

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:

1. Discuss basic ethical principles in the performance of one's duties as a radiologic technologist.
2. Explain the principles of processing techniques and radiographic exposure and correlate with skills necessary for thorough and efficient functioning in a darkroom.
3. Describe the principles of radiologic techniques and correlate theoretical knowledge with practical application.
4. Explain the principles of basic radiographic positioning of structures, and correlate this knowledge with practical application.
5. Describe the organizational structure of the hospital and its function in society.
6. Describe the role of the radiologic technologist in infection control, patient safety, and effective communication.
7. 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.
8. 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:

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

1. Distinguish between the chemical, generic and trade names of select drugs.
2. Describe pharmacokinetic and pharmacodynamic principles of drugs.
3. Classify drugs as presented in the course.
4. Explain the use, effects and side-effects of select drugs.
5. Define the categories of contrast media and give specific examples of each category.
6. Describe the methods and techniques of select drug administration.
7. Describe the routes of administration.
8. Describe complications and the appropriate treatment measures for these complications associated with select drugs.
9. Prepare an injection using sterile technique.
10. 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:

1. Explain the principles of radiographic technique and correlate this knowledge with practical application.
2. Discuss patient care procedures and techniques used in the general care of the patient with emphasis on the role of the radiologic technologists.
3. Explain the theory of x-ray machine technique and exposure factors.
4. Knowledgeably and correctly discuss basic radiographic anatomy and positioning of the cranium, spine, bony thorax, and soft tissues of the chest.
5. 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:

1. Apply techniques taught in RAD 110, including producing radiographs of the skull, facial bones, spine, bony thorax, and soft tissues of the chest.
2. Explain the theory of x-ray technique and apply this to correct determination of exposure factors.
3. Correctly apply knowledge of basic patient care procedures and techniques.
4. 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:

1. Explain the fundamentals of electrical and radiation physics and the basic principles underlying the operation of x-ray equipment and auxiliary devices.
2. Identify and explain importance of applying basic principles of radiation biology and protection.
3. Explain the function of each part in x-ray machine circuit.
4. 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:

1. Perform safe, correct radiographic technique and positioning, with emphasis on the chest, abdomen, upper extremities.
2. Correctly adapt technical factors to meet the clinical situation.
3. Correlate anatomy and physiology and radiographic procedures and techniques.
4. Carry out assigned radiographic procedures in the clinical area with 100 percent accuracy as determined by satisfactory clinical evaluation comments.
5. Correlate anatomy and physiology and assigned radiographic procedures with 100 percent accuracy as determined by satisfactory clinical evaluation comments.
6. Demonstrate professionalism in attendance, attitude, and behavior.
7. 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:

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

- clinical evaluation comments.
5. Correlate anatomy and physiology and assigned radiographic procedures with 100 percent accuracy as determined by satisfactory clinical evaluation comments.
 6. 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:

1. Perform safe, correct radiographic technique and positioning, with emphasis on the cranium and bedside radiography of the chest, abdomen and skeletal system.
2. Adapt technical factors to meet the clinical situation.
3. Correlate anatomy and physiology and radiographic procedures and techniques.
4. Apply pediatric radiography in clinical setting.
5. Carry out assigned radiographic procedures in the clinical area with 100 percent accuracy as determined by satisfactory clinical evaluation comments.
6. Correlate anatomy and physiology with assigned radiographic procedures with 100 percent accuracy as determined by satisfactory clinical evaluation comments.
7. 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:

1. Recognize and describe the prime factors of radiography and the factors that affect the radiographic quality of a film.
2. 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.
3. Correlate knowledge gained in lecture classes with factors that affect radiographic quality of a film.
4. Correlate knowledge of anatomy and physiology, including cross-sectional anatomy, with radiographic procedures performed in RAD 140 and 141.
5. Apply the knowledge gained in RAD 110, 110L and 141 to identify the types of assigned radiographs.
6. Apply knowledge gained in RAD 110, 110L, and 141 to identify normal anatomical structures on assigned radiographs.
7. Apply knowledge gained in RAD 110, 110L, and 141 to any and all aspects of radiography viewed in properly exposed and processed films.
8. Identify the elements of thorough radiographic image evaluation.
9. 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:

1. Recognize and describe the prime factors of radiography and the factors that affect the radiographic quality of a film.
2. 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.
3. Correlate knowledge gained in lecture classes with factors that affect radiographic quality of a film.
4. Correlate knowledge of anatomy and physiology, including cross-sectional anatomy, with radiographic procedures performed in RAD 141 and 142.
5. Apply the knowledge gained in beginning courses to identify assigned radiographs.
6. Apply knowledge gained in beginning courses to identify normal anatomical structures on assigned radiographs.
7. Apply knowledge gained in beginning courses to identify all types of film artifacts.
8. Apply knowledge gained in beginning courses to identify properly done radiographs.
9. Use a film evaluation procedure to explain how to improve the diagnostic quality of a radiograph.
10. 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:

