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, human development and disability studies, emergency and critical care, environmental health and safety, health care informatics, health care management, health care quality: coding and reimbursement, and public health. Clinical concentrations of study include anesthesia technology, medical dosimetry, 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, all students must complete the following requirements before advancing to the senior year curriculum. Note: the following requirements must be completed by the end of the spring semester prior to advancing to the fall senior year curriculum.

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 or Stony Brook Curriculum
3. Completion of a minimum of 16 credits in the natural sciences with a grade of C or higher. 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 with a grade of C or higher. (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 and HAN 251 (effective 2015) are required related elective courses.
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.
6. Completion of second major or minor, as relevant, is required prior to advancing to HAN senior courses. Note: 10 credits of computer science/information systems electives are strongly recommended as prerequisites for the Health Care Informatics concentration. CSE 110, CSE 114, and CSE 215 are strongly recommended. Note: Courses graded with a P/NC or S/U grade basis may not be used to satisfy the Health Science Major requirements.

For more information, please visit http://healthtechnology.stonybrookmedicine.edu/programs/hs.

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

Stony Brook University: www.stonybrook.edu/ugbulletin
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 333 Statistics for Healthcare Management
2. HAN 432 Introduction to Health Care Management
3. HAN 434 Corporate Compliance and Regulation
4. HAN 435 Sales and Marketing in Health Care
5. 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. 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 455 Health Literacy for Public Health Students
5. 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 465 Concepts and Case Studies in Health Informatics
4. HAN 466 Applied Healthcare Informatics
5. HAN 467 Utilization and Outcomes Research Methods

E. Environmental Health and Safety
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 Occupational Health and Safety Engineering
2. HAN 474 Industrial Hygiene
3. HAN 475 Fundamentals of Environmental Health
4. HAN 476 Hazardous Materials, Emergency Response, and Environmental Auditing
5. 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 Emergencies
3. HAN 471 Trauma and Trauma Systems
4. HAN 472 Emergency Response to Hazardous Materials and Terrorism
5. HAN 477 Medical Emergencies

G. Disability Studies and Human Development
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
A medical dosimetrist is a member of the radiation oncology team. Medical dosimetrists have the education and expertise necessary to generate radiation dose distributions and dose calculations for cancer patients in collaboration with the medical physicist and the radiation oncologist. After completion of this concentration, students continue on to the post-baccalaureate program in order to be eligible to take the Medical Dosimetrist Certification exam. Job opportunities may be found in cancer treatment centers, community hospitals, free-standing clinics and medical schools. (total length of program 4 + 1 = 5 years)

Note: 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.

The Medical Dosimetry program is accredited by the:

Joint Review Committee on Education in Radiologic Technology
20 North Wacker Drive, Suite 2850 Chicago, Illinois 60606-3182
Phone: 312.704.5300
Email: mail@jrcert.org

1. HAN 402 Radiographic Anatomy and Pathology
2. HAN 482 Introduction to Pathology
3. HAN 486 Principles and Practices of Radiation Therapy
4. HAN 487 Introduction to Treatment Planning
5. HAN 490 Fundamentals of Medical Dosimetry and Contouring
6. HAN 492 Radiation Oncology/Medical Physics II

For admission requirements to the clinical concentrations, please refer to the SHTM Web site at http://healthtechnology.stonybrookmedicine.edu/programs/hs

I. Nuclear Medicine Technology
This concentration was designed to educate students to meet a growing need for highly trained technologists who utilize rapidly developing technologies to image the distribution of radioactive agents in the body. Nuclear medicine is widely used for imaging bodies of patients with cardiac conditions and those with cancer. After completion of this concentration, students continue on to the post-baccalaureate program in order to be eligible to take the national registry examination. Job opportunities may be found in hospitals, physicians’ offices and diagnostic laboratories. (total length of program 4 + 1 = 5 years)

Note: 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://healthtechnology.stonybrookmedicine.edu/programs/hs

J. Radiologic Technology
This concentration was developed to train students to meet the growing demand for technologists who image the body through the use of radiation equipment (X-ray technology). As a member of the radiological team, technologists capture images of bones, organs, and blood vessels as prescribed by physicians to assist in the diagnosis of diseases or injuries. After completion of this concentration, students continue on to
the post-baccalaureate program in order to be eligible to take the national registry examination. Job opportunities may be found in hospitals, physicians’ offices, urgent care clinics, diagnostic laboratories and industry. (total length of program 4 + 1 = 5 years)

Note: HAN395 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://healthtechnology.stonybrookmedicine.edu/programs/hs](http://healthtechnology.stonybrookmedicine.edu/programs/hs)

K. Anesthesia Technology
This concentration allows students to function as an integral member of an anesthesia team in a surgical setting. After completion of this concentration, students can work as an assistant in the operating room and can continue on to the post-baccalaureate program in order to be eligible for the national certification examination. (total length of program 4 + 1 = 5 years)

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

For admission requirements to the clinical concentrations, please refer to the SHTM Web site at [http://healthtechnology.stonybrookmedicine.edu/programs/hs](http://healthtechnology.stonybrookmedicine.edu/programs/hs)

L. Healthcare Quality: Coding and Reimbursement
This concentration is designed to prepare students for entry level practice as a medical biller and coder. Medical billers and coders are specialized technicians who consult classification manuals to help determine the proper billing codes and utilize computer software to assign one of several hundred “diagnosis-related groups,” or DRGs. The DRG determines the amount for which the hospital will be reimbursed if the patient is covered by Medicare or other insurance programs using the DRG system. In addition to the DRG system, coders use other coding systems, such as those geared toward ambulatory settings or long-term care.

Acceptance into this concentration is required prior to enrollment. For admission requirements to this concentration, please refer to the SHTM website at [http://healthtechnology.stonybrookmedicine.edu/programs/hs](http://healthtechnology.stonybrookmedicine.edu/programs/hs)

Note: In addition to the spring semester concentration coursework this concentration requires a 6 credit, full-time 6 week practicum during summer session

1. HAN 420 ICD-10-CM and ICD-10-PCS for Coders
2. HAN 421 Outpatient Coding
3. HAN 422 Healthcare Reimbursement
4. HAN 424 Pathophysiology for Healthcare Professionals
5. HAN 489 Pharmacology for Anesthesia Technology
6. HAN 423 Coding Practicum

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. Please visit the SHTM website [http://healthtechnology.stonybrookmedicine.edu/programs/hs](http://healthtechnology.stonybrookmedicine.edu/programs/hs) for more information.
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 west campus students.

Prerequisite: one BIO course
SBC: SNW
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
SBC: STEM+
4 credits

HAN 251: Research Methods in Health Science
Provides a foundation in quantitative, qualitative and mixed methods research design and methods. Emphasizes the relationship between literature review and the research process and the elements of a research proposal. Applies research designs and methods to case study research projects. Requires on-line CITI training in the protection of human subjects.

3 credits

HAN 312: Human Anatomy, Health and Medical Language
Develops a deeper knowledge of human anatomy and a working medical vocabulary the 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