

APPLIED HEALTH SCIENCES (AHS)

AHS 101 | Introduction to Applied Health Sciences | 3 cr

Provides an overview of the Applied Health Sciences major. Focuses on specific information about health career options. Covers the value and importance of service, current topics in health care, ethics in the health sciences, cultural sensitivity within health sciences. Additionally, students will gain experience in professional writing, presentation techniques, portfolio development and service learning.

Prerequisites: None.

Offered: Fall, Spring.

AHS 300 | Introduction to Medical Laboratory Sciences | 3 cr

Introduces the practice of medical laboratory science. Discusses professionalism, ethics, basic laboratory concepts and techniques. Covers microscopy and phlebotomy techniques in the teaching laboratory. Lecture/lab.

Prerequisites: AHS 101; BIOS 101 and 102, or BIOS 105 and 106, or BIOS 300 and 341; BIOS 210, 260, CHEM 115; MATH 114, or MATH 112 or 113.

Offered: Fall, Spring.

AHS 302 | Introduction to Radiology | 2 cr

Surveys the field of Radiologic Technology, the Radiology department, the School of Radiology, and other allied healthcare professions. Explores the academic and administrative structure, key department and hospital personnel, and the profession and professional societies associated with the field. Introduces the Medicolegal aspects of the profession. Presents The Code of Ethics, as proposed by the American Society of Radiologic Technologists and American Registry of Radiologic Technologists.

Prerequisites: AHS 101; BIOS 101 and 102, or BIOS 105 and 106, or BIOS 300 and 341; BIOS 210; CHEM 101 and 103 or CHEM 115; MATH 114 or MATH 112 and 113.

Offered: Fall, Spring.

AHS 306 | Imaging Procedures I | 3 cr

Introduces medical terminology, patient care, and the radiographic imaging equipment used for the abdomen and chest. Covers basic concepts of patient care using a holistic framework that considers the biophysical, emotional, and spiritual needs of patient populations.

Prerequisites: AHS 101, AHS 302; BIOS 101 and 102, or BIOS 105 and 106, or BIOS 300 and 341; BIOS 210; CHEM 101 and 103 or CHEM 115; MATH 114 or MATH 112 and 113.

Offered: Fall, Spring.

AHS 307 | Pharmacology and Ethics | 3 cr

Surveys drug administration as it applies to the medical imaging profession. Explores pharmacologic terminology, pharmacology of contrast agents, routes of administration, venipuncture and emergency medications specific to the medical imaging profession. Presents ethical and legal terms and issues that imaging professionals will face.

Prerequisites: AHS 101, AHS 302; BIOS 101 and 102, or BIOS 105 and 106, or BIOS 300 and 341; BIOS 210; CHEM 101 and 103 or CHEM 115; MATH 114 or MATH 112 and 113.

Offered: Fall, Spring.

AHS 308 | Imaging Procedures II | 3 cr

Explores the fundamental knowledge, purpose, and functions of upper and lower extremities, shoulder girdle, and pelvic girdle. Covers procedures that require the use of contrast media such as the urinary and digestive systems and portable procedures. Emphasizes proper positioning of the patient, demonstrated structures and fractures, central ray, technical factors, and image receptor size.

Prerequisites: AHS 101, AHS 302, AHS 306; BIOS 101 and 102, or BIOS 105 and 106, or BIOS 300 and 341; BIOS 210; CHEM 101 and 103 or CHEM 115; MATH 114 or MATH 112 and 113.

Offered: Fall, Spring, Summer.

AHS 309 | Imaging Procedures III | 3 cr

Examines techniques for radiography of the skull and the bony thorax. Addresses contrast studies, minor special procedures, trauma and surgical procedures that require the use of contrast media, sterile technique, and informed consent.

Prerequisites: AHS 101, AHS 302, AHS 306, AHS 308; BIOS 101 and 102, or BIOS 105 and 106, or BIOS 300 and 341; BIOS 210; CHEM 101 and 103 or CHEM 115; MATH 114 or MATH 112 and 113.

