Healthcare Diagnostics and Therapeutics Department

Degrees and Certificates

Emergency Medical Services
- Associate of Applied Science in Emergency Medical Services (catalog.dixie.edu/programs/healthcare-diagnostics-and-therapeutics/emt-aas)
- Advanced Emergency Medical Technician - Certificate of Proficiency (AEMT)* (catalog.dixie.edu/programs/healthcare-diagnostics-and-therapeutics/advanced-emt-certificate)
- Emergency Medical Technician - Certificate of Proficiency (EMT)* (catalog.dixie.edu/programs/healthcare-diagnostics-and-therapeutics/emt-certificate)
- Paramedic Certificate of Completion (catalog.dixie.edu/programs/healthcare-diagnostics-and-therapeutics/paramedic-certificate)

Health Sciences
- Health Sciences (catalog.dixie.edu/programs/healthcare-diagnostics-and-therapeutics/bachelor-applied-science-health-sciences) (Bachelor of Applied Science - BAS)

Medical Laboratory Science
- Bachelor of Science in Medical Laboratory Science (catalog.dixie.edu/programs/healthcare-diagnostics-and-therapeutics/medical-laboratory-science-bs)
- Phlebotomy Certificate (catalog.dixie.edu/programs/healthcare-diagnostics-and-therapeutics/phlebotomy-certificate)

Medical Radiography
- Associate of Applied Science in Medical Radiography (catalog.dixie.edu/programs/healthcare-diagnostics-and-therapeutics/medical-radiography-aas)

Physical Therapist Assistant
- Associate of Applied Science in Physical Therapist Assistant (catalog.dixie.edu/programs/healthcare-diagnostics-and-therapeutics/physical-therapist-assistant-aas)

Respiratory Therapy
- Associate of Applied Science in Respiratory Therapy (catalog.dixie.edu/programs/healthcare-diagnostics-and-therapeutics/respiratory-therapy-aas)

Surgical Technology
- Associate of Applied Science in Surgical Technology (catalog.dixie.edu/programs/healthcare-diagnostics-and-therapeutics/surgical-technology-aas)

Click here for Health Sciences Website (https://academics.dixie.edu/health-sciences) (following this link will take you out of the catalog)

Emergency Medical Services Courses

EMS 1110. Emergency Medical Technician-Intro to Emergency Medical Services. 4 Hours.
Open to students who have current CPR certification (American Heart Association-Health Care Provider/American Red Cross-Professional Rescuer). Presents instruction in the theory and practice of first aid, providing students with knowledge and skills necessary to meet common emergencies associated with injury and illness. Topics include CPR, well-being, roles and responsibilities, medical/legal, ethics, lifting & moving, Pt assessment, Airway management, Packaging, bandage/splint, Hazardous Materials, Triage & Terrorism, Mass Casualty Incidents, and disaster management. All co-requisite courses must be completed in the same semester. This course requires a Differential Tuition Rate which is an additional fee of $80 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Show competency and skill mastery and be able to perform as an entry level Emergency Medical Technician. The student may be eligible for testing and certification at National Registry of Emergency Medical Technician EMT level with the recommendation of the course coordinator and medical director. The curriculum meets the requirements for the National Registry of Emergency Medical Technicians (NREMT) and students are eligible to obtain a national certification and EMT license in the State of Utah. Course fee required. Corequisites: EMS 1120, EMS 1140, EMS 1145. FA, SP.
EMS 1120. Emergency Medical Technician Practicum. 0.5 Hours.
A 12 hour clinical rotation shift is required at a contracted clinical site. Hours can be completed in the Hospital Emergency Department or an Ambulance service. The clinical rotation provides hands-on education with an assigned preceptor in a real life situation. All co-requisite courses must be completed in the same semester. This course requires a Differential Tuition Rate which is an additional fee of $80 charged per credit hour.

**COURSE LEARNING OUTCOMES (CLOs)** At the successful conclusion of this course, students will be able to: 1. Show competency and skill mastery and be able to perform as an entry level Emergency Medical Technician. Students may be eligible for testing and certification at National Registry of Emergency Medical Technician EMT level with the recommendation of the course coordinator and medical director. The curriculum meets the requirements for the National Registry of EMTs and students are eligible to obtain a national certification and EMT license in the State of Utah. Co-requisites: EMS 1110, EMS 1120, EMS 1140. FA, SP.

EMS 1140. Emergency Medical Technician Patient Management. 4 Hours.
Includes basic knowledge and skills necessary to provide basic patient management and transportation. Topics include Cardiac emergency management, respiratory emergencies, endocrine emergencies, allergies & anaphylaxis, bone and joint injuries, dressings and bandages, sudden illness, and emergency childbirth. Successful completion and recommendation from program coordinator and medical director will provide eligibility for testing and certification at the National Registry of Emergency Medical Technician (NREMT) EMT level. Upon successful completion of the NREMT certification, students are eligible for licensure from the Utah Bureau of Emergency Medical Services at the EMT level. All co-requisite courses must be completed in the same semester. This course requires a Differential Tuition Rate which is an additional fee of $80 charged per credit hour.

**COURSE LEARNING OUTCOMES (CLOs)** At the successful conclusion of this course, students will be able to: 1. Show competency and skill mastery and be able to perform as an entry level Emergency Medical Technician. Students may be eligible for testing and certification at National Registry of Emergency Medical Technician EMT level with the recommendation of the course coordinator and medical director. The curriculum meets the requirements for the National Registry of EMTs and students are eligible to obtain a national certification and EMT license in the State of Utah. Co-requisites: EMS 1110, EMS 1120, EMS 1145. FA, SP.

EMS 1145. Emergency Medical Technician Lab. 2.5 Hours.
Emergency Medical Technician lab will provide practical learn of skills and National Registry competencies. These competencies include patient assessment, patient history taking, basic airway adjuncts, airway management, insertion of Nasopharyngeal Airway/Oropharyngeal airway (NPA/OPA), basic vital signs, patient assisted medications, suctioning, bandaging, splintering, lifting and moving patients, extraction of patients from cars, home, office, and other various locations. Students are required to complete an 8 station practical exam. Upon successful completion, students may be recommended for testing and licensure at the Emergency Medical Technician (EMT) level. All co-requisite courses must be completed in the same semester. This course requires a Differential Tuition Rate which is an additional fee of $80 charged per credit hour.

**COURSE LEARNING OUTCOMES (CLOs)** At the successful conclusion of this course, students will be able to: 1. Show competency and skill mastery and be able to perform as an entry level Emergency Medical Technician (EMT). The student may be eligible for testing and certification at National Registry of Emergency Medical Technicians (NREMT) EMT level with the recommendation of the course coordinator and medical director. The curriculum meets the requirements for the National Registry of EMTs and students are eligible to obtain a national certification and EMT license in the State of Utah. Course fee required. Co-requisites: EMS 1110, EMS 1120, EMS 1140. FA, SP.

Includes basic knowledge and skills necessary to provide basic and limited advanced patient care and transportation. Includes interventions with basic and advanced equipment typically found in an ambulance, IV insertion, medication administration, advanced airway management, and advanced cardiac resuscitation procedures with the goal of producing competent entry level A-EMTs to serve in career and volunteer positions within the EMS system. Includes 160 hours of lecture, practical lab skills, and clinical rotation hours. This course requires a Differential Tuition Rate which is an additional fee of $80 charged per credit hour. Prerequisites: EMS 1100. SP.

EMS 2200. Paramedic Training I (ALPP). 7.5 Hours.
First semester course. The first of 5 paramedic courses includes lecture, laboratory, and clinical training in topics such as EMS communications, wellbeing of the paramedic, medical and legal responsibilities, pharmacology, pathophysiology, history taking, ventilatory management, suctioning, manual maneuvers, IV therapy, sterile techniques, IV medications/administration, and patient assessment. This course is designated as an Active Learning Professional Practice (ALPP) course. This course allows students to explore and apply content learned in the course in a professional experience away from the classroom. This course requires a Differential Tuition Rate which is an additional fee of $80 charged per credit hour.

**COURSE LEARNING OUTCOMES (CLOs)** At the successful conclusion of this course, students will be able to: 1. Describe the effects of EMS experiences on the wellbeing of the paramedic. 2. Communicate the concepts of pharmacology, pathophysiology, history taking, ventilator management, sterile techniques and medication administration. 4. Explain and apply content learned in a professional experience away from the classroom. Course fee required. Prerequisite: Admission to the Dixie State University Paramedic degree or certificate program. SP.

EMS 2300. Paramedic Training II (ALPP). 7.5 Hours.
First semester course. Open to students who have had the EMT certificate for at least 1 year. The first of 5 paramedic courses which includes lecture, laboratory, and clinical training in topics such as EMS communications, wellbeing of the paramedic, medical and legal responsibilities, pharmacology, pathophysiology, history taking, advanced ventilatory management, bag valve mask, mouth to mask, mouth to mouth/nose, ET insertion, EOA insertion, NPA insertion, OPA insertion, suctioning, manual maneuvers, IV therapy/sterile techniques, IV medications and their administration, and patient assessment. This course is designated as an Active Learning Professional Practice (ALPP) course. This course allows students to explore and apply content learned in the course in a professional experience away from the classroom. This course requires a Differential Tuition Rate which is an additional fee of $80 charged per credit hour.

**COURSE LEARNING OUTCOMES (CLOs)** At the successful conclusion of this course, students will be able to: 1. Demonstrate EMS communication skills including history taking, manual maneuvers, patient assessment. 2. Provide IV therapy/sterile technique IV medication administration and ET insertion. 3. Earn certification in ACLS and PEPP. Prerequisite: Admission to the Dixie State University Paramedic Certificate program. SP.
EMS 2400. Paramedic Training III. 8 Hours.
Second semester course. Includes lecture, laboratory, and clinical training in topics such as advanced pediatric management, OB/GYN emergencies, cold weather rescue, environmental emergencies, neurology, endocrinology, gastroenterology, pulmonary emergencies, cricothyrotomy, chest venting, external jugular cannulation, toxicology, hematology, nasogastric tube insertion, and Foley catheter insertion. This course is designated as an Active Learning Professional Practice (ALPP) course. This course allows students to explore and apply content learned in the course in a professional experience away from the classroom. This course requires a Differential Tuition Rate which is an additional fee of $80 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Describe advanced pediatric management, OB/GYN emergencies, environmental emergencies. 2. Perform cricothyrotomy, chest venting, external jugular cannulation, toxicology, hematology, nasogastric tube insertion. 3. Verbalize the process for trauma assessment. Course fee required. Prerequisite: Admission to the Dixie State University Paramedic degree or certificate program. SU.

EMS 2500. Paramedic Training IV. 8 Hours.
This course is designated as an Active Learning Professional Practice (ALPP) course. This course allows students to explore and apply content learned in the course in a professional experience away from the classroom. This course requires a Differential Tuition Rate which is an additional fee of $80 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful completion of this course, students will be able to: 1. Demonstrate competency in field activities which includes spinal immobilization of the lying and sitting patients, chest needle decompression, IV/ Bolus/Piggy Back medications, bleeding, wound care, shock, long bone splinting, head / face trauma, thoracic trauma, abdominal trauma, ventilatory management, dynamic cardiocardiostatic, static cardiocardiostatic, and extrication, mass casualty management, abuse and neglect, crime scene awareness, and hazardous materials. 2. Earn PHTLS certification upon completion of the course. Prerequisite: Admission to the Dixie State University Paramedic Certificate program. SU.

EMS 2600. Paramedic Training V. 12 Hours.
This course is designated as an Active Learning Professional Practice (ALPP) course. This course allows students to explore and apply content learned in the course in a professional experience away from the classroom. This course requires a Differential Tuition Rate which is an additional fee of $80 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful completion of this course, students will be able to: 1. Demonstrate competency with hands-on practice of current and previously learned skills. Includes out-of-classroom education in high angle rescue, swift water rescue, paramedic course, aeromedicine, ongoing field assessment and evaluation. 2. Earn AMLS certification upon completion of the course. 3. Exhibit preparation for state and national certification exams. Course fee required. Prerequisite: Admission to the Dixie State University Paramedic Certificate program. FA.

Health Occupations Courses

HLOC 1000. Medical Terminology. 2 Hours.
Strongly recommended for students entering health professions; open to all students. Emphasizes memorization of word roots, suffixes, and prefixes of both Greek and Latin origin, as well as proper pronunciation and spelling of medical terms. Material is organized according to body systems; some basic anatomy and physiology is included. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Analyze and understand simple to advanced medical terms, alone and in context. 2. Identify and state the correct spelling and pronunciation of medical terms. 3. Relate medical terms with the proper body systems. 4. Describe symptoms and manifestations of some medical conditions. FA, SP, SU.

HLOC 1001. FYE: Allied Health. 1 Hour.
A First Year Experience course designed to help entering freshmen and transfer students with 0-24 credits majoring in nursing or allied health adapt to university life and become integrated into Dixie State University. Students will refine academic skills, create and foster social networks, learn about college resources, and explore different fields of study in the health sciences. Students will begin to explore the collaborative relationships necessary for interdisciplinary health care. Multiple listed with all other sections of First Year Experience (all 1001 courses, ENGR 1000). Students may only take one FYE course for credit. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Know their way around Dixie State University. 2. Know some strategies for dealing with the challenges of college life. 3. Know how to succeed academically. 4. Understand their major or area of study. FA.

HLOC 1010. Intro to Health Professions. 2 Hours.
Open to all students. Emphasizes U.S. health care system, including health care reform; current political, social and ethical issues; and changes in educational and legal requirements for more than sixty health and health-related professions, including information on salaries, employment opportunities and trends, and various associations. Students will prepare a resume and receive tips on interviewing techniques and job hunting. Successful completion of the course should enable students to better select a career in health care suited to them. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Demonstrate an understanding of a variety of health care occupations and how they may pursue careers in those fields, if desired. 2. Be knowledgeable of the U.S. health care system and health care reform. 3. Express educated opinion on social and ethical issues concerning health occupations. 4. Conduct research to discover information on specific health or health-related professions. 5. Construct a professional resume.

HLOC 1020. Intro to Sports Medicine. 3 Hours.
Designed for individuals interested in athletic training, physical therapy, orthopedics, coaching, or other physical education or fitness related careers, but open to all students. Includes the basics of sports medicine (prevention of injury, evaluation of injury, and management of injury) and lab component where students have hands-on, field experiences with athletic trainers and therapists. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Describe basic musculoskeletal anatomy. 2. Explain basic strategies for the prevention of athletic injury. 3. Discuss common athletic injuries. 4. Utilize basic techniques in the care of athletic injury. Course fee required. FA, SP.
HLOC 1050. Cardio-Pulmonary Resuscitation. 0.5 Hours.
Open to all students. CPR training at multiple levels dependent on student need: airway management, adult/child/infant, cardio-pulmonary resuscitation adult/child/infant, and use of pocket masks. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Recognize cardiac arrest and perform external compressions and ventilations. 2. Know how to get emergency help. Course fee required. Prerequisite: Instructor permission. FA, SP.

HLOC 1060. First Aid. 0.5 Hours.
Open to all students who have a requirement for or personal interest in basic first aid. Techniques include bleeding control; treatment, stabilization of fractures, sprains, and dislocations; and metabolic and environmental emergencies. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Know the priorities, roles, and responsibilities of first aid rescuers. How to identify the need for first aid. 2. Recognize elements of common injuries and illnesses as well as heart attack, difficulty breathing, choking, severe bleeding, shock, and stroke. 3. Describe how to find information on preventing illness and injury. 4. Recognize the legal questions that apply to first aid rescuers. Course fee required. Prerequisite: Instructor permission. FA, SP.

HLOC 2000. Utah Health Scholars Health Career Exploration. 1 Hour.
Helps prepare pre-medical, pre-dental, pre-pharmacy, pre-physician assistant, pre-optometry, pre-physical or occupational therapy, pre-veterinary, pre-nursing, pre-dental hygiene, pre-medical laboratory science, and other undergraduate health students for entry into professional schools. Includes opportunities to hear guest speakers, participate in health-related service learning projects, gain patient exposure and research opportunities, perform job shadowing and volunteer work, visit the Dominican Republic and/or Navajo medical clinics, receive help with professional school applications, practice mock interviews, receive mentoring, one-on-one advisement/evaluation, and much more. Students must be willing to adhere to a student contract and participate in scheduled activities. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Associate a civic educational component to their education; 2. Apply needed service, healthcare exposure and leadership in the community. 3. Connect service-based learning to academic studies for pre-health students. 3. Relate to speakers who will discuss a variety of career choices and current pertinent healthcare topics, trends, issues, etc. 4. Develop tools, knowledge, and opportunities to become competitive candidates for a variety of health care training programs. Course fee required. FA, SP, SU.

HLOC 3000R. Utah Health Scholars Returning Students. 1 Hour.
Helps prepare pre-medical, pre-dental, pre-pharmacy, pre-physician assistant, pre-optometry, pre-physical or occupational therapy, pre-veterinary, pre-nursing, pre-dental hygiene, pre-medical laboratory science, and other undergraduate health students for entry into professional schools. Includes opportunities to hear guest speakers, participate in health-related service learning projects, gain patient exposure and research opportunities, perform job shadowing and volunteer work, visit the Dominican Republic and/or Navajo medical clinics, receive help with professional school applications, practice mock interviews, receive mentoring, one-on-one advisement/evaluation, and much more. Students must be willing to adhere to a student contract and participate in scheduled activities. Maximum 2 credits may be applied toward Bachelor of Science in Biology degree. Repeatable up to 7 credits subject to graduation and program restrictions. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Associate a civic educational component to their education; 2. Apply needed service, healthcare exposure and leadership in the community. 3. Connect service-based learning to academic studies for pre-health students. 3. Relate to speakers who will discuss a variety of career choices and current pertinent healthcare topics, trends, issues, etc. 4. Develop tools, knowledge, and opportunities to become competitive candidates for a variety of health care training programs. Course fee required Prerequisites: HLOC 2000 or BIOL 3000R. FA, SP, SU.

Medical Laboratory Science Courses

MLS 3310. Immunohematology I. 5 Hours.
Required course for students in the Bachelor of Science Medical Laboratory Science Professional Program. Comprehensive study of the science and applied concepts of blood banking and transfusion service practices. The study of blood groups, their antigens and antibodies, is discussed in detail as are test methods and transfusion protocols, including donor selection, component preparation, quality management and compliance issues. In lab, students learn to perform a variety of tests that are prerequisite to the transfusion of blood and blood products. This course requires a Differential Tuition Rate which is an additional fee of $143 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Apply knowledge of sample collection techniques, transportation, and handling requirements to assess with explanation the acceptability of a specimen for analysis in the blood bank laboratory. 2. Competently perform a full range of routine testing done in a contemporary blood bank laboratory including but not limited to blood typing, detection and identification of antibodies, compatibility testing, and quality control testing. 3. Adapt knowledge of immunohematology and contemporary blood banking and transfusion practices and skills learned in this course to clinical training in a contemporary blood bank laboratory. 4. Use conventional medical terminology and units of measure to accurately report test results. 5. Determine the priority of workflow in the contemporary blood bank laboratory based on competing blood product orders, testing orders, and inventory requirements. Course fee required. Prerequisite: Admission to the Dixie State University Bachelor of Science in Medical Laboratory Science professional program. SP.
MLS 3312. Clinical Immunology. 4 Hours.
Required course for students admitted to the Bachelor of Science in Medical Laboratory Science professional program. A comprehensive study of the human immune system and the medical laboratory techniques used to assess immune responsiveness in health and during times of illness and disease. Lectures focus on innate and adaptive immunity, antibody structure and function, and the role of the complement system and cytokines in immune responsiveness. The immunologic manifestation of infectious disease, hypersensitivity, autoimmune diseases, transplantation immunity, tumor immunology, and immunodeficiency diseases will be discussed in detail. Using serological methods, electrophoresis, and molecular techniques, students test samples and correlate results with states of health and disease. This course requires a Differential Tuition Rate which is an additional fee of $143 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Comply with established lab safety and governmental regulations and standards applicable to the clinical immunology laboratory. 2. Perform accurate laboratory testing of body fluids, cells, and other substances. 3. Evaluate and interpret laboratory test data while recognizing factors that affect procedure and results. 4. Demonstrate written and oral communication skills that ensure accurate reporting of test results. 5. Explain the different immune related pathologies such as hypersensitivity, autoimmunity, tumor immunity and immunodeficiencies. Course fee required. Prerequisite: Admission to the Dixie State University Bachelor of Science in Medical Laboratory Science professional program. FA.

MLS 3314. Diagnostic Microbiology I. 5 Hours.
Required course for students in the BS in Medical Laboratory Science professional program. Comprehensive topical study introduces students to clinically significant bacteria including epidemiology, pathogenicity, and procedures for the traditional laboratory identification and antimicrobial testing. Clinically significant pathogens of interest include: Staphylococcus, Streptococcus, Neisseria, Gram-Positive Bacilli, Enterobacteriaceae, Gram-Negative non-fermentors and other miscellaneous bacteria. The laboratory exercises focus on traditional and evolving methods of identification of bacteria of medical interest. This course requires a Differential Tuition Rate which is an additional fee of $143 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Judge the acceptability of quality control and test result data. 2. Choose the correct laboratory approach, including compliance with safety regulations, and demonstrate proper technique to study, culture, identify and work with microbes studied in this course. 3. Demonstrate effective written and oral communication skills that ensure accurate reporting of test results in the medical microbiology laboratory. 4. Recognize, describe, and differentiate select microbes and phenotypes studied in the course by accurately interpreting, when applicable, gram stain reactivity, select biochemical test results, microscopic morphology, and growth characteristics on routine primary and selective culture media. 5. Determine the acceptability of a specimen for testing by diagnostic microbiology methods. Course fee required. Prerequisite: Admission to the Dixie State University Bachelor of Science Program in Medical Laboratory Science. SP.

MLS 3330. Clinical Chemistry. 5 Hours.
Required course in the Bachelor of Science Medical Laboratory Science professional program. Focus on the theory and practical applications of analytical instruments and techniques that are used in clinical laboratories. Emphasis on blood and body fluid assessments of carbohydrates, bilirubin, non-protein nitrogen testing, electrolytes, acid/base balance, lipids, hemoglobin, and electrophoresis. Laboratory section will facilitate student learning by students applying theory to laboratory assays. This course requires a Differential Tuition Rate which is an additional fee of $143 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Perform accurate laboratory testing of body fluids, cells, and other substances. 2. Evaluate and interpret laboratory test data while recognizing factors that affect procedure and results. 3. Comply with safety and governmental regulations and standards applicable to clinical chemistry laboratory. 4. Evaluate correctly the acceptability of quality control and test result data. 5. Perform a variety of mathematical calculations and apply statistical functions to interpret test results associated with clinical chemistry testing. Course fee required. Prerequisite: Admission to the Dixie State University Bachelor of Science Program in Medical Laboratory Science. SP.

MLS 3555. Research Seminar. 2 Hours.
Required course for students in the Bachelor of Science program in Medical Laboratory Science. Addresses research methods in the clinical sciences and reviews accepted policies from the National Institutes of Health on informed consent, institutional review boards, and clinical trials. Students will read and interpret studies in the clinical laboratory sciences, comment on problems with studies, and note the further work needed in the respective area of research. Students will present a study, highlighting the research questions answered, methods employed, and relevance to other studies. This course requires a Differential Tuition Rate which is an additional fee of $143 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Apply the power of statistics in research study to critic published research and compare various research studies and to evaluate correctly the acceptability of quality control and test result data. 2. Present a published research study highlighting research question, methods, results, and limitations of the study. 3. Plan and implement a research project including budget, background, methods, and hypothesis. 4. Write an original research paper on a topic directly related to Medical Laboratory Science. 5. Write and submit an abstract based on a research project performed in class. Prerequisite: Admission to the Dixie State University Bachelor of Science Program in Medical Laboratory Science. SP.
**MLS 3850. Urinalysis and Body Fluids. 2 Hours.**

Required course for students admitted to the Bachelor of Science in Medical Laboratory Science professional program. In-depth study of the physiology, formation and composition, and medical laboratory analysis of urine and other body fluids including cerebrospinal fluid, seminal fluid, serous fluids, synovial fluid, amniotic fluid, bronchoaveolar lavages and bronchial washings, and vaginal secretions. In lab, students learn to perform macroscopic (physical and chemical) and microscopic analysis on clinical samples, interpret test results, and correlate results with states of human health and disease. This course requires a Differential Tuition Rate which is an additional fee of $143 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs)** At the successful conclusion of this course, students will be able to: 1. Follow through with appropriate lab testing quality assurance activities, including quality control protocols and safety practices, as a foundation for exemplary patient care. 2. Correctly use conventional medical terminology and nomenclature to report test results of body fluids' analyses including but not limited to urine, cerebrospinal fluid, synovial fluid, and semen analyses. 3. Judge the acceptability of each of the following body fluid specimens submitted for analysis by medical laboratory methods: urine, seminal fluid, vaginal secretions, and cerebrospinal fluid. 4. Competently perform a wide range of analyses on urine, cerebrospinal fluid, synovial fluid, semen, vaginal secretions, and serous fluids to aid diagnosis of disease, screen asymptomatic populations for undetected disorders, and monitor the progress of disease and the effectiveness of therapy. 5. Correlate test results, from the analysis of urine and other body fluids, with pathophysiologic processes to recommend additional tests that may aid a diagnosis, confirm a prognosis, and/or affirm therapy. Course fee required. Prerequisite: Admission to the Dixie State University Bachelor of Science in Medical Laboratory Science professional program. FA.

**MLS 4110. Laboratory Management/Edu. 2 Hours.**

Students will learn managerial problem solving, finance, and budgeting, Lean and Six Sigma techniques, leadership styles, and education/training relevant to the clinical laboratory. This course requires a Differential Tuition Rate which is an additional fee of $143 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs)** At the successful conclusion of this course, students will be able to: 1. Recommend laboratory process improvements based on patient/customer needs and cost benefit analysis. 2. Uphold professional standards of conduct as a member and an advisor within multidisciplinary healthcare teams. 3. Adapt effective communication and leadership styles to challenging medical laboratory work situations. 4. Identify and evaluate elements that impact the effective management of medical laboratory staffing resources. 5. Use knowledge of educational methodologies and terminology to construct and effectively deliver an educational unit to users and providers of laboratory services. Prerequisite: Admission to the Dixie State University Bachelor of Science Program in Medical Laboratory Science. FA.

**MLS 4200. Clinical Chemistry and Molecular Diagnostics. 4 Hours.**

Required course for students admitted to the BS in Medical Laboratory Science professional program. Second of two courses covering essential practices related to the pre-analytical, analytical, and post-analytical components of the clinical chemistry laboratory service. Lectures focus on the pathophysiology of a variety of diseases including diabetes, liver disease, kidney disease, various endocrine disorders including thyroid disease, and on the specialized services of the clinical chemistry lab including toxicology, therapeutic drug monitoring, and molecular diagnostics. The use of molecular techniques with interest in instrumentation and evolving technology are discussed in detail. Laboratory exercises facilitate student skill development performing assays and correlating test results to states of health and disease. This course requires a Differential Tuition Rate which is an additional fee of $143 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs)** At the successful conclusion of this course, students will be able to: 1. Use effective written and oral communication skills that ensure accurate reporting of test results in the clinical chemistry laboratory. 2. Adhere to the safety and governmental regulations and standards applicable to clinical chemistry laboratory. 3. Perform appropriate quality control measures for instrumentation and evaluate correctly the acceptability of quality control and test result data. 4. Demonstrate competency performing a select range of tests studied in this course. 5. Demonstrate a working knowledge of the principles of molecular biology and identify molecular techniques used in contemporary clinical chemistry laboratory. Course fee required. Prerequisite: Admission to the Dixie State University Bachelor of Science in Medical Laboratory Science professional program. FA.

