R

RADIOLOGIC TECHNOLOGY

RAD 100 Introduction to Radiologic Technology (3) Fall
3 hours lecture per week
Prerequisite(s): Acceptance into the Radiologic Technology program.
Corequisite(s): RAD 100L; RAD 105; RAD 140.
Comment: RAD 100 is offered in the fall semester only. Letter grade only. RAD 100 may not be taken credit/no credit. RAD 100 may not be audited.

RAD 100 provides an introduction to radiologic technology procedures: ethics, safety, dark room chemistry and technique, elementary radiographic positioning, radiographic exposure principles.

Upon successful completion of RAD 100, the student should be able to:

- Discuss basic ethical principles in the performance of one's duties as a radiologic technologist.
- Explain the principles of processing techniques and radiographic exposure and correlate with skills necessary for thorough and efficient functioning in a darkroom.
- Describe the principles of radiologic techniques and correlate theoretical knowledge with practical application.
- Explain the principles of basic radiographic positioning of structures, and correlate this knowledge with practical application.
- Describe the organizational structure of the hospital and its function in society.
- Describe the role of the radiologic technologist in infection control, patient safety, and effective communication.
- State a brief description of job tasks, educational systems, requirements for licensure, employment and career opportunities, and any special aptitudes necessary for working in radiologic technology as a health career.
- State the importance of having specific knowledge about professionalism, death, patient rights, ethics, health insurance, and other medical-legal considerations.

RAD 100L Introduction to Radiologic Technology Laboratory (2) Fall
6 hours lab per week
Prerequisite(s): Acceptance into the Radiologic Technology program.
Corequisite(s): RAD 100; RAD 105; RAD 140.
Comment: RAD 100L is offered in the fall semester only. Letter grade only. RAD 100L may not be taken credit/no credit. RAD 100L may not be audited.

RAD 100L provides an introduction to radiologic technology procedures: processing, positioning, and equipment.

Upon successful completion of RAD 100L, the student should be able to:

- Apply techniques taught in RAD 100, including processing, radiographic exposure, and positioning.
- Apply the basic concepts of personal and professional adjustment in interpersonal relationships with members of peer groups and instructional staff.
- Apply the principles of medical ethics to analyze, synthesize, and/or evaluate simulated clinical situations involving medical ethics.
- Name and discuss the chemical constituents of processing solutions and their functions.
- Discuss the function(s) of and safely apply various darkroom and processor apparatus.
- Explain to the satisfaction of the instructor the theory of X-ray technique.
- Apply knowledge of radiographic anatomy by correctly positioning the chest, abdomen,

upper and lower extremities, shoulder girdle, hip joint, and pelvic girdle to obtain diagnostic radiographs.

RAD 105 Radiologic Pharmacology (2)
2 hours lecture per week
Prerequisite(s): Acceptance into Radiologic Technology program; a grade of "C" or higher in BIOL 130; a grade of "C" or higher in BIOL 130L.
Comment: Letter grade only. RAD 105 may not be taken credit/no credit. RAD 105 may not be audited.

RAD 105 provides basic concepts of general pharmacology and the use, effects and side-effects of select drugs or medications presented in the course

Upon successful completion of RAD 105, the student should be able to:

- Distinguish between the chemical, generic and trade names of select drugs.
- Describe pharmacokinetic and pharmacodynamic principles of drugs.
- Classify drugs as presented in the course.
- Explain the use, effects and side-effects of select drugs.
- Define the categories of contrast media and give specific examples of each category.
- Describe the methods and techniques of select drug administration.
- Describe the routes of administration.
- Describe complications and the appropriate treatment measures for these complications associated with select drugs.
- Prepare an injection using sterile technique.
- Explain a radiographer's professional liability concerning drug administration.

RAD 110 Radiologic Technique (3) Spring
3 hours lecture per week
Prerequisite(s): A grade of "C" or higher in RAD 100; a grade of "C" or higher in RAD 100L; a grade of "C" or higher in RAD 105; a grade of "C" or higher in RAD 140.
Corequisite(s): RAD 110L; RAD 120; RAD 141; RAD 149.
Comment: RAD 110 is offered in the spring semester only. Letter grade only. RAD 110 may not be taken credit/no credit. RAD 110 may not be audited.

RAD 110 covers principles of x-ray technique and patient care during radiographic procedures.

Upon successful completion of RAD 110, the student should be able to:

- Explain the principles of radiographic technique and correlate this knowledge with practical application.
- Discuss patient care procedures and techniques used in the general care of the patient with emphasis on the role of the radiologic technologists.
- Explain the theory of x-ray machine technique and exposure factors.
- Knowledgeably and correctly discuss basic radiographic anatomy and positioning of the cranium, spine, bony thorax, and soft tissues of the chest.
- Describe the role of the Radiologic Technologist in patient assessment, administering medications, and caring for emergency room and special needs patients.

RAD 110L Radiologic Technique Laboratory (2) Spring
6 hours lab per week
Prerequisite(s): A grade of "C" or higher in RAD 100; a grade of "C" or higher in RAD 100L; a grade of "C" or higher in RAD 105; a grade of "C" or higher in RAD 140.
Corequisite(s): RAD 110; RAD 120; RAD 141; RAD 149.
Comment: RAD 110L is offered in the spring semester only. Letter grade only. RAD 110L may not be taken credit/no credit. RAD 110L may not be audited.

RAD 110L covers the application of technique charts to radiography of specified body structures.

Upon successful completion of RAD 110L, the student should be able to:

- Apply techniques taught in RAD 110, including producing radiographs of the skull, facial bones, spine, bony thorax, and soft tissues of the chest.
- Explain the theory of x-ray technique and apply this to correct determination of exposure factors.
- Correctly apply knowledge of basic patient care procedures and techniques.
- Apply knowledge of basic radiographic anatomy by correctly positioning the skull facial bones, spine, bony thorax and soft tissue of the chest to obtain diagnostic radiographs.

RAD 120 Radiologic Physics (3) Spring
3 hours lecture per week
Prerequisite(s): A grade of "C" or higher in RAD 100; a grade of "C" or higher in 100L; a grade of "C" or higher in 140.
Corequisite(s): RAD 110; RAD 110L; RAD 141; RAD 149.
Comment: RAD 120 is offered in the spring semester only. Letter grade only. RAD 120 may not be taken credit/no credit. RAD 120 may not be audited.

RAD 120 provides a foundation in basic principles of ionizing radiation applied to equipment used in radiologic technology.

Upon successful completion of RAD 120, the student should be able to:

- Explain the fundamentals of electrical and radiation physics and the basic principles underlying the operation of x-ray equipment and auxiliary devices.
- Identify and explain importance of applying basic principles of radiation biology and protection.
- Explain the function of each part in x-ray machine circuit.
- Explain the method of production of x-rays and the interactions of x-rays and matter.

NOTICE: RAD 140, 141, 142, 240, 241 and 242 are special courses in Hospital Radiographic Technique.
Courses in Hospital Radiographic Technique provide approximately 2200 hours of clinical experience in the radiology department of a cooperating hospital. These experiences include observation of and practice in positioning the sick and injured patient, obtaining the exact radiograph requested by the physician, and assisting in treatment of disease. In these special courses in Hospital Radiographic Technique film exposure time, film manipulation and the finished radiograph are critically studied. Throughout the two academic years and interim summer, certain approved radiographs must be completed. These, by location, include radiographs of extremities, gastrointestinal tract, urinary tract, skull (sinuses, facial bones, mastoids, mandible), spine, pelvis (hip-nailing), shoulder and thoracic cage and cavity (lungs, heart and sternum).

RAD 140 Hospital Radiographic Technique I (6) Fall
360 total clinical hours
Prerequisite(s): Acceptance into the Radiologic Technology program.
Corequisite(s): RAD 100; RAD 100L; RAD 105.
Comment: 280 clinical hours during 16 week semester, 80 clinical hours during 4 week semester break. RAD 140 is offered in the fall semester only. Letter grade only. RAD 140 may not be audited. RAD 140 may not be taken credit/no credit.

RAD 140 provides for observation and supervised practice in positioning the patient and obtaining approved radiographs as requested with emphasis on chest, abdomen, and upper extremities.

