Health Science (HAV, HAN)

Major in Health Science

School of Health Technology and Management

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Minors or second majors of particular interest to students majoring in Health Science: Biology (BIO), Business Management (BUS), Chemistry (CHE), Economics (ECO), Computer Science (CSE), Environmental Studies (ENS), Health and Wellness (LHW), Psychology (PSY), Sociology (SOC)

Health Science (HAV, HAN)
The School of Health Technology and Management (SHTM) offers a Bachelor of Science degree in Health Science (BSHS), with clinical and non-clinical concentrations. Non-clinical concentrations of study include community health education, disability studies, environmental health, health care informatics, health care management, medical billing and coding, pharmacy technician, and public health. Clinical concentrations of study include anesthesia technology, and medical dosimetry, emergency and disaster management, nuclear medicine technology, and radiologic technology.

HAV/HAN

The Health Science major requires that students receive a broad liberal arts education during their first three years (HAV). Students can declare Health Science as a major at any time. In the senior year (HAN), the curriculum focuses on health care related topics. Graduates will be knowledgeable about health care, and can expect to be employed by hospitals; integrated health care delivery systems; physician group practices; health departments; nursing homes; and managed care, corporate and not-for-profit organizations. They can also pursue clinical and graduate degrees through appropriate admissions processes.

Requirements for the Major in Health Sciences (HAN)

Requirements for Enrollment in Senior-Year Courses in the Major in Health Sciences (HAN)

While there is no formal application process, students should complete these requirements before advancing to the senior year courses in the program.

Health Science, first three years (HAV)
1. Completion of 91 credits with a minimum g.p.a. of 2.00 or higher
2. Completion of the Diversified Education Curriculum (D.E.C.)
3. Completion of a minimum of 16 credits in the natural sciences (D.E.C. category E) Note: HAN 200 and HAN 202 (or equivalent anatomy and physiology courses) are required natural sciences courses
4. Completion of 21 credits in related electives courses (see listing below)

Note: Any natural science course taken beyond the minimum requirement of 16 credits can also satisfy related elective requirement. Note: HAN 312 (or equivalent medical terminology course) is a required related elective course.
5. Completion of 10 credits at the upper-division level (courses numbered 300 or higher), including courses used to satisfy Requirements 1 through 5 above.

Note: 10 credits of computer science/information systems electives are strongly recommended as prerequisites for the Health Care Informatics concentration. CSE 101, CSE 113, and CSE 114 are strongly recommended.
For more information, please visit http://www.hsc.stonybrook.edu/shtm/index.cfm.

Requirements for the Major

Note: See the Health Sciences Center Bulletin for course descriptions not included in this Bulletin.

Senior Year Health Science (HAN)
The major in Health Science leads to the Bachelor of Science degree. Completion of the degree requires a minimum of 29 credits after achieving senior status and advancement to senior-year courses. To be in good standing in the School of Health Technology and Management, the student must maintain a minimum 2.00 cumulative g.p.a. and a 2.50 minimum g.p.a. in required professional (HAN) courses. A minimum grade of C is required in each core Health Science program course before a student is permitted to advance to the concentration courses. If a student receives a grade less than C in any of the HAN courses, the course must be repeated.

Core Courses

To be completed during the first semester, senior year. Students must enroll in 15 credits of core health science courses including:
1. HAN 300 Health Care Issues
2. HAN 333 Communication Skills
3. HAN 335 Professional Ethics
4. HAN 364 Issues in Health Care Informatics
5. HAN 383 Professional Writing

Courses in the Concentration
To be completed during the second semester, senior year. Students are advised to select an area of concentration because it will offer greater career opportunities.