1. Explain principles of advanced x-ray positioning of osseous structures.
2. 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:

1. Apply techniques taught in RAD 200.
2. Construct technique charts in advanced anatomy and positioning of the osseous system.
3. Correctly carry out procedures involving the use of contrast media in radiography.
4. 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:

1. Explain the manipulation of exposure factors.
2. Explain procedure in radiography involving the use of contrast media.
3. Explain the methods of pediatric radiography.
4. Explain certain changes that occur in disease and injury and their application to radiologic technology.
5. 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:

1. 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.
2. Describe the special needles, guide wires and catheters required for each special procedure.
3. Label the component parts and explain how each type of changer works in the clinical situation.
4. Describe the procedural steps involved in the Seldinger technique and lumbar puncture.
5. Identify cross-sectional anatomy on computed tomography and magnetic resonance imaging scans.
6. 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:

1. 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.
2. Identify and describe the special needles, guide wires and catheters required for each special procedure discussed in RAD 230.
3. Observe and explain how each type of changer works in the clinical situation.
4. Observe and describe the procedural steps involved in the Seldinger technique and lumbar puncture.
5. Identify cross-sectional anatomy on computed tomography and magnetic resonance imaging scans observed during laboratory sessions.

6. Explain the imaging principles of ultrasonography, computed tomography, magnetic resonance imaging, and nuclear medicine.
7. 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:

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

RAD 241 Hospital Radiographic Technique V (6) Spring

351 total clinical hours

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 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:

1. Apply safe and correct radiographic technique and positioning, with emphasis on special radiographic examinations using and imaging techniques studied in RAD 230 and 230L.
2. Correctly adapt technical factors to meet the clinical situation.
3. Correlate of anatomy and physiology and radiographic procedures and techniques.
4. Apply principles of pediatric radiography.
5. Carry out assigned radiographic procedures in the clinical area with 100 percent accuracy as determined by satisfactory clinical evaluation comments.
6. Correlate anatomy and physiology and assigned radiographic procedures with 100 percent accuracy as determined by satisfactory clinical evaluation comments.
7. 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:

1. Apply safe, correct radiographic technique and positioning, with emphasis on operating room examinations.
2. Correctly adapt technical factors to meet the clinical situation.
3. Correlate anatomy and physiology and radiographic procedures and techniques.
4. Apply introductory knowledge of clinical practice in either nuclear medicine or radiation therapy.
5. Carry out assigned radiographic procedures in the clinical area with 100 percent accuracy as determined by satisfactory clinical evaluation comments.
6. Correlate anatomy and physiology and assigned radiographic procedures with 100 percent accuracy as determined by satisfactory clinical evaluation comments.
7. 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:

1. Recognize and describe the prime factors of radiography and the factors that affect the radiographic quality of a film.
2. 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.
3. Correlate knowledge gained in lecture classes with factors that affect radiographic quality of a film.
4. Correlate knowledge of anatomy and physiology, including cross-sectional anatomy, with radiographic procedures performed during RAD 240.
5. Apply the knowledge gained in advanced radiographic procedures to critique radiographs.
6. Correlate basic knowledge of anatomy, physiology, cross-sectional anatomy, and pathology with radiographic technique.
7. Recognize the difference between diagnostic and poor quality radiographs.
8. Use a film evaluation procedure to explain how to improve the diagnostic quality of a radiograph.
9. 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:

1. Recognize and describe the prime factors of radiography and the factors that affect the radiographic quality of a film.
2. 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.
3. Correlate knowledge gained in lecture classes with factors that affect radiographic quality of a film.
4. Correlate knowledge of anatomy and physiology, including cross-sectional anatomy, with radiographic

- procedures performed during RAD 241.
5. Apply the knowledge gained in special radiographic procedures to critique radiographs.
 6. Correlate basic knowledge of anatomy, physiology, cross-sectional anatomy, and pathology with radiographic technique.
 7. Identify the elements of thorough radiographic image evaluation.
 8. Correctly assess image quality as optimal, diagnostic, or needs to be repeated.
 9. 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:

1. Describe all aspects of radiographic imaging principles and procedures.
2. Describe the impact of emerging technology in diagnostic imaging on radiologic technology.
3. 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" 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 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:

1. Describe the effects of ionizing radiation in a given biologic system.
2. Explain the importance of minimizing radiation exposure.
3. Cite the importance of specific proper techniques in minimizing exposure.
4. 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 or ESL 100.