Upon successful completion of RAD 140, the student should be able to:

- Perform safe, correct radiographic technique and positioning, with emphasis on the chest, abdomen, upper extremities.

- Correctly adapt technical factors to meet the clinical situation.
- Correlate anatomy and physiology and radiographic procedures and techniques.
- Carry out assigned radiographic procedures in the clinical area with 100 percent accuracy as determined by satisfactory clinical evaluation comments.
- Correlate anatomy and physiology and assigned radiographic procedures with 100 percent accuracy as determined by satisfactory clinical evaluation comments.
- Demonstrate professionalism in attendance, attitude, and behavior.
- Perform required clinical competencies.

RAD 141 Hospital Radiographic Technique II (5) Spring
317 total clinical hours
Prerequisite(s): A grade of "C" or higher in RAD 100; a grade of "C" or higher in RAD 100L; a grade of "C" or higher in RAD 105; a grade of "C" or higher in RAD 140.
Corequisite(s): RAD 110; RAD 110L; RAD 120; RAD 149.
Comment: RAD 141 is offered in the spring semester only. Letter grade only. RAD 141 may not be taken credit/no credit. RAD 141 may not be audited.

RAD 141 provides for observation and supervised practice in positioning the patient and obtaining approved radiographs as requested with emphasis on specified structures.

Upon successful completion of RAD 141, the student should be able to:

- Perform safe, correct radiographic technique and positioning, with emphasis on the skull, facial bones, spine and bony thorax.
- Correctly adapt technical factors to meet the clinical situation.
- Correlate anatomy and physiology and radiographic procedures and techniques.
- Carry out assigned radiographic procedures in the clinical area with 100 percent accuracy as determined by satisfactory clinical evaluation comments.
- Correlate anatomy and physiology and assigned radiographic procedures with 100 percent accuracy as determined by satisfactory clinical evaluation comments.
- Perform required clinical competencies.

RAD 142 Hospital Radiographic Technique III (7) Summer
416 total clinical hours
Prerequisite(s): A grade of "C" or higher in RAD 110; a grade of "C" or higher in RAD 110L; a grade of "C" or higher in RAD 120; a grade of "C" or higher in RAD 141; a grade of "C" or higher in RAD 149.
Corequisite(s): RAD 150.
Comment: RAD 142 is offered in the summer only. Letter grade only. RAD 142 may not be taken credit/no credit. RAD 142 may not be audited.

RAD 142 provides for observation and supervised practice in positioning the patient and obtaining approved radiographs as requested with emphasis on specified structures.

Upon successful completion of RAD 142, the student should be able to:

- Perform safe, correct radiographic technique and positioning, with emphasis on the cranium and bedside radiography of the chest, abdomen and skeletal system.
- Adapt technical factors to meet the clinical situation.
- Correlate anatomy and physiology and radiographic procedures and techniques.
- Apply pediatric radiography in clinical setting.
- Carry out assigned radiographic procedures in the clinical area with 100 percent accuracy as determined by satisfactory clinical evaluation comments.
- Correlate anatomy and physiology with assigned radiographic procedures with

100 percent accuracy as determined by satisfactory clinical evaluation comments.
- Perform required clinical competencies.

RAD 149 Radiographic Film Critique I (1) Spring
1 hour lecture per week
Prerequisite(s): A grade of "C" or higher in RAD 100; a grade of "C" or higher in RAD 100L; a grade of "C" or higher in RAD 105; a grade of "C" or higher in RAD 140.
Corequisite(s): RAD 110; RAD 110L; RAD 120; RAD 141.
Comment: RAD 149 is offered in the spring semester only. Letter grade only. RAD 149 may not be taken credit/no credit. RAD 149 may not be audited.

RAD 149 focuses on evaluation of radiographic technique through critique of films obtained in RAD 141; presentation of case reports.

Upon successful completion of RAD 149, the student should be able to:

- Recognize and describe the prime factors of radiography and the factors that affect the radiographic quality of a film.
- Discuss specific changes that could be made to the prime factors of radiography and the factors that affect radiographic film quality to improve the quality of specific films.
- Correlate knowledge gained in lecture classes with factors that affect radiographic quality of a film.
- Correlate knowledge of anatomy and physiology, including cross-sectional anatomy, with radiographic procedures performed in RAD 140 and 141.
- Apply the knowledge gained in RAD 110, 110L and 141 to identify the types of assigned radiographs.
- Apply knowledge gained in RAD 110, 110L, and 141 to identify normal anatomical structures on assigned radiographs.
- Apply knowledge gained in RAD 110, 110L, and 141 to any and all aspects of radiography viewed in properly exposed and processed films.
- Identify the elements of thorough radiographic image evaluation.
- Judge whether an image is optimal, diagnostic, or needs to be repeated.

RAD 150 Radiographic Film Critique II (1) Summer
2 hours lecture per week
Prerequisite(s): A grade of "C or higher in RAD 110; a grade of "C" or higher in RAD 110L; a grade of "C" or higher in RAD 120; a grade of "C" or higher in RAD 141.
Corequisite(s): RAD 142.
Comment: RAD 150 is offered in the summer only. Letter grade only. RAD 150 may not be taken credit/ no credit. RAD 150 may not be audited.

RAD 150 focuses on evaluation of radiographic technique through critique of films obtained in RAD 142; presentation of case reports.

Upon successful completion of RAD 150, the student should be able to:

- Recognize and describe the prime factors of radiography and the factors that affect the radiographic quality of a film.
- Discuss specific changes that could be made to the prime factors of radiography and the factors that affect radiographic film quality to improve the quality of specific films.
- Correlate knowledge gained in lecture classes with factors that affect radiographic quality of a film.
- Correlate knowledge of anatomy and physiology, including cross-sectional anatomy, with radiographic procedures performed in RAD 141 and 142.
- Apply the knowledge gained in beginning courses to identify assigned radiographs.
- Apply knowledge gained in beginning courses to identify normal anatomical structures on assigned radiographs.

- Apply knowledge gained in beginning courses to identify all types of film artifacts.
- Apply knowledge gained in beginning courses to identify properly done radiographs.
- Use a film evaluation procedure to explain how to improve the diagnostic quality of a radiograph.
- Discuss radiographic quality based on factors governing recognition and differentiation.

RAD 200 Advanced Radiologic Positioning (3) Fall
3 hours lecture per week
Prerequisite(s): A grade of "C" or higher in RAD 142; a grade of "C" or higher in RAD 150.
Corequisite(s): RAD 200L; RAD 210; RAD 240; RAD 248.
Comment: RAD 200 is offered in the fall semester only. Letter grade only. RAD 200 may not be audited. RAD 200 may not be taken credit/no credit.

RAD 200 focuses on advanced radiographic positioning of the osseous system.

Upon successful completion of RAD 200, the student should be able to:

- Explain principles of advanced x-ray positioning of osseous structures.
- Correlate knowledge of principles with practical application.

RAD 200L Advanced Radiologic Positioning Laboratory (2) Fall
6 hours lab per week
Prerequisite(s): a grade of "C" or higher in RAD 142; a grade of "C" or higher in RAD 150.
Corequisite(s): RAD 200; RAD 210; RAD 240; RAD 248.
Comment: RAD 200L is offered in the fall semester only. Letter grade only. RAD 200L may not be audited. RAD 200L may not be taken credit/no credit.

RAD 200L develops skills in the construction and application of technique charts for the osseous system, and the application and use of contrast media in radiologic technology procedures.

Upon successful completion of RAD 200L, the student should be able to:

- Apply techniques taught in RAD 200.
- Construct technique charts in advanced anatomy and positioning of the osseous system.
- Correctly carry out procedures involving the use of contrast media in radiography.
- Apply advanced techniques of positioning structures and organs to obtain diagnostic radiographs.

RAD 210 Advanced Radiologic Technique (3) Fall
3 hours lecture per week
Prerequisite(s): A grade of "C" or higher in RAD 142; a grade of "C" or higher in RAD 150.
Corequisite(s): RAD 200; RAD 200L; RAD 240; RAD 248.
Comment RAD 210 is offered in the fall semester only. Letter grade only. RAD 210 may not be taken credit/no credit. RAD 210 may not be audited.

RAD 210 focuses on advanced principles of radiographic exposure, contrast media procedures, pediatric radiography, diseases/injuries and relationship to radiology; introduction to computer applications in radiography.