A. Health Care Management
This concentration provides the knowledge and skills to manage health care practices, plan health care programs, and utilize the fundamentals of health care management and health services administration.
1. HAN 432 Introduction to Health Care Management
2. HAN 434 Corporate Compliance and Regulation
3. HAN 435 Sales and Marketing in Health Care
4. HAN 436 Continuous Quality Improvement in Health Care

B. Community Health Education
This concentration provides students with the knowledge and skills needed to plan, implement, and evaluate health education programs in the community. Students who successfully complete this concentration may be eligible to apply for the national certification examination of health educators. Employment opportunities include public and private health-related agencies, hospitals, and HMOs.
1. HAN 440 Introduction to Community Health Education
2. HAN 442 Community Health Education Models and Resources
3. HAN 444 Teaching Strategies
4. HAN 456 Behavioral and Social Aspects of Health

C. Public Health
This concentration provides students with a basic foundation, including epidemiology and biostatistics, in public health. Students who graduate with this concentration may find employment in health departments, public health agencies, health maintenance organizations and health-related corporations.
1. HAN 450 Introduction to Public Health
2. HAN 452 Epidemiology and Biostatistics
3. HAN 454 Issues in Public Health
4. HAN 456 Behavioral and Social Aspects of Health

D. Health Care Informatics
This concentration prepares the student for a career in health care information systems, and processing and managing health care data with computer and communication technologies. Emphasis is placed on health care information systems' architecture, computerized medical data processing, and clinical decision support systems.
1. HAN 462 Developing Health Information Systems
2. HAN 464 Health Information Systems Management
3. HAN 466 Applied Healthcare Informatics
4. HAN 467 Utilization and Outcomes Research Methods

E. Environmental Health
This concentration explores the concepts and principles of various environmental health issues, including lead management, pest management, hazardous waste management, and food service sanitation. Emphasis is placed on the recognition, identification, and control of environmental contaminants in the workplace; prevention and preparedness for hazardous material incidents; and compliance with various regulatory agencies.
1. HAN 470 Environmental Health and Safety Engineering
2. HAN 474 Industrial Hygiene
3. HAN 476 Hazardous Materials, Emergency Response, and Environmental Auditing
4. HAN 478 Internship in Environmental Health

F. Emergency and Critical Care
This concentration will serve the needs of those students interested in pursuing clinical graduate studies. Emphasis is placed on providing knowledge of the most frequently encountered medical emergencies, including trauma and resuscitation. In addition, due to the changing global environment, courses on hazardous materials and weapons of mass destruction will also be provided.
1. HAN 416 Special Issues in Emergency Care and Resuscitation
2. HAN 417 Cardiac and Medical Emergencies
3. HAN 471 Trauma and Trauma Systems
4. HAN 472 Weapons of Mass Destruction
5. HAN 477 HAZMAT Training

G. Disability Studies
This concentration provides an interdisciplinary focus of study in areas such as independent living, employment, adults and children with disabilities, and health and community issues. Job opportunities for entry-level professional and managerial positions may be found in developmental or physical disability services agencies, independent living centers, mental health centers, the geriatrics and vocational rehabilitation agencies.
1. HAN 443 Aging and Disability
2. HAN 446 Disability Health and Community
3. HAN 447 Children with Disabilities
4. HAN 448 Disability and Employment
5. HAN 449 Project in Disability Studies

H. Medical Dosimetry
This concentration is designed to provide students with the knowledge and skills necessary to be a Radiation Therapy Aide. Upon graduation, students may apply for admission to the 12-month, hospital-based post-baccalaureate Medical Dosimetry program, which prepares students for entry-level medical dosimetry positions. A Medical Dosimetrist is a member of the Radiation Oncology team who has the education and expertise necessary to generate radiation dose distributions and dose calculations in collaboration with the medical physicist and the radiation oncologist for cancer patients.

1. HAN 480 Introduction to Radiation Therapy and Medical Dosimetry
2. HAN 482 Introduction to Pathology
3. HAN 486 Principles and Practices of Radiation Therapy
4. HAN 488 Medical Imaging and Radiographic Anatomy
5. HAN 492 Radiation Oncology/Medical Physics II

For admission requirements to the clinical concentrations, please refer to the SHTM Web site at http://www.hsc.stonybrook.edu/shtm/bshs.

I. Nuclear Medicine Technology
This concentration within Radiologic Sciences is designed to educate students to meet a growing need in the health care industry for highly trained technologists who utilize rapidly developing technologies to image the human body. Nuclear medicine is widely used for imaging the bodies of patients with cancer and cardiac conditions. HAN 395 Radiation Physics in Medicine (4 credits) is required during the fall semester of the senior year as a prerequisite to acceptance into the concentration. Acceptance into the post-baccalaureate clinical year is required in order to enter the concentration. Students must complete the one-year post-baccalaureate clinical training in order to be eligible to take the National Registry Examination.

