology; patient education and assessment; a review of the emotional and physical needs of cancer patients; and pharmacology and drug administration. Restricted to students approved for appropriate senior year track in the Health Science major.
Prerequisite: Admission to HAN 400 level classes
3 credits

HAN 487: Introduction to Treatment Planning
Provides a detailed exploration of treatment planning in the field of radiation therapy. Includes, but is not limited to, in-depth instruction in planning algorithms, data transfer, dose computation, plan evaluation and implementation, and Quality Assurance (QA). Reviews and discusses a variety of treatment planning systems and treatment machines. Restricted to students approved for appropriate senior year track in the Health Science major.
Prerequisite: Admission to HAN 400 level classes
3 credits

HAN 489: Pharmacology for Anesthesia Technology
Presents basic principles of pharmacologic properties and clinical applications. Through the use of lectures and scenarios, provides working knowledge base of drug classifications and their modes of action to produce therapeutic effects on target sites. Restricted to students approved for appropriate senior year track in the Health Science major.
Prerequisite: Admission to HAN 400 level classes
4 credits

HAN 490: Fundamentals of Medical Dosimetry and Contouring
Covers a variety of Radiation Therapy disease sites that are fundamental to the planning competencies required during the clinical year. Includes radio-geographical cross-sectional anatomy using Computerized Tomography (CT), Positron Emission Tomography (PET) and Magnetic Resonance Imaging (MRI) imaging; full-body anatomical contouring; tolerance doses for critical organs; patient treatment setup; immobilization devices; beam modifiers; Dose Volume Histograms and electron planning including but not limited to 3 Dimensional (3D) planning vs. Intensity Modulated Radiation Therapy (IMRT) of all competency sites. Discussions include Radiation Therapy Oncology Group (RTOG) protocols of all competency sites. Restricted to students approved for appropriate senior year track in the Health Science major.
Prerequisite: Admission to HAN 400 level classes
4 credits

HAN 492: Radiation Oncology/Medical Physics II
Provides students interested in a career in medical dosimetry with an introduction to medical physics for radiation oncology. This is the second course in a two-part series that provides the basis for further study of the applications of radiation oncology physics to radiation treatment planning and radiation dose calculations. Covers topics such as radiation dose distribution, patient dose calculations, treatment planning, electron beam therapy, brachytherapy, modern treatment delivery, and radiation protection. Restricted to students approved for appropriate senior year track in the Health Science program.
Prerequisite: Admission to HAN 400 level classes
4 credits

HAN 499: Health Science Teaching Practicum
Advanced students assist faculty members teaching Health Science courses. In addition to working as tutors during instructional periods, students have regular conferences with a faculty supervisor. Students may not serve as teaching assistants in the same course twice. Permission of the instructor is required.
Prerequisite: Admission to Undergraduate Health Sciences Center program
1-2 credits