Upon successful completion of RAD 210, the student should be able to:

- Explain the manipulation of exposure factors.
- Explain procedure in radiography involving the use of contrast media.
- Explain the methods of pediatric radiography.
- Explain certain changes that occur in disease and injury and their application to radiologic technology.
- Explain advanced principles of imagery and technique, including computer applications.

RAD 230 Special Radiographic Procedures (3) Spring
3 hours lecture per week
Prerequisite(s): A grade of "C" or higher in RAD 200; a grade of "C" or higher in RAD 200L; a grade of "C" or higher in RAD 210; a grade of "C" or higher in RAD 240; a grade of "C" or higher in RAD 248.
Corequisite(s): RAD 230L; RAD 241; RAD 249; RAD 255.
Comment: RAD 230 is offered in the spring semester only. Letter grade only. RAD 230 may not be audited. RAD 230 may not be taken credit/no credit.

RAD 230 is a survey of special procedures in radiography and equipment involved.

Upon successful completion of RAD 230, the student should be able to:

- Describe each special radiographic procedure in terms of patient preparation, contrast medium employed, general procedural methods, method of administering contrast media, special equipment utilized, projections required, and anatomy visualized.
- Describe the special needles, guide wires and catheters required for each special procedure.
- Label the component parts and explain how each type of changer works in the clinical situation.
- Describe the procedural steps involved in the Seldinger technique and lumbar puncture.
- Identify cross-sectional anatomy on computed tomography and magnetic resonance imaging scans.
- Explain the imaging principles of ultrasonography, computed tomography, magnetic resonance imaging, and nuclear medicine.

RAD 230L Special Radiographic Procedures Laboratory (2) Spring
6 hours lab per week
Prerequisite(s): A grade of "C" or higher in RAD 200; a grade of "C" or higher in RAD 200L; a grade of "C" or higher in RAD 210; a grade of "C" or higher in RAD 240; a grade of "C" or higher in RAD 248.
Corequisite(s): RAD 230; RAD 241; RAD 249; RAD 255.
Comment: RAD 230L is offered in the spring semester only. Letter grade only. RAD 230L may not be audited. RAD 230L may not be taken credit/no credit.

RAD 230L provides laboratory practice in special procedures in radiography and use of equipment involved.

Upon successful completion of RAD 230L, the student should be able:

- Describe each special radiographic procedure discussed in RAD 230 in terms of patient preparation, contrast medium employed, general procedural methods, method of administering contrast media, special equipment utilized, projections required, and anatomy visualized.
- Identify and describe the special needles, guide wires and catheters required for each special procedure discussed in RAD 230.
- Observe and explain how each type of changer works in the clinical situation.
- Observe and describe the procedural steps involved in the Seldinger technique and lumbar puncture.
- Identify cross-sectional anatomy on computed tomography and magnetic resonance imaging scans observed during laboratory sessions.
- Explain the imaging principles of ultrasonography, computed tomography, magnetic resonance imaging, and nuclear medicine.
- Correctly apply specified quality control measures and tests to radiographic and imaging equipment.

RAD 240 Hospital Radiographic Technique IV (7) Fall
413 total clinical hours
Prerequisite(s): A grade of "C" or higher in RAD 142; a grade of "C" or higher in RAD 150.

Corequisite(s): RAD 200; RAD 200L; RAD 210; RAD 248.
Comment: RAD 240 is offered in the fall semester only. Letter grade only. RAD 240 may not be audited. RAD 240 may not be taken credit/no credit.

RAD 240 provides for observation and supervised practice in pediatric radiography and radiography using contrast media.

Upon successful completion of RAD 240, the student should be able to:

- Apply safe, correct radiographic technique and positioning, with emphasis on radiographic examinations using contrast media of the gastrointestinal and urinary system.
- Correctly adapt technical factors to meet the clinical situation.
- Correlate anatomy and physiology and radiographic procedures and techniques.
- Apply basic principles of pediatric radiography.
- Carry out assigned radiographic procedures in the clinical area with 100 percent accuracy as determined by satisfactory clinical evaluation comments.
- Correlate anatomy and physiology and assigned radiographic procedures with 100 percent accuracy as determined by satisfactory clinical evaluation comments.
- Demonstrate professionalism in attendance, attitude, and behavior.
- Meet clinical objectives.

RAD 241 Hospital Radiographic Technique V (6) Spring
351 total clinical hours
Prerequisite(s): A grade of "C" of higher in RAD 200; a grade of "C" of higher in RAD 200L; a grade of "C" of higher in RAD 210; a grade of "C" of higher in RAD 240; a grade of "C" of higher in RAD 248.
Corequisite(s): RAD 230; RAD 230L; RAD 249; RAD 255.
Comment: RAD 241 is offered in the spring semester only. Letter grade only. RAD 241 may not be audited. RAD 241 may not be taken credit/no credit.

RAD 241 provides for observation and supervised practice in special procedures in radiography.

Upon successful completion of RAD 241, the student should be able to:

- Apply safe and correct radiographic technique and positioning, with emphasis on special radiographic examinations using and imaging techniques studied in RAD 230 and 230L.
- Correctly adapt technical factors to meet the clinical situation.
- Correlate of anatomy and physiology and radiographic procedures and techniques.
- Apply principles of pediatric radiography.
- Carry out assigned radiographic procedures in the clinical area with 100 percent accuracy as determined by satisfactory clinical evaluation comments.
- Correlate anatomy and physiology and assigned radiographic procedures with 100 percent accuracy as determined by satisfactory clinical evaluation comments.
- Meet clinical objectives.

RAD 242 Hospital Radiographic Technique VI (5) Summer
302 total clinical hours
Prerequisite(s): A grade of "C" or higher in RAD 230; a grade of "C" or higher in RAD 230L; a grade of "C" or higher in RAD 241; a grade of "C" or higher in RAD 249; a grade of "C" or higher in RAD 255.
Corequisite(s): RAD 260.
Comment: RAD 242 is offered in the summer only. Letter grade only. RAD 242 may not be audited. RAD 242 may not be taken credit/no credit.

RAD 242 provides for hospital clinical experiences with emphasis on experiences in operating room examinations with an advanced level of safe, correct radiographic technique and positioning, adaptation

of technical factors to meet the clinical situation, and correlation of anatomy and physiology to radiographic procedures and techniques. It includes rotation in either nuclear medicine or radiation therapy.

Upon successful completion of RAD 242, the student should be able to:

- Apply safe, correct radiographic technique and positioning, with emphasis on operating room examinations.
- Correctly adapt technical factors to meet the clinical situation.
- Correlate anatomy and physiology and radiographic procedures and techniques.
- Apply introductory knowledge of clinical practice in either nuclear medicine or radiation therapy.
- Carry out assigned radiographic procedures in the clinical area with 100 percent accuracy as determined by satisfactory clinical evaluation comments.
- Correlate anatomy and physiology and assigned radiographic procedures with 100 percent accuracy as determined by satisfactory clinical evaluation comments.
- Meet clinical objectives.

RAD 248 Radiographic Film Critique III (1) Fall
1 hour lecture per week
Prerequisite(s): A grade of "C" or higher in RAD 142; a grade of "C" or higher in RAD 150.
Corequisite(s): RAD 200; RAD 200L; RAD 210; RAD 240.
Comment: RAD 248 is offered in the fall semester only. Letter grade only. RAD 248 may not be taken credit/no credit. RAD 248 may not be audited.

RAD 248 is a problem-based seminar and focuses on advanced film critique stressing common procedures using contrast material as well as pediatric radiography.

Upon successful completion of RAD 248, the student should be able to:

- Recognize and describe the prime factors of radiography and the factors that affect the radiographic quality of a film.
- Discuss specific changes that could be made to the prime factors of radiography and the factors that affect radiographic film quality to improve the quality of specific films.
- Correlate knowledge gained in lecture classes with factors that affect radiographic quality of a film.
- Correlate knowledge of anatomy and physiology, including cross-sectional anatomy, with radiographic procedures performed during RAD 240.
- Apply the knowledge gained in advanced radiographic procedures to critique radiographs.
- Correlate basic knowledge of anatomy, physiology, cross-sectional anatomy, and pathology with radiographic technique.
- Recognize the difference between diagnostic and poor quality radiographs.
- Use a film evaluation procedure to explain how to improve the diagnostic quality of a radiograph.
- Discuss radiographs based on factors governing recognition and differentiation.