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

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

1. Identify the myths, rituals, ethics, and art of each major religious tradition.
2. Describe significant historical developments within each major religious tradition, from the time of its origins until today.
3. Describe his/her own religious background and that of the surrounding community.

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 or ESL 100.

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

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

1. Describe the background and development of contemporary religious issues.
2. Identify contemporary religious responses to topics such as science, identity, suffering, death, and the meaning of existence.
3. Clearly express his/her own religious views and values.

REL 200 Understanding the Hebrew Bible (3) KCC AA/DH

3 hours lecture per week

Prerequisite(s): Qualification for ENG 100 or ESL 100.

Recommended Preparation: REL 150.

REL 200 surveys the developing beliefs and practices of Judaism as set forth in the Hebrew Bible (Old Testament), with an emphasis on the multiple meanings of these texts in the contemporary world.

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

1. Describe the historical and literary context of the Hebrew Bible.
2. Identify the major parts and different types of literature contained in the Hebrew Bible.
3. Analyze the ways in which the Hebrew Bible has shaped contemporary societies and human understandings of self.

REL 201 Understanding the New Testament (3) KCC AA/DH

3 hours lecture per week

Prerequisite(s): Qualification for ENG 100 or ESL 100.

Recommended Preparation: REL 150.

REL 201 is an analysis of the origin and development of the early Christian message as set forth in the New Testament, with a special emphasis on Jesus and Paul.

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

1. Describe the historical and literary context of the New Testament.
2. Identify the major parts and types of literature contained in the New Testament.
3. Analyze the ways in which New Testament teachings have shaped contemporary societies and human understandings of self.

REL 202 Understanding Indian Religions (3) AA/DH

3 hours lecture per week

Prerequisite(s): Qualification for ENG 100 or ESL 100.

Recommended Preparation: REL 150.

REL 202 is a historical survey of the major religious traditions of India. The course explores the evolution of Indian religious beliefs and practices with an emphasis on understanding the historical roots of contemporary religious diversity in India.

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

1. Identify the main historical events, periods, texts and personalities in the development of the major religious traditions of India.
2. Describe the basic characteristics of the major religious traditions of India, including their myths, rituals, ethics and art.
3. Analyze religious topics from India in light of South Asia's historical, regional, ethnic and sectarian diversity.

REL 209 Understanding Islam (3) KCC AA/DH

3 hours lecture per week

Prerequisite(s): Qualification for ENG 100 or ESL 100.

Recommended Preparation: REL 150.

Comment: REL 209 was formerly REL 220.

REL 209 is a historical survey of Islam. The course 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 209, the student should be able to:

1. Identify the major historical events, periods, texts and personalities in the development of Islam.
2. Describe the basic universal elements of Islam, including its myths, rituals, ethics and art.
3. Analyze phenomena from the Muslim world in light of Islam's historical, regional, ethnic and sectarian diversity.

REL 210 Understanding Christianity (3) KCC AA/DH

3 hours lecture per week

Prerequisite(s): Qualification for ENG 100 or ESL 100.

Recommended Preparation: REL 150.

REL 210 is a historical survey of Christianity. The course explores the evolution of Christian beliefs and practices around the world with an emphasis on understanding the historical roots of contemporary diversity within Christianity.

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

1. Identify the major historical periods, texts, and personalities in the development of Christianity.
2. Describe the differences between major traditional and non-traditional denominations of Christianity.
3. Describe the historical, cultural, social and technological pressures on Christianity that have brought about significant changes in the tradition.

REL 215 Contemporary Religions (3) KCC AA/DH

3 hours lecture per week

Prerequisite(s): Qualification for ENG 100 or ESL 100.

Recommended Preparation: REL 150.

Comment: REL 215 was formerly REL 209.

REL 215 explores the development of new religions and contemporary transformations of traditional religions.

Upon successful completion of REL 215, the student should be able to:

1. Identify social pressures and influences that have transformed the contemporary religious landscape.
2. Describe the distinguishing characteristics of traditional religions and new religions and provide contemporary examples of each.
3. Analyze contemporary religious trends and movements in light of modern technology, globalization, human population shifts and/or environmental concerns.

REL 222 Religion and Conflict in the Modern Era (3) KCC AA/DH

3 hours lecture per week

Prerequisite(s): Qualification for ENG 100 or ESL 100.

Recommended Preparation: HIST 151, HIST 152, or REL 150.

Comment: REL 222 is cross-listed as HIST 222.

REL 222 is a 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 violent conflict since 1800. Each semester, the course examines at least three religion-based conflicts from different parts of the world, including Asia, Africa, the Middle East, Europe, