

# DEPARTMENT OF HEALTH SCIENCES

## Programs

### Associate

- Radiography / Associate of Applied Science (<https://catalog.lewisu.edu/undergraduate/nursing-health-sciences/health-sciences/radiography-associate-degree/>)
- Respiratory Therapy / Associate of Applied Science (<https://catalog.lewisu.edu/undergraduate/nursing-health-sciences/health-sciences/respiratory-therapy-aas/>)

### Bachelor

- Exercise Science / Bachelor of Science (<https://catalog.lewisu.edu/undergraduate/nursing-health-sciences/health-sciences/exercise-science-bachelor-science/>)
- Health Sciences / Bachelor of Science (<https://catalog.lewisu.edu/undergraduate/nursing-health-sciences/health-sciences/health-sciences-bachelor-science/>)
- Healthcare Leadership (Accelerated) / Bachelor of Arts (<https://catalog.lewisu.edu/undergraduate/nursing-health-sciences/health-sciences/healthcare-leadership-accelerated-bachelor-arts/>)
- Healthcare Management (Accelerated) / Bachelor of Science (<https://catalog.lewisu.edu/undergraduate/nursing-health-sciences/health-sciences/healthcare-management-accelerated-bachelor-science/>)
- Public Health / Bachelor of Science with Organizational Communication Minor (<https://catalog.lewisu.edu/undergraduate/nursing-health-sciences/health-sciences/public-health-bachelor-science-organizational-communication-minor/>)
- Radiography / Bachelor of Science (<https://catalog.lewisu.edu/undergraduate/nursing-health-sciences/health-sciences/radiography-bachelor-of-science/>)

### Diploma

- Medical Assistant / Diploma (<https://catalog.lewisu.edu/undergraduate/nursing-health-sciences/health-sciences/medical-assistant-diploma/>)
- Pharmacy Technician / Diploma (<https://catalog.lewisu.edu/undergraduate/nursing-health-sciences/health-sciences/pharmacy-technician-assistant-diploma/>)

### Minor

- Athletic Coaching / Minor (<https://catalog.lewisu.edu/undergraduate/nursing-health-sciences/health-sciences/athletic-coaching-minor/>)
- Wellness and Health Promotion / Minor (<https://catalog.lewisu.edu/undergraduate/nursing-health-sciences/health-sciences/wellness-health-promotion-minor/>)

## Courses Health Sciences

### HLSC 10100 - General Anatomy and Physiology (3)

This course introduces students to the fundamental structures and functions of the human body, providing a comprehensive overview of all 11 body systems. Emphasis is placed on the integration of these systems and their roles in maintaining homeostasis. Students will engage with interactive tools and resources to enhance their understanding of basic physiological processes, with a focus on applications relevant to health sciences professions.

Corequisite: HLSC 10200

Attributes: Science/Lab Gen Ed

### HLSC 10200 - General Anatomy and Physiology Lab (1)

This laboratory course complements the lecture component by offering hands-on exploration of human anatomy and physiology. Students will utilize models and interactive tools to investigate the structural and functional relationships of all 11 body systems. Practical application is emphasized through guided laboratory exercises and case studies, reinforcing foundational concepts essential for health sciences careers.

Corequisite: HLSC 10100

Attributes: Science/Lab Component Gen Ed

### HLSC 10300 - Advanced Anatomy and Physiology (3)

Building on foundational knowledge from General Anatomy and Physiology, this course provides an in-depth study of physiological processes, system interactions, and regulatory mechanisms. Emphasis is placed on homeostasis, clinical applications, and the impact of pathological conditions on body function. Students will explore complex physiological concepts with direct relevance to health sciences fields.

Corequisite: HLSC 10400

Attributes: Science/Lab Gen Ed

### HLSC 10400 - Advanced Anatomy and Physiology Lab (1)

This advanced laboratory course enhances students' understanding of human physiology through experiential learning. Using hands-on techniques, students will investigate system interactions, homeostatic mechanisms, and the physiological responses to disease and dysfunction. Emphasis is placed on clinical applications through laboratory exercises, case studies, and problem-solving activities designed to prepare students for careers in the health sciences.

Corequisite: HLSC 10300

Attributes: Science/Lab Component Gen Ed

### HLSC 10500 - Introduction to Medical Law and Ethics (3)

This course will address medical ethics, medical practice acts, legal responsibilities, liability, human relations and civil duties of the healthcare professional. This course is designed to enable the student to understand and apply legal and ethical issues as they relate to the healthcare practitioner.

### HLSC 20000 - Health and the Healthcare Team (3)

This course examines the elements of health, variables that influence health, and the professions that contribute to personal and population health.

### **HLSC 40000 - Health Science Capstone (2)**

This experiential learning course provides an opportunity for students to partner with an agency whose objective is to improve the health of individuals or populations. The student will apply knowledge and skills gained in the Health Science Program to contribute to the objectives of the agency.

Prerequisite: HLSC 22000

Class Restrictions: May not be enrolled in one of the following Classes: First Year or Sophomore.

## **Healthcare Leadership**

### **HCLD 30000 - United States Healthcare System (3)**

This course is an introduction and examination of the current global health care industry, including knowledge of relevant trends. It introduces healthcare and medical terminology and the exploration of the healthcare continuum. The class includes issues such as health policy, health values and beliefs, patient rights, managed care models, reimbursement, malpractice, risk management, and integration and interaction among healthcare sectors and regulating agencies, government and economic influence on the system.

Prerequisite: ENGL 11100 (may be taken concurrently)

Program Restrictions: Must be enrolled in the following Program: Health Care Leadership .

### **HCLD 31000 - Communication in Healthcare Organizations (3)**

This course introduces the student to professional communication in the health care setting and explores the range of communication competencies required by health care professionals in a successful organization. Communication between individuals, within groups and through electronic media is practiced. Students are guided in methods for dissemination and interpretation of health related messages to the community.

Prerequisite: HCLD 30000 (may be taken concurrently)

Program Restrictions: Must be enrolled in the following Program: Health Care Leadership .

### **HCLD 33000 - Project Management and Team Dynamics (3)**

This course will introduce the student to the basics of project management and team dynamics within a health care environment. Project management skills, monitoring progress and evaluating/revising approaches and outcomes will be explored. Students will also utilize principles of team dynamics required in a health care environment that are values driven, effective, and efficient.

Prerequisite: HCLD 31000 (may be taken concurrently)

Program Restrictions: Must be enrolled in the following Program: Health Care Leadership .

### **HCLD 40000 - Healthcare Planning and Analysis (3)**

Applying Transformation tools, key concepts and ability to use basic analytical tools related to strategy, financial, economic, and marketing planning in a health care organization. Topics include revenues, costs, supply and demand, pricing, sales and advertising, and the development of products and services to meet market needs.

Prerequisite: ENGL 11200 (may be taken concurrently) and HCLD 31000 (may be taken concurrently)

Program Restrictions: Must be enrolled in the following Program: Health Care Leadership .

### **HCLD 41000 - Healthcare Operations (3)**

Discussion will include the internal operating environment of a health care organization, including the impact of current health care regulations, legislation, and advocacy. Topics will include governance role and structure and medical staff role and by-laws in relation to the healthcare organization. Organization and communication structures between patients, providers, and administration will be identified. Information systems, risk management, accreditation and customer satisfaction principles and tools will be a focus. Marketing and public and community relations will be explored.

Prerequisite: HCLD 31000 (may be taken concurrently)

Program Restrictions: Must be enrolled in the following Program: Health Care Leadership .

### **HCLD 44000 - Leadership in Healthcare (3)**

Explores leadership theory and practice within the health care environment including issues such as emerging models of effective values-centered leadership, conflicts between individual value systems, ethical standards and legal considerations, and protection of the rights of patients, practitioners, and institutions. Research paper satisfies advanced writing requirement.

Prerequisite: HCLD 33000 (may be taken concurrently) and HCLD 35100 (may be taken concurrently) and HCLD 36000 (may be taken concurrently) and HCLD 38000 (may be taken concurrently) and HCLD 40000 (may be taken concurrently) and HCLD 41000 (may be taken concurrently)

Corequisite: HCLD 44100

Program Restrictions: Must be enrolled in the following Program: Health Care Leadership .

### **HCLD 44100 - Healthcare Leadership Practicum (3)**

This capstone course emphasizes student participation, initiative, and integration of knowledge and skills gained throughout the HCL program. The focus of this practicum is service-learning. Service-learning is a way of learning through experience in which the student apply healthcare leadership skills by addressing community organization needs and contribute in a meaningful way to a non-profit organization.

Prerequisite: HCLD 33000 (may be taken concurrently) and HCLD 35100 (may be taken concurrently) and HCLD 36000 (may be taken concurrently) and HCLD 38000 (may be taken concurrently) and HCLD 40000 (may be taken concurrently) and HCLD 41000 (may be taken concurrently) and HCLD 44000 (may be taken concurrently)

Program Restrictions: Must be enrolled in the following Program: Health Care Leadership .

## **Healthcare Management**

### **HCMT 30000 - Unites States Healthcare System (3)**

An introduction and examination of the current global health care industry, including knowledge of relevant trends that presents healthcare and medical terminology and the exploration of the healthcare continuum. Students examine issues such as health policy, health values and beliefs, patient rights, managed care models, reimbursement, malpractice, risk management, and integration and interaction among healthcare sectors and regulating agencies, government and economic influence on the system.

**HCMT 31000 - Communication in Healthcare Organizations (3)**

This course introduces the student to professional communication in the health care setting and explores the range of communication competencies required by health care professionals in a successful organization. Communication between individuals, within groups and through electronic media is practiced. Students are guided in methods for dissemination and interpretation of health-related messages to the community.

**HCMT 32000 - Healthcare Law & Ethics (3)**

Students will learn how to navigate the various legal and ethical issues faced by health care professionals every day. Course topics include adherence with legal policies and procedures, medical records, privacy, security and fraud, risk management and insurance, torts and negligence, patients' rights, and ethical decision-making. Students will use critical thinking skills to learn how to resolve real-life situations using case-based theoretical scenarios.

**HCMT 33000 - Healthcare Operations Management (3)**

Students explore operations management techniques unique to healthcare processes. Solutions for operational issues in healthcare facilities and supply chain, and highlights essential components of healthcare project management are addressed. The course emphasizes operational and management tools and techniques for project and process implementation in a healthcare environment.

**HCMT 34000 - Quality Management in Healthcare (3)**

Students review methods for measuring, managing and improving the quality of health care; examine the principles of quality improvement; and are expected to be able to apply them in practical settings. Learners are introduced to quality assessment techniques, utilization management, risk management, e-quality measures, as well as calculating quality measures with data from the electronic health record.

**HCMT 36000 - Management Skills for Healthcare Professionals (3)**

Focuses on the on ethical values and cultural competence in the principles and practices essential to the efficient supervision and management of health information departments including communication, planning, organizing, directing, and controlling health information processes, personnel, finances, and space.

**HCMT 38000 - Financial Management in Healthcare (3)**

Examination of the concepts of financial accounting and understanding of the fiscal environment of the healthcare industry. Students learn to interpret financial statements, prepare analysis of financial data, and describe the various third-party payment methods. Budgeting and financial decision-making strategies will be explored.

**HCMT 40000 - Healthcare Analytics (3)**

A review of the quantitative concepts related to calculations that are commonly used in hospital, physician offices, and community settings. Students learn about current and future data trends, relational databases, healthcare data standards, analytics for legal standards, and the basics of utilizing SQL for data and analytics.

Prerequisite: PSYC 30300 (may be taken concurrently)

**HCMT 41000 - Healthcare Informatics (3)**

Introduces students to health informatics tools, techniques, and concepts used to improve health outcomes through technology. Students review the theory, processes and applications of information systems and how they relate to health policy and management. This review also provides a basic understanding of data standards and requirements, and the critical concepts and practice in mapping and interpreting health information.

Prerequisite: HCMT 30000

**HCMT 42000 - Managing Health Information Systems (3)**

Introduction to concepts of health information systems such as database design and management, data warehousing, data mining, interoperability for health information exchanges, health information system acquisition and life cycle, health information registries and indices, EHRs, PHRs, information governance, and data stewardship.

Prerequisite: HCMT 30000

**HCMT 43000 - Research Methods in Healthcare (3)**

Identification and evaluation of research problems, and interpretation of research in health information and informatics. Students will investigate methodological research design approaches appropriate for healthcare, and conceptualize and complete a research project within the course.

Prerequisite: PSYC 30300

**HCMT 44000 - Senior Seminar (3)**

Students examine professionalism in the workplace; develop an analysis of their employment readiness; explore employment opportunities and career preparation, and complete a comprehensive program assessment exam.

Class Restrictions: Must be in the following Class: Senior.

**HCMT 44100 - Healthcare Management Practicum (3)**

A supervised professional practice experience that provides students with the observation of and interaction with health information functions. Students observe and apply classroom theory to actual functions of health information, such as record analysis, the release of information procedures, information retention, retrieval, and the use of technology. Students will meet objectives of demonstrating healthcare management skills through assignments to a healthcare facility or through the use of virtual simulation projects. Students will prepare under the direction of the Program Director for placement with a healthcare facility, complete the required paperwork, and workforce orientation prior to the beginning of the course.

Corequisite: HCMT 44000

## Public Health

**HLTH 10500 - Introduction to Medical Law and Ethics (3)**

This course will address medical ethics, medical practice acts, legal responsibilities, liability, human relations and civil duties of the healthcare professional. This course is designed to enable the student to understand and apply legal and ethical issues as they relate to the healthcare practitioner.

**HLTH 20100 - Introduction to Health Communication (3)**

Exploration of concepts and theories of communication and health. Students examine interpersonal communication about health within the context of clinician, patient, family and social support; review mass communication and health including health communication campaigns, public relations, and advertising for health organizations and the news media. Analyze various ways the entertainment media and big technology present and affect health information.

Prerequisite: ENGL 11100 (may be taken concurrently)

**HLTH 22000 - Introduction to Public Health (3)**

Examination of the basics in each area of community and public health as identified by the Association of Schools of Public Health, epidemiology, biostatistics, social and behavioral sciences, environmental health, and healthy policy and management.

Prerequisite: ENGL 11100

**HLTH 25500 - Health Behavior (3)**

Provides students with conceptual tools to analyze health-related behaviors and the social, cultural and environmental context in which they occur. Concepts and theories drawn from psychology and sociology are applied to programmatic examples from behavior change challenges in public health and working with individual clients in the health promotion setting.

**HLTH 27100 - Nutrition and Exercise (3)**

This course focuses on the physiological use of nutrients by the body. It emphasizes the importance of good nutrition to promote long-term health, enhance performance, and prevent injury and illness. Students will learn to identify and use credible resources of nutrition information. This information is applied to such topics as diet analysis, meal planning, and using food to optimize human performance.

**HLTH 30200 - Health Promotion & Programming (3)**

Provides practical application of the skills required to plan, implement, and assess a health promotion program for populations varied in age and setting. Students complete one cycle of the process, applying theories, skills, and strategies discussed in class to provide a health promotion event within the local community.

Prerequisite: HUPR 27500 (may be taken concurrently)

**HLTH 31100 - Epidemiology (3)**

Study of the distribution and determinants of disease, disability, and disorders in human populations. Provides a foundation of topics in epidemiology through examining infectious disease, chronic diseases, and general health. Students will learn from real world health problems and demonstrate how epidemiology is used to better understand, prevent, and treat these health states among the population.

Prerequisite: HLTH 22000 (may be taken concurrently)

**HLTH 32200 - Program Evaluation for Public Health Practice (3)**

Focus on evaluation of community-based health programs that are conducted for social accountability and program/policy decision making for an audience of funders, policy makers, and staff or for the scientific community. Uses a specific public health program evaluation framework to explore several dimensions of evaluation suitable for individuals designing and/or implementing community-based health promotion programs.

Prerequisite: HLTH 30200 (may be taken concurrently)

**HLTH 34000 - Global Health (3)**

An examination of global health through the prism of the Sustainable Development Goals (SDG) that seek to improve health and uphold human rights, while fostering peace and security by impacting components at every level of the ecological model. Students will examine the socioeconomic and environmental determinants of health within the context of the SDGs.

**HLTH 34400 - Public Health (3)**

An examination of global health through the prism of the Sustainable Development Goals (SDG) that seek to improve health and uphold human rights, while fostering peace and security by impacting components at every level of the ecological model. Students will examine the socioeconomic and environmental determinants of health within the context of the SDGs.

**HLTH 41600 - Environmental Health (3)**

Comprehensive study of the major topics of environmental health, including a background of the field and tools of the trade (environmental epidemiology, toxicology, policy and regulation); Environmental diseases; as well as applications and domains of environmental health (water and air quality, food safety, waste disposal, and occupational health).

Prerequisite: HLTH 30200 (may be taken concurrently)

**HLTH 48000 - Seminar in Public Health (3)**

Capstone experience that focuses on preparing students to be entry-level professionals in public health. Reinforces student demonstration of the Areas of Responsibility of a Health Education Specialist, facilitating students to be successful in taking the Certified Health Education Specialist (CHES) examination.

**HLTH 49000 - Professional Experience in Public Health (6)**

Practical health education experience under the supervision of a local, professional mentor and University supervisor. A minimum of 90 supervised hours of service in a community-based health setting.

Corequisite: HLTH 48000

## Radiography

**RADT 30100 - Health Care Systems (4)**

This introductory course encompasses a policy and politics angle of health care's three persistent issues - access, cost and quality. The roles of patients, physicians, hospitals, insurers, and pharmaceutical companies will be established. The interaction between the government and these different groups will also be covered. Current national health care policy initiatives and the interests of class members will drive the class. In addition, this course is designed to inform the manager of key metrics that all employees are responsible for in which the manager must report. Topics include Customer Satisfaction, Employee Engagement, Safety, and financial outcomes. The importance of Dashboards and their expanded use for application of metric tracking will be addressed.

**RADT 30200 - Health Care Delivery (4)**

Health Care Delivery- Introduces a broad overview of the concepts, theories and practices integral to the basic understanding of health care delivery in the United States. Topics focus on the various forms and function of the U.S. health care system including hospital care, health care education and personnel, financing health care, declining reimbursement rates, long term care, mental health, and public health. Various styles of effective leaders and workplace environments will be addressed

**RADT 30400 - Strategic Communication (4)**

This course provides students with the skills necessary to formally present in health care and other business settings. Appropriate forms of interpersonal communication and an overview of effective media use will be presented. Verbal and nonverbal communication will be explored. Students will have the opportunity to apply these principles in critiquing media and in producing visuals through computer graphics. Students will become versed in effective presentation utilizing speaking and computer aptitude. Students will design and present an effective presentation about a specific subject matter

**RADT 30500 - Health Care Law and Ethics (4)**

Students Will Examine case law affecting health care administration. Included are subjects such as health care reimbursement, patient access to health care, organization and operation of the health care business. This course analyzes current ethical topics in healthcare delivery in the United States and their future impact on healthcare delivery

**RADT 30700 - Global Impact of Radiant Energy and The Environment (5)**

Global Impact of Radiant Energy and the Environment-Foundation of Radioactive Energy and uranium mining's impact on energy as a resource. Analysis will focus on nuclear energy and its impact on environmental concerns such as soil, the water table and wind current as a carrier of destructive radiation. Comparisons will be made as a positive resource in comparison to cataclysmic global events that impact civilization.

**RADT 31000 - Anatomy and Physiology-Skeletal Anatomy (3)**

This course will provide the student with complete understanding of the skeletal system. Bone development will also be covered. Identification of bony anatomy for the upper and lower extremities, thorax, vertebral column, pelvis, and skull will be covered as well as function and articulation.

**RADT 31100 - Introduction to Radiography (1)**

Introduction to Radiography - This course is an introduction to imaging technology. The content is designed to prepare students for the upcoming educational studies and clinical experiences. Topics include policies and procedures of the program and radiology departments, medical terminology, and introduction to imaging, equipment, radiation protection, safety measures, basic patient care methods, positioning principles, and roles of medical imaging professionals as members of the health care team.

**RADT 31200 - Principles of Radiation Protection (3)**

This course will acquaint the student with the principles of radiation protection including different sources of ionizing radiation and hazards involving the technologist, patient, and the general public. Proper protective measures will be introduced. Radiation monitoring and survey equipment are also presented.

**RADT 31300 - Ethical, Legal, Physical Methods of Patient Care (3)**

This course will familiarize the student with basic concepts of Patient and Family Centered Care and techniques used in general patient care as it relates to Radiography. It will emphasize the radiographer's role in multiple clinical settings. It will also acquaint the student with the ethical and legal responsibilities of the radiographer as part of the healthcare team. Consideration for the physical and psychological needs of the patient and family will be reviewed. Routine and emergency patient care procedures are described, as well as infection control procedures using standard precautions.

**RADT 31500 - Radiographic Procedures 1 (4)**

The student is introduced to positioning principles, terminology, and topographical landmarks. Anatomy, positioning, proper Patient and Family Centered Care, and radiographic examinations of the thorax, abdomen, and contrast studies are covered. Correlation of radiographs with positioning of the anatomical part for optimal diagnostic images, technique selection, patient pathology, and radiation safety are explored. Corequisite with Clinical Education I.  
Corequisite: RADT 31600

**RADT 31600 - Clinical Education 1 (3)**

Using the competency-based education model, students will be supervised with both direct and indirect supervision. Students will gain experience to become competent entry-level radiographers. Students will become acquainted with radiologic imaging procedures addressed in Procedures appropriate Patient and Family Centered Care methods, radiation safety, technique selection, and equipment operation. Corequisite with Procedures 1  
Corequisite: RADT 31500

**RADT 32100 - Principles of Exposure 1 (3)**

This course is intended to educate the student in factors that affect radiographic exposures, and the principles and devices involved in technique formation. Basic fundamentals of exposure, concerned with production and recording of the radiograph image, will be presented. Clinical correlation of these principles through laboratory experience will be explored. This course also focuses on the formulation of radiographic techniques based on established principles, formulas and conversions.

**RADT 32200 - Radiographic Image Processing (3)**

This course is designed to acquaint the student with an understanding of the components and operating principles of image processing, basic maintenance and troubleshooting techniques. Radiographic image artifacts will be identified. Content is designed to impart an understanding of the components, principles and operation of digital imaging systems found in Diagnostic Radiology. Factors that impact image acquisition, display, archiving and retrieval are discussed. Film based processing will also be addressed.

**RADT 32400 - Cross Sectional Anatomy (3)**

This course is designed to introduce cross sectional anatomy including identification of vital anatomy and physiology presented through lectures and sample radiography. Radiographic anatomy and pathology of head, thorax, and abdomen/pelvis will be presented.

**RADT 32500 - Radiographic Procedures 2 (4)**

The student is introduced to positioning principles, terminology and topographical landmarks. Anatomy, positioning, proper Patient and Family Centered Care, and radiographic examinations of the upper and lower extremities are covered. Correlation of radiographs with positioning of the anatomical part for optimal diagnostic images, technique selection, patient pathology, and radiation safety are explored. Corequisite with Clinical Education II.

Corequisite: RADT 32600

**RADT 32600 - Clinical Education 2 (3)**

Building upon the competency-based education model, students will be supervised with both direct and indirect supervision. Students will continue to become acquainted with radiologic imaging procedures, appropriate Patient and Family Centered Care methods, radiation safety, technique formulation, and equipment operation. Students will complete clinical competencies and objectives taught in Procedures I and II relating to contrast studies and upper extremities.

Corequisite: RADT 32500

**RADT 33100 - Principles of Exposure 2 (3)**

This course is intended to educate the student in factors that affect radiographic exposures and the principles and devices involved in technique formation. Radiographic quality factors of contrast, brightness, detail, and distortion will be reviewed. Beam restriction and radiographic grids will be introduced. The formulation of radiographic technique will be continued. Clinical correlation of these principles through laboratory experience will be explored.

**RADT 33500 - Radiographic Procedures 3 (3)**

Didactic and laboratory education continues with emphasis on the bony thorax and the vertebral column. Correlation of radiographs with positioning of the anatomical part for optimal diagnostic images, technique selection, patient pathology, and radiation safety are explored while maintaining Patient and Family Centered Care.

Corequisite: RADT 33600

**RADT 33600 - Clinical Education 3 (4)**

Building upon the competency-based education model, students will be supervised with both direct and indirect supervision. Students will continue to become acquainted with radiologic imaging procedures, appropriate Patient and Family Centered Care methods, radiation safety, technique formulation, and equipment operation. Students will complete clinical competencies and objectives taught in Procedures I, II, and III relating to upper and lower extremity work, pediatric chest and extremity exams, and vertebral column. Clinical trauma shifts and optional modality choices will be introduced. Corequisite with Procedures III.

Corequisite: RADT 33500

**RADT 41200 - Radiographic Imaging (2)**

This course explores the basic principles of CR, DR, and PACS. The different advanced imaging modalities including Special Procedures (Interventional Radiography-IR), computed tomography, magnetic resonance imaging, nuclear medicine, PET scan, and mammography are presented. Students will explore an area of interest concerning any of the electromagnetic spectrum components through a research paper and oral presentation.

**RADT 41300 - Interdisciplinary Roles in Healthcare (4)**

Identify various roles of interdisciplinary teams with an emphasis on collaborative relationships with various healthcare providers. The importance of understanding informed decision making in the healthcare setting is explored. The roles and responsibilities of HealthCare Professionals will be defined. (4 Credit Hours) IMT 418- Budget and Financial Stability of Healthcare Organizations An effective overview to the application of overall financial management will be explored. The importance of budgeting daily, monthly and annually will be studied. A workload analysis will be presented in class

**RADT 41400 - Radiographic Physics (3)**

This course discusses the fundamental concepts of energy and measurements, atomic structure, electricity, and electromagnetism. It will also discuss circuitry panels, transformers, generators, rectifiers, and mathematical considerations of each. Quality assurance for specific equipment will be addressed.

**RADT 41500 - Radiographic Procedures 4 (3)**

The student continues to study advanced radiographic positioning. Specialized radiographic procedures include cranial and facial studies. Specialty modalities will also be explored. Correlation of radiographs to positioning of the anatomical part for optimal diagnostic images, technique selection, patient pathology, and radiation safety while using Patient and Family Centered Care is explored. Corequisite with Clinical Education IV

Corequisite: RADT 41600

**RADT 41600 - Clinical Education 4 (4)**

Continuing to build upon the competency-based education model, students will be supervised with both direct and indirect supervision. Students will continue to familiarize themselves with radiologic imaging procedures, appropriate Patient and Family Centered Care methods, radiation safety, technique formulation, and equipment operation. Students will complete clinical competencies and objectives taught in all Procedures courses, including cranial work. Students will be allowed to pick an optional rotation of their choice.

Corequisite: RADT 41500

**RADT 41800 - Budget and Financial Stability of Healthcare Organizations (4)**

An effective overview to the application of overall financial management will be explored. The importance of budgeting daily, monthly and annually will be studied. A workload analysis will be presented in class.

**RADT 42000 - Teamwork Collaboration in Healthcare (4)**

This course places an emphasis on collaboration with other health professionals as a key strategy in successful healthcare delivery. Exploration of effective team building, conflict management and problem solving will be addressed. The course explores the challenging landscape of the future of healthcare. Different philosophical styles of leadership will be researched.

**RADT 42100 - Computer Applications in Radiography (2)**

This course gives the student a basic overview of computers in Radiography. It allows for computer review of different programs and previous education components regarding Radiography.

**RADT 42200 - Introduction to Quality Assurance (2)**

This course is designed to acquaint students with Quality Assurance and Quality Control and the governing agencies and regulations responsible for monitoring performance. Control measures used within a Radiography Department, quality test tools and methods of application are explored. Fixed and variable kVp systems and AEC devices, image-intensified fluoroscopy, recording media and techniques, will all be addressed.

**RADT 42300 - Image Presentation and Evaluation (2)**

This course is intended to expand the necessary skills to determine a radiograph's acceptability and to learn to correct errors on the image. It is to educate the student to be independently responsible for assessing radiographic images, and then presenting them to the class. This evaluation will be used to improve radiographs for future studies. Case studies will include chest/abdomen, contrast studies, extremity work, spine, bony thorax, and skull work.

**RADT 42400 - Radiation Biology (3)**

This course deals with the effects of ionizing radiation on living tissue, radiation effects on cells and factors affecting cell response. Factors affecting biological responses are presented, including acute and chronic effects of radiation.

**RADT 42500 - Radiographic Procedures 5 (3)**

The student studies advanced radiographic positioning including specialized contrast studies, trauma, and additional pediatric work. Many non-routine radiographic views are covered. Specialized radiographic procedures include radiography of the selected anatomical systems: urinary, central nervous, reproductive, and other skeletal anatomy. Specialty modalities will also be explored. Correlation of radiographs to positioning with positioning of the anatomical part for optimal diagnostic images, technique selection, patient pathology, and radiation safety, while using Patient and Family Centered Care is explored.

Corequisite: RADT 42600

**RADT 42600 - Clinical Education 5 (4)**

Continuing to build upon the competency-based education model, students will be supervised with both direct and indirect supervision, as appropriate. Students will continue to familiarize themselves with radiologic imaging procedures, appropriate Patient and Family Centered Care methods, radiation safety, technique formulation, patient pathology, and equipment operation. Students will complete all clinical competencies and objectives taught in Procedures IV relating to cranial work. Students will be allowed to pick an optional rotation of their choice. Terminal/final competencies assessing the students' progress will also be used as a conclusive evaluation of the students' final clinical skills.

Corequisite with Procedures V.

Corequisite: RADT 42500

Attributes: Experiential Learning Gen Ed

**RADT 43000 - Strategic Leadership (6)**

This course provides the student an opportunity integrate acquired knowledge of previous program courses. The student will be responsible for developing and applying a Capstone project by participating in the practical application of administration and management skills in the workplace setting. The student will be responsible for a project reflective of the required coursework of the entire program. Analysis of different management styles will be researched. Workplace management shadowing will be a component of this course. The Course Instructor must approve the Capstone project outline.

**RADT 43800 - Registry Review (0)**

This provides a review of the major content areas appearing in the national certification examination. This course requires class participation, review of radiation protection, equipment operation and maintenance, image production and evaluation, radiographic procedures, and patient care. Students will be given multiple content area examinations and mock registry examinations to prepare them for the ARRT exam.

## Respiratory Therapy

**RESP 10000 - Fundamentals of Respiratory Care 1 (3)**

Introduction to respiratory care with theoretical emphasis in principles of infection control, oxygen administration, aerosol and humidity therapy, chest physical therapy, analysis and monitoring of gas exchange and incentive spirometry devices.

Prerequisite: BIOL 10800 and RESP 11000 and RESP 11300 and RESP 20800

Corequisite: RESP 12000

**RESP 11000 - Applied Physics in Respiratory Care (3)**

This course studies the basic principles of applied physics and mathematics underlying respiratory therapy modalities with emphasis on general characteristics of gases, oxygen, humidity, aerosol and various states of matter. A study of the basic principles of chemistry as it applies to acid-base balance and blood gas interpretation

Prerequisite: BIOL 10800 and CHEM 11500 and ENGL 11200

**RESP 11300 - Respiratory Care Pharmacology (3)**

General pharmacological principles and their applications to cardiopulmonary disease to include pharmacological agents that affect the pulmonary, cardiac and renal systems. The methods of drug administration, effects, hazards and contraindications will also be discussed.

Prerequisite: BIOL 10800 and CHEM 11500 and ENGL 11200

**RESP 12000 - Respiratory Care Procedures 1 (1)**

Laboratory experience in selecting, assembling, using and troubleshooting basic respiratory care equipment including oxygen administration devices, humidifiers, inhalers, gas cylinders, regulators, reducing valves, flow meters, air oxygen blenders, mucous clearance devices, oximetry monitoring devices, incentive spirometry devices, among others.

Prerequisite: BIOL 10800 and RESP 11000 and RESP 11300 and RESP 20800

Corequisite: RESP 10000

**RESP 12900 - Respiratory Special Procedures (2)**

The purpose of the course is to prepare the student with special procedure skills to be competent in assisting physicians to perform these procedures. The student will be required to satisfactorily perform skill evaluations and troubleshooting in a laboratory setting. The skills and theory covered include management of difficult airway, Bronchoscopy/Mini Bronchoalveolar Lavage, Thoracentesis/Chest tube insertion, arterial line insertion and monitoring, rescue procedures, special administered gases, cardiopulmonary special tests, chest imaging and end of life management.

Prerequisite: RESP 10000 and RESP 12000 and RESP 22000 and RESP 21000 and RESP 20100 and RESP 23900 and RESP 20800

**RESP 19900 - Topics in Respiratory Care (1)**

This course will review the more important principles, concepts and topics studied in Cardio-Pulmonary Anatomy and Physiology, Applied Physics, and Respiratory Care Pharmacology. The course will help to improve the knowledge skills of students who are in process of getting admitted into the Respiratory Therapy program.

**RESP 20100 - Respiratory Care Pathophysiology (3)**

The acute and chronic cardio-respiratory pathological processes will be covered to include pathophysiology, patient assessment, diagnosis, treatment and prevention. Pulmonary function interpretation will be discussed.

Prerequisite: BIOL 10800 and RESP 11000 and RESP 11300 and RESP 20800

**RESP 20500 - Seminar for National Board for Respiratory Care (2)**

This course is intended to discuss, review, recall and analyze information regarding the didactic, laboratory and clinical areas of the Certified Respiratory Therapist (C.R.T) and Registered Respiratory Therapist (R.R.T) exams.

Prerequisite: RESP 21100 and RESP 23000 and RESP 24000 and RESP 25000 and RESP 24900 and RESP 12900

**RESP 20800 - Cardiopulmonary Anatomy and Physiology (4)**

An intensive study of physiological and structural functions of the nervous, cardiovascular, respiratory, and renal systems. Special emphasis in mechanics of ventilation, control of ventilation, gas diffusion, ventilation-perfusion relationships, acid-base regulation and cardiopulmonary hemodynamics, Laboratory includes patient assessment, pulmonary function measurements, thoracic imaging and ECG.

Prerequisite: BIOL 10800 and CHEM 11500 and MATH 11000 and ENGL 11200

**RESP 21000 - Mechanical Ventilation 1 (3)**

Principles of mechanical ventilation including physiology of ventilatory support, indications, contraindications, complications and physiological effects of mechanical ventilation. Also included are the analysis of arterial blood gases, hemodynamic monitoring and assessment of patients on ventilators.