RAD 249 Radiographic Film Critique IV (1) Spring
1 hour lecture per week
Prerequisite(s): A grade of "C" or higher in RAD 200; a grade of "C" or higher in RAD 200L; a grade of "C" or higher in RAD 210; a grade of "C" or higher in RAD 240; a grade of "C' or higher in RAD 248.
Corequisite(s): RAD 230; RAD 230L; RAD 241; RAD 255.
Comment: RAD 249 is offered in the spring semester only. Letter grade only. RAD 249 may not be taken credit/no credit. RAD 249 may not be audited.

RAD 249 is a problem-based seminar, focusing on advanced film critique stressing films made during special procedures.

Upon successful completion of RAD 249, the student should be able to:

- Recognize and describe the prime factors of radiography and the factors that affect the radiographic quality of a film.
- Discuss specific changes that could be made to the prime factors of radiography and the factors that affect radiographic film quality to improve the quality of specific films.
- Correlate knowledge gained in lecture classes with factors that affect radiographic quality of a film.
- Correlate knowledge of anatomy and physiology, including cross-sectional anatomy, with radiographic procedures performed during RAD 241.
- Apply the knowledge gained in special radiographic procedures to critique radiographs.
- Correlate basic knowledge of anatomy, physiology, cross-sectional anatomy, and pathology with radiographic technique.
- Identify the elements of thorough radiographic image evaluation.
- Correctly assess image quality as optimal, diagnostic, or needs to be repeated.
- Demonstrate self-confidence in personal abilities as a radiographer.

RAD 255 Applied Radiologic Principles (1) Spring
1 hour lecture per week
Prerequisite(s): A grade of "C" or higher in RAD 200; a grade of "C" or higher in RAD 200L; a grade of "C" or higher in RAD 210; a grade of "C" or higher in RAD 240; a grade of "C" or higher in RAD 248.
Corequisite(s): RAD 230; RAD 230L; RAD 241; RAD 249.
Comment: RAD 255 is offered in the spring semester only. Letter grade only. RAD 255 may not be audited. RAD 255 may not be taken credit/no credit.

RAD 255 focuses on synthesis and correlation of imaging techniques as related to basic principles of radiography and implications of emerging technology.

Upon successful completion of RAD 255, the student should be able to:

- Describe all aspects of radiographic imaging principles and procedures.
- Describe the impact of emerging technology in diagnostic imaging on radiologic technology.
- Demonstrate proficiency in all areas of radiologic technology by satisfactory performance on simulated registry examinations.

RAD 260 Radiation Biology and Protection (2) Summer
4 hours lecture per week for eight weeks
Prerequisite(s): A grade of "C" of higher in RAD 230; a grade of "C" of higher in RAD 230L; a grade of "C" of higher in RAD 241; a grade of "C" of higher in RAD 249; a grade of "C" of higher in RAD 255.
Corequisite(s): RAD 242.
Comment: RAD 260 is offered in the summer only. Letter grade only. RAD 260 may not be audited. RAD 260 may not be taken credit/no credit.

RAD 260 focuses on effects of ionizing radiation in biologic systems; application to radiography, radiation therapy, and nuclear medicine; importance of minimizing exposure and proper techniques.

Upon successful completion of RAD 260, the student should be able to:

- Describe the effects of ionizing radiation in a given biologic system.
- Explain the importance of minimizing radiation exposure.
- Cite the importance of specific proper techniques in minimizing exposure.
- Knowledgeably discuss applications of radiobiology to radiography, radiation therapy, and nuclear medicine.

RELIGION

REL 150 Introduction to the World's Major Religions (3) KCC AA/FGC and KCC AS/AH
3 hours lecture per week
Recommended Preparation: Qualification for ENG 100, ENG 160, or ESL 100.

REL 150 is a survey of the major religious traditions of the world. The course is designed to provide students with an understanding and appreciation of these traditions, and to enable students to think sensitively and critically about the religious world.

Upon successful completion of REL 150, the student should be able to:

- Identify the essential characteristics that distinguish the major religious traditions.
- Describe the basic components of each major religious tradition, such as its myths, rituals, doctrines, ethics, and artistic expressions.
- Describe religious conflicts and trends in the modern world.
- Explain the relationship between one's own religious background and that of the surrounding community.
- Express ideas and opinions clearly in writing.

REL 151 Religion and the Meaning of Existence (3) KCC AA/DH and KCC AS/AH
3 hours lecture per week
Recommended Preparation: Qualification for ENG 100, ENG 160, or ESL 100.

REL 151 introduces contemporary religious issues, their background and development, with emphasis on the question, "What is the meaning of existence?"

Upon successful completion of REL 151, the student should be able to:

- Describe contemporary religious issues.
- Identify different responses to issues such as the conflict between science and religion, problems of meaning and death, and the human search for identity.
- Describe one's own religious views and values.
- Express ideas and opinions effectively in written and oral communication.

REL 200 Understanding the Old Testament (3) KCC AA/DH
3 hours lecture per week
Recommended Preparation: Any 100 level religion course or qualification for ENG 100 or ENG 160.

REL 200 is a study of developing beliefs and practices of Hebrew religion as set forth in the Old Testament. Emphasis on meaning of its faith for the modern world.

Upon successful completion of REL 200, the student should be able to:

- Demonstrate awareness of the historical and literary context of the Old Testament.
- Show knowledge of modern Biblical interpretation and criticism.
- Show an understanding of the major parts and types of literature contained in the Old Testament.
- Demonstrate recognition of how Old Testament teachings have shaped modern society and human understanding of self.

REL 201 Understanding the New Testament (3) KCC AA/DH
3 hours lecture per week
Recommended Preparation: Any 100 level religion course or qualification for ENG 100 or ENG 160.

REL 201 focuses on the origin and development of early Christian message as set forth in the New Testament, with special attention to Jesus and Paul.

Upon successful completion of REL 201, the student should be able to:

- Demonstrate awareness of the historical and literary context of the New Testament.
- Show knowledge of modern Biblical interpretation and criticism.
- Show an understanding of the major parts and types of literature contained in the New Testament.
- Demonstrate recognition of how New Testament teachings have shaped and express themselves in modern society.

REL 202 Understanding Indian Religions (3) KCC AA/DH and KCC AS/AH
3 hours lecture per week
Recommended Preparation: REL 150 or REL 151; qualification for ENG 100, ENG 160 or ESL 100.

REL 202 is an historical survey of the major religious traditions of India, with an emphasis on contemporary Indian culture and religious identity.

Upon successful completion of REL 202, the student should be able to:

- Demonstrate knowledge of the histories, myths, doctrines, practices and cultural arts of the major religious traditions of India.
- Identify contemporary religious conflicts in the Indian Subcontinent and trace their historical developments.
- Discuss the relationship between myth and identity.
- Identify and discuss Indian religious influences on the cultures of East and South East Asia.
- Give examples of political, economic, and/or technological changes resulting in the transformation of religious myths, doctrines, values, and/or practices.

REL 209 Contemporary Religions (3) KCC AA/DH
3 hours lecture per week
Recommended Preparation: qualification for ENG 100, ENG 160, or ESL 100.

REL 209 studies new religions and contemporary transformations of traditional religions.

Upon successful completion of REL 209, the student should be able to:

- Describe and discuss the social pressures and influences on traditional religions.
- Give examples of transformations in traditional religions.
- Identify and discuss influences from traditional religions at work in the modern world.
- Describe distinguishing characteristics of new religions.
- Identify and discuss religious ideas in contemporary culture.
- Identify and discuss important modern religious figures.
- Express ideas and opinions about modern religion clearly in writing.

REL 210 Understanding Christianity (3) KCC AA/DH
3 hours lecture per week
Recommended Preparation: REL 150 or REL 151; ENG 100, ENG 160, or ESL 100.

REL 210 is a survey of the principal historical periods, texts, denominations, and themes of Christianity. The course will also focus on the artistic legacy of Christianity and the modern challenges it faces.

Upon successful completion of REL 210, the student should be able to:

- Express orally or in writing some of the major ideas and practices of Christianity.

- Identify the important historical periods, texts, and personalities in the growth of Christianity.
- Discuss the differences between the major traditional and non-traditional denominations.
- Give examples of significant examples of Christian music, art, and architecture.
- Describe the historical, cultural, and technological pressures on Christianity that have brought about change.
- List possible changes that will emerge in Christianity in the future.

REL 220 Understanding Islam and Muslim Societies (3) KCC AA/DH
3 hours lecture per week
Prerequisites: Qualification for ENG 100, ENG 160, or ESL 100.
Recommended Preparation: REL 150, REL 151, HIST 151, or HIST 152.

REL 220 explores the evolution of Muslim beliefs and practices around the world with an emphasis on understanding the historical roots of contemporary diversity within Islam.

Upon successful completion of REL 220, the student should be able to:

- Describe the basic, universal elements of Islam, including its myths, rituals, ethics, and art.
- Discuss major historical developments within Islam, including its spread into Africa, Asia, Europe, and/or the Americas from its origins in the Middle East.
- Identify significant variations within Islam, including myths, rituals, ethics, and art.
- Analyze the diversity within contemporary Islam in light of both local customs and varying interpretations of religious law.
- Express ideas and opinions clearly in writing.

REL 222 Religion and Conflict in the Modern Era (3) KCC AA/DH
3 hours lecture per week
Prerequisite(s): Qualification for ENG 100, ENG 160, or ESL 100.
Recommended Preparation: REL 150, REL 151, HIST 151, or HIST 152.
Comment: REL 222 is cross-listed as HIST 222.

REL 222 is an historical analysis of the relationship between religion and conflict in the modern era. The course explores the ways in which religion has served to create, exacerbate, and/or legitimate conflict since 1800. Each semester, the course examines four religion-based conflicts from around the world, including Asia, Africa, the Middle East, Europe, and the Americas.

Upon successful completion of REL 222, the student should be able to:

- Explain the relationship between religion and conflict.
- Differentiate between state-sponsored and other forms of religion-based conflict.
- Differentiate between religion-based and ethnicity-based conflicts while recognizing the relationship between religion and ethnicity.
- Describe the theological justifications for religion-based conflicts in the modern era.
- Describe the roles which political, economic, and social forces have played in religion-based conflicts around the world.
- Analyze the historical dimensions of religion-based conflicts in the modern era.
- Assess the characteristics of a wide array of religion-based conflicts in the modern era.
- Formulate informed judgments on the origins and implications of past and current religion-based conflicts.

RESPIRATORY CARE

RESP 100 Respiratory Care Profession (1)
1 hour lecture per week

RESP 100 introduces students to Respiratory Care as an allied health field and defines the role of the Respiratory Care Practitioner in patient care and as a member of the health care team; provides basic knowledge of health care systems and settings, national and state organizational structure, credentialing and licensing, and ethical considerations; and introduces fundamental patient care concepts, procedures, aids, and terminology.

Upon successful completion of RESP 100, the student should be able to:

- Describe the history and development of Respiratory Care as a profession.
- Describe the role of the Respiratory Care Practitioner as a member of a health care team.
- Describe the role of other health care workers in patient care.
- State the importance of ethics in clinical practice.
- Discuss ethical concerns facing Respiratory Care and other health care practitioner.
- Describe the role of a Respiratory Care or Cardiopulmonary Department within the organizational structure of a hospital or health care facility.
- Describe the role of Respiratory Care in the outpatient setting.
- Demonstrate an understanding of community-based health care by examining a community-based health agency.
- Explain the differences between licensure and credentialing in Respiratory Care.

RESP 101 Sciences for Respiratory Care (3)
3 hours lecture per week
Recommended Preparation: College level reading and mathematics ability.

RESP 101 focuses on basic sciences for the beginning student in respiratory care. This course will include principles of physics, infection control, computer skills, and evidence-based medicine that apply to healthcare.

Upon successful completion of RESP 101, the student should be able to:

- Describe gas laws.
- Perform calculations using gas laws.
- Define scientific terms related to physics and chemistry.
- Describe infection control techniques used in healthcare.
- Use email with attachments.
- Develop an electronic presentation (i.e. Powerpoint).
- Develop a simple spreadsheet.
- Perform internet searches.
- Define evidence-based medicine.
- Utilize principles of evidence-based medicine to research selected topics in respiratory care.

RESP 200 Cardiopulmonary Pathophysiology (3)
3 hours lecture per week
Prerequisite(s): Acceptance into the Respiratory Care program.

RESP 200 examines common cardiopulmonary disease processes while exploring the relationship between pathophysiology and therapeutic interventions.

Upon successful completion of RESP 200, the student should be able to:

- Define and describe fundamental characteristics of cardiopulmonary diseases and conditions.
- Discuss etiology, pathology, diagnosis, and prognosis of common cardiopulmonary diseases.
- Match chronic cardiopulmonary diseases to appropriate rehabilitative techniques.

- Define abnormal lab values as they relate to specific diseases.
- Discuss traumatic injuries to the chest wall.
- Describe common pathology seen on chest x-ray exam.
- Complete a concise written and oral case presentation to the class.

RESP 201 Cardiopulmonary Anatomy and Physiology (3)
3 hours lecture per week
Prerequisite(s): Acceptance into the Respiratory Care program.

RESP 201 provides an in-depth study of the anatomy and physiology of the heart, lungs, and associated structures including an introduction to cardiac electrophysiology and lung volumes and capacities.

Upon successful completion of RESP 201, the student should be able to:

- Describe the structure and function of the heart, lungs, and related body systems.
- Discuss the process of respiration.
- Demonstrate knowledge of electrophysiology through rhythm recognition.
- State the function of blood, vessels, and the heart.
- Name the structures in the heart and lung and describe their location in the body.
- Describe the gross and microscopic anatomy of the lung.
- Describe lung volumes and capacities.
- Interpret normal pulmonary function test values.
- Perform physiologic calculations.

RESP 202 Clinical Practice I (5)
16 hours lab per week
Prerequisite(s): Acceptance into the Respiratory Care program.
Comment: Uniform, school patch, and stethoscope are required. A laboratory supply kit may be purchased at the bookstore.

RESP 202 is a course in basic respiratory care skills and procedures including charting, medications, oxygen therapy, lung inflation therapy, and secretion management.

Upon successful completion of RESP 202, the student should be able to:

- Perform routine physical assessment on the cardiopulmonary patient.
- Document results of the patient's assessment and response to therapy in the patient's record.
- Monitor and evaluate the patient's response to respiratory therapy.
- Communicate the patient's respiratory care plan, response to therapy, and progress to other members of the health care team.
- Collect the necessary supplies, test for equipment function, and administer oxygen, humidification, and aerosol devices.
- Measure respiratory care medications as ordered and administer using the appropriate devices.
- Perform secretion management techniques such as chest percussion and postural drainage.
- Perform hyperinflation techniques such as intermittent positive pressure breathing and incentive spirometry.
- Instruct patient on proper breathing and coughing techniques.
- Discuss the role of the respiratory care practitioner as part of the health care team.
- Apply universal precaution in the patient care setting.

RESP 203 Respiratory Care Techniques I (3)
3 hours lecture per week
Prerequisite(s): Acceptance into the Respiratory Care program.

RESP 203 is an introductory course in respiratory care knowledge and techniques including charting, medications, oxygen therapy, lung inflation therapy, and secretion management.

Upon successful completion of RESP 203, the student should be able to:

- Review a patient's record for respiratory care orders and pertinent data.
- Collect and evaluate additional pertinent clinical data to evaluate the patient's clinical status.
- Select, assemble, and check equipment for proper function that are used in oxygen administration, humidification, and aerosol delivery.
- Define or describe the following prescribed therapies: medical gas therapy, humidity and aerosol therapy, PEP therapy (positive airway pressure therapy), chest percussion and postural drainage therapy.
- State the goals of each of the prescribed therapies.
- State the indications/contraindications of each of the prescribed therapies.
- State the hazards/complications of each of the prescribed therapies.
- Explain the proper method of providing the prescribed therapies.
- State the method(s) of evaluation and monitoring of the patient's response to each of the prescribed therapies.
- Evaluate and modify prescribed therapy for non-critically ill patients.
- Explain the process of cardiopulmonary resuscitation.
- Maintain records and communication using conventional terminology as required by hospital policy and regulatory agencies.
- Demonstrate a concept or principle related to RESP 203 in a project.
- Present the project to a non-medical audience.

RESP 211 Introduction to Mechanical Ventilation (2)

2 hours lecture per week
Prerequisite(s): Acceptance into the Respiratory Care program.

RESP 211 is an introduction to the concepts and principles of mechanical ventilation.

Upon successful completion of RESP 211, the student should be able to:

- List the physiological indications for mechanical ventilation.
- List the criteria for instituting mechanical ventilation.
- List the hazards/complications of mechanical ventilation.
- Describe the physiological effects of positive pressure.
- Explain the concepts of compliance and resistance.
- Perform math calculations used in mechanical ventilation.
- Discuss the appropriate settings when initiating mechanical ventilation.
- Describe the different modes of conventional mechanical ventilation: (S)IMV, A/C, Control, Assist, P/S, Pressure control, PCIRV.
- Explain the different methods of triggering and cycling the ventilator.
- Explain the different phases of inspiration and exhalation of CMV.
- Diagram the different graphic waveforms of ventilation.
- Explain how graphic waveforms are used in mechanical ventilation.
- Explain the differences between IPPB, P/S, and P/C.
- Explain the effect of flow wave patterns on the inspiratory flowrate of flow variable ventilators.
- Explain the maintenance of patient-ventilator interface.
- Describe various methods of weaning and extubation procedures.
- Discuss the role of the RCP in the ICU environment.
- Explain the concept of open-lung inflation Rx.
- Explain the effects of CPAP and PEEP Rx on improving oxygenation.
- Describe the procedure for using CPAP and PEEP.
- Describe the procedure for titrating CPAP and PEEP.
- Describe the procedure of using BiPAP.
- Explain the concepts of IPAP and EPAP.

RESP 212 Clinical Practice II
16 hours clinical training per week
Prerequisite(s): Acceptance into the Respiratory Care program.

RESP 212 is a course in advanced respiratory care skills and procedures including airway management, mechanical ventilation, arterial puncture, and patient transport.

Upon successful completion of RESP 212, the student should be able to:

- Perform routine physical assessment on the critically ill patient in the intensive care unit.
- Interpret and evaluate diagnostic tests such as ABG's, electrolytes, and chest x-rays.
- Document results of the patient's assessment and diagnostic tests in the patient's record.
- Communicate the patient's respiratory care plan, response to therapy, and progress to other members of the health care team.
- Perform suctioning through tracheostomy and endotracheal tubes (ETT).
- Perform tracheostomy care.
- Perform manual ventilation with self-inflating bag.
- Select and insert oral and nasal airways to maintain airway patency.
- Inflate and measure endotracheal and tracheostomy tube cuff pressures.
- Securing the ETT with cloth tape or other appropriate devices.
- Perform bedside ventilatory assessment such as NIF, TV, VC, and minute volume.
- Set-up and test for function the mechanical ventilator prior to patient use.
- Adjust ventilator settings per order or protocol.
- Check and document ventilator-patient interface.
- Administer respiratory care medications to mechanically ventilated patients.
- Monitor and evaluate the patient's response to respiratory therapy.
- Communicate with mechanically ventilated patient and relay his or her needs to other members of the health care team.
- Discuss the role of the respiratory care practitioner as part of the health care team in the intensive care unit (ICU).
- Apply universal precaution in the patient care setting.
- Attend ICU rounds and physician and respiratory care departmental inservices.

RESP 213 Respiratory Care Techniques II (3)
3 hours lecture per week
Comment: Uniform, school patch, and stethoscope are required.

RESP 213 is an advanced course in respiratory care knowledge and techniques including assessment, hemodynamics, gas exchange, and other diagnostic studies.

Upon successful completion of RESP 213, the student should be able to:

- Evaluate information from physical assessment of the critically ill patient on mechanical ventilation.
- Describe the procedure for and importance of ventilation assessment.
- Interpret and evaluate relevant diagnostic information as it relates to the patient's condition: ventilation, oxygenation, acid-base balance, chest radiograph, clinical laboratory studies, electrocardiogram, mixed venous saturation, cardiac output.
- Evaluate the hemodynamic measurements as they relate to the patient's condition.
- Explain the clinical implications of using invasive and noninvasive pulmonary and cardiac monitoring to assess the critically ill patient.
- Discuss the importance of nutrition of the critically ill patient on mechanical ventilation.
- Discuss clinical case studies of common cardiopulmonary diseases.
- Describe the inductive thinking process when evaluating clinical cases and organizing clinical information.

RESP 218 Cardiopulmonary Pharmacology (3)
3 hours lecture per week

RESP 218 focuses on pharmacologic principles of drugs used in the ER and ICU settings as well as an overview of general principles of pharmacology. This course supports other courses where students learn how to deliver medications and assess response to those medications.

Upon successful completion of RESP 218, the student should be able to:

- Describe drugs administered by the RCP in terms of indications, actions, routes, doses, delivery systems, and adverse reactions.
- Discuss specialized equipment and techniques used to administer cardiorespiratory medications.
- State basic principles of pharmacodynamics.
- Recommend changes in medication, dose, or delivery systems.
- Select appropriate medications and delivery systems based on pathophysiology and case interpretation.
- Recommend appropriate cardiac and emergency drugs.
- Calculate drug dosages.

RESP 222 Clinical Practice III (5)
16 hours lab per week
Prerequisite(s): Acceptance into the Respiratory Care program.

RESP 222 is a course in advanced respiratory care skills and procedures in the hospital setting.

Upon successful completion of RESP 222, the student should be able to:

- Perform routine physical assessment on the critically ill patient in the intensive care unit.
- Interpret and evaluate diagnostic tests such as ABG's, electrolytes, and chest x-rays.
- Document results of the patient's assessment and diagnostic tests in the patient's record.
- Communicate the patient's respiratory care plan, response to therapy, and progress to other members of the health care team.
- Perform suctioning through tracheostomy and endotracheal tubes (ETT).
- Perform tracheostomy care.
- Perform manual ventilation with self-inflating bag.
- Select and insert oral and nasal airways to maintain airway patency.
- Inflate and measure endotracheal and tracheostomy tube cuff pressures.
- Secure the ETT with cloth tape or other appropriate devices
- Perform bedside ventilatory assessment such as NIF, TV, VC, and minute volume.
- Set-up and test for function the mechanical ventilator prior to patient use.
- Adjust ventilator settings per order or protocol.
- Check and document ventilator-patient interface.
- Administer respiratory care medications to mechanically ventilated patients.
- Monitor and evaluate the patient's response to respiratory therapy.
- Communicate with mechanically ventilated patient and relay his or her needs to other members of the health care team.
- Discuss the role of the respiratory care practitioner as part of the health care team in the intensive care unit (ICU).
- Perform community health activities in the form of service learning.
- Attend ICU rounds and physician and respiratory care departmental inservices.

RESP 229 Advanced Cardiac Life Support (2)
2 hours lecture per week
Prerequisite(s): Acceptance into the Respiratory Care program
Comment: Letter grade only. RESP 229 may not be audited. RESP 229 may not be taken credit/no

credit. Fees are required for RESP 229 for ACLS certification and for the advanced ECG portion of the course. Fees are approximately $200 in addition to texts.

RESP 229 is a course that certifies students in advanced cardiac life support (ACLS) technique and theory utilizing the program developed by the American Heart Association. Students will also learn to perform and interpret 12-lead ECG's.

Upon successful completion of RESP 229, the student should be able to:

- Describe drugs administered by the RCP in terms of indications, actions, routes, doses, delivery systems, and adverse reactions.
- Apply ACLS algorithms in the 10 required cases.
- Recommend changes in medication, dose, or delivery systems.
- Select appropriate medications and delivery systems based on pathophysiology and case interpretation.
- Recommend appropriate cardiac and emergency drugs.
- Calculate drug dosages.
- Complete the ACLS final exam with a passing score.
- Perform 12 lead ECG and interpret rhythms.
- Perform advanced airway management techniques.
- Utilize the AED/Defibrillator to deliver electric therapy to the heart.
- Successfully complete ACLS certification.
- Discuss ethical implications of advanced life support.

RESP 301 Neonatal/Pediatric Respiratory Care (3)
3 hours lecture per week
Prerequisite(s): Acceptance into the Respiratory Care program
Comment: Letter grade only. RESP 301 may not be audited. RESP 301 may not be taken credit/no credit. Uniform, school patch, and stethoscope are required.

RESP 301 is an introduction to the concepts and principles of neonatal and pediatric respiratory care as they relate to clinical application.

Upon successful completion of RESP 301, the student should be able to:

Module 1
- Describe fetal anatomy and physiology.
- Identify the landmarks of the maternal-fetal circulation.
- Explain the maternal-fetal circulation.
- Describe the path of oxygenated blood from maternal (placenta) through the fetal circulation.
- List maternal factors that may affect the health of the fetus.
- Identify the components of the APGAR score.
- Identify (2) scoring systems used in gestational age assessment.
- Identify the components of the Silverman score and explain how it is used to assess respiratory distress of the neonate.
- Explain the physiological changes that immediately occur after a normal birth with respect to: ductus arteriosus, ductus venosus, foramen ovale, PVR, SVR.
- Explain the following terms with respect to labor and delivery: parturition, cervix, effacement, dilatation, para/ gravida, primigravida, multigravida, breech, placenta previa, abruptio placentae, polyhydramnios, oligohydramnios, meconium.
- Explain the following terms with respect to normal gestational age: birth weight (premature v. term), respiratory rate, heart rate, blood pressure, vernix, lanugo.

Module 2
- Identify the following pharmacologic agents used to: inhibit or promote uterine contractions (oxytocin v. tocolysis), affect the immature lung and circulation (indomethacin, N2O, surfactant), treat viral infections, treat pulmonary infections, treat hyperreactive airways.
- Identify and explain pediatric respiratory care equipment: SPAG, oxygen hood, tents, nasal CPAP, suction (bulb, Deelee).

Module 3

- Explain the etiology, pathophysiology, and treatment (if any) of the following diseases: pulmonary dysmaturity (Wilson-Mikity syndrome), cystic fibrosis, Reye's syndrome, meconium aspiration, retinopathy of prematurity, transient tachypnea of the newborn, bronchopulmonary dysplasia, laryngotracheobronchitis, epiglottitis, bronchiolitis, respiratory distress syndrome.
- Explain the etiology, pathophysiology, and treatment (if any) of congenital heart defects: Tetralogy of Fallot, persistent fetal circulation, patent ductus arteriosus, patent foramen ovale.

Module 4

- Care for the critically ill neonatal/pediatric patient: describe the technique for using a flow inflating resuscitation bag, explain how tube sizes for intubation are selected (size v. weight v. gestational age), explain time cycled pressure limited ventilation (conventional in neonatal/pediatric practice), describe the initial settings used in conventional mechanical ventilation used in the NICU/PICU, explain the ventilator parameter changes that are needed based on ABG values.
- Explain the purposes of the following special procedures:
  surfactant replacement Rx, inhaled nitric oxide, high
  frequency ventilation, HFJV, HFOV, transillumination of the chest.
- Explain the process used in resuscitation with respect to NRP/PALS.
- Explain the clinical uses of and limitations of transcutaneous monitoring.

RESP 302 Clinical Practice IV (4)

12 hours per week hospital practice
Prerequisite(s): Acceptance into the Respiratory Care program.
Comment: Letter grade only. RESP 302 may not be audited. RESP 302 may not be taken credit/no credit. Uniform, school patch, and stethoscope are required.

RESP 302 is an introductory course in application of neonatal/pediatric respiratory care skills and procedures in the clinical setting.

Upon successful completion of RESP 302, the student should be able to:

- Perform routine physical assessment on premature, full term newborn, and pediatric patients.
- Perform routine physical assessments on pediatric patients in the medical ward.
- Interpret and evaluate diagnostic tests such as ABG's, capillary blood stick, and chest x-rays.
- Document results of the patient's assessment and response to therapy in the patient's record.
- Monitor and evaluate the patient's response to respiratory therapy.
- Communicate the patient's respiratory care plan, response to therapy, and progress to other members of the health care team.
- Collect the necessary supplies, test for equipment function, and administer oxygen, humidification, and aerosol devices.
- Measure respiratory care medications as ordered and administer using the appropriate devices.
- Monitor and evaluate the patient's response to respiratory therapy.
- Perform secretion management techniques such as chest percussion and postural drainage.
- Document results of the patient's assessment and diagnostic tests in the patient's record.
- Perform nasotracheal suctioning.
- Perform manual ventilation with self-inflating and flow-inflating bag.
- Monitor neonatal/pediatric patients via the HR and EKG monitor, TCM, and ETCO2 monitor.
- Setup a nasal CPAP.
- Perform patient-ventilator checks in the NICU/PICU.
- Assist in patient-ventilator transport.
- Communicate with the pediatric patient and

relay his or her needs to other members of the health care team.
- Discuss the role of the respiratory care practitioner as part of the health care team in the NICU, PICU, medical ward.
- Apply universal precaution in the patient care setting.
- Attend rounds, physician and respiratory care departmental inservices.

RESP 312 Clinical Practice V (4)
12 hours clinical per week for 15 weeks
Prerequisite(s): Acceptance into the Respiratory Care program.
Comment: Letter grade only. RESP 312 may not be audited. RESP 312 may not be taken credit/no credit. Uniform, school patch, and stethoscope are required.

RESP 312 consists of diagnostic laboratory observation and supervised experiences with emphasis on performing diagnostic tests correctly and safely.

Upon successful completion of RESP 312, the student should be able to:

- Perform routine pulmonary function tests.
- Perform advanced pulmonary function tests under supervision.
- Observe diagnostic bronchoscopy and, under supervision, assist with procedure.
- Observe and assist, under supervision, with cardiopulmonary exercise testing.
- Observe and assist, under supervision, with polysomnographic examinations.
- Observe and assist, under supervision, with neurodiagnostic examinations.
- Perform preventive maintenance and calibrations of cardiopulmonary diagnostic equipment.
- Correlate anatomy and physiology of the cardiopulmonary system with procedures and techniques.
- Recognize, describe, and change factors that affect the quality of a diagnostic test.

RESP 316 Cardiopulmonary Diagnostics (3)
3 hours lecture per week
Prerequisite(s): Acceptance into the Respiratory Care program.
Comment: Letter grade only. RESP 316 may not be audited. RESP 316 may not be taken credit/no credit.

RESP 316 introduces students to pulmonary laboratory procedures and techniques including the Blood Gas Laboratory, Bronchoscopic Lung examination, Pulmonary Function Laboratory, Sleep Laboratory, and Neurodiagnostic examinations. RESP 316 emphasizes testing methods and protocols, interpretation of test results and correlation to disease states and appropriate therapeutic intervention.

Upon successful completion of RESP 316, the student should be able to:

- Define the role of cardiopulmonary diagnostics in patient care.
- Describe, evaluate, and interpret arterial blood gas analysis, pulmonary function tests, polysomnographic tests, cardiopulmonary exercise tests, and neurodiagnostic exams.
- Describe and discuss the fundamentals of a lung bronchoscopic exam.
- Describe and discuss arterial blood gas sampling procedures, including the care and maintenance of analyzers, cooximeters, and blood gas electrodes.
- Explain methods to diagnose lung volumes, capacities, diffusion.
- Explain methods and protocols to diagnose sleep related disorders.
- Explain methods and protocols to diagnose neurodiagnostic disorders.
- Explains methods and protocols for cardiopulmonary exercise testing.

RESP 320 Respiratory Care Seminar I (4)
4 hours lecture per week
Prerequisite(s): Acceptance into the Respiratory Care program.
Comment: Letter grade only. RESP 320 may not be audited. RESP 320 may not be taken credit/no credit. Fees are required for RESP 320 for practice examinations. The current cost is $150.

RESP 320 reviews the field of respiratory care in preparation for board examinations upon graduation. This course enables the advanced student to appropriately gather information and make clinical decisions in the entire spectrum of patient care using computer and problem-based learning.