1. HAN 401 Radiobiology and Health Physics
2. HAN 402 Radiographic Anatomy and Pathology
3. HAN 426 Nuclear Medicine Instrumentation
4. HAN 427 Nuclear Medicine Procedures
5. HAN 429 Radiopharmacy and Therapy

For admission requirements to the clinical concentrations, please refer to the SHTM Web site at http://www.hsc.stonybrook.edu/shtm/bshs.

J. Radiologic Technology
This concentration in Radiologic Sciences is designed to educate students to meet the growing demand for imaging technologists. HAN 395 Radiation Physics in Medicine (4 credits) is required during the fall semester of the senior year as a prerequisite to acceptance into the concentration. Acceptance into the post-baccalaureate clinical year is required in order to enter the concentration. Students must complete the one-year post-baccalaureate clinical training in order to be eligible to take the National Registry Examination.

1. HAN 401 Radiobiology and Health Physics
2. HAN 402 Radiographic Anatomy and Pathology
3. HAN 404 Radiology Instrumentation
4. HAN 405 Radiographic Technique
5. HAN 406 Radiographic Procedures and Positioning I

For admission requirements to the clinical concentrations, please refer to the SHTM Web site at http://www.hsc.stonybrook.edu/shtm/bshs.

K. Anesthesia Technology
This concentration provides the knowledge and skills required for students to function as integral members of anesthesia teams in surgical settings. After completion of this concentration, students can work in entry-level non-clinical positions in an anesthesia department or continue to the post-baccalaureate Anesthesiology Technologist Program to be eligible to take the American Society of Anesthesia Technologists and Technicians (ASATT) certification examinations.

1. HAN 434 Corporate Compliance and Regulation
2. HAN 481 Intro. to Anesthesia
3. HAN 483 Cardiopulmonary Physiology for ASATT
4. HAN 485 Clinical Monitoring
5. HAN 489 Pharmacology for ASATT

For admission requirements to the clinical concentrations, please refer to the SHTM Web site at http://www.hsc.stonybrook.edu/shtm/bshs.

Related Electives
Students are encouraged to take related electives designated:

- ECO, CSE and BUS for the Health Care Management concentration
- CSE, PSY, ECO and BUS for the Health Care Informatics concentration
- HIS, HBP, ECO, MEC, BCP, SOC and BUS for the Environmental Health concentration
- LHW, ECO, ANT, SOC, HMC, PSY and BUS for the Public Health concentration
- SOC, HWC, LHW, PSY, SSI and HMC for the Community Health Education concentration

Relevant electives are subject to change. Call (631) 444-BSHS for current electives.