**MLS 4300. Clinical Hematology. 5 Hours.**

Required course for students admitted to the Bachelor of Science in Medical Laboratory Science professional program. Lecture and laboratory coverage of the theories, concepts and practical aspects central to the study of blood and blood forming tissues by medical laboratory methods. Lectures topics of focus include hematopoiesis, blood cells' structure, function, kinetics, senescence and destruction. Hematologic diseases including the etiology and pathophysiology of anemia, and neoplastic and nonmalignant leukocyte disorders are discussed in detail. In lab, students use manual methods and automation to analyze clinical samples and correlate results with states of health and disease. This course requires a Differential Tuition Rate which is an additional fee of $143 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs)** At the successful conclusion of this course, students will be able to: 1. Follow through with appropriate hematology laboratory quality assurance activities, including quality control protocols and safety practices, as a foundation for exemplary patient care. 2. Correctly use conventional clinical hematology terminology and nomenclature to report test results. 3. Distinguish each erythrocyte and leukocyte disorder discussed in lecture according to etiology, pathophysiology, clinical presentation, key laboratory findings, and treatment options. 4. Appraise, with explanation, a specimen as acceptable for testing in a contemporary hematology laboratory. 5. Competently perform a range of hematology tests and procedures, including the differential analysis of blood cells, essential to the diagnosis, prognosis, and monitoring of therapy for the hematologic diseases and conditions discussed in class. Course fee required. Prerequisite: Admission to the Dixie State University Bachelor of Science in Medical Laboratory Science professional program. SP.
MLS 4320. Hemostasis. 4 Hours.
Required course for students admitted to the Bachelor of Science in Medical Laboratory Science professional program. Theories and concepts of hemostasis are presented, including plasma and cell-based models of normal coagulation and fibrinolysis. Hemorrhagic diseases and thrombotic disorders will be covered and laboratory tests critical to the diagnosis, prognosis, and to monitoring treatment of these conditions are discussed in detail. In the lab, students use manual methods and technology to analyze clinical samples to detect, differentiate, and quantify coagulation abnormalities. This course requires a Differential Tuition Rate which is an additional fee of $143 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Relate knowledge of the physiology of hemostasis to the laboratory evaluation and monitoring of congenital and acquired bleeding and thrombotic conditions and diseases in terms of key lab tests, test principles, specimen requirements, and tests' reference ranges. 2. Distinguish each hemorrhagic and thrombotic condition and disease studied in the course according to etiology, pathophysiology, clinical presentation, key laboratory findings, and treatment options. 3. Justify the use of molecular techniques in the diagnosis, prognosis and monitoring of the treatment of hemostatic disorders. 4. Competently perform a range of basic tests and procedures, including accurately interpreting and reporting results used to evaluate hemostasis and anticoagulant therapy. 5. Analyze various anticoagulant therapy scenarios to recommend appropriate lab tests to monitor therapy, recognize appropriate testing frequency, and identify test results indicating inappropriate dosing. Course fee required. Prerequisite: Admission to the Dixie State University Bachelor of Science in Medical Laboratory Science professional program. FA.

MLS 4330. Clinical Chemistry Practice (ALPP). 4 Hours.
Required course for students admitted to the Bachelor of Science in Medical Laboratory Science professional program. Practical experience emphasizing application of knowledge and skills to perform a wide variety of testing in a contemporary clinical chemistry/immunology laboratory and further develop discipline-specific competency. This course is designated as an Active Learning Professional Practice (ALPP) course. This course allows students to explore and apply content learned in the course in a professional experience away from the classroom. This course requires a Differential Tuition Rate which is an additional fee of $143 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Competently perform a full range of testing in the clinical chemistry laboratory encompassing pre-analytical, analytical, and post-analytical phases of testing and, to the extent available, testing in the area of immunology. 2. Show responsibility for analysis and decision-making and demonstrate proficiency to problem-solve, troubleshoot, interpret and accurately report results using statistical approaches to evaluate test data including quality control results. 3. Adeptly use technology to accurately report test results. 4. Follow safety and governmental regulations and standards as applied to the work performed in a clinical chemistry laboratory, including protecting the confidence of patient information. 5. Project an image of professionalism in word, action, and appearance, effectively communicating with members of the laboratory, and when appropriate, members of the healthcare team and the public. Prerequisite: Admission to the Dixie State University Bachelor of Science Program in Medical Laboratory Science. FA.

MLS 4400. Immunohematology II. 4 Hours.
Required course for students admitted to the Bachelor of Science in Medical Laboratory Science professional program. Continued study of the science of antigen and antibody reactions and blood group systems, emphasizing decision-making and problem-solving skill development with application to blood banking practices and transfusion therapy services. Lab fee required. Science professional program. This course requires a Differential Tuition Rate which is an additional fee of $143 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Follow through with appropriate quality assurance activities, including quality control protocols and safety practices, as a foundation for exemplary patient care. 2. Correctly use conventional medical terminology and immunohematology-specific nomenclature to effectively report test results. 3. Evaluate quality control data and use the results to validate blood bank testing outcomes. 4. Question inconsistent test data in order to ensure reporting of valid results. 5. With minimal supervision, competently perform a full range of assays, procedures and protocols that facilitate the safe, timely, and effective transfusion of blood and/or blood products. 6. Synthesize knowledge of immunohematology and transfusion practices, from basic facts, policies, protocols, and procedures to complete theories, to analyze case studies and propose valid solutions to complex antibodies problems. Course fee required. Prerequisite: Admission to the Dixie State University Bachelor of Science in Medical Laboratory Science professional program. SP.

MLS 4410. Blood Banking Practice (ALPP). 4 Hours.
Required course for students admitted to the Bachelor of Science in Medical Laboratory Science professional program. Practical experience emphasizing application of knowledge and skills to perform a wide variety of testing in a contemporary blood bank and further develop discipline-specific competency. This course is designated as an Active Learning Professional Practice (ALPP) course. This course allows students to explore and apply content learned in the course in a professional experience away from the classroom. This course requires a Differential Tuition Rate which is an additional fee of $143 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. With minimal supervision, safely competently perform a broad range of routine testing in accordance with standard transfusion service protocols and procedures in a contemporary blood bank and transfusion service. 2. Accept responsibility for analysis and decision-making about testing performed in a contemporary blood bank and transfusion service. 3. Follow through with applicable regulations and standards of practice that define quality improvement/performance within a contemporary blood bank laboratory and transfusion service. 4. Project and maintain an image of professionalism in word and action, and perform work with focused attention on safety, accuracy, and quality. 5. Demonstrate the ability to work autonomously and cooperatively with others, effectively manage time, and prudently use available resources to deliver cost-effective, value-added, accurate, and timely blood bank lab test results. Prerequisite: Admission to the Dixie State University Bachelor of Science Program in Medical Laboratory Science. SP.
MLS 4414. Clinical Microbiology Practice (ALPP). 4 Hours.
Required course for students admitted to the Bachelor of Science in Medical Laboratory Science professional program. Practical experience emphasizing application of knowledge and skills to perform a wide variety of testing in a contemporary medical microbiology laboratory and further develop discipline-specific competency. This course is designated as an Active Learning Professional Practice (ALPP) course. This course allows students to explore and apply content learned in the course in a professional experience away from the classroom. This course requires a Differential Tuition Rate which is an additional fee of $143 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Competently perform a full range of testing in the clinical microbiology laboratory encompassing pre-analytical, analytical, and post-analytical phases of testing in bacteriology and, to the extent available, testing in the areas of parasitology, mycology and virology. 2. Show responsibility for analysis and decision-making and demonstrate proficiency to problem-solve, troubleshoot, interpret and accurately report results using statistical approaches to evaluate test data including quality control results. 3. Adeptly use technology to accurately report test results. 4. Follow safety and governmental regulations and standards as applied to the work performed in a clinical microbiology laboratory, including protecting the confidence of patient information. 5. Project an image of professionalism in word, action, and appearance, effectively communicating with members of the laboratory, and when appropriate, members of the healthcare team and the public. Prerequisite: Admission to the Dixie State University Bachelor of Science Program in Medical Laboratory Science. SP.

MLS 4423. Clinical Hematology Practice. 4 Hours.
Required course for students admitted to the Bachelor of Science in Medical Laboratory Science professional program. Practical experience emphasizing application of knowledge and skills to perform a wide variety of testing in a contemporary clinical hematology/hemostasis laboratory and further develop discipline-specific competency. This course requires a Differential Tuition Rate which is an additional fee of $143 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Competently perform a full range of testing encompassing the pre-analytical, analytical, and post-analytical phases of testing in hematology, hemostasis, and urinalysis. 2. Show responsibility for analysis and decision-making and demonstrate proficiency to problem-solve, troubleshoot, interpret and accurately report results using statistical approaches to evaluate test data including quality control results. 3. Adeptly use technology to accurately report test results. 4. Follow safety and governmental regulations and standards as applied to the work performed in a clinical hematology laboratory, including protecting the confidence of patient information. 5. Project an image of professionalism in word, action, and appearance, effectively communicating with members of the laboratory, and when appropriate, members of the healthcare team and the public. Prerequisite: Admission to the Dixie State University Bachelor of Science Program in Medical Laboratory Science. SP.

MLS 4600. Diagnostic Microbiology II. 4 Hours.
Required course for students admitted to the BS in Medical Laboratory Science professional program. Continued comprehensive study of diagnostic microbiology focusing on clinically significant pathogens including Anaerobes, Spirochetes, Chlamydia, Mycobacteria, medically important fungi, viruses and parasites. Student will further develop competency using traditional manual microbiological methods and evolving techniques, including molecular assays, to identify and aid the diagnosis, prognosis, and therapy monitoring of infections caused by the microbes discussed in this course. This course requires a Differential Tuition Rate which is an additional fee of $143 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Demonstrate written and oral communication skills that ensure accurate reporting of test results. 2. Perform accurate laboratory testing of body fluids, cells, and other substances. 3. Comply with established lab safety regulations. 4. Evaluate correctly acceptability of quality control and test result data. 5. Demonstrate competency using traditional manual microbiological methods and evolving techniques, including molecular assays, to identify and aid the diagnosis, prognosis, and therapy monitoring of infections caused by the microbes discussed in this course. Course fee required. Prerequisite: Admission to the Dixie State University Bachelor of Science in Medical Laboratory Science professional program. FA.

Medical Radiography Courses

RADT 1010. Intro to Radiography. 2 Hours.
Open to all students interested in medical radiography. Explores the field of radiography and its role in health care delivery. Covers fundamental concepts including medical terminology, radiation protection, ethics, career opportunities, professional development, and hospital operations. This course requires a Differential Tuition Rate which is an additional fee of $60 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Identify strategies used to become a successful student radiographer. 2. Describe the roles and responsibilities of a radiographer. 3. Discuss the importance of professional ethics in the profession of a radiologic technologist. 4. Describe basic radiation protection techniques used by radiographers. 5. Discuss the fundamental process of x-ray production. FA, SP.

RADT 1020. Radiographic Procedures I. 5 Hours.
First semester course. Instruction in how to perform radiographic procedures and identifying anatomy of the upper/lower extremities, chest, abdomen, bony thorax and pelvis with emphasis on radiation protection, surface landmarks and pathology. Image analysis is introduced. Taught in cohort rotation. This course requires a Differential Tuition Rate which is an additional fee of $60 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Demonstrate ability to manipulate the x-ray tube, table and console. 2. Identify anatomy on a diagram or radiograph. 3. Demonstrate correct positioning for procedures covered in the course. 4. Describe and utilize patient exposure minimization techniques. 5. Explain radiographic procedures and give appropriate directions when simulating radiographic procedures. Course fee required. Prerequisites: Admission to the Dixie State University Medical Radiography program.
RADT 1030. Radiographic Imaging I. 3 Hours.
First semester course. Analysis of factors affecting image quality and application of radiographic principles using imaging devices such as image receptors, grids and beam limiting devices, processing procedures, as well as introduction of basic digital imaging concepts. Taught in cohort rotation. This course requires a Differential Tuition Rate which is an additional fee of $60 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Identify and explain the function of the major components of the x-ray tube. 2. Identify and analyze the various components of radiographic quality. 3. Analyze the relationship of factors that control and affect radiographic contrast. 4. Apply conversion factors for changes in the following areas: distance, grid, mAs, reciprocity and the 15% rule. 5. Summarize the relationships of factors affecting scattered and secondary radiation. Prerequisite: Admission to the Dixie State University Medical Radiography program.

RADT 1040. Clinical Education I (ALPP). 4 Hours.
First Semester Course. Students will apply theories and develop skills in a supervised setting through observation, assisting, and performing basic radiographic procedures on upper/lower extremities, chest, abdomen, pelvis and bony thorax. 180 clinical hours. Taught in cohort rotation. This course is designated as an Active Learning Professional Practice (ALPP) course. This course allows students to explore and apply content learned in the course in a professional experience away from the classroom. This course requires a Differential Tuition Rate which is an additional fee of $60 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Perform and/or assist with radiographic procedures appropriate to student’s level of skill and knowledge. 2. Evaluate patient’s status and condition before, during and following the radiologic procedure. 3. Apply good communication skills with patients, support staff and technologist. 4. Distinguish between acceptable and unacceptable radiographic images. 5. Apply principles of ALARA to minimize exposure to patient, self and others. Prerequisite: Admission to the Dixie State University Medical Radiography program.

RADT 1050. Patient Care. 2 Hours.
First semester course. Introduces the role of the radiographer as a health care provider. Topics include patient communication and education, patient transfer, vital signs, infection control, oxygen, suction, age-specific needs and cultural diversity. Taught in cohort rotation. This course requires a Differential Tuition Rate which is an additional fee of $60 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Describe how professional values influence patient care. 2. Demonstrate professional communications and identify the rationale for using appropriate communication with a culturally diverse population. 3. Demonstrate taking vital signs: temperature, respiration, pulse and blood pressure. 4. Describe the importance of Standard Precautions and Isolation procedures that include sources and modes of transmission of infection and disease and institutional control procedures. 5. Explain special considerations necessary when performing radiographic exams on infants, children and geriatric patients. Prerequisite: Acceptance into the Medical Radiography Program.

RADT 1120. Radiographic Procedures II. 4 Hours.
Second Semester Course. Instruction in performing radiographic procedures and identifying anatomy of the vertebral column, genitourinary, gastrointestinal and biliary systems, skull and facial bones, as well as advanced mobile and surgical procedures, composition and the use and effects of contrast media. Taught in cohort rotation. This course requires a Differential Tuition Rate which is an additional fee of $60 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Correctly position for various exams in simulated lab demonstrations. 2. Explain and practice appropriate radiation protection required for personnel when performing mobile and fluoroscopic exams. 3. Apply positioning modifications to accommodate patient restrictions in mobility. 4. Describe and demonstrate projections/positions used in trauma situations. 5. Identify standard radiographic positions and anatomical structures on a radiographic image. Course fee required. Prerequisite: Admission to the Dixie State University Medical Radiography program.

RADT 1140. Clinical Education II (ALPP). 5 Hours.
Second Semester Course. Continuation of RADT 1040, providing students with the opportunity to apply theories and further develop technical skills with emphasis placed on vertebral column, biliary system, gastrointestinal and genitourinary procedures, skull and facial bones. Patient management specific to fluoroscopic and advanced radiographic procedures. 225 clinical hours. Taught in cohort rotation. This course is designated as an Active Learning Professional Practice (ALPP) course. This course allows students to explore and apply content learned in the course in a professional experience away from the classroom. This course requires a Differential Tuition Rate which is an additional fee of $60 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Continue completion of practicum and competencies not already performed. 2. Determine technical exposure factors. Utilizes technical factors according to equipment specifications to meet the ALARA principle. 3. Apply good communication skills with patients, support staff and technologist. 4. Examine procedure orders for accuracy, and follow-up with corrective changes when applicable. 5. Distinguish between acceptable and unacceptable radiographic images. Prerequisite: Admission to the Dixie State University Medical Radiography program.

RADT 1230. Radiographic Imaging II. 2 Hours.
Second Semester Course. Builds on theories and concepts introduced in RADT 1030, emphasizing quality assurance and quality control, digital and computed imaging components and processes and data and information management with PACS. Taught in cohort rotation. This course requires a Differential Tuition Rate which is an additional fee of $60 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. List benefits of a quality management program to the patient and department. 2. Explain the importance of repeat analysis programs in quality management. 3. Relate receptor exposure indicator values to technical factors, system calibration, part/beam/receptor alignment and patient exposure. 4. Describe various image processing employed for digital imaging. 5. Examine potential impact of digital radiography on patient exposure and methods of practicing ALARA with digital systems. Prerequisite: Admission to the Dixie State University Medical Radiography program.
RADT 1240. Clinical Education III (ALPP). 7 Hours.
Third semester course. Continuation of RADT 1140, providing students with the opportunity to apply theories and further develop technical skills. Students will gain experience in effective patient and time management specific to advanced radiographic procedures. 315 clinical hours. Taught in cohort rotation. This course is designated as an Active Learning Professional Practice (ALPP) course. This course allows students to explore and apply content learned in the course in a professional experience away from the classroom. This course requires a Differential Tuition Rate which is an additional fee of $60 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Demonstrate continued proficiency in areas of previously completed competency testing. 2. Perform competencies with an 85% or better. 3. Determine technical exposure factors. Utilizes technical factors according to equipment specifications to meet the ALARA principle. 4. Adapt to changes and varying clinical situations as well as modifying positioning for non-routine (trauma) procedures. 5. Manage time to effectively complete inpatients, outpatients and ER exams with a limited number of staff technologists. Course fee required. Prerequisite: Admission to the Dixie State University Medical Radiography program.

RADT 1250. Advanced Patient Care. 2 Hours.
Second semester course. Instruction in advanced patient care skills, including pharmacology and contrast administration for medical imaging, medical ethics and law, and mobile and surgical radiography. Taught in cohort rotation. This course requires a Differential Tuition Rate which is an additional fee of $60 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Explain the role of ethical behavior in health care delivery. 2. Explain specific legal terms, principles and law. 3. Demonstrate correct technique in performing venipuncture using standard precautions. 4. Describe unique problems faced in performing procedures on a patient with specific tubes, drains and catheters. 5. Recognize common pathologies on various images. Prerequisite: Admission to the Dixie State University Medical Radiography program.

RADT 2030. Radiographic Physics. 3 Hours.
Fourth semester course. In depth analysis of electrical circuitry, transformers, and rectifiers as they relate to x-ray production, as well as construction and function of the x-ray tube, fluoroscopic systems, video systems, AEC, and digital imaging. Taught in cohort rotation. This course requires a Differential Tuition Rate which is an additional fee of $60 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Identify general components and functions of the tube and filament circuits. 2. Demonstrate protocols used to extend x-ray tube life. 3. Discuss ways in which x-ray photons are created. 4. Describe the x-ray emission spectrum and factors that affect it. 5. Explain image-intensified and digital fluoroscopic image formation. Prerequisite: Admission to the Dixie State University Medical Radiography program.

RADT 2040. Clinical Education IV (ALPP). 7 Hours.
Fourth semester course. Continuation of RADT 1240 with emphasis on mastering basic procedures and attaining experience in advanced procedures with further awareness of radiation protection requirements. Students will rotate through advanced modality areas as assigned by Clinical Coordinator. 315 clinical hours. Taught in cohort rotation. This course is designated as an Active Learning Professional Practice (ALPP) course. This course allows students to explore and apply content learned in the course in a professional experience away from the classroom. This course requires a Differential Tuition Rate which is an additional fee of $60 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Demonstrate continued proficiency in areas of previously completed competency testing. 2. Apply principles of ALARA to minimize exposure to patient, self and others. 3. Distinguish between acceptable and unacceptable radiographic images. 4. Recognize the importance of various modalities within radiology and the different aspects of patient care associated with the modalities. 5. Prioritize patient orders based on urgency and need, i.e. portable chest in ICU, trauma c-spine in ER, and outpatient knee, all at the same time. Course fee required. Prerequisite: Admission to the Dixie State University Medical Radiography program.

RADT 3020. Advanced Medical Imaging. 3 Hours.
Fourth semester course. Introduces additional imaging modalities and radiation therapy, including interventional radiography, sonography, CT, MRI, mammography, nuclear medicine and basic sectional anatomy. Taught in cohort rotation. This course requires a Differential Tuition Rate which is an additional fee of $60 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Compare and contrast the benefits and limitations of different radiologic modalities including general diagnostic, CT, sonography, MR and nuclear medicine. 2. Compare basic equipment in various imaging modalities and radiation therapy. 3. Locate basic anatomy on cross-sectional images of the head, thorax, abdomen and extremities. 4. Describe patient preparation necessary for special radiographic procedures and various modalities. 5. List pathologic conditions best demonstrated by CT, sonography, nuclear medicine, MRI and PET. Prerequisite: Admission to the Dixie State University Medical Radiography program.

RADT 3150. Radiobiology and Protection. 3 Hours.
Fourth semester course. In depth analysis of ionizing radiation and its effects on matter, including early and late effects of radiation, dose limits, radiation monitoring, and limiting radiation exposure to patients and personnel. Taught in cohort rotation. This course requires a Differential Tuition Rate which is an additional fee of $60 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Explain the parts and function of the human cell. 2. Employ dose response curves to study the relationship between radiation dose levels and the degree of injury response. 3. Describe ways to decrease exposure to the occupational worker. 4. Discuss ways in which the radiographer can reduce patient exposure. 5. Discuss the radiographer's role in educating the public about radiation exposure. Prerequisite: Admission to DSU Medical Radiography program.
RADT 3240. Clinical Education V (ALPP). 7 Hours.
Fifth semester course. Continuation of RADT 2040 with emphasis on developing an autonomous approach to the diversity of clinical situations and successfully adapting to them. Extended advanced modality rotations may be arranged following established guidelines and at the discretion of the Clinical Coordinator. 315 clinical hours. Taught in cohort rotation. This course is designated as an Active Learning Professional Practice (ALPP) course. This course allows students to explore and apply content learned in the course in a professional experience away from the classroom. This course requires a Differential Tuition Rate which is an additional fee of $60 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Complete remaining competencies with an 85% or better and complete five terminal competencies with a 95% or better. 2. Apply good communication skills with patients, support staff and technologist. 3. Adapt to changes and varying clinical situations as well as modifying positioning for non-routine (trauma) procedures. 4. Distinguish between acceptable and unacceptable radiographic images. 5. Apply principles of ALARA to minimize exposure to patient, self and others. Course fee required. Prerequisite: Admission to the Dixie State University Medical Radiography program.

RADT 3260. Radiography Seminar. 3 Hours.
Fifth semester course. Capstone course that offers review and reflection on previous coursework, providing students with a meaningful approach to evaluate strengths and weaknesses and to prepare for credentialing exams and employment. Taught in cohort rotation. This course requires a Differential Tuition Rate which is an additional fee of $60 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Design a lesson plan to review an assigned ARRT registry section. 2. Assemble a portfolio containing samples of student work demonstrating accomplishment of learning outcomes. 3. Demonstrate competency in each of the ARRT registry areas - patient care, procedures, image production and safety. 4. Present their review lesson on a predetermined ARRT registry section to their peers. Prerequisite: Admission to the Dixie State University Medical Radiography program.

Phlebotomy Courses

PHLB 1000. Phlebotomy. 4 Hours.
For students wishing to learn phlebotomy. Provides hands on training to become proficient in drawing and obtaining blood samples from a vein or capillary for laboratory analysis using Vacutainer, syringe, butterfly, and heel and finger stick. Instruction includes universal precautions and proper handling of specimens. Successful completion requires a number of “live sticks”. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Demonstrate appropriate and effective communication with patients, exercising calm and reasoned judgement during the performance of phlebotomy procedures. 2. Follow standard operating procedures to collect high quality specimens via venipuncture and capillary (dermal) puncture. 3. Competently perform venous and capillary puncture procedures using a variety of methods and equipment including but not limited to evacuated tube systems, safety syringes and transfer devices, safety needles and winged infusion sets, and lancets, obtaining blood samples suitable for analysis in the medical laboratory. 4. Troubleshoot factors that affect phlebotomy procedures and take appropriate actions within predetermined limits when corrections are warranted. 5. Comply with all standards governing patient and employee safety, including standard precautions. 6. Project an image of professionalism in appearance, dress, and confidence. 7. Demonstrate basic knowledge of healthcare delivery systems to communicate and collaborate as an effective member of interdisciplinary healthcare teams providing exemplary patient care. 8. Apply knowledge, skills, and values learned from course work to new situations including assisting in the collection and transportation of specimens other than blood, and technical and clerical functions. Course fee required. FA, SP, SU.

Physical Therapist Assistant Courses

PTA 1010. Introduction to Physical Therapy. 2 Hours.
This course introduces students to the field of physical therapy through the history and definition of the profession. Other topics include medical terminology and documentation. Health care for a diverse population begins its thread in this course. PTA 1010 is prerequisite to acceptance into the technical phase of the PTA program and is an open-enrollment course. Note: You are responsible for content/dates/announcements posted on Canvas. This course requires a Differential Tuition Rate which is an additional fee of $90 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Distinguish members of the health care team including their role(s) within the team. 2. Explain the purpose and intent of the Standards of Ethical Conduct for the PTA and The Guide for Conduct of the Physical Therapist Assistant. 3. Define HIPAA and give examples of its application to the rehabilitation team. 4. Discuss specialty areas within the field of physical therapy. 5. Identify basic components of SOAP note documentation. SP.

PTA 2000. Practice Issues. 2 Hours.
Discussions include the health care team, the rehabilitation-specific team, the roles and scopes of practice of the physical therapist and the physical therapist assistant, and the physical therapist/assistant interaction. Also covers the rehabilitation patient, communication in health care, patient care settings, reimbursement issues, the “Patient’s Bill of Rights,” and HIPAA. This course reviews the “Ethics & Jurisprudence” of physical therapist assistant practice. This course requires a Differential Tuition Rate which is an additional fee of $90 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Define the role of the physical therapist assistant in the provision of interventions. 2. Describe the importance of involvement in organizations such as APTA to further career development. 3. Demonstrate responsibility for addressing ethical and/or legal conflicts. 4. Provide classroom participation on relevant health care and physical therapy issues. 5. Explain the role of the physical therapist assistant in the promotion of healthy lifestyles, wellness, and injury prevention. Prerequisite: Admission to the Dixie State University Physical Therapist Assistant program. SP.
PTA 2010. Kinesiology. 2 Hours.
Students develop competencies in identifying anatomical landmarks and symmetry, joint mechanics and function, posture, an introduction to gait, and neurological control. This course requires a Differential Tuition Rate which is an additional fee of $90 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Observe the gait cycle and identify each phase. 2. Define and give examples of force couples in the musculoskeletal system. 3. Describe lever arm length and mechanical advantage relationships and how they affect treatment procedures. 4. List the origin, insertion, action and peripheral nerve innervations of selected muscles of the human body. 5. Identify the anatomical components of correct postural alignment including description of normal curves of the vertebral column. Prerequisite: Admission to the Dixie State University Physical Therapist Assistant program. FA.

PTA 2011. Kinesiology Lab. 2 Hours.
Students develop competencies in identifying anatomical landmarks and symmetry, joint mechanics and function, posture, an introduction to gait, and neurological control. This course requires a Differential Tuition Rate which is an additional fee of $90 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to:1. Locate and describe anatomical structures using descriptive terminology. 2. Identify selected bones and bony landmarks of the axial & appendicular skeleton by visual recognition on a skeletal model and diagram and by palpation. 3. Demonstrate competency in palpation techniques including correct positioning, appropriate draping, effective communication, appropriate pressure/handling skill and exhibiting professional behavior during palpation procedures. 4. Identify on a skeletal model and diagram and by palpation on human subjects selected bones and body landmarks of the human body. 5. Observe the gait cycle and identify each phase. Course fee required. Prerequisite: Admission to the Dixie State University Physical Therapist Assistant program. FA.

PTA 2110. Fundamentals Physical Therapy. 2 Hours.
This course includes those fundamental skills required for successful patient treatment and care. Topics covered include patient draping and preparation, vital signs, body mechanics, bed mobility, transfers, gait training, wheelchair fitting and repair, tilt table, activities of daily living, architectural barriers, documentation, basic skills for patient/family education, safety, cultural sensitivity, and age related considerations. This course requires a Differential Tuition Rate which is an additional fee of $90 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Describe safe posture and body mechanics to assure safety for self and patients. 2. Define the stages in the development of dermal ulcers, methods of prevention, and methods of treatment. 3. Explain the methods of data collection for documentation of wound care. 4. Describe the best practice of hand washing and explain its rationale. 5. Give examples of activities of daily living that are amenable to physical therapy treatment intervention. Prerequisite: Admission to the Dixie State University Physical Therapist Assistant program. FA.

PTA 2111. Fundamentals Physical Therapy Lab. 2 Hours.
This course includes those fundamental skills required for successful patient treatment and care. Topics covered include patient draping and preparation, bed mobility, transfers, gait training, wheelchair fitting and repair, tilt table, activities of daily living, architectural barriers, documentation, basic skills for patient/family education, safety, cultural sensitivity, and age related considerations. This course requires a Differential Tuition Rate which is an additional fee of $90 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Demonstrate safe posture and body mechanics to assure safety for self and patients. 2. Demonstrate the operations of a wheelchair including removal and replacement of various parts, safety in use, placement, and mobility. 3. Demonstrate the application of wound dressings after identifying appropriate dressings or agents. 4. Demonstrate the best practice of hand washing and explain its rationale. 5. Demonstrate examples of activities of daily living that are amenable to physical therapy treatment intervention. Course fee required. Prerequisite: Admission to the Dixie State University Physical Therapist Assistant program. FA SP.

PTA 2200. Physical Agents. 2 Hours.
Students develop competence in the correct application of therapeutic modalities including heat, cold, electrotherapy, intermittent compression, massage, traction, and ultrasound. Evidenced based practice and indications/contraindications are emphasized. This course requires a Differential Tuition Rate which is an additional fee of $90 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. List the indications and contraindications for the interventions. 2. List the precautions and safety considerations for the interventions. 3. List the precautions and safety considerations for the interventions. 4. Discuss the evidence-based literature on selected interventions. 5. Describe appropriate modifications to the intervention in response to adverse changes in the patient's status for a given intervention 6. Discuss the role of the intervention as related to the achievement of goals in the plan of care. Prerequisite: Admission to the Dixie State University Physical Therapist Assistant program. FA.

PTA 2201. Physical Agents Lab. 2 Hours.
Students develop competence in the correct application of therapeutic modalities including heat, cold, electrotherapy, intermittent compression, massage, traction, and ultrasound. Evidenced based practice and indications/contraindications are emphasized. This course requires a Differential Tuition Rate which is an additional fee of $90 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Demonstrate understanding, through lab practical exams, of the precautions and safety considerations for the interventions listed below. 2. Demonstrate understanding, through lab practical exams, of the indications and contraindications for the interventions listed below. 3. Present an in-service on evidence-based literature on selected interventions. 4. Modify a given intervention in response to adverse changes in the patient's status. 5. Perform appropriate tests and measures to determine patient response to the intervention. Course fee required. Prerequisite: Admission to the Dixie State University Physical Therapist Assistant program. SP.
PTA 2210. Observation & Measurement. 2 Hours.
This is a course that covers the bases for recognizing movement and other dysfunctions and the tools used for problem solving in physical therapy. These include goniometry, manual muscle testing, posture, vital signs, sensation, gait and balance, etc. Students are instructed in the role and scope of the PTA in regard to these measures. Patient progress and accurate reporting to the physical therapist are emphasized. This course requires a Differential Tuition Rate which is an additional fee of $90 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Explain variations in muscle tone regarding normal, denervated, deconditioned, and other pathologies affecting muscle contractility. 2. Demonstrate proper and established technique during palpation, goniometry, manual muscle testing, gait, posture, sensory and vital signs procedures. 3. Describe specific data collection techniques used by the physical therapist assistant to monitor patient/client status. 4. Demonstrate proper recording and documentation of assessment results. 5. Complete data collection during the performance of directed interventions using established tools. Prerequisite: Admission to the Dixie State University Physical Therapist Assistant program. FA, SP.

PTA 2211. Observation & Measurement Lab. 2 Hours.
Students develop competence in the skills of measurements used in physical therapy. Students will become familiar with the use of goniometers, blood pressure cuffs, grip meters, and other tools of measurement. The skills of analyzing gait and posture will be included. Lab assessments will include the reporting of observable and measureable data and their significance to patient progress. This course requires a Differential Tuition Rate which is an additional fee of $90 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Perform data collection in an accurate and timely manner. 2. Demonstrate measurement of functional range of motion for the major upper and lower extremity joints. 3. Demonstrate data collection of muscle performance through measurement of strength using manual muscle testing procedures. 4. Select and perform the correct data collection technique for the related directed intervention for a given case example. 5. Demonstrate proper recording and documentation of assessment results. Course fee required. Prerequisite: Admission to the Dixie State University Physical Therapist Assistant program. SP.

PTA 2300. Orthopedic Rehabilitation. 2 Hours.
This course includes development of therapeutic exercise and other treatment practices for patients with musculoskeletal pathologies. This course requires a Differential Tuition Rate which is an additional fee of $90 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Explain the stages of healing and the parameters regarding therapeutic exercise for each stage. 2. Explain psychosocial implications that determine patient motivation, compliance with exercise regimes, and the methods of communication that block or enhance these issues. 3. Distinguish between isometric, isotonic, and isokinetic exercise procedures and implement them into a treatment program for selected musculoskeletal disorders. 4. Discuss the methods of stretching soft tissue structures and implement this into a treatment program. 5. Research and present various musculoskeletal pathologies with their etiology, clinical signs and symptoms, and therapeutic exercise programs. Prerequisite: Admission to the Dixie State University Physical Therapist Assistant program. SP.

PTA 2301. Orthopedic Rehabilitation Lab. 2 Hours.
Students practice and gain competence in the application of therapeutic exercise, the rationale for its use, safety principles involved in, and its application across the lifespan. This course requires a Differential Tuition Rate which is an additional fee of $90 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Understand PROM, AAROM, and AROM for upper and lower extremities. 2. Understand manual resistive exercise for upper and lower extremities including basic aquatic exercise programs for musculoskeletal pathologies. 3. Instruct the patient/client in a home exercise program utilizing equipment commonly found in the home for a given case example. 4. Demonstrate appropriate communication strategies for providing instruction in a home exercise program in a role play situation. Course fee required. Prerequisite: Admission to the Dixie State University Physical Therapist Assistant program. SP.

PTA 2400. Clinical Pathology. 3 Hours.
An overview of basic disease progression and classification with special emphasis in musculoskeletal and nervous system pathologies treated with physical therapy interventions. A $200 Physical Therapy Assistant Program fee applies to this course. This course requires a Differential Tuition Rate which is an additional fee of $90 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. At the successful conclusion of this course, students will be able to: 1. Describe the effects of bed rest and immobilization of a body part on various tissues and systems. 2. Describe the concepts of tissue repair, remodeling and regeneration. 3. Understand prognosis, goal setting, implementation and intervention of appropriate physical therapy interventions. 4. Identify the various behavioral, social and environmental factors of disease. Prerequisite: Admission to the Dixie State University Physical Therapist Assistant program. FA.

PTA 2410. Special Clientele. 2 Hours.
Students are introduced to the therapeutic principles underlying the treatment of patients with burns, amputations, cardiopulmonary pathologies and considerations, women's health issues, and selected age-specific disorders. This course requires a Differential Tuition Rate which is an additional fee of $90 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Demonstrate an understanding of positioning and therapeutic exercise for the amputee, emphasizing the residual limb by implementing an appropriate program. 2. Identify and define the goals of chest physical therapy. 3. Identify and describe data collection techniques relative to the cardiac patient. 4. Identify treatment components and precautions for working with the obstetric patient. 5. Identify the role of physical therapy in a burn patient. Prerequisite: Admission to the Dixie State University Physical Therapist Assistant program. FA.
PTA 2411. Special Clientele Lab. 1 Hour.
Students review anatomical and physiological aspects of the cardiopulmonary system and are introduced to the cardiac rehabilitation program. Orthotic and prosthetic devices are presented, rationale for their use, fitting, and adjustments are reviewed. Students will review physical therapy techniques for women’s health, and age-related pathologies and practice appropriate techniques. This course requires a Differential Tuition Rate which is an additional fee of $90 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Develop and provide instruction of a therapeutic exercise program appropriate for a patient with a lower extremity amputation. 2. Demonstrate breathing strategies used for airway clearance in pulmonary pathologies. 3. Demonstrate and explain positioning and postural drainage techniques for the pulmonary patient. 4. Demonstrate clear instructions on bed mobility, transfer and gait training skills for a cardiac patient with cardiac precautions. 5. Demonstrate competent instruction in a home exercise program emphasizing body mechanic training and postural awareness training for an obstetric patient. Course fee required. Prerequisite: Admission to the Dixie State University Physical Therapist Assistant program. FA.

PTA 2520. Neuromuscular Rehabilitation. 2 Hours.
This course is intended to discover and develop a working knowledge of patients with neurological pathologies and their treatment. Age-related, injury, and disease processes are considered. This course requires a Differential Tuition Rate which is an additional fee of $90 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Describe the major components of the central nervous system including the brain, cerebellum, brain stem and spinal cord. 2. Explain why and how motor patterns continue to change throughout the lifespan. 3. Identify the general guidelines and tools (FIM Scoring) for functional assessment. 4. Describe specific treatment interventions to facilitate functional movement in a patient with a TBI. 5. Describe balance reactions and treatment for balance disorders. Prerequisite: Admission to the Dixie State University Physical Therapist Assistant program. FA, SP.

PTA 2521. Neuromuscular Rehabilitation Lab. 2 Hours.
Students are introduced to and develop competencies in the application of specific treatment procedures used with patients exhibiting neuromuscular pathologies. Treatment modifications, best practices, and current concepts are practiced. This course requires a Differential Tuition Rate which is an additional fee of $90 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Demonstrate the components of the developmental sequence. 2. Demonstrate data collection techniques used to test balance and vestibular responses. 3. Plan and demonstrate appropriate transfer techniques of a hemiplegic patient. 4. Describe and perform various mat and exercise activities typically prescribed to the patient with a traumatic brain injury. 5. Demonstrate the ability to implement a comprehensive treatment plan established by the PT for a neurological dysfunction, including functional training, balance, gait, developmental activities, patient/family education, postural training, and therapeutic exercise. Course fee required. Prerequisite: Admission to the Dixie State University Physical Therapist Assistant program. FA.

PTA 2530. Seminar. 4 Hours.
This course is divided into 3 main learning modules: Module I: Psychosocial considerations with application to cultural/gender/aging/family dynamics in relation to death and dying and the grieving process are presented and discussed. In addition, caregiver self-care, assertive communication, and clinical burnout are presented. Students will be introduced to emotional intelligence and what part it plays in physical therapy. Module II: An introduction to effective administration of physical therapy environments, including management techniques, fiscal considerations, continuous quality assurance, voluntary accreditation, and other relevant topics related to the business and delivery of physical therapy care. Students will also have the opportunity to create a descriptive resume, practice interview strategies, and discuss other topics in preparation for entering the physical therapy workplace. Module III: A review of the required text with an emphasis in board exam study and test-taking strategies. Some review of previous PTA course content will occur in this module. This course requires a Differential Tuition Rate which is an additional fee of $90 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Identify strategies for achieving balance in personal and career pursuits. 2. Identify stages of the grieving process and therapist/patient/family reactions to death and dying. 3. Describe administration of a physical therapy delivery service including, but not limited to, personnel management, budget creation and accountability, daily operations and organization, organizational charts, etc. 4. Write a resume using current categories, information, and practices. 5. Engage in verbal and written reflection on ethical and legal issues. Prerequisite: Admission to the Dixie State University Physical Therapist Assistant program. FA.

