

# ALLIED HEALTH DEPARTMENT

Website: <https://www.washburn.edu/academics/college-schools/applied-studies/departments/allied-health/index.html> (<https://www.washburn.edu/academics/college-schools/applied-studies/departments/allied-health/>)

## Faculty

Mark Kohls, DPT, Associate Professor and Chair  
 Zach Frank, DPT, Associate Professor (SAS Dean)  
 Michelle Shipley, MS, Associate Professor (SAS Associate Dean)  
 Becky Dodge, PhD, Associate Professor  
 Hillary Lolley, MBA, Assistant Professor  
 Tannah Baker, BHS, Lecturer  
 Rhonda Boeckman, MS, Lecturer  
 Toni Caldwell, MHA, Lecturer  
 Kristina Collins, MHS, Lecturer  
 Sean Conrad, BA, Lecturer  
 Dixie Copeland, MHS, Lecturer  
 Keith Farwell, MHSc, Senior Lecturer  
 Jessica Gremmel, MHS, Lecturer  
 Jennifer Halstead, BS, Lecturer  
 Stacie Hawkins, MHS, Senior Lecturer  
 Ida Johnson, MHS, Senior Lecturer  
 Amanda Lisher, MS, Lecturer  
 Corinne Oliva, MHS, Lecturer  
 Stephanie Sedlacek, OTD, Lecturer  
 Michelle Smith, MS, Lecturer  
 Terry Sorensen, DHSc, Lecturer  
 Shannon Walls, BHS, Lecturer  
 Lisa Rieschick, Administrative Specialist

## Mission

The mission of the department is to prepare qualified individuals for careers in Allied Health and technical professions for the community, the state and across the globe. This is accomplished through excellent teaching with high levels of faculty-student interaction and relationships with community partners to enhance education experiences.

The mission for the Allied Health Department is met:

- At the certificate and associate degree level by preparing competent individuals for entry level and advanced professional practice, with the ability to provide a consistent standard and quality of care.
- At the bachelor's degree level by preparing health care professionals for advanced clinical and administrative practice, and technical professionals for administrative and managerial careers.
- At the master's degree level by preparing existing health care professionals to educate future health care providers.

## Student Learning Outcomes

Allied Health students, upon completion of their respective professional programs, are expected to have:

- Demonstrated the ability to comprehend, apply, and evaluate medical information relevant to their professional discipline.
- Obtained the proficiency of all the skills necessary to fulfill their professional discipline.

- Demonstrated professional behavior consistent with employer expectations in their professional discipline.

## Programs

- Bachelor of Health Science (<https://catalog.washburn.edu/undergraduate/school-applied-studies/allied-health-department/bachelor-health-science/>)
  - Health Services Administration, BHS (<https://catalog.washburn.edu/undergraduate/school-applied-studies/allied-health-department/bachelor-health-science/health-services-administration-bhs/>)
  - Medical Imaging, BHS (<https://catalog.washburn.edu/undergraduate/school-applied-studies/allied-health-department/bachelor-health-science/medical-imaging-bhs/>)
    - Diagnostic Medical Sonography, Concentration (<https://catalog.washburn.edu/undergraduate/school-applied-studies/allied-health-department/bachelor-health-science/medical-imaging-bhs/diagnostic-medical-sonography-concentration/>)
    - Magnetic Resonance (MR), Concentration (<https://catalog.washburn.edu/undergraduate/school-applied-studies/allied-health-department/bachelor-health-science/medical-imaging-bhs/magnetic-resonance-mr-concentration/>)
    - Radiation Therapy, Concentration (<https://catalog.washburn.edu/undergraduate/school-applied-studies/allied-health-department/bachelor-health-science/medical-imaging-bhs/radiation-therapy-concentration/>)
  - Medical Laboratory Science, BHS (<https://catalog.washburn.edu/undergraduate/school-applied-studies/allied-health-department/bachelor-health-science/medical-laboratory-science-cls-program/>)
  - Public Health, BHS (<https://catalog.washburn.edu/undergraduate/school-applied-studies/allied-health-department/bachelor-health-science/public-health-bhs/>)
  - Health Services Administration, Minor (<https://catalog.washburn.edu/undergraduate/school-applied-studies/allied-health-department/bachelor-health-science/health-services-administration-minor/>)
  - Public Health, Minor (<https://catalog.washburn.edu/undergraduate/school-applied-studies/allied-health-department/bachelor-health-science/public-health-minor/>)
- Diagnostic Medical Sonography, Certificate (<https://catalog.washburn.edu/undergraduate/school-applied-studies/allied-health-department/dms-certificate/>)
- Diagnostic Medical Sonography, AAS (<https://catalog.washburn.edu/undergraduate/school-applied-studies/allied-health-department/dms-aas/>)
- Healthcare Coding, Certificate (<https://catalog.washburn.edu/undergraduate/school-applied-studies/allied-health-department/health-information-coding-certificate/>)
- Health Information Technology, AAS (<https://catalog.washburn.edu/undergraduate/school-applied-studies/allied-health-department/health-information-technology-aas/>)
- Magnetic Resonance (MR), Certificate (<https://catalog.washburn.edu/undergraduate/school-applied-studies/allied-health-department/mr-certificate/>)
- Occupational Therapy Assistant, AAS (<https://catalog.washburn.edu/undergraduate/school-applied-studies/allied-health-department/occupational-therapy-assistant-aas/>)

- Physical Therapist Assistant, AAS (<https://catalog.washburn.edu/undergraduate/school-applied-studies/allied-health-department/physical-therapist-assistant-aas/>)
- Public Health, Certificate (<https://catalog.washburn.edu/undergraduate/school-applied-studies/allied-health-department/public-health-certificate/>)
- Advanced Certificate, Public Health (<https://catalog.washburn.edu/undergraduate/school-applied-studies/allied-health-department/advanced-public-health-certificate/>)
- Radiation Therapy, Certificate (<https://catalog.washburn.edu/undergraduate/school-applied-studies/allied-health-department/radiation-therapy-certificate/>)
- Radiologic Technology, AAS (<https://catalog.washburn.edu/undergraduate/school-applied-studies/allied-health-department/radiologic-technology-aas/>)
- Respiratory Therapy, AAS (<https://catalog.washburn.edu/undergraduate/school-applied-studies/allied-health-department/respiratory-therapy-aas/>)
- Technology Administration, BAS (<https://catalog.washburn.edu/undergraduate/school-applied-studies/allied-health-department/technology-administration-bas/>)
  - Technology Administration, Minor (<https://catalog.washburn.edu/undergraduate/school-applied-studies/allied-health-department/technology-administration-bas/minor/>)

Please see the Graduate (<https://catalog.washburn.edu/graduate/school-applied-studies/>) catalog for additional information regarding the department's graduate programs:

- Master of Health Science, MHS (<https://catalog.washburn.edu/graduate/school-applied-studies/allied-health-graduate-programs/master-health-science-mhs/>)
- Medical Dosimetry, MS (<https://catalog.washburn.edu/graduate/school-applied-studies/allied-health-graduate-programs/medical-dosimetry-ms/>)
- Post-Graduate Certificate in Health Care Education (<https://catalog.washburn.edu/graduate/school-applied-studies/allied-health-graduate-programs/post-graduate-certificate-health-care-education/>)

## Course Offerings

### Allied Health

#### AL 101 Foundations of Healthcare (3)

An overview of the role of various health care professions, ethical and legal responsibilities, patient communication methods, cultural competence, patient assessment techniques, medical terminology, electronic health records and preventative health care. Through role playing and case studies, students learn how the various members of the health care team interact and communicate with one another in order to provide the most efficient and effective delivery of patient care. Additional technical competencies included in this course are: assessment of vital signs, safe body mechanics, patient transfers and safety, basic first aid, standard and transmission-based infection precautions.

#### AL 120 Radiographic Procedures & Patient Care I (3)

Focuses on the principles of producing and evaluating radiographs of the skeletal and urinary systems. Discusses patient care procedures such as vital signs, infection control, medical emergencies and aseptic techniques. Prerequisite: Admission to the Radiologic Technology program and concurrent with AL 120A.

#### AL 120A Procedures Lab I (0)

Required laboratory demonstrations will include chest, KUB, upper extremity, lower extremity, spine, and contrast studies. A one hour weekly session is held on campus. Concurrent with AL 120.

#### AL 121 Radiographic Procedures & Patient Care II (3)

Explores those procedures employed in the more complicated investigation of the human body. Continues to examine present techniques necessary for the assessment and care of the ill and injured patient. Prerequisites: AL 120, AL 130, AL 134, and concurrent with AL 121A.

#### AL 121A Procedures Lab II (0)

Required laboratory demonstrations include spine, contrast studies, cranium, bony thorax, and miscellaneous positions. A one hour session is held each week. Concurrent with AL 121.

#### AL 130 Radiographic Exposure I (3)

Principles of radiographic image formation related to digital imaging. Physics of x-ray production and influences on image creation. The course provides an understanding and analysis of the radiographic image. Prerequisite: Admission to the Radiologic Technology program and concurrent with AL 130A.

#### AL 130A Exposure Lab I (0)

Demonstrations will be directed towards the primary factors of radiograph (image) production. An energized x-ray unit will be available for the one hour weekly session. Concurrent with AL 130.

#### AL 131 Radiographic Exposure II (3)

A continuation of AL 130 emphasizing imaging principles. Problem solving through mathematical application. Techniques of quality control. An additional fee is associated with this course. Prerequisites: AL 120, AL 130, AL 134, and concurrent with AL 131A or consent.

#### AL 131A Exposure Lab II (0)

Demonstrations will involve the imaging systems, computation of radiation dosages, and quality control techniques. The one hour weekly session will utilize an energized x-ray unit. Concurrent with AL 131.

#### AL 134 Radiology Clinical I (3)

This course requires a specific number of hours of limited radiographic assistance in a healthcare setting. Students will achieve competency in simple procedures under direct supervision. Prerequisite: Admission to the Radiologic Technology program.

#### AL 135 Radiology Clinical II (4)

This course requires a specific number of hours of limited radiographic assistance in a healthcare setting. This course builds on competencies achieved in AL 134. Students will achieve competency in more complex procedures with direct and/or indirect supervision. Prerequisite: AL 134 or consent.

#### AL 141 Medical Terminology (3)

This course covers word elements that form the base on which the medical language is constructed, including commonly used abbreviations. Emphasis on competency in spelling, pronunciation, correct usage and meaning of terminology related to all body systems, medical science and medical specialties.

#### AL 150 Principles of Health Information Technology (3)

This course covers the organization, analysis, and evaluation of health records, methods of storage, retrieval and preservation, an introduction to computer and information systems in health care, and an overview of health information department management. Prerequisites: AL 101, Admission to HIT Program.

**AL 157 Specialized Records & Registries for Health Information Technology (2)**

This course explores health information requirements in non-hospital settings including long-term and ambulatory care, & functions and procedures for specialized health information registries. Prerequisite: AL 150, AL 366 or concurrent.

**AL 161 Foundations of Occupational Therapy (2)**

This course is an introduction to the history and philosophical base of occupational therapy. Areas of instruction include: models of practice; frames of reference; the role of the Occupational Therapist/Occupational Therapy Assistant; Code of Ethics; Core Values; Standards of Practice and the Delivery of Occupational Therapy Services. Prerequisite: Formal Admission to the Occupational Therapy Assistant Program.

**AL 162 Occupational Therapy Interventions I (3)**

This lecture and lab course will discuss the dynamics of the occupation to include the activity, performance skills, and performance patterns from conception to age 18. The student will exhibit the ability to analyze tasks and implement an intervention plan for the occupational therapy client. Prerequisite: AL 161.

**AL 163 Foundations of Occupational Therapy II (3)**

This lecture/lab course is a continuation of AL 161 and will allow the student to develop the ability to select and implement occupational therapy interventions related to the activities of daily living. Prerequisite: AL 161 and concurrent with AL 164.

**AL 164 Level I OTA Fieldwork Rotation I (1)**

This course requires a specific number of hours of limited occupational therapy assistant exposure in the healthcare setting. Prerequisite: AL 161 and Concurrent with AL 163.

**AL 166 Occupational Therapy Interventions II (3)**

This lecture lab course is a continuation of AL 162 and will discuss the dynamics of the occupation to include the activity, performance skills, and performance from early adulthood to later maturity. Prerequisite: AL 162.

**AL 167 Foundations of Occupational Therapy III (3)**

This course is a continuation of AL 163 and will allow the student to develop the ability to administer selected assessments, screening, evaluation tools, and skilled observations and to develop skills that relate to analysis of movement, orthotic devices, superficial thermal and mechanical modalities. Prerequisite: AL 163.

**AL 168 Level I OTA Fieldwork Rotation II (1)**

This course requires a specific number of hours in the health care setting to allow the student to employ logical thinking, critical analysis, problem solving and creativity as it relates to the psychosocial aspects of occupational therapy in the clinical setting.

**AL 170 Physical Therapy Procedures (4)**

This class features the development of early Physical Therapy skills and the understanding of basic procedures. Specific emphasis is placed on range of motion, measurement of range of motion, therapeutic exercise basics, aseptic and isolation techniques, proper bed positioning, massage, transfers, wheelchair management, architectural barriers, locomotion training, documentation, vital signs and safety. All skills are reinforced and practiced in supervised scheduled laboratories and open lab sessions. Prerequisite: Admission to PTA Program.

**AL 171 Musculoskeletal Assessment in Physical Therapy (5)**

This course follows AL 170 PT Procedures in the curriculum sequence and is designed to provide the Physical Therapist Assistant student with a foundation for musculoskeletal assessment and treatment. Emphasis is on orthopedic physical therapy assessment, including manual muscle testing, cranial nerve testing, dermatomal and myotomal assessment, special tests, joint mobilization theory, therapeutic exercise, motor control theory, clinical decision making according to the Physical Therapist Plan of Care, identification of red flags, specific orthopedic protocols and implementation of specific physical therapy programs for various rehab clients. Prerequisite: AL 170 and concurrent enrollment in AL 261

**AL 185 Principles of Respiratory Therapy I (2)**

Specific modes of respiratory care are examined to understand principles of application to patients, indications, hazards, contraindications, and evaluation of therapy. Emphasis is placed on detailed knowledge of equipment used in these modes. Modes of care include medical gas therapy, humidity and aerosol therapy, lung expansion techniques and basic diagnostic studies. An additional fee is associated with this course. Prerequisite: Consent and concurrent with AL 185L.

**AL 185L Principles of Respiratory Therapy Lab (0)**

Explores the procedures for specific respiratory therapies. Students will practice skills and complete required competencies. Concurrent with AL 185.

**AL 186 Cardiopulmonary Assessment (2)**

This course is for Allied Health students and is designed to provide the student with an understanding of the cardiopulmonary systems. Areas of study will include a review and assessment of the anatomy and physiology of the pulmonary, cardiac, and renal systems. Prerequisites: OTA-AL 167; RT-AL 185; PTA-concurrent with AL 265 and AL 272 or consent.

**AL 187 Respiratory Therapy Clinical I (3)**

An introduction to basic respiratory therapy procedures. Orientation to clinical practice, charting of records, infection control, emergency procedures, therapeutic procedures and diagnostic procedures are emphasized. The student will be introduced to routine respiratory care and equipment. Prerequisite: AL 185.

**AL 220 Radiographic Procedures III (2)**

Presents cross-sectional anatomy as a background for radiographic related imaging modalities. Develops an awareness of related areas including venipuncture, computed tomography, sonography, nuclear medicine, radiation therapy, magnetic resonance, mammography, and interventional procedures. The investigation of alternative methods of radiography of the atypical patient is included. Prerequisite: AL 121 or consent.

**AL 230 Radiologic Equipment Operation (2)**

Focuses on radiography physics, electromagnetic radiation, and x-ray production. Emphasizes electrical concepts including electrodynamics, circuitry, electromagnetism, rectification and the application of these principles to radiography. A working knowledge of basic algebraic equations is required. Prerequisite: AL 131 or consent.

**AL 231 Radiation Protection & Biological Effects (2)**

Provides the knowledge and serves to develop the attitude necessary to intelligently protect the patient, themselves, and others from the potentially harmful effects of radiation. Includes an in-depth discussion of biological effects, cell and organism sensitivity, and somatic and genetic effects of ionizing radiation. Prerequisite: AL 121 or AL 131 or consent.

**AL 236 Radiology Clinical III (3)**

This course requires a specific number of hours of direct radiographic assistance in a healthcare setting. Students will demonstrate competence in a variety of procedures with indirect supervision. Prerequisite: AL 121, AL 131, AL 135, or consent.

**AL 237 Radiology Clinical IV (4)**

This course requires a specific number of hours of direct radiographic assistance in a healthcare setting. Students demonstrate competence in special procedures utilizing positioning techniques covered in AL 220 with direct supervision. Rotations through specialized areas of radiology will begin. Prerequisite: AL 236 and concurrent with AL 220 or consent.

**AL 238 Radiology Clinical V (4)**

Additional experience and expertise in routine and non-routine examinations is gained. Rotations through the specialized areas of radiology will continue. Students are under indirect supervision. Prerequisites: AL 237 and AL 220 or consent.

**AL 240 Professional Practice I for Health Information Technology (2)**

This course includes simulated projects completed independently, and supervised clinical experience in the technical aspects of health records in approved health care facilities and agencies. Prerequisites: Admission to Health Information Technology Program, AL 150 or concurrent enrollment.

**AL 241 Professional Practice II for Health Information Technology (3)**

Continuation of AL 240. Prerequisite: AL 240.

**AL 243 Advanced Coding Principles in Health Information Technology (2)**

Students will apply coding knowledge to more complex outpatient exercises using CPT coding resources. The content will include preparation for national coding exam certification through the American Health Information Management Association (AHIMA) or the American Academy of Professional Coders (AAPC). Prerequisites: AL 245, AL 246, or concurrent.

**AL 244 Healthcare Statistics - Health Information Technology (2)**

This course covers the collection, computation, analysis, presentation and use of healthcare statistical data. Prerequisite: AL 150.