Upon successful completion of RESP 320, the student should be able to:

- Complete 30 computerized clinical simulations covering 10 major content areas.
- Complete the National Board for Respiratory Care on-line Entry-Level Self-Assessment Examination.
- Complete the National Board for Respiratory Care on-line Written Registry Self-Assessment Examination.
- Complete the National Board for Respiratory Care on-line Clinical Simulation Self-Assessment Examination.
- Develop a study plan for the Entry-Level Certified Therapist Examination.
- Complete 3 practice entry-level and written registry examinations.
- Relate diagnosis, clinical condition, physical findings, therapeutic interventions and modifications per the Examination Matrices of the National Board for Respiratory Care.
- Select, assemble, and maintain equipment per the Examination Matrices of the National Board for Respiratory Care.

RESP 322 Clinical Practice VI (4)
12 hours clinical per week (hospital practice)
Prerequisite(s): Acceptance into the Respiratory Care program.
Comment: Letter grade only. RESP 322 may not be audited. RESP 322 may not be taken credit/no credit. Uniform, school patch, and stethoscope are required.

RESP 322 is a hospital-based course in application of advanced respiratory care skills and procedures. Students are expected to consistently perform at an advanced level all skills learned in previous Respiratory Care courses.

Upon successful completion of RESP 322, the student should be able to:

- Perform routine physical assessment on the critically ill patient in the intensive care unit.
- Interpret and evaluate diagnostic tests such as ABG's, electrolytes, and chest x-rays.
- Calculate shunt, deadspace, static compliance and airway resistance.
- Evaluate hemodynamic parameters such as CVP, SVR, PVR, MAP, PCWP, CO, and CI.
- Identify basic abnormal and life-threatening EKG patterns.
- Document results of the patient's assessment and diagnostic tests in the patient's record.
- Communicate the patient's respiratory care plan, response to therapy, and progress to other members of the health care team.
- Perform suctioning through tracheostomy and endotracheal tubes (ETT).
- Perform tracheostomy care.
- Perform manual ventilation with self-inflating bag.
- Select and insert oral and nasal airways to maintain airway patency.
- Inflate and measure endotracheal and tracheostomy tube cuff pressures.
- Secure the ETT with cloth tape or other appropriate devices.
- Perform bedside ventilatory assessment such as NIF, TV, VC, and minute volume.
- Set-up and test for function the mechanical ventilator prior to patient use.
- Initiate and manage a new ventilator patient in the intensive care unit (ICU).
- Manage at least (3) ventilator patients in the ICU.
- Adjust ventilator settings per ABG's.
- Make clinical recommendations based on various patient data.
- Identify and troubleshoot common ventilator problems.
- Wean patient off the ventilator following weaning protocols.
- Perform ABG stick and draw arterial blood from an arterial line.
- Check and document ventilator-patient interface.

- Administer respiratory care medications to mechanically ventilated patients.
- Monitor and evaluate the patient's response to respiratory therapy.
- Identify the actions of common medications used in the ICU: antimicrobial agents, paralyzing agents, respiratory stimulants/ depressants, and analgesics/anesthetics.
- Communicate with mechanically ventilated patient and relay his or her needs to other members of the health care team.
- Discuss the role of the respiratory care practitioner as part of the health care team in the ICU.
- Apply universal precaution in the patient care setting.
- Attend ICU rounds and physician and respiratory care departmental inservices.

RUSSIAN

RUS 101 Elementary Russian I (4) KCC AA/HSL (Inactive)
3 hours lecture, 2 hours lab per week

RUS 101 focuses on development of listening, speaking, reading and writing skills in Russian. Independent lab work is required.

Upon successful completion of RUS 101, the student should be able to:

- Recognize and produce the sounds of Russian; understand the concepts of voiced and voiceless sounds, "hard" and "soft sounds" and the environments where these sounds occur; observe the reduction of the pronunciation of "o" and "e" in unstressed syllables.
- Recognize and correctly use the first 5 sentence intonational constructions of Russian (IC-1, 2, 3, 4 and 5).
- Recognize and correctly produce the Russian script used for writing by hand and recognize the Russian system of printed letters used in all printed materials (books, magazines, newspapers).
- Understand and read aloud with correct pronunciation and intonation sentences and complete texts that contain words familiar to them.
- Recognize the grammatical form and sound of the intonation of the four basic types of Russian questions: questions with a question word, formal questions, yes-no questions, either-or questions; be able to answer these questions with the correct form and to orally create such questions to obtain needed information.
- Understand and participate in conversations that use the basic grammatical structures and words that they have learned.
- Conjugate verbs in the present and past tenses, to know the basic difference in meaning between imperfective and perfective verbs, to have an elementary knowledge of two of the basic verbs of motion and an elementary knowledge of the differences in expressing location and direction in Russian.
- Form and use the singular forms of the nominative, inanimate accusative, prepositional and dative cases and the plural forms of the nominative and inanimate accusative.
- Correctly use or omit the Russian verb "to be" in the three types of sentences where the use of this verb is problematical.

RUS 102 Elementary Russian II (4) KCC AA/HSL (Inactive)
3 hours lecture, 2 hours lab per week
Prerequisite(s): RUS 101 or equivalent.

RUS 102 is a continuation of RUS 101. Further development of listening, speaking, reading and writing skills in Russian. Independent lab work is required.

Upon successful completion of RUS 102, the student should be able to:

- Understand and participate in conversations that use the basic grammatical structures and words that they have learned.
- Make suggestions using the imperative and other means.
- Express their state of physical comfort or discomfort, whether or not they are ill.
- Express the absence or non-existence of something.
- Recognize and use the basic verbs for teaching and learning in Russian.
- Express and use time and date constructions that include the names of the months.
- Conjugate verbs in the future tense.
- Request, give and deny permission.
- Form and use the forms for the prepositional plural, genitive singular, animate accusative singular, and instrumental singular of nouns and modifiers.

RUS 201 Intermediate Russian I (4) KCC AA/ HSL (Inactive)
3 hours lecture, 2 hours lab per week
Prerequisite(s): RUS 102 or equivalent.

RUS 201 is a continuation of RUS 102. Further development of listening, speaking, reading and writing skills in Russian. Independent lab work is required.

Upon successful completion of RUS 201, the student should be able to:

- Improve the quality of their speech with respect to pronunciation and intonation, have increased their ability to use the words they know and have increased their oral comprehension skills.
- Recognize and understand participial and verbal adverb constructions that are common in Russian newspaper texts and formal writing.
- Know and use all of the singular and plural case endings of Russian nouns and adjectives.
- Read with comprehension texts that contain familiar words as well as a number of words unfamiliar to them. The meanings of the unfamiliar words should be obtained from the surrounding context, word-building principles as well as the judicious use of a separate dictionary.
- Enlarge the number of Russian lexical units that they know actively by about 600.
- Gain an increased ability to act and react correctly with respect to certain speech functions and speech situations in Russian: greeting other persons, beginning a conversation, getting the attention of a stranger, expressing apologies and regrets, introducing one's self, and making other introductions.
- Know more about Russian culture from the situations presented in texts and dialogues.
- Compose paragraphs in Russian on suggested topics.

RUS 202 Intermediate Russian II (4) KCC AA/ HSL (Inactive)
3 hours lecture, 2 hours lab per week
Prerequisite(s): RUS 201 or equivalent.

RUS 202 is a continuation of RUS 201. Further development of listening, speaking, reading and writing skills in Russian. Independent lab work is required.

Upon successful completion of RUS 202, the student should be able to:

- Improve the quality of their speech with respect to pronunciation and intonation, have increased their ability to use the words they know and have increased their oral comprehension skills.
- Read with comprehension texts that contain familiar words as well as a significant number of words unfamiliar to them. The meanings of the unfamiliar words should be obtained

from the surrounding context, word-building principles as well as the judicious use of a separate dictionary.
- Write correctly short original compositions.
- Enlarge the number of Russian lexical units that they know actively by about 600.
- Gain an increased ability to act and react correctly with respect to the following speech functions and speech situations in Russian: using public transportation; using the public telephone and postal service; making a request or asking a favor; requesting permission; granting or refusing permission; expressing congratulations and greetings (birthday greetings, holiday greetings, congratulations, expressing best wishes of good luck, toasts, expressions of gratitude and responses); expressing distress, anxiety, and agitation; expressing sympathy and reassurance; expressing compliments; expressing approval; responding to compliments.
- Recognize the meaning of verbal prefixes.
- Know more about Russian classical and everyday culture from the situations presented in texts and dialogues.