PTA 2605. Clinical Practicum (ALPP). 4 Hours.
A three-week, full-time clinical experience in a physical therapy workplace setting. Students will have opportunities to apply the thinking processes and skills learned from previous courses. Supervision is provided by physical therapists and physical therapist assistants employed by the host facility. This course is designated as an Active Learning Professional Practice (ALPP) course. This course allows students to explore and apply content learned in the course in a professional experience away from the classroom. This course requires a Differential Tuition Rate which is an additional fee of $90 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Demonstrate ability to self-assess and report student progress in clinical education and competence through weekly journal entries. 2. Demonstrate ability to present an inservice to professional colleagues relevant to clinical experience using pertinent and current research. 3. Demonstrate developing performance and behavioral expectations by earning at least “Intermediate performance” on the rating scale for each of the “red flag” performance criteria (1-3, 5, 7), and “Advanced beginner” in all other performance criteria if applicable within the clinical setting within the Student Clinical Performance Instrument. This is to be accomplished by meeting the objectives relative to each performance criteria (PC) as outlined in the CPI. Course fee required. Prerequisite: Admission to the Dixie State University Physical Therapist Assistant program. SU.
PTA 2705. Clinical Affiliation I (ALPP). 6 Hours.
A six-week, full-time clinical experience in a physical therapy workplace setting. Students will have opportunities to apply the thinking processes and skills learned from previous courses. Supervision is provided by physical therapists and physical therapist assistants employed by the host facility. This course is designated as an Active Learning Professional Practice (ALPP) course. This course allows students to explore and apply content learned in the course in a professional experience away from the classroom. This course requires a Differential Tuition Rate which is an additional fee of $90 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Demonstrate ability to self-assess and report student progress in clinical education and competence through weekly journal entries. 2. Demonstrate ability to present an inservice to professional colleagues relevant to clinical experience using pertinent and current research. 3. Demonstrate developing performance and behavioral expectations by earning at least "Entry Level" on the rating scale for each of the "red flag" performance criteria (1-3, 5, 7), and "advanced Intermediate" in all other performance criteria if applicable within the clinical setting within the Student Clinical Performance Instrument. This is to be accomplished by meeting the objectives relative to each performance criteria (PC) as outlined in the CPI. Course fee required. Prerequisite: Admission to the Dixie State University Physical Therapist Assistant program. SP.

PTA 2805. Clinical Affiliation II (ALPP). 6 Hours.
A six-week, full-time clinical experience in a physical therapy workplace setting. Students will have opportunities to apply the thinking processes and skills learned from previous courses. Supervision is provided by physical therapists and physical therapist assistants employed by the host facility. This course is designated as an Active Learning Professional Practice (ALPP) course. This course allows students to explore and apply content learned in the course in a professional experience away from the classroom. This course requires a Differential Tuition Rate which is an additional fee of $90 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Demonstrate ability to self-assess and report student progress in clinical education and competence through weekly journal entries. 2. Demonstrate ability to present an inservice to professional colleagues relevant to clinical experience using pertinent and current research. 3. Demonstrate developing performance and behavioral expectations by earning at least "Entry Level" on the rating scale for each of the "red flag" performance criteria (1-3, 5, 7), and "advanced Intermediate" in all other performance criteria if applicable within the clinical setting within the Student Clinical Performance Instrument. This is to be accomplished by meeting the objectives relative to each performance criteria (PC) as outlined in the CPI. Course fee required. Prerequisite: Admission to the Dixie State University Physical Therapist Assistant program. SP.

PTA 3000. Clinical Skills. 2 Hours.
This course enables the application of practical skills learned throughout the curriculum. Critical thinking will be emphasized as the students implement their knowledge into practical skills. Students will be evaluated on the ability to review evaluations, progress summaries, and plans of care written by the physical therapist. The students will gain proficiency implementing the POC and suggesting modifications as needed. Students will also be evaluated regarding timeliness, efficiency and productivity. This course requires a Differential Tuition Rate which is an additional fee of $90 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Interpret, review, and understand the PT plan of care to achieve short and long term goals. 2. Interview mock patient and caregivers to appropriately gain information regarding current health status. 3. Implement the POC appropriately being able to decipher any contraindications, progressions or changes that may need to be made. 4. Determine and assess the need to communicate with the PT. 5. Acquire the ability to communicate inter-professionally with the referring provider and others who make up the healthcare team. 6. Demonstrate the ability to set a patient up and deliver treatments in a logical and efficient manner. 7. Apply information gained during treatment to effectually document treatment according to individual SOAP note formats. 8. Establish and execute appropriate home exercise programs to the patient as well as effectively communicating to family and caregivers. 9. Interact professionally. 10. Understand when discontinuation of care should be recommended by the PTA to the PT. 11. Communicate appropriately with those acting as support staff. 12. Practice under state and federal laws. 13. Recognize signs of abuse. 14. Create an action plan to an ethical situation using logical, moral reasoning that exhibits the core professional ethics and values of the practice act. 15. Support treatments with evidence based resources to reinforce clinical decision making. Prerequisite: Admission to the Physical Therapist Assistant Program. FA.

Respiratory Therapy Courses

RESP 1010. Introduction to Respiratory Therapy. 2 Hours.
First semester course. Introduces respiratory care profession, including professional organizations, credentialing, and licensing agencies. Also provides an overview of medical ethics, medicolegal issues of health care, regulations such as HIPPA, and selected OSHA standards, as well as an introduction to medical terminology and patient-care documentation. This course requires a Differential Tuition Rate which is an additional fee of $63 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Define professional conduct and behavior of a healthcare professional. 2. Define and practice communicating and connecting. 3. Describe the requirements and process to become licensed to practice respiratory care in Utah. 4. Define and describe the functions of the AARC, NBRC, CoARC, and DOPL. 5. Define the elements of a medical malpractice suit and describe strategies to avoid involvement in such actions or defense if named in such an action. 6. Discuss medical ethics, including end-of-life and right-to-die issues. 7. Improve written and oral communication skills. FA.
RESP 2020. Cardiopulmonary Anatomy and Physiology. 3 Hours.
First semester course. Expands on basic human anatomy and physiology, concentrating on the cardiopulmonary system. Covers selected gas laws and physical principles associated with respiration and gas exchange, ventilation, pulmonary mechanics, circulation, and hemodynamics. Introduces fetal and newborn anatomy and physiology and basic cardiac and renal function. This course requires a Differential Tuition Rate which is an additional fee of $63 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Describe and define the function of the anatomic and histologic structures of the pulmonary system. 2. Describe the physiology of ventilation, including the associated muscles, gas laws, minute volumes and airway, lung, and chest wall dynamics. 3. Describe normal and abnormal breathing patterns. 4. Define and describe diffusion of gases into and from the lungs, including associated gas laws. 5. Describe and define the function of the anatomic and histologic functions of the cardiovascular system. 6. Define oxygen transport and discuss all factors associated with abnormal delivery of oxygen to the tissues. 7. Define acid-base balance and be able to appropriately interpret a blood gas. 8. Describe V/Q relationships and describe clinical implications of V/Q imbalances and their associated pathologies. 9. Describe the physiologic mechanisms of ventilatory control (neurologic and chemical, central and peripheral). Prerequisite: Admission to the Dixie State University Respiratory Therapy program. FA.

RESP 2030. Introduction to Pathophysiology. 3 Hours.
First semester course. Introduction to human diseases, injuries, conditions, and disorders. Review of the hematologic, gastrointestinal, musculoskeletal, integumentary, endocrine, urinary, neurological, cardiac, and pulmonary systems, including fluid and electrolyte and acid-base balance. Integration of general pathologies as they relate to the scope of respiratory therapy practice. Pathologies associated with genetic traits or abnormalities and carcinogenesis are also covered, as are specific clinical application of respiratory care diagnostics. This course requires a Differential Tuition Rate which is an additional fee of $63 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Identify the fluid compartments of the body and describe how intracellular and extracellular edema may occur. 2. Describe and define normal blood cells (RBCs, WBCs, and platelets), their functions and normal (laboratory) values. Define Leukemia, Lymphoma, and multiple myeloma. 3. Define immunity (innate v. adaptive), inflammation, and hypersensitivities. 4. Describe the infectious process, types of infections and microbes, and terminology associated with infections and infectivity. 5. Describe alterations in neurologic function (i.e. levels of consciousness, seizures, brain death v. cerebral death, cognitive disorders, increased intracranial pressure). 6. Define and describe brain injuries (focal v. diffuse, concussion, coup-contrecoup, intra and extradural hematomas), strokes, aneurysms, infections (meningitis), degenerative diseases (Parkinson’s, MS, ALS, Guillain-Barre). 7. Describe endocrine disorders (i.e. forms of Diabetes, thyroid disorders, Cushingism, ). 8. Describe and define GI disorders (i.e. ulcers, ulcerative colitis and Crohn's disease, hepatitis, cirrhosis, diverticulosis, cholecystitis, pancreatitis). 9. Describe muscle and bone disorders (i.e. fractures, osteoporosis, osteomalacia, osteomyelitis, osteoarthritis and rheumatoid arthritis, gout, kyphoscoliosis, muscular dystrophies). 10. Describe the causes and types of renal failure and the associated signs and symptoms. Prerequisite: Admission to the Dixie State University Respiratory Therapy program. FA.

RESP 2040. Respiratory Care Therapeutics I. 3 Hours.
First semester course. Theory and clinical applications of a wide range of respiratory therapy modalities, including medical gases (including cylinders, regulators, flow-metering devices, and liquid oxygen), aerosols, humidity, hyperinflation techniques, chest physiotherapy, and airway clearance techniques. Clinical Practice Guidelines (CPGs) are introduced, and students must master clinical indications, contraindications, side-effects, and desired therapeutic outcomes. This course requires a Differential Tuition Rate which is an additional fee of $63 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Describe the medical gases used by respiratory therapists in the clinical setting including applicable gas laws and physical principles. 2. Demonstrate an understanding of the use of cylinders, regulators, flow-metering devices and liquid oxygen. 3. Compare the differences, advantages and disadvantages of oxygen delivery systems and devices. 4. Understand the clinical application for use of humidity and aerosol therapy and describe the steps for the proper setup and evaluation of this equipment. 5. Compare the various products and techniques used to produce therapeutic hyperinflation and the rationale for its application. 6. Demonstrate an understanding of chest physiotherapy, including patient positioning for postural drainage, and be able to contrast the advantages and disadvantages of various techniques available. 7. Explain the criteria for and process of airway clearance techniques. 8. Be able to explain the clinical indications, contra-indications, side-effects, and desired outcomes of the above therapies (items 1-7). Prerequisite: Admission to the Dixie State University Respiratory Therapy program. FA.

RESP 2041. Laboratory Practice/Therapeutics I. 2 Hours.
First semester course. Introduction to patient care, including body mechanics, patient interactions, and documentation. Practice in the selection, use, and trouble-shooting of equipment associated with providing medical gases, aerosol and humidity, hyperinflation techniques, IPPB, and airway clearance. Introduction to respiratory pharmacology and devices used to administer and monitor aerosolized medications. This course requires a Differential Tuition Rate which is an additional fee of $63 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Demonstrate skill proficiency in the following procedures: vital signs and breath sounds; oxygen supply systems; cylinders, nasal cannulas, oxygen masks, aerosol masks; MDI and DPI administration; humidity and aerosol therapy; small volume nebulizers; chest percussion and postural drainage and Airway Clearance devices; incentive spirometry; equipment processing; bronchiolitis RSV training; and respiratory mechanics. Course fee required. Prerequisite: Admission to the Dixie State University Respiratory Therapy program. FA.
RESP 2050. Introduction to Respiratory Care Pharmacology. 3 Hours.
Second semester course. Introduction to principles of pharmacology associated with treatment of infectious diseases and disorders of the hemotologic, cardiovascular, pulmonary, endocrine, renal, GI, and neurologic systems, including administration routes and dosage calculation of selected medications. Sedation management, anesthesia, analgesia, chemotherapeutic agents, specific application of principles associated with aerosolized medications, and topical absorption are also included. This course requires a Differential Tuition Rate which is an additional fee of $63 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Identify administration routes and perform dosage calculations for the selected medications. 2. Demonstrate an understanding of the pharmacology associated with treatment of infectious diseases and disorders of the hemotologic, cardiovascular, pulmonary, endocrine, renal, GI and neurologic systems. 3. Describe the concepts of pharmacologic management of sedation, anesthesia, analgesia, and chemotherapeutic agents. Prerequisite: Admission to the Dixie State University Respiratory Therapy program. SP.

RESP 2060. Patient Assessment. 2 Hours.
Second semester course. Introduction to basic patient assessment techniques, including physical assessment and integration of laboratory and diagnostic findings associated with specific diagnoses. Covers physical findings; radiologic findings and other imaging studies; laboratory tests such electrolytes, bacteriology, hematology, and metabolic studies; acid-base balance and blood gas analysis; basic pulmonary function; and hemodynamic values. Emphasis is on the integration of patient presentation and associated pathology. This course requires a Differential Tuition Rate which is an additional fee of $63 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Describe the elements and process involved in conducting an initial patient interview. 2. Describe the elements of physical examination of a patient (i.e. vital signs, breath sounds and respiratory patterns, chest assessment [palpation, percussion, inspection], cough and sputum, abnormal extremity findings [edema, clubbing, cyanosis, venous distention]) and the physiologic basis for these findings and/or symptoms. 3. Describe basic pulmonary function assessment [spirometry, expiratory flow measurements, flow-volume loops]. 4. Appropriately interpret arterial blood gas values and associated causes of blood-gas abnormalities. 5. Assess patient oxygenation and describe associated clinical indices used to assess and improve oxygenation. 6. Describe basic cardiovascular and hemodynamic assessment including ECGs, selected dysrhythmias, CVP, and PCWP. 7. Recognize the significance and normal values of laboratory tests, i.e. CBC and differential, electrolytes, blood chemistry. 8. Describe the indications and clinical significance of procedures such as bronchoscopy, sputum C & S, skin tests, and other endoscopies. 9. Describe imaging techniques utilized for chest assessment, i.e. radiography, CT scans, MRI scans, PET scans, V/Q scans, fluoroscopy and bronchoscopy. 10. Interpret the significance and clinical manifestations of various abnormal chest imaging findings. Prerequisite: Admission to the Dixie State University Respiratory Therapy program. SP.

RESP 2065. Cardiopulmonary Pathophysiology. 3 Hours.
Second semester course. Expands on RESP 2030 with an emphasis on cardiopulmonary and renal injuries, diseases, disorders, and conditions, using a case-based method that integrates the etiology, presentation, pathophysiology, diagnosis, treatment, and prognosis of cardiopulmonary, hemodynamic, and renal dysfunction. Also explores neonatal and pediatric pathologies of the renal and cardiopulmonary systems, including congenital and structural defects. This course requires a Differential Tuition Rate which is an additional fee of $63 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Describe cardiovascular diseases (i.e. atherosclerosis, CHD, hypertension, orthostatic hypotension, right- and left-sided heart failure). 2. Describe and define pulmonary disorders, including COPD, CF, pneumonia, croup, epiglottitis, bronchiolitis [RSV], pulmonary edema, pulmonary embolism, interstitial lung disease, neuromuscular disorders affecting breathing, ARDS, IRDS, respiratory failure, lung cancer, atelectasis, sleep apnea, near-drowning, smoke inhalation, traumatic chest injuries, and disorders of the pleura and chest wall. 3. Describe the physical findings and manifestations of the disorders listed above. 4. Describe diagnosis, appropriate therapy and prognosis of the above disorders. Prerequisite: Admission to the Dixie State University Respiratory Therapy program. SP.

RESP 2070. Respiratory Care Therapeutics II. 3 Hours.
Second semester course. Provides theory and clinical applications of respiratory therapy modalities, including airway management (intubation, extubation, tracheostomy care); manual ventilation; introduction to concepts of artificial ventilation (CPAP, BiPAP, positive and negative pressure ventilators); blood gas sampling, analysis, and quality control; noninvasive monitoring (oximetry, capnography, pulmonary mechanics); and equipment decontamination. Associated CPGs are introduced. Mastery of the clinical indications, contraindications, side-effects, and desired outcomes of therapies is required. This course requires a Differential Tuition Rate which is an additional fee of $63 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Describe the clinical indications, contraindications, side-effects, and goals of: Airway management: oral and nasal intubation of adults and children, and selection of appropriate equipment (including ET tubes, laryngeal masks/tubes, EOAs); Extubation; Tracheostomies; Manual ventilation; Mechanical ventilation; Blood gas sampling and analysis, including arterial, capillary, and indwelling arterial catheter samples; and Noninvasive monitoring. 2. Compare and contrast the use of direct sampling v. noninvasive monitoring of blood gas data. 3. Describe the process of calibrating and maintaining quality control systems for blood gas analyzers. 4. Compare and contrast the use of different methods of artificial ventilation (manual ventilation, CPAP, Bi-Level CPAP, positive and negative pressure ventilators). Prerequisite: Admission to the Dixie State University Respiratory Therapy program. SP.
RESP 2071. Laboratory Practice/Therapeutics II. 2 Hours.

Laboratory portion of RESP 2070. Requires students to master artificial airway management skills including endotracheal intubation and bag-valve-mask ventilation. Also provides practice in blood gas sampling, noninvasive monitoring, basic ventilatory support, basic pulmonary function assessments and bedside spirometry. This course requires a Differential Tuition Rate which is an additional fee of $63 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Describe the clinical indications, contraindications, side effects, and goals of the following procedures, and demonstrate mastery of the skills required to initiate, monitor, assess the effectiveness of, and modify these procedures: a. Airway management; oral and nasal intubation of adults and children, and selection of appropriate equipment (including ET tubes, laryngeal masks/tubes, EOA’s) b. Extubation c. Tracheostomies d. Manual ventilation e. Blood gas sampling and analysis, including arterial, capillary and in-dwelling arterial catheter samples f. Non-invasive monitoring. 2. Discuss and demonstrate the use of direct sampling versus non-invasive monitoring of blood gas data, including placement of transtunaneous and non-invasive probes for monitoring oxygen and carbon dioxide. 3. Describe the process of calibrating and maintaining quality control systems for blood gas analyzers. 4. Demonstrate competency in the use of different methods of artificial ventilation, including listing the indications and contraindications for each of the methods listed below and must also be able to assess the effectiveness of each method, monitor the patient receiving assisted ventilation, and suggest modifications for therapy if appropriate for each of the following: a. Manual ventilation with self-inflating and flow-inflating bags b. CPAP c. Bi-level CPAP. Course fee required. Prerequisite: Admission to the Dixie State University Respiratory Therapy program. SP.

RESP 2100. Clinical Practice I. 5 Hours.

Second semester course. Introduction to the hospital setting in order to practice clinical application of all skills mastered in RESP 2041 and RESP 2071 while developing interaction skills with patients and other members of the health care team. Proficiency must be demonstrated in providing therapies, monitoring and documenting care, and prioritizing to develop time management skills, while students participate in clinical care conferences and in evaluation of the appropriateness of care with respect to CPGs. 225 clinical hours. This course requires a Differential Tuition Rate which is an additional fee of $63 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Demonstrate proficiency in the initiation, monitoring, and assessment of the effectiveness of the following therapeutic: Oxygen and other medical gases; Aerosol therapy, both bland and medicated aerosols aerosos Humidity; Hyperinflation techniques Chest physiotherapy; and Airway clearance techniques. 2. Demonstrate competence in documentation ("charting") of all therapies practiced in this course. 3. Demonstrate appropriate interpersonal communication skills in interactions with peers, physicians, patients, and other allied health professionals, and other hospital staff. 4. Participate actively in the assessment of the effectiveness of therapies and be able to suggest appropriate modifications of therapy if needed. 5. Demonstrate appropriate professional demeanor and behavior with respect to timeliness, dress, adaptability, work ethic, and compliance with performance standards. 6. Discuss the clinical indications, contraindications, side-effects, and goals of all therapies practiced in this course. Prerequisite: Admission to the Dixie State University Respiratory Therapy program. SP.

RESP 2200. Cardiopulmonary Diagnostics. 3 Hours.

Third semester course. In-depth review of pulmonary function studies such as spirometry, lung volumes and diffusing capacities, bronchial provocation testing, and bronchodilator response studies as well as blood gas analysis and interpretation of arterial, capillary, and mixed venous blood gases, with an emphasis on case-based learning and application of diagnostic findings to initiating or modifying patient care. Introduction of cardiac assessments and interventions (EKGs, echocardiography, IABP support, and hemodynamics including Swann-Ganz and arterial catheters). This course requires a Differential Tuition Rate which is an additional fee of $63 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Describe how obstructive and restrictive lung diseases are interpreted on simple spirometry and identify diseases or conditions that cause obstructive or restrictive patterns. 2. Define flow-volume loops and differentiate between normal, obstructive, and restrictive patterns. 3. Describe methods used to measure lung volumes and total lung capacity. 4. Define DLCO (diffusing capacity) and recognize normal values and the clinical implications of abnormal diffusing capacity. 5. Define bronchial provocation testing and pre- and post-dilator spirometry and the interpretation of test results (including "reversibility"). 6. Quality control of PFT and ABG equipment and criteria for acceptability of pulmonary function studies. 7. Define normal fluid balance. 8. Define hemodynamic measurements, including normal values and clinical implications of abnormal values for the following parameters: systemic and pulmonary vascular resistance, MAP, CVP, PAP and PCWP, preload and afterload. 9. Recognize the following ECG rhythms and their associated clinical manifestations and treatments: Atrial fibrillation, Atrial flutter, Ventricular fibrillation, Ventricular tachycardia, PVCs (unifocal and multifocal), Asystole, Sinus rhythm (including NSR, bradycardia and tachycardia), Atrioventricular block (including 1st, 2nd, and 3rd degree blocks, PEA (pulseless electrical activity, also referred to as EMD [electro-mechanical dissociation]). Prerequisite: Admission to the Dixie State University Respiratory Therapy program. SU.

RESP 2300. Introduction to Mechanical Ventilation. 3 Hours.

Third semester course. Theory and clinical indications of all modes of ventilatory support, emphasizing mastery of understanding the indications for initiation and continuation of ventilatory support, assessing and monitoring patients on life-support, integrating patient response to therapy with recommendations for modifying ventilator support, and determining the appropriate time and method for weaning from mechanical ventilation. Includes application of CPAP, BiPAP, negative pressure ventilation, and positive pressure ventilation, and introduces ventilators used in extended care or home care. This course requires a Differential Tuition Rate which is an additional fee of $63 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Appropriately select patients in need of mechanical ventilation. 2. Initiate mechanical ventilation in appropriate mode with appropriate settings. 3. Manage the patient on the ventilator. Knows how to make appropriate changes to achieve desirable ABGS. 4. Wean patient from the ventilator. Use weaning parameters for decision making. 5. Analyze waveforms for patient-ventilator system assessment. 6. Know all contra-indications and hazards of mechanical ventilation. 7. Know and practice current strategies of mechanical ventilation. Prerequisite: Admission to the Dixie State University Respiratory Therapy program. SU.
RESP 2301. Laboratory/Adult Mechanical Ventilation. 2 Hours.
Lab portion of RESP 2300. Case-based practice in selecting appropriate mode of mechanical ventilation from a wide range of ventilation modes based on patient situations; then initiating, monitoring, assessing, and recommending changes to ventilatory support; and weaning from mechanical ventilation. A wide range of ventilation modes and applications is mastered through a case-based format. This course requires a Differential Tuition Rate which is an additional fee of $63 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Initiate continuous mechanical ventilation. 2. Monitor continuous mechanical ventilation. 3. Perform ventilator management. 4. Perform ventilator weaning. 5. Choose appropriate ventilator modes. 6. Analyze waveforms. 7. Practice current ventilator strategies. Course fee required. Prerequisite: Admission to the Dixie State University Respiratory Therapy program. SU.

RESP 2310. Clinical Practice II. 5 Hours.
Third semester course. Clinical experience course emphasizing the provision of mechanical ventilation and assessment of patients in the emergency and intensive care settings. 225 clinical hours. This course requires a Differential Tuition Rate which is an additional fee of $63 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Initiate NPPV. 2. Initiate continuous mechanical ventilation. 3. Monitoring of continuous mechanical ventilation. 4. Change a ventilator circuit. 5. Spontaneous ventilator parameters. 6. PEEP, CPAP, IMV, and pressure support modes. 7. Static and dynamic pressure-volume curves. 8. Waveform analysis. 9. Participate as part of the interdisciplinary team. Prerequisite: Admission to the Dixie State University Respiratory Therapy program. SU.

RESP 2400. Alternative Site and Subacute Respiratory Care. 1 Hour.
Fourth semester course. Introduces practice of respiratory care in a home care/DME setting, pulmonary rehabilitation, patient education, smoking cessation, asthma management, and sleep disorders including sleep apnea. This course requires a Differential Tuition Rate which is an additional fee of $63 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Define the goals of a pulmonary rehabilitation program and describe the essential educational topics included in such a program. 2. Describe patient and family education and care of a pulmonary patient in the home. 3. Describe the specific patient education needs for patients with asthma, including medication administration and types of medications, self-monitoring, and asthma management. 4. Discuss the primary work responsibilities of a respiratory therapist employed in the home care/DME industry. 5. Describe several methods of smoking cessation and specifically describe the use of nicotine-replacement therapies. 6. Describe the types of sleep disorders and specifically note the criteria required for a diagnosis of sleep apnea based on polysomnography studies. 7. Discuss the care of patients in a LTAC setting. 8. Discuss a respiratory therapists role on the Life Flight team. 9. Acquire job seeking skills such as applications, resume writing, and job interviewing. Prerequisite: Admission to the Dixie State University Respiratory Therapy program. FA.

RESP 3005. Critical Care/ACLS. 3 Hours.
Third semester course. Expands basic skills acquired in previous respiratory therapy courses and focuses on the presentation and management of patients in the ICU and emergency settings, emphasizing patient assessment and procedures involved in resuscitation including current practices in advanced life support. This course requires a Differential Tuition Rate which is an additional fee of $63 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Apply ACLS algorithms to clinical situations. 2. Describe the principles of monitoring the respiratory system (and other critical systems) of patients in the ICU. Prerequisite: Admission to the Dixie State University Respiratory Therapy program. SU.

RESP 3020. Neonatal/Pediatric Respiratory Care. 3 Hours.
Fourth semester course. Introduces theory and practice of pediatric and neonatal respiratory care, including specific anatomy, physiology and pathophysiology associated with neonates and children. Includes assessment, management, ventilatory techniques and equipment specific to infants and children as well as pharmacology, with medications and dosages specific to infants and children, and ventilatory modes such as HFJV and oscillation ventilation. This course requires a Differential Tuition Rate which is an additional fee of $63 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Describe the appropriate assessment of newborn and pediatric patients. 2. Describe neonatal resuscitation and the specific role of the respiratory therapist in this process. 3. Describe the indications, contraindications, and hazards of oxygen therapy, CPAP and High Flow for neonates. 4. Describe the procedure for administering surfactant, and other respiratory medications to infants and pediatric patients. 5. Describe the techniques of intubation of the infant and pediatric patient. 6. Describe the ability to set up infant and pediatric ventilator circuits, and the appropriate ventilator settings for delivery of ventilation. 7. Describe the concept of nitric oxide therapy and define acceptable doses within therapeutic ranges. 8. Describe the various forms of non-invasive monitoring of relevant respiratory parameters, and how to attach them and maintain accurate values. Prerequisite: Admission to the Dixie State University Respiratory Therapy program. FA.

RESP 3021. Laboratory Practice/Neonatal Care. 2 Hours.
Fourth semester course. Laboratory practice of techniques associated with airway management, ventilatory support, and resuscitation of infants and children. Case-based learning emphasizes patient assessment and initiation of appropriate respiratory support for infants and children. This course requires a Differential Tuition Rate which is an additional fee of $63 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Demonstrate the ability to appropriately use oxygen delivery equipment and apply it safely. 2. Demonstrate an understanding of the NeoPuff and be able to use it to provide CPAP, or resuscitation on newborn infants. 3. Demonstrate the ability to set up and adjust CPAP and High Flow systems. 4. Demonstrate the procedure for administering surfactant, and other respiratory medications to neonates, infants, and pediatric patients. 5. Demonstrate the techniques of intubation of the infant and pediatric patient. 6. Demonstrate ability to set up infant and pediatric ventilator circuits, and determine appropriate ventilator settings for delivery of ventilation. 7. Demonstrate ability to set up neonatal ventilator circuits, and determine appropriate ventilator settings for delivery of ventilation. 8. Demonstrate ability to set up infant and pediatric ventilator circuits, and determine appropriate ventilator settings for delivery of ventilation. 9. Demonstrate competence in selection and application of all therapeutic modalities included in RESP 3021, 2301, 2071, and 2041. Course fee required. Prerequisite: Admission to the Dixie State University Respiratory Therapy program. FA.
RESP 3100. Clinical Practice III. 5 Hours.
Fourth semester course. Capstone clinical practice course includes experience in neonatal intensive care as well as demonstrating continuing competency in adult intensive care, emergency care, and general respiratory care. Clinical rotations include experience in the home care setting and sleep laboratory. 300 clinical hours. This course requires a Differential Tuition Rate which is an additional fee of $63 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Demonstrate competence of appropriate assessment of newborn and pediatric patients. 2. Demonstrate competence in neonatal resuscitation and the specific role of the respiratory therapist in this process. 3. Demonstrate knowledge of the indications, contraindications, and hazards of oxygen therapy, CPAP and High Flow for neonates. 4. Demonstrate competency of knowledge and procedure for administering surfactant, and other respiratory medications to infants and pediatric patients. 5. Demonstrate knowledge of the techniques of intubation of the infant and pediatric patient. 6. Demonstrate competence in the ability to set up infant and pediatric ventilator circuits, and the appropriate ventilator settings for delivery of ventilation. 7. Demonstrate knowledge of nitric oxide therapy and define acceptable doses within therapeutic ranges. 8. Demonstrate competence in the various forms of non-invasive monitoring of relevant respiratory parameters, and how to attach them and maintain accurate values. Prerequisite: Admission to the Dixie State University Respiratory Therapy program. FA.

RESP 3150. Critical Thinking Seminar/NBRC Review. 3 Hours.
Fourth semester course. Comprehensive curriculum review based on NRBC credentialing exams. Case-based clinical simulations require students to integrate all concepts learned throughout the curriculum and clinical practice courses and apply this knowledge to branching-logic scenarios. This course requires a Differential Tuition Rate which is an additional fee of $63 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Describe the NBRC examination matrices for the TMC, and Clinical Simulation examinations, including recognizing the distribution of examination content and the cognitive level of questions in each content area. 2. Interpret his/her individual NBRC score report to determine curricular strengths and weaknesses. 3. Develop an appropriate study strategy, based on the NBRC SAE reports, to prepare for the successful completion of licensure and credentialing examinations (following program completion). 4. Define the procedures to apply to the NBRC for completion of their credentialing process, including fees and documents required. 5. Demonstrate mastery of selected physiologic assessment and monitoring parameters, i.e. oxygen and ventilation parameters, hemato logic findings, blood chemistry, enzymes, and electrolytes; cardiac and hemodynamic measurements, pulmonary function assessment. 6. Demonstrate mastery of basic mathematic skills required for successful completion of the NBRC examinations, i.e. multiplication, division, use of simple algebraic formulas without benefit of electronic calculator. 7. Demonstrate mastery of pharmacologic therapies utilized in respiratory care, i.e. indications and contraindications for medications used in treating cardiac, pulmonary, and renal disorders and in managing patients receiving mechanical ventilation. 8. Pass the Secure Comprehensive TMC Self-Assessment examination administered at the conclusion of this course. Prerequisite: Admission to the Dixie State University Respiratory Therapy program. FA.

Surgical Technology Courses

SURG 1000. Introduction to Surgical Technology. 2 Hours.
First semester course. Students will be introduced to the profession of surgical technology. Students will acquire knowledge of professional requirements and expectations, scope of practice, the surgical team, hospital and health delivery systems, the physical environment of surgery, hazards and safety practices, ethical and legal aspects, risk management, credentialing, and professional organizations. Students will gain an understanding of various roles for surgical technologists, and specific tasks required to deliver surgical patient care before, during, and after a surgical procedure. Taught in cohort rotation. This course requires a Differential Tuition Rate which is an additional fee of $105 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Explain aspects of professionalism as it applies to surgical technology including job duties, expected traits, credentialing, continuing education, employment, and related professional organizations. 2. Identify ethical, moral and legal concepts and responsibilities expected of a professional surgical technologist. 3. Describe aspects of surgical patient care including patient needs, the physical environment, hazards and safety, and perioperative case management. Prerequisite: Acceptance into the Surgical Technology program. FA.

SURG 1021. Surgical Sciences. 3 Hours.
First semester course. Foundational concepts of surgical microbiology and pathophysiology are introduced. Emphasis is placed on surgical applications of microbiology and pathophysiology including surgical infection control, diagnosis of diseases and disorders of human body systems, and identification of surgical interventions for specified pathophysiological conditions. Students apply basic medical terminology to develop fluency in surgical terminology. Taught in cohort rotation. This course requires a Differential Tuition Rate which is an additional fee of $105 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Communicate effectively and fluently utilizing surgical terminology. 2. Explain principles of microbiology relating to surgical infection control and surgical practice. 3. Identify diagnostic tests and surgical interventions for pathophysiologic conditions of human body systems. 4. Access and evaluate resources to obtain current information on surgical microbiology, and surgical diagnosis and treatment of pathophysiologic conditions of human body systems. Prerequisite: Acceptance into the Surgical Technology program. FA.

SURG 1050. Surgical Technology Theory. 3 Hours.
First semester course. Introduction to fundamentals of the surgical environment, including principles and applications of sterile technique, sterilization principles and practices, safety practices in the OR, handling and safety of specialized equipment, and introduction to surgical case management. Taught in cohort rotation. This course requires a Differential Tuition Rate which is an additional fee of $105 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Explain principles and applications of sterile technique. 2. Identify methods and parameters for sterilization of surgical items. 3. Discuss use and safety for surgical supplies, instruments and equipment. 4. Explain aspects of surgical case management including definitions, indications, anatomy, and procedure sequence for selected surgical interventions. Prerequisite: Acceptance into the Surgical Technology program. FA.
SURG 1055. Surgical Technology Lab I. 2 Hours.
First semester course. Students learn, practice, and demonstrate entry-level surgical technology skills such as scrubbing, gowned, and gloved, aseptic technique, instrument identification, preparation of the sterile field, safe sharps handling, procedure steps anticipation, and professional behaviors. Taught in cohort rotation. This course requires a Differential Tuition Rate which is an additional fee of $105 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Demonstrate the role and functions of the ST at the introductory level. 2. Demonstrate sterile techniques and sterile conscience necessary to prevent surgical site infections. 3. Identify and safely handle surgical instruments and supplies. 4. Demonstrate professional behaviors expected of surgical technologists. Course fee required. Prerequisite: Acceptance into the Surgical Technology program. FA.

SURG 1060. Surgical Technology Clinical I (ALPP). 4 Hours.
First semester course. Students correlate theory to practice in an actual surgical setting. Students apply previously learned foundational information and hands on skills as they perform in the first scrub role in assigned surgical procedures under the supervision of clinical site preceptors. An emphasis is placed on developing competence in basic surgical procedures in various surgical specialties. Taught in cohort rotation. This course is designated as an Active Learning Professional Practice (ALPP) course. This course allows students to explore and apply content learned in the course in a professional experience away from the classroom. This course requires a Differential Tuition Rate which is an additional fee of $105 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Demonstrate employment level surgical technology skills in the scrub role for surgical procedures as assigned at the clinical site with an emphasis on increasingly more complicated procedures. 2. Effectively and safely manipulate surgical equipment, instruments, and supplies. 3. Consistently maintain aseptic technique, demonstrating the application of a strong sterile conscience. 4. Correlate foundational information with safe clinical practice. 5. Demonstrate increasingly higher order analysis, problem solving and critical thinking skills in surgical technology practice. 6. Demonstrate appropriate and effective communication skills. 7. Collaborate with other members of the operating room team in providing safe surgical patient care. 8. Practice the legal, ethical and professional responsibilities of the surgical technologist. 9. Demonstrate the ability to maintain a stable emotional state, even under stressful conditions, which will enable the effective use of reason and good judgment in patient care situations. Prerequisite: Acceptance into the Surgical Technology program. FA.

SURG 2010. Surgical Procedures. 2 Hours.
First semester course. Students gain information necessary for safe medication practice in surgery. Students attain competence in the metric system, medication calculations, fundamental concepts of pharmacology, medication identification and handling, medications used in surgery and at the surgical site, and aspects of anesthesia. Taught in cohort rotation. This course requires a Differential Tuition Rate which is an additional fee of $105 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Calculate metric equivalents for surgical and medication applications. 2. Utilize medication resources to obtain current information on surgical medications. 3. Organize medication information using a framework of basic pharmacology principles. 4. Discuss aspects of safe medication administration. 5. Apply principles of pharmacology including agents, categories, and purposes to medications used in surgery. 6. Describe preoperative, intraoperative, and emergency anesthesia concepts. Prerequisite: Acceptance into the Surgical Technology program. FA.

SURG 2050. Surgical Procedures. 7 Hours.
Second semester course. Students identify anatomy, physiology, pathophysiology, diagnostic tests, medications, equipment, instruments, supplies, procedural steps, and postoperative patient care concepts for surgical procedures in all major surgical specialties. Taught in cohort rotation. This course requires a Differential Tuition Rate which is an additional fee of $105 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Correlate medical terminology, surgical anatomy, physiology, pathophysiology, diagnostic interventions, special considerations, medications, supplies, equipment, and instrumentation to designated surgical procedures. 2. Summarize the sequence of steps conducted during designated surgical procedures. 3. Explain surgical wound classification, prognosis, and postoperative care of the patient for designated surgical procedures. Course fee required. Prerequisite: Acceptance into the Surgical Technology program. SP.

SURG 2055. Surgical Technology Lab II. 1 Hour.
Second semester course. Students learn, practice, and demonstrate intermediate level surgical technology skills with an emphasis on anticipation skills, surgical specialty instrumentation, and professional behaviors. Students also develop critical thinking competence in aseptic practice by identifying, analyzing, and correcting errors in sterile technique. Taught in cohort rotation. This course requires a Differential Tuition Rate which is an additional fee of $105 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Satisfactorily perform the roles and functions of the ST at employment entry-level. 2. Demonstrate sterile techniques and sterile conscience necessary to prevent surgical site infections. 3. Identify and safely handle specialty surgical instruments and supplies. 4. Demonstrate professional behaviors expected of surgical technologists. Course fee required. Prerequisite: Acceptance into the Surgical Technology program. SP.
SURG 2060. Surgical Technology Clinical II (ALPP). 7 Hours.
Second semester course. Students correlate theory to practice in an actual surgical setting. Students apply previously learned foundational information and skills as they perform in the first scrub role in assigned surgical procedures under the supervision of clinical preceptors. Am emphasis is placed on developing competence in more complex surgical procedures in various surgical specialties. Taught in cohort rotation. This course is designated as an Active Learning Professional Practice (ALPP) course. This course allows students to explore and apply content learned in the course in a professional experience away from the classroom. This course requires a Differential Tuition Rate which is an additional fee of $105 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Demonstrate employment level surgical technology skills in the scrub role for surgical procedures as assigned at the clinical site with an emphasis on increasingly more complicated procedures. 2. Effectively and safely manipulate surgical equipment, instruments, and supplies. 3. Consistently maintain aseptic technique, demonstrating the application of a strong sterile conscience. 4. Correlate foundational information with safe clinical practice. 5. Demonstrate increasingly higher order analysis, problem solving and critical thinking skills in surgical technology practice. 6. Demonstrate appropriate and effective communication skills. 7. Collaborate with other members of the operating room team in providing surgical patient care. 8. Practice the legal, ethical and professional responsibilities of the surgical technologist. 9. Demonstrate the ability to maintain a stable emotional state, even under stressful conditions, which will enable the effective use of reason and good judgment in patient care situations. Prerequisite: Acceptance into the Surgical Technology program. SP.

SURG 2070. Surgical Synthesis. 1 Hour.
Second semester course. Students analyze the clinical experience by maintaining accurate documentation of case experiences and presenting case studies. Students correlate clinical experiences to surgical technology theory to prepare for the National Board Certification Examination. Taught in cohort rotation. This course requires a Differential Tuition Rate which is an additional fee of $105 charged per credit hour. **COURSE LEARNING OUTCOMES (CLOs) At the successful conclusion of this course, students will be able to: 1. Correlate theory and clinical surgical experiences. 2. Analyze surgical experiences to increase competence. 3. Prepare for certification examination and employment. Prerequisite: Acceptance into the Surgical Technology program. SP.