**AL 245 Health Information Coding I (3)**

This course covers coding principles for diseases and operations using the International Classification of Diseases. Focus is on the identification, coding & sequencing of inpatient medical diagnosis and procedures. Prerequisites: BI 230, BI 250, AL 320 or concurrent.

**AL 246 Health Information Coding II (3)**

This course covers coding principles for outpatient services using the International Classification of Diseases and Current Procedure Terminology manuals. Focus is on the identification, coding & sequencing of outpatient diagnosis & procedures. Prerequisite: AL 245.

**AL 247 Healthcare Reimbursement Methods (3)**

This course covers healthcare reimbursement methodologies and advanced coding skills for inpatient and outpatient settings. Prerequisite: AL 250, AL 246 or concurrent.

**AL 250 Seminar in Health Information Technology (1)**

This course includes an analysis of major trends and issues affecting health information, review of the fundamental principles of health information technology & successful completion of a simulated certification examination. Concurrent with AL 241.

**AL 252 Psychosocial Occupational Therapy (3)**

This lecture lab course provides the student with the knowledge and understanding of psychiatric disorders, human behavior, and the role of occupational therapy in psychosocial mental health. The course prepares the student to interact therapeutically with clients across the lifespan in various settings who have psychosocial needs, with emphasis on the therapeutic use of self and therapeutic process. Prerequisite: AL 164

**AL 253 Level I OTA Fieldwork Rotation III (1)**

This course requires a specific number of hours in the health care setting to allow the student to employ logical thinking, critical analysis, problem solving and creativity as it relates to the occupational therapy clinical setting. Prerequisites: AL 164, AL 167.

**AL 254 Current Topics Occupational Therapy (2)**

This course will allow the student to obtain the knowledge and understanding of the systems and structures that create federal and state legislation and regulation for occupational therapy. Topics include reimbursement, national, international and state regulations for licensure, certification and/or registration for occupational therapy. Prerequisite: AL 167.

**AL 255 Level II Occupational Therapy Fieldwork (8)**

This fieldwork placement consists of two, full time, eight week rotations and provides the student with the opportunity to develop into competent, entry-level occupational therapy assistants. The student will be exposed to a variety of clients across the life span and a variety of settings. Prerequisite: Satisfactory completion of all previous coursework.

**AL 257 Applied Neurophysiology - Occupational Therapy (3)**

This course is designed to provide the Occupational Therapy Assistant with a foundation in applied neurophysiology concepts. This includes, but is not limited to, specific assessment and treatment techniques for patients in special populations, such as spinal cord injury, pediatrics, amputees, traumatic head injury, cerebrovascular accidents, as well as other neurological or cardiovascular disorders. Prerequisite: AL 167 and BI 230.

**AL 260 Independent Study (1-3)**

Allied Health majors may pursue an independent research project if approved by the Program Director in consultation with the Department Chair. Independent Study may not be used in place of any courses required in the major. Independent Study courses must meet equivalencies to Federal definition of a credit hour. Prerequisites: Consent

**AL 261 Therapeutic Modalities in Physical Therapy (4)**

This course follows AL 170 Physical Therapy Procedures in the curriculum sequence and is designed to provide the student with a foundation for the use of therapeutic modalities. This course includes instruction on the various modalities of heat, cold, electrical stimulation, hydrotherapy, diathermy, ultrasound, traction, ultraviolet/infrared light and other physical agent modalities and treatments. Prerequisites: AL 170 and concurrent enrollment in AL 171.

**AL 264 Physical Therapy Clinical I and Lab (3)**

This course involves observation and supervised hands-on treatment of various types of patients in different clinical settings with the practicum of skills learned in AL 170 Procedures and AL 171 Musculoskeletal Assessment in Physical Therapy, and AL 261 Therapeutic Modalities in Physical Therapy. This course will include an on-going communication between the clinical instructor (CI), the student and the academic coordinator. The student is given the opportunity to work with a variety of patients and to begin developing competence as a medical team member. The student also attends 6 clinical labs prior to the start of the clinical rotation to further develop his/her skills with patients and department procedures. Prerequisites: AL 261 and AL 171.



**AL 265 Applied Neurophysiology - Physical Therapist Assistant (5)**

This lecture/lab course is designed to provide the Physical Therapist Assistant with a foundation in applied neurophysiology concepts and common neurologic disease processes, physical therapy assessment and intervention techniques. This includes, but is not limited to, specific assessment and treatment techniques for patients in special populations, such as spinal cord injury, pediatrics, traumatic head injury, cerebrovascular accidents, as well as other neurological or cardiovascular disorders. Prerequisite: AL 264, AL 268, AL 271 and concurrent enrollment in AL 272 and AL 186.

**AL 268 Integumentary Assessment in Physical Therapy (2)**

Therapy management of various wounds and integumentary disorders. Specific emphasis will be placed on proper identification/staging of wounds, assessment and measurement, treatment protocols including selection of proper debridement techniques and dressings, along with other topics regarding integumentary assessment and wound care. Prerequisite: AL 261 and AL 171.

**AL 271 Health Policy & Systems in Physical Therapy (2)**

This course emphasizes professional aspects of the Physical Therapist Assistant. Included in that realm are topics such as professional behavior with colleagues and patients, health care history, policy, and systems, reimbursement guidelines, legislative issues, continuing education and plan for professional advancement, code of ethics, cultural sensitivity and competence, current developments in Physical Therapy, professional relationships, research, evidence based practice, employment, etc. This course is designed to broaden the student's understanding of professional responsibility and motivate them towards personal improvement, commitment and continuing competence in the Physical Therapy profession. Prerequisite: AL 261, AL 171, and concurrent enrollment in AL 264 and AL 268.

**AL 272 Current Rehabilitation Techniques in Physical Therapy (2)**

This course emphasizes the characteristics, clinical problems, and physical therapy treatment of various rehabilitation patients, including the physical, psychological, sexual and vocational problems encountered. Specialized areas of Physical Therapy such as Aquatics, Geriatrics, Oncology, Women's Health Issues, Prosthetics/Orthotics, Sports Physical Therapy and Pediatrics are included in this course. Prerequisite: Satisfactory completion of all previous coursework. AL 264, AL 268, AL 271 and concurrent enrollment in AL 265.

**AL 273 Physical Therapy Issues (1)**

In consultation with a faculty member, the student is assigned for intensive study a specific area of concern related to physical therapy. This may include intensive reading and the preparation of patient and/or practitioner educational materials related to the subject. This will give the student an opportunity to develop an area or topic of expertise by exploring various avenues of information and compiling those into one document. During this course the student will also be reviewing for the Program Comprehensive Final to be given during the second or third week of the spring semester. Prerequisites: AL 265, AL 272. AL 186, AL 265, AL 272 and concurrent enrollment in AL 279.

**AL 279 Physical Therapy Clinical II & III (6)**

This course is clinical in nature and consists of two six-week full-time rotation following the completion of all didactic course work. The student will be involved in practicing all Physical Therapist Assistant skills in an assigned healthcare facility. The course will entail either on-site or phone/skype communication between the clinical instructor, the student and the academic coordinator (at least once during each rotation). The student is given the opportunity to practice advanced applications with direct supervision on a variety of patients and to develop competence as a full-time member of the medical team. Prerequisites: AL 265, AL 272, AL 186, and concurrent enrollment in AL 273.

**AL 289 Respiratory Therapy Clinical II (5)**

Students are assigned to various clinical settings designed to allow the student to complete procedural evaluations in basic respiratory care. The student will also be introduced to critical care medicine. Prerequisite: AL 187.

**AL 290 Special Topics/Allied Health (1-3)**

Selected topics related to one of the Allied Health programs, which vary from semester to semester. Announced in advance. Prerequisite: Specified on each topic.

**AL 291 Respiratory Therapy Principles and Procedures I (3)**

Lectures and laboratory topics on cardiopulmonary resuscitation, airway care and management, emergency care, mechanical ventilation and care of the critically ill patient. Prerequisite: AL 289.

**AL 292 Respiratory Therapy Principles and Procedures II (5)**

Lectures, simulation and group discussion of diagnostic procedures used by the pulmonary physician in evaluating patients with respiratory disease. Special emphasis will be placed on etiology, pathophysiology, clinical manifestations, patient education, and treatment of obstructed and restricted pulmonary diseases. Prerequisite: Consent

**AL 293 Respiratory Therapy Clinical III (5)**

An in-depth exploration of critical care medicine. The student will execute procedures relating to care of the patient being mechanically ventilated. The student will also be given clinical experience in EKG's and pulmonary function studies. The student will also be introduced to neonatal critical care medicine. An additional fee is associated with this course. Prerequisite: AL 289.

**AL 294 Respiratory Therapy Clinical Topics II (3)**

An introduction to medical microbiology. Special emphasis on pathogens related to the cardiopulmonary systems. Students will also be exposed to new, current and advanced clinical respiratory therapy topics. Prerequisite: AL 292.

**AL 295 Respiratory Therapy Clinical IV (5)**

Clinical rotations in pulmonary rehabilitation/home care, advanced ventilation techniques, hemodynamic monitoring, and specialty rotations that the student is concerned with related to respiratory therapy. Students will also receive clinical experience in pediatrics and neonatology. Prerequisite: AL 293.

**AL 296 Respiratory Therapy Clinical Topics III (3)**

Instruction in fields of obstetrics, neonatology and pediatrics as related to respiratory care. Includes sections on medical ethics. Prerequisite: AL 382.

**AL 300 Introduction to Diagnostic Medical Sonography (3)**

An introduction to the Diagnostic Medical Sonography profession. Topics include discussion of sonographic terminology, basic theories of equipment operation, body imaging, seminars in patient care, professionalism, and information concerning clinical education. Prerequisite: Admission to Diagnostic Medical Sonography Program or consent.

**AL 301 Clinical Radiation Therapy I (4)**

In this course the student therapist will participate in the daily activities of the radiation oncology department while under direct supervision at affiliated clinical education sites. The student therapist will work to develop skills to achieve competency and learn to interact professionally and ethically with staff and patients.

**AL 302 Radiation Therapy Principles I (3)**

This course is designed to provide a basic overview of radiation therapy treatment planning and delivery concepts as well as foundational knowledge related to patient assessment, pharmacology, ethics, and law.

**AL 303 Radiation Therapy Physics I (3)**

This course is designed to establish knowledge of basic physics concepts relevant to fundamental physical units, principles, atomic structure, types of radiation, x-ray production, interactions with matter, measurement devices, and x-ray generating equipment.

**AL 304 Therapeutic Radiobiology (3)**

This course is designed to explore the biological, chemical, and physical effects of radiation on cells, tissues, and the body as a whole.

**AL 305 Radiation Therapy Physics II (3)**

This course is designed to examine factors that influence and govern the optimal planning of external beam radiation therapy and brachytherapy. Topics include isodose distributions, compensating factors, methods of dosimetric calculations, and clinical applications of treatment beams.

**AL 307 Oncology, Simulation, and Treatment Procedures I (3)**

This course is designed to examine and evaluate the management of neoplastic disease. The epidemiology, etiology, diagnosis, treatment approaches, sequelae, and prognosis are discussed.

**AL 308 Allied Health Portfolio (3)**

This is a required course for Bachelor of Health Science majors who are requesting credit for a radiographer, sonographer or radiation therapist accredited program which was not completed at a University/ College. Students will develop a portfolio demonstrating completion of appropriate education and registry examinations in addition to retrospective and prospective self-evaluation

**AL 309 Foundations of Radiation Therapy (2)**

This course is designed to provide an introduction to radiation oncology and the role of the professional radiation therapist. Radiation therapy medical terminology, patient assessment, radiation protection, and safety are explored. Students are oriented to the policies and procedures of the educational program.

**AL 310 Radiation Therapy Procedures II (3)**

This course is designed to provide instruction regarding radiation therapy quality management.

**AL 311 Imaging in Radiation Therapy (3)**

This course is designed to introduce crosssectional anatomy as it relates to the practice of radiation therapy with a focus on location of normal gross anatomy and relationship to other structures. Anatomy will be identified in axial (transverse), sagittal, and coronal planes. Radiation oncology imaging and simulation equipment/components, and related devices

**AL 315 Allied Health Pharmacology (3)**

This course is for allied health students and is designed to familiarize the student with general classification of drugs, the mechanism of action, indications, contraindications, and major adverse effects. Principles of drug administration and pharmacokinetic are also presented.