Prerequisite: BIOL 10800 and RESP 11000 and RESP 11300 and RESP 20800

Corequisite: RESP 22000

**RESP 21100 - Mechanical Ventilation 2 (3)**

This course provides students an opportunity to integrate and develop the theoretical knowledge and skills necessary for the initiation, management, and weaning of mechanical ventilation. In addition, lecture topics include, different operating modes of mechanical ventilation, monitoring parameters and neonatal mechanical ventilation.

Prerequisite: RESP 21000 and RESP 22000 and RESP 10000 and RESP 12000 and RESP 20100 and RESP 23900

Corequisite: RESP 24000

**RESP 21200 - Clinical Case Simulations (2)**

This course prepares the student to review, recall and analyze basic and advanced information regarding clinical simulation cases for the Registered Respiratory Therapist (RRT) exam

Prerequisite: RESP 21100 and RESP 23000 and RESP 24000 and RESP 25000 and RESP 24900 and RESP 12900

**RESP 22000 - Respiratory Care Procedures 2 (1)**

Integration of theoretical and laboratory experiences with emphasis on selecting, assembling, using and troubleshooting ventilators as well as ventilator monitoring and weaning techniques. This course also includes selection, assembly, use and troubleshooting of equipment including: IPPB ventilators, suctioning devices, vacuum, systems, PEP devices, artificial airways, and patients breathing circuits.

Prerequisite: BIOL 10800 and RESP 11000 and RESP 11300 and RESP 20800

Corequisite: RESP 21000

**RESP 23000 - Neonatal Pediatric Respiratory Care (2)**

An introduction to neonatal and pediatric respiratory care concepts including placental and fetal circulation, cardiopulmonary events at birth, assessment of newborn, cardio-pulmonary disorders, basics of respiratory care and neonatal mechanical ventilation.

Prerequisite: RESP 10000 and RESP 12000 and RESP 22000 and RESP 21000 and RESP 20100 and RESP 24900

**RESP 24000 - Respiratory Care Procedures 3 (2)**

This course is a continuation of RESP220 through a systematic review of adult mechanical ventilations. Special emphasis is given to the difference between mechanical ventilation of the newborn and adult patient.

Prerequisite: RESP 10000 and RESP 12000 and RESP 20100 and RESP 21000 and RESP 22000 and RESP 23900 and RESP 24900

Corequisite: RESP 21100

**RESP 24900 - Clinical Practicum 1 (2)**

Supervised clinical experience with emphasis in mechanical ventilation in the adult patient and introduction to critical care management. 64 clinical contact hours.

Prerequisite: RESP 10000 and RESP 12000 and RESP 20100 and RESP 21000 and RESP 22000

Degree Restrictions: Must be enrolled in one of the following Levels: Associate of Applied Science

**RESP 25000 - Hemodynamics and Cardiac Monitoring (2)**

This course reinforces the concepts of cardiovascular anatomy and physiology discussed in previous respiratory courses. Emphasis on techniques and theory necessary for the interpretation and evaluation of hemodynamic measurements and hemodynamic monitoring.

Prerequisite: RESP 10000 and RESP 12000 and RESP 20100 and RESP 21000 and RESP 22000 and RESP 23900

**RESP 25900 - Clinical Practicum 2 (4)**

Clinical practice designed for the advanced respiratory student under direct clinical supervision. Introduction to basic respiratory care procedures and critical care management of neonates and pediatric patients. 128 clinical contact hours.

Prerequisite: RESP 12900 and RESP 21100 and RESP 23000 and RESP 24000 and RESP 25000 and RESP 24900

Degree Restrictions: Must be enrolled in one of the following Levels: Associate of Applied Science

**RESP 28000 - Clinical Internship 1 (1)**

The purpose of this independent clinical rotation experience is an opportunity for students to gain more practice in the collection, review, analysis and evaluation of non-critical patient data. It is also an opportunity for students to apply principles of equipment manipulation, infection control and quality control.

Prerequisite: RESP 12900 and RESP 21100 and RESP 23000 and RESP 24000 and RESP 25000 and RESP 24900

Degree Restrictions: Must be enrolled in one of the following Levels: Associate of Applied Science

**RESP 29000 - Clinical Internship 2 (1)**

The purpose of this independent clinical rotation experience is an opportunity for students to gain more practice in management and monitoring of noncritically and critically ill patients. It is also an opportunity for students to determine the appropriateness of the prescribed respiratory care plan and recommend modifications when indicated.

Prerequisite: RESP 12900 and RESP 21100 and RESP 23000 and RESP 24000 and RESP 25000 and RESP 24900

Degree Restrictions: Must be enrolled in one of the following Levels: Associate of Applied Science

**RESP 30000 - Clinical Internship 3 (1)**

The purpose of this independent clinical rotation experience is an opportunity for students to integrate and develop all clinical competencies and skills learned in previous supervised and non-supervised clinical practices.

Prerequisite: RESP 12900 and RESP 21100 and RESP 23000 and RESP 24000 and RESP 25000 and RESP 24900

Degree Restrictions: Must be enrolled in one of the following Levels: Associate of Applied Science