For more information, please visit http://www.hsc.stonybrook.edu/shtm/index.cfm.
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 the cell, tissue and organ system levels of organization, with emphasis on understanding disease processes associated with systems. This course is designed for Health Science (HAV) majors, particularly those interested in pursuing HAN clinical concentrations of study. Open to non-HSC students. Prerequisite: one BIO course
3 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 and acid-base balance and heredity. This course is designed for Health Science majors (HAV), particularly those interested in pursuing HAN clinical concentrations of study. Prerequisite: HAN 200.
3 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: Medical Terminology and Human Anatomy
Provides the medical terminology and human anatomy needed for non-clinical roles in healthcare. Presents medical terminology through didactic and experiential techniques by reviewing the digestive, urinary, integumentary, reproductive, respiratory, endocrine, nervous, musculoskeletal, cardiovascular and lymphatic systems. Students will learn how to build a medical vocabulary and understand the importance of precise communication in the delivery of health care. Open to non HSC students. 
2 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. Present 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 through 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, 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 resonance, scintigraphy, emission computed tomography and ultrasonography. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: HAN 394
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<tr>
<th>Prerequisite: Admission to HAN 400 level classes</th>
<th>3 credits</th>
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<tr>
<td><strong>HAN 404: Radiology Instrumentation</strong></td>
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<td>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</td>
<td>3 credits</td>
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<tr>
<td><strong>HAN 405: Radiographic Technique</strong></td>
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<td>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 archive 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</td>
<td>3 credits</td>
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<tr>
<td><strong>HAN 406: Radiologic Procedures and Positioning I</strong></td>
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<td>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</td>
<td>6 credits</td>
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<tr>
<td><strong>HAN 416: Special Issues in Emergency Care and Resuscitation</strong></td>
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<td>Explores issues in special patient populations 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: HAN 394</td>
<td>3 credits</td>
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<tr>
<td><strong>HAN 417: Cardiac and Medical Emergencies</strong></td>
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<td>Explores concepts and issues that are critical to the assessment and care of patients presenting with cardiac and other medical emergencies. Covers pathophysiology, medical patient assessment and management, cardiopulmonary resuscitation, and advanced cardiac life support. Restricted to students approved for appropriate senior year track in the Health Science major. Prerequisite: HAN 394</td>
<td>3 credits</td>
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<tr>
<td><strong>HAN 426: Instrumentation for Nuclear Medicine Technology</strong></td>
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<td>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</td>
<td>3 credits</td>
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<tr>
<td><strong>HAN 429: Radiopharmacy and Therapy in Nuclear Medicine</strong></td>
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<td>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</td>
<td>6 credits</td>
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<tr>
<td><strong>HAN 432: Introduction to Health Care Management</strong></td>
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<td>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: HAN 400 level classes</td>
<td>4 credits</td>
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<tr>
<td><strong>HAN 434: Corporate Compliance and Regulation</strong></td>
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<td>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: HAN 400 level classes</td>
<td>4 credits</td>
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<td><strong>HAN 435: Sales and Marketing in Health Care</strong></td>
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<td>Introduces the essential aspects of marketing and sales in the changing health care world.</td>
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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 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 conducting 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 456: Disability Health and Community**

Presents 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 458: 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 466: Disability Health and Community**

Presents a comprehensive overview of the Disability Health and Community field. 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 469: 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 470: 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 478: Disability Health and Community**

Presents a comprehensive overview of the Disability Health and Community field. 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 488: 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
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisite</th>
<th>Notes</th>
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<tbody>
<tr>
<td>HAN 453</td>
<td>Research Methods in Public Health</td>
<td>4</td>
<td>Admission to HAN 400 level classes</td>
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<tr>
<td>HAN 456</td>
<td>Behavioral and Social Aspects of Health</td>
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<td>Admission to HAN 400 level classes</td>
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<td>HAN 462</td>
<td>Developing Health Information Systems</td>
<td>3</td>
<td>Admission to HAN 400 level classes</td>
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<td>HAN 466</td>
<td>Applied Health Care Informatics</td>
<td>3</td>
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<td>HAN 467</td>
<td>Utilization and Outcomes Research Methods</td>
<td>3</td>
<td>Admission to HAN 400 level classes</td>
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<td>HAN 470</td>
<td>Environmental Health, Occupational Health, and Safety Engineering</td>
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<td>HAN 471</td>
<td>Trauma and Trauma Systems</td>
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<td>HAN 472</td>
<td>Weapons of Mass Destruction</td>
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<td>HAN 474</td>
<td>Industrial Hygiene</td>
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<tr>
<td>HAN 476</td>
<td>Hazardous Materials, Emergency Response and Environmental Auditing</td>
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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 477: HAZMAT Training for Emergency Medical Services

Comprehensive overview of the practice and procedures required of Emergency Medical Service (EMS) providers when responding to major HAZMAT incidents. Includes management strategies for Hazards Materials (HAZMAT) disasters. Emphasizes the coordination of services and resources by national, federal and local agencies. 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 Anesthesia

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 anesthetists 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

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

4 credits

HAN 483: Cardiopulmonary Physiology for ASATT

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 485: Clinical Monitoring

Provides students with a working knowledge of clinical monitoring devices and their 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. Restricted to students approved for appropriate senior year track in the Health Science major.

Prerequisite: Admission to HAN 400 level classes

4 credits

HAN 489: Pharmacology for ASATT

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 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