**AL 320 Human Disease (3)**

A study of diseases, their causes and complications, and the modern practices of diagnosis and treatment. Prerequisite: BI 230 or BI 250 or BI 255 or BI 275.

**AL 321 Advanced Radiographic Imaging (2)**

A continuation of disease concepts with a direct application to patient assessment, patient care, selection of radiation exposure factors and radiologic procedures. Prerequisite: Consent.

**AL 330 Sonography Principles and Instrumentation I (3)**

This course provides information concerning the basic physical principles of sound waves, their applications to the human body, the operation and physical characteristics of the transducer, the method by which the sound waves are converted into an image. In-depth instruction on physics principles and instrumentation will be presented. Prerequisite: Admission to Diagnostic Medical Sonography program or consent.

**AL 331 Sonography Principles and Instrumentation II (3)**

This course is a continuation through the physics of sonography. It will continue the exploration of the basic physical principles of sound waves, their applications to the human body, the operation and physical characteristics of the transducer, the method by which the sound waves are converted into an image. An in-depth instruction on physics principles and instrumentation will be presented. Prerequisite: Admission to Diagnostic Medical Sonography program or consent.

**AL 332 Sonography Principles and Instrumentation III (2)**

This course will review all of the curriculum related to the physics of sonography and sonography instrumentation to prepare the student for the national credentialing examinations. Prerequisite: Admission to Diagnostic Medical Sonography program or consent.

**AL 340 Clinical Radiation Therapy II (4)**

This course is a continuation of AL301. The student therapist will participate in the daily activities of the radiation oncology department while under direct supervision at affiliated clinical education sites. The student therapist will work to develop skills to achieve competency and learn to interact professionally and ethically with staff and patients.

**AL 341 Sectional Anatomy & Imaging Applications (4)**

Detailed study of gross anatomical structures will be conducted systematically for location, relationship to other structures and function. Gross anatomical structures are located and identified in axial (transverse), sagittal, coronal and orthogonal (oblique) planes. Illustrations and anatomy images will be compared with magnetic resonance (MR) and computed tomography (CT) images in the same imaging planes and at the same level when applicable. The characteristic appearance of each anatomical structure as it appears on CT and MR, when applicable, will be stressed. Prerequisite: Consent.

**AL 347 Magnetic Resonance (MR) Physics I (3)**

Content is intended to impart an understanding of theories of magnetic resonance properties. Additional concepts such as pulse sequencing, coils, gradient usage and signal production will be covered. Prerequisite: Consent.

**AL 348 Magnetic Resonance (MR) Imaging I (3)**

Content is designed to provide a review of anatomy involving selected body regions with an understanding of MR tissue characteristics. Routine imaging of the abdomen, pelvis, thorax, musculoskeletal system and central nervous system will be discussed. Common pathology as demonstrated through MR imaging will be presented. Prerequisite: Consent.

**AL 349 Magnetic Resonance Clinical Experience I (1-3)**

Assignment to a MR facility for application of theory and development of competency in routine imaging. Establish eligibility for certification through the American Registry of Radiologic Technologists. Prerequisite: Consent.

**AL 350 Magnetic Resonance (MR) Physics II (3)**

A continuation of Physics I concepts including pulse sequencing application, coil selection relating to scans, calculation of scan times as well as scan parameters and image factors. Prerequisite: AL 347 or consent.

**AL 351 Magnetic Resonance (MR) Imaging II (3)**

A continuation of imaging methods with a focus on non-routine or specialized protocols of the abdomen, pelvis, thorax, musculoskeletal system, central nervous system and vascular system. Prerequisite: AL 348 or consent.

**AL 352 Magnetic Resonance Clinical Experience II (1-3)**

Assignment to a MR facility for application of theory and development of competency in specialized imaging. Establish eligibility for certification through the American Registry of Radiologic Technologists. Prerequisite: AL 349 or consent.

**AL 354 International Health Care Experience (3)**

This course will offer students the opportunity to experience the culture of countries other than the United States while engaging in meaningful healthcare services or studies. In addition to completing their studies or service project, students will learn about the history, political systems, healthcare systems and culture of the country they visit. Prerequisite: Permission of the course instructor.

**AL 355 Basic Concepts Health Services Administration (3)**

This course is designed primarily for students who are new to the Bachelor of Health Science program and do not possess an allied health or other healthcare certification. This course will consist of introductory information and examines the health profession, health care administration and the organization of health care. Prerequisite: None.

**AL 360 Independent Study/Allied Health (1-3)**

Allied Health majors may pursue an independent research project if approved by the Program Director in consultation with the Department Chair. Independent Study may not be used in place of any courses required in the major. Independent Study courses must meet equivalencies to Federal definition of a credit hour. Prerequisites: Consent

**AL 361 Abdomen Extended/OB-GYN Sonography Clinical I (6)**

Students are assigned to various clinical settings to allow the student to begin developing the technical skills necessary to become an entry-level sonographer. Students receive supervision, training, and feedback from a registered sonographer. Prerequisite: Admission to Diagnostic Medical Sonography program or consent.

**AL 362 Abdomen Extended/OB-GYN Sonography Clinical II (6)**

Students are assigned to various clinical settings to allow the continuation of developing the technical skills necessary to become an entry-level sonographer. Students receive supervision, training, and feedback from a registered sonographer. Prerequisite: Admission to the Diagnostic Medical Sonography program or consent.

**AL 363 Abdomen Extended/OB-GYN Sonography Clinical III (3)**

Students are assigned to various clinical settings to allow the continuation of developing the technical skills necessary to become an entry-level sonographer. Students receive supervision, training, and feedback from a registered sonographer. Prerequisite: Admission to the Diagnostic Medical Sonography program or consent.

**AL 366 Legal & Regulatory Issues for the Health Care Professional (3)**

This course is an overview of the legal and regulatory issues that impact the delivery of health care. Emphasis will be placed on the management of a health care organization from a leadership perspective. Prerequisite: Admission to the Bachelor of Health Science major/minor or HIT program.