Offered: Fall, Spring.

AHS 310 | Clinical Microbiology I | 2 cr

Explores the microorganisms associated with human infectious processes, including the characteristics, isolation, identification, antimicrobial techniques and clinical infections associated with pathogenic microorganisms. Lecture/lab.

Prerequisites: AHS 101; BIOS 101 and 102, or BIOS 105 and 106, or BIOS 300 and 341; BIOS 210, 260, CHEM 115; MATH 114, or MATH 112 and 113.

Offered: Spring.

AHS 311 | Clinical Microbiology II | 3 cr

Focuses on advanced topics in microbiology, including antibiotics and antimicrobial susceptibility testing, mycobacteriology, anaerobic bacteriology, fastidious microorganisms and the clinical aspects of microbiology. Three-hour lecture/one-hour lab.

Prerequisites: AHS 310.

Offered: Spring.

AHS 320 | Clinical Immunology I | 3 cr

Explores clinical immunology concentrating on immune system functions, relationships and responses to infection and disease, including vaccine strategies and basic immunology assessment techniques. 3 hour Lecture/1 hour Lab.

Prerequisites: AHS 300, AHS 310.

Offered: Fall.

AHS 321 | Clinical Immunology II | 2 cr

Delves into an advanced study of clinical immunology concentrating on diseases of the immune system such as immunodeficiencies, infectious diseases and autoimmune conditions. Examines immunodiagnostic methods and diagnostic strategies, includes donor selection, recognition of transplant related conditions.

Prerequisites: AHS 401, AHS 405, AHS 406.

Offered: Fall.

AHS 335 | Clinical Chemistry I | 3 cr

Explores biological samples, analytes, and assays pertinent to the clinical laboratory. Includes electrolyte, carbohydrate, protein, lipid, vitamin, and mineral analytes and the techniques utilized to detect and quantify such materials. Cross-listed with: CHEM 335.

Prerequisites: AHS 300, CHEM 215.

Offered: Fall.

AHS 336 | Clinical Chemistry II | 3 cr

Investigates metabolism and diagnostic procedures for analysis of metabolism and human disease. Analyzes data for indicators of common pathophysiology and human disease markers. Lecture. Cross-listed with: CHEM 336.

Prerequisites: AHS 335 or CHEM 335.

Offered: Fall.

AHS 340 | Hematology and Hemostasis I | 3 cr

Addresses theory of hematology and hemostasis diagnostic procedures, interpretation, and correlation of laboratory findings with disease states. Includes hematopoiesis, cell morphology, anemias, hemoglobinopathies, myelodysplastic syndromes, coagulation and platelet disorders, and bleeding abnormalities. Lecture/Lab.

Prerequisites: AHS 300, CHEM 215; BIOS 101 and 102, or BIOS 105 and 106, or BIOS 300 and 341; and BIOS 260.

Offered: Fall, Spring, Summer.

AHS 341 | Hematology and Hemostasis II | 2 cr

Covers theory of hematology and hemostasis diagnostic procedures, interpretation, and correlation of laboratory findings with disease states. Includes lymphoproliferative and myeloproliferative disorders, immunoproliferative disorders, malignant lymphomas.

Prerequisites: AHS 340.

Offered: Fall, Spring, Summer.

AHS 350 | Diagnostic Molecular Biology | 3 cr

Examines medical genetics including the structure, function, and synthesis of DNA, RNA, and involved proteins; the mechanism of inheritance; and medical genetics. Covers molecular biology techniques and their applications is included as well as the laboratory diagnosis of disease, including ethics and emerging technologies.

Prerequisites: AHS 310.

Offered: Fall.

AHS 351 | Radiation Protection | 2 cr

Introduces principles of radiation protection including the responsibilities of the radiographer for themselves, patients, personnel, and the public. Reviews dose limits for radiology personnel, hospital workers, and the public.

Prerequisites: AHS 101, AHS 302, AHS 306, AHS 308; BIOS 101 and 102, or BIOS 105 and 106, or BIOS 300 and 341; BIOS 210; CHEM 101 and 103 or CHEM 115; MATH 114 or MATH 112 and 113.

Offered: Fall, Spring.

AHS 353 | Principles of Imaging I | 3 cr

Introduces radiographic image production and processing. Covers digital imaging, processing, x-ray interactions with matter, density, contrast, recorded detail, and distortion.

Prerequisites: AHS 101, AHS 302, AHS 306, AHS 308; BIOS 101 and 102, or BIOS 105 and 106, or BIOS 300 and 341; BIOS 210; CHEM 101 and 103 or CHEM 115; MATH 114 or MATH 112 and 113.

Offered: Fall, Spring.

AHS 355 | Clinical Education I | 3 cr

Provides opportunity for rotation through patient transport, general radiography, fluoroscopy, outpatient clinic, orthopedic clinic, and the emergency department. Includes development of skills to increase, improve, and adapt positioning and patient care as well as managing the flow of multiple departments and interdepartmental cooperation.

Prerequisites: AHS 101, AHS 302, AHS 306, AHS 308; BIOS 101 and 102, or BIOS 105 and 106, or BIOS 300 and 341; BIOS 210; CHEM 101 and 103 or CHEM 115; MATH 114 or MATH 112 and 113.

Offered: Fall, Spring.

AHS 360 | Radiation Biology | 2 cr

Explores the interaction of radiation with living systems and factors affecting biological response, including acute and chronic effects of radiation. Covers radiation's effects on molecules, cells, tissues and the body as a whole.

Prerequisites: AHS 101, AHS 302; BIOS 101 and 102, or BIOS 105 and 106, or BIOS 300 and 341; BIOS 210; CHEM 101 and 103 or CHEM 115; MATH 114 or MATH 112 and 113.

Offered: Fall, Spring.

AHS 362 | Principles of Imaging II | 3 cr

Covers basic computer history, digital equipment, image production and quality measures for digital imaging. Discusses adaptation techniques for changes in distance, grids, kVp, and cassette size.

Prerequisites: AHS 101, AHS 302, AHS 353; BIOS 101 and 102, or BIOS 105 and 106, or BIOS 300 and 341; BIOS 210; CHEM 101 and 103 or CHEM 115; MATH 114 or MATH 112 and 113.

Offered: Fall, Spring.

AHS 364 | Clinical Education II | 3 cr

Introduces supplemental components of the radiology department and provides opportunities to assist and perform examinations taught in Imaging Procedures I, II, and III in the radiology department, emergency department, and outpatient clinics.

Prerequisites: AHS 101, AHS 302, AHS 355; BIOS 101 and 102, or BIOS 105 and 106, or BIOS 300 and 341; BIOS 210; CHEM 101 and 103 or CHEM 115; MATH 114 or MATH 112 and 113.

Offered: Fall, Spring.

AHS 400 | Immunohematology I | 2 cr

Provides introduction to the different human blood groups, blood components, the antibody screening and identification process, transfusion protocols, blood donor screening, and regulatory concerns of modern blood banking.

Prerequisites: AHS 310, AHS 320, AHS 340; AHS 335 or CHEM 335.

Offered: Fall, Spring, Summer.

AHS 401 | Immunohematology II | 2 cr

Provides initial laboratory experience in blood banking practices including blood typing, antibody screening, antibody identification, cross matching, and confirmatory testing. Lab.

Prerequisites: AHS 400.

Offered: Summer.

AHS 405 | Cellular Morphology Laboratory | 2 cr

Discusses blood and blood cells in abnormal or malignant states, including red blood cell and white blood cell disorders. Examines specialized hematology procedures in the teaching laboratory, emphasizing the microscopic evaluation of abnormal blood cell morphology and evaluation of complete blood count data along with cytochemical and molecular testing.

Prerequisites: AHS 400.

Offered: Summer.

AHS 406 | Clinical Fluid Analysis | 2 cr

Introduces urinalysis and reviews of the anatomy and physiology of kidney, role of the kidney in disease; physical, chemical and microscopic properties of urine; and clinical correlation of lab results. Covers the physiology, specimen collection, processing and analysis of other body fluids. Lecture/Lab.

Prerequisites: AHS 400.

Offered: Summer.

AHS 410 | Clinical Mycology, Parasitology, and Virology | 3 cr

Investigates clinically relevant fungal, parasitic, and viral pathogens emphasizing diagnostic forms. Focuses on identification of the microorganisms, interpretation of findings and clinical correlation. Lecture/Lab.

Prerequisites: AHS 321.

Offered: Spring.

AHS 420 | Laboratory Operations | 2 cr

Addresses basic principles of clinical laboratory management, including theory and practice. Includes personnel and financial management, regulation and accreditation, information management, quality assurance, quality control, clinical and continuing education. Two hour lecture.

Prerequisites: AHS 401, AHS 405, AHS 406.

Offered: Fall.

AHS 450 | Clinical Correlations and Board of Review Test Preparation | 2 cr

Employs case studies to learn to evaluate patient histories and correlate laboratory test results to specific disease diagnosis. Prepares students to take the ASCLS MLS certification exam. Two hour lecture.

Prerequisites: AHS 420.

Offered: Spring.

AHS 470 | Radiographic Physics I | 2 cr

Explores the interactions involved in x-ray production, the equipment used to create and control the production, and fundamentals of photon interactions with matter. Covers how x-rays are produced in the tube and how they interact with the body and the basic design and layout of imaging equipment.

Prerequisites: AHS 101, AHS 302; BIOS 101 and 102, or BIOS 105 and 106, or BIOS 300 and 341; BIOS 210; CHEM 101 and 103 or CHEM 115; MATH 114 or MATH 112 and 113.

Offered: Fall, Spring.

AHS 473 | Imaging Procedures IV | 2 cr

Introduces imaging modalities such as MRI, CT, Mammography, Interventional Radiology, Cardiac Imaging, Radiation Therapy, Ultrasonography, and Nuclear Medicine. Provides instruction and radiographic lab sessions for practice and demonstrations of a variety of orthopedic views and pediatric imaging.

Prerequisites: AHS 101, AHS 302, AHS 306, AHS 308 and AHS 309; BIOS 101 and 102, or BIOS 105 and 106, or BIOS 300 and 341; BIOS 210; CHEM 101 and 103 or CHEM 115; MATH 114 or MATH 112 and 113.

Offered: Fall, Spring.

AHS 475 | Image Analysis | 2 cr

Explores the identification of acceptable and unacceptable radiographic images. Discusses contrast, receptor exposure, distortion, spatial resolution, and basic anatomy along with radiographic positioning to produce diagnostic radiographs. Addresses legal issues involved with suboptimal and misidentified films.

Prerequisites: AHS 101, AHS 302; BIOS 101 and 102, or BIOS 105 and 106, or BIOS 300 and 341; BIOS 210; CHEM 101 and 103 or CHEM 115; MATH 114 or MATH 112 and 113.

Offered: Fall, Spring.

AHS 477 | Cross-Sectional Anatomy | 3 cr

Examines the science of Computed Tomography (CT) and identification of specific human anatomy presented in several different planes/orientations of the body. Reviews human anatomy in a cross-sectional format as related to CT and other select imaging.

Prerequisites: AHS 101, AHS 302; BIOS 101 and 102, or BIOS 105 and 106, or BIOS 300 and 341; BIOS 210; CHEM 101 and 103 or CHEM 115; MATH 114 or MATH 112 and 113.

Offered: Fall, Spring.

AHS 478 | Pathology | 3 cr

Introduces the basic and most common pathologies evidenced by radiologic imaging. Explores pathology as it involves the various systems in the human body.

Prerequisites: AHS 101, AHS 302; BIOS 101 and 102, or BIOS 105 and 106, or BIOS 300 and 341; BIOS 210; CHEM 101 and 103 or CHEM 115; MATH 114 or MATH 112 and 113.

Offered: Fall, Spring.

AHS 480 | Radiation Physics II | 2 cr

Addresses what a quality management program entails, and the processes involved for a medical imaging department. Surveys the equipment used in fluoroscopic suites and discusses proper radiation protection for patients and personnel.

Prerequisites: AHS 101, AHS 302 and AHS 470; BIOS 101 and 102, or BIOS 105 and 106, or BIOS 300 and 341; BIOS 210; CHEM 101 and 103 or CHEM 115; MATH 114 or MATH 112 and 113.

Offered: Fall, Spring.

AHS 482 | Clinical Internship I | 5 cr

Provides opportunity for clinical experience in the emergency department, general radiography, fluoroscopy, the orthopedic department, and the outpatient clinic. Includes beginning of surgery and evening rotations.

Prerequisites: AHS 101, AHS 302; BIOS 101 and 102, or BIOS 105 and 106, or BIOS 300 and 341; BIOS 210 or PSYC 250; CHEM 101 and 103, or CHEM 115; MATH 114 or MATH 112 and 113.

Offered: Fall, Spring.

AHS 483 | Clinical Internship II | 3 cr

Provides opportunity to continue clinical experience in the emergency department, general radiography, fluoroscopy, the orthopedic department, and the outpatient clinic. Includes continuation of surgery and evening rotations. Introduces Computed Tomography (CT) department.

Prerequisites: AHS 101, 302; BIOS 101 and 102, or BIOS 105 and 106, or BIOS 300 and 341; BIOS 210 or PSYC 250; CHEM 101 and 103, or CHEM 115; MATH 114 or MATH 112 and 113.

Offered: Fall, Spring.

AHS 484 | Clinical Internship III | 3 cr

Provides opportunity to continue clinical experience in the emergency department, general radiography, fluoroscopy, the orthopedic department, and the outpatient clinic. Includes continuation of surgery and evening rotations.

Prerequisites: AHS 101, 302; BIOS 101 and 102, or BIOS 105 and 106, or BIOS 300 and 341; BIOS 210 or PSYC 250; CHEM 101 and 103, or CHEM 115; MATH 114 or MATH 112 and 113.

Offered: Fall, Spring.

AHS 494 | Internship/Fieldwork | 1-6 cr

Provides students with learning experiences within professional fields that are related to their professional career goals; including, but not limited to: business operations, professional competencies and conduct, and overall work environment. Requires placement approval by AHS academic advisor or the AHS director. No more than six credits can be applied toward the AHS major and no more than twelve credits can count towards general graduation requirements.

Prerequisites: AHS 101, sophomore or above and approval by applied health science academic advisor and the director.

Offered: Fall, Spring, Summer.

AHS 495 | Clinical Practicum I | 1-5 cr

Provides experiential learning for clinical laboratory sciences at clinical affiliate sites. Incorporates phlebotomy practice exposure with rotation through each clinical laboratory department, Hematology/Coagulation/Body Fluid Analysis, Clinical Chemistry, Microbiology, and Blood Bank.

Prerequisites: AHS 401, AHS 405, AHS 406.

Offered: Fall.

AHS 496 | Clinical Practicum II | 1-6 cr

Provides additional experiential learning course for clinical laboratory sciences at clinical affiliate sites. Incorporates phlebotomy practice exposure with rotation through each clinical laboratory department. Requires placement approval by AHS academic advisor or the AHS director. No more than six credits can be applied toward the AHS major and no more than twelve credits can count towards general graduation requirements.

Prerequisites: AHS 406, AHS 495.

Offered: Fall, Spring, Summer.