**AL 367 Foundations of Quality Improvement in Health Care (3)**

The course introduces the student to key quality and process improvement issues impacting the administrators of today's health care organizations and explores how those issues affect the delivery of care. Data-driven process and quality improvement is a central theme in the exploration of a variety of health care topics. This course provides basic knowledge of process improvement to be used in later courses. Prerequisite: Admission to the Bachelor of Health Science major/minor or HIT program.

**AL 370 Oncology, Simulation and Treatment Procedures II (3)**

This course is designed to examine and evaluate the management of neoplastic disease. The epidemiology, etiology, diagnosis, treatment approaches, sequelae, and prognosis are discussed.

**AL 371 Abdomen Sonography Procedures I (3)**

This Course will introduce introductory topics concerning abdominal sonography including but not limited to anatomy, pathophysiology, anatomical disease processes, patient care applications and sonographic principles and practices. Prerequisite: Admission to the Diagnostic Medical Sonography program or consent.

**AL 372 Abdomen Sonography Procedures II (3)**

This Course will continue to explore general abdominal sonography and general small parts sonography topics. Topics will include but not limited to anatomy, pathophysiology, anatomical disease processes, patient care applications and sonographic principles and practices. Additionally special topics, pediatrics and interventional sonography practices will be explored. Prerequisite: Admission to the Diagnostic Medical Sonography program or consent.

**AL 375 Health Care Policy (3)**

This course focuses on government and private policy and how it impacts the delivery of health care. Students will learn how a health care leader can be an advocate for change. Prerequisite: Admission to the Bachelor of Health Science major.

**AL 379 Abdomen Extended/OB-GYN Sonography Procedures III (2)**

This course will combine all information concerning abdomen extended/OB-GYN sonography procedures procedures courses. This course will serve as a review course with mock board review exams tailored to the requirements of the National Registry exams of the Abdominal and OBGYN specialty board exams. Prerequisites: Admission to the Diagnostic Medical Sonography program or consent.

**AL 380 Clinical Radiation Therapy III (3)**

This course is a continuation of AL340. The student therapist will participate in the daily activities of the radiation oncology department while under direct supervision at affiliated clinical education sites. The student therapist will work to develop skills to achieve competency and learn to interact professionally and ethically with staff and patients.

**AL 381 Radiation Therapy Seminar (3)**

This course offers a is designed to provide a systematic review of the ARRT content specifications with a focus on real world radiation therapy situations, which challenge a therapist's problem solving and critical thinking skills. This course prepares the student for the national certification examination and entry-level problem solving.

**AL 382 Cardiovascular Monitoring and Scanning (3)**

Course for Respiratory Therapy students designed to provide the student with an understanding of cardiovascular monitoring. Areas of study will include an introduction to heart development, review of anatomy and physiology of the heart, hemodynamic monitoring, effects on hemodynamics due to disease states, and cardiac arrhythmia recognition. Prerequisite: Admission to Respiratory Therapy program.

**AL 383 Cardiac Sonography Procedures I (3)**

The content of this course will an indepth exploration of cardiac embryology, anatomy and physiology, pathophysiology, echocardiographic procedures, imaging techniques, and protocols specific to echocardiography.

**AL 384 Cardiac Sonography Procedures II (3)**

A detailed and in-depth exploration of various cardiac pathology and their echocardiographic manifestations. Prerequisite: Admission to the Diagnostic Medical Sonography program or consent.

**AL 385 Cardiac Sonography Clinical I (6)**

Students are assigned to various clinical settings to allow the student to begin developing the technical skills necessary to become an entry-level sonographer. Students receive supervision, training, and feedback from a registered sonographer.

**AL 386 Cardiac Sonography Clinical II (6)**

Students are assigned to various clinical settings to allow the continuation of developing the technical skills necessary to become an entry-level sonographer. Students receive supervision, training, and feedback from a registered sonographer.

**AL 387 Cardiac Sonography Clinical III (3)**

Students are assigned to various clinical settings to allow the continuation of developing the technical skills necessary to become an entry-level sonographer. Students receive supervision, training, and feedback from a registered sonographer.

**AL 388 Cardiac Sonography Procedures III (2)**

The course will cover new and highly specialized procedures in the realm of echocardiography, such as stress echo (treadmill and pharmacological), contrast echocardiography, diastology, and transesophageal echocardiography. It will also provide a review and Mock Testing for Boards. Prerequisite: Admission to the Diagnostic Medical Sonography program or consent.

**AL 389 OBGYN Sonography Procedures I (3)**

This Course will introduce introductory topics concerning obstetrical and gynecological sonography including but not limited to anatomy, pathophysiology, anatomical disease processes, fetal anatomy and disease, patient care applications and sonographic principles and practices. Prerequisite: Admission to the Diagnostic Medical Sonography program or consent.

**AL 390 Special Topics/Allied Health (1-3)**

Selected topics related to allied health which vary from semester to semester. Announced in advance. Prerequisite: Consent.

**AL 391 Chemistry Application in Respiratory Care (3)**

Introduction to medical chemistry. This course will discuss the basic aspects of chemistry and biochemistry as related to cardiopulmonary physiology and therapeutic intervention. This course includes atomic theory, chemical bonding and acid-base balance.

**AL 392 OBGYN Sonography Procedures II (3)**

This Course will continue to explore obstetrical and gynecological sonography including but not limited to anatomy, pathophysiology, anatomical disease processes, fetal anatomy and disease, patient care applications and sonographic principles and practices. Additionally special topics, fetal anomalies, and interventional OBGYN sonography practices will be explored.

**AL 393 Vascular Sonography Procedures I (3)**

An in-depth discussion of the anatomy, physiology, and pathophysiology of the peripheral and cerebral vascular systems. The focus will be on the cerebrovascular system and the arterial and venous systems of the lower extremities. Hemodynamics, Doppler waveforms, pressure measurements, plethysmography, appropriate pharmacology, sonographic appearance, and scanning techniques will be discussed. This will include arterial and venous systems, therapeutic intervention, and non-invasive testing-exam protocols. Prerequisite: Admission to Diagnostic Medical Sonography program.

**AL 394 Vascular Sonography Procedures II (3)**

Continuation of AL 393 to include discussion of the anatomy, physiology, and pathophysiology of the abdominal and peripheral vascular systems. The focus will be on the abdominal vasculature and on the arterial and venous systems of the upper extremities. Hemodynamics, Doppler waveforms, pressure measurements, plethysmography, appropriate pharmacology, sonographic appearance and scanning techniques will be discussed. Therapeutic intervention includes arterial and venous systems, non-invasive testing, and exam protocols. Prerequisite: Admission to the Diagnostic Medical Sonography program or consent.

**AL 395 Vascular Sonography Clinical I (6)**

Students are assigned to various clinical settings to allow the student to begin developing the technical skills necessary to become an entry-level sonographer. Students receive supervision, training, and feedback from a registered sonographer.

**AL 396 Vascular Sonography Clinical II (6)**

Students are assigned to various clinical settings to allow the continuation of developing the technical skills necessary to become an entry-level sonographer. Students receive supervision, training, and feedback from a registered sonographer. Prerequisite: AL 395.

**AL 397 Vascular Sonography Clinical III (3)**

Students are assigned to various clinical settings to allow the continuation of developing the technical skills necessary to become an entry-level sonographer. Students receive supervision, training, and feedback from a registered sonographer.

**AL 398 Vascular Procedures III (2)**

The course will cover new and highly specialized procedures in the realm of vascular sonography. Among the content will be hemodialysis access, transcranial doppler, and mapping procedures. It will also provide review and Mock Testing for Boards. Prerequisite: Admission to the Diagnostic Medical Sonography Program or consent.



**AL 399 Health Information Systems (3)**

This course is designed to help current and future health care professionals understand the impact of data and technology on daily clinical practice. In this course, we will examine the processes involved in acquiring, organizing, protecting, and utilizing information to support and improve health care delivery. We will discuss aspects of technology and their relevance to health care, including computer applications, infrastructure planning, ethical and legal aspects of health informatics, data security and management, and the future of data and information in health care practice. Throughout the course, we will emphasize the importance of providing competent, patient-focused care. Prerequisite: Admission to the Bachelor of Health Science major/minor or HIT program.

**AL 400 Supervisory Practices for the Health Care Professional (3)**

This course will introduce students to basic supervisory functions and responsibilities related to managing in health care organizations. Topics include history of management theory, the primary supervisory functions of planning, organizing, staffing, influencing, and controlling, and effective practices for managing a diverse workforce. Prerequisite: Admission to the Bachelor of Health Science program and EN 300.

**AL 405 Financial Issues in Health Care I (3)**

This course will introduce the student to common financial practices and issues in today's health care facilities, including a focus on the regulatory environment. Prerequisite: Admission to the Bachelor of Health Science major/minor and MA 112 or 116 with a C or higher grade.

**AL 406 Finan Issues in Health Care II (3)**

This course introduces the student to the economics of healthcare and the current system of financing health care. Addresses basic budgeting and management systems applicable to various health care industries. Examines the role of capital management and strategic planning in the success of a healthcare organization. Prerequisite: AL 405

**AL 420 Current Issues in Health Care (3)**

This course will explore current health care issues from the perspective of the Health Services Administrator. Special emphasis will be placed on the impact of the issue under study for the delivery, practice and organization of the American Health care system.

**AL 430 Essentials of Public Health (3)**

This course will provide students with an introduction to public health concepts as well as public health professional practice. Throughout the course, students will explore the origins and development of modern public health organizations and the relationship of public health to the overall healthcare system. Course topics include the basic structure of the public health system, the laws that influence public health, the public health workforce, and managing public health programs. Prerequisite: Admission to a Bachelor of Health Science program.

**AL 450 Application of Quality Improvement in Health Care (3)**

The course builds on the foundations of quality improvement class. It provides students the background to develop and implement quality assurance and patient safety programs according to national initiatives. Students explore methods of making organizations and individuals more adaptive and productive. Emphasis is on using tools and techniques that will improve critical thinking skills and students will apply communication skills to maintain positive stakeholder relationships. Prerequisite: Admission to the Bachelor of Health Science major and AL 367.

**AL 460 Research in Health Care (3)**

This course is designed to give you an introductory understanding of quantitative and qualitative research terminology and methodology. Throughout the semester, you will demonstrate the ability to locate scholarly sources of information, and you will develop the skills to evaluate published literature to determine the quality of the content and its relevance to health care practice. By the end of the course, you will be able to discuss the role of research in evidence-based practice and health care decision-making. Prerequisite: Admission to the Bachelor of Health Science program and EN 300.

**AL 465 Evidence-Based Approaches to Public Health (3)**

This course will explore ways that epidemiology and research are used to inform public health practice. Throughout the course, basic research methodologies will be reviewed, examining the role of data collection and analysis in the field of public health. Topics include principles of epidemiology, research methodologies as applied to public health practice and using evidence to support public health initiatives. Prerequisites: Admission to a public health degree or AL 430

**AL 470 Public Health Program Planning (3)**

This course will explore how evidence-based concepts are utilized in public health program planning, implementation, and evaluation. Focus on developing public health interventions that prioritize community concerns and resources. Course topics include a review of public health data sources, evaluating factors that influence health behaviors, the importance of community engagement, the role of stakeholders, and strategies for communicating with diverse populations. Prerequisites: Admission to a public health degree or AL 430

**AL 475 Public Health Program Management (3)**

This course is an introduction to essential public health program management skills. Throughout the course, the student will learn strategies for effectively managing resources to support implementing public health programs and interventions. Course topics include leadership theories and practices, strategic planning concepts, team building and performance evaluation, and securing and managing financial resources. Prerequisites: Admission to a public health degree or AL 430

**AL 480 Senior Seminar In Healthcare (3)**

A capstone course designed to provide integration and application of health care administration and leadership principles. This course also requires a summative reflection of the student's experience and growth as a health care leader. Prerequisite: Admission to the Bachelor of Health Science Health Services Administration major, EN 300, and senior standing. This course should be taken during the last semester. Medical imaging majors require BHS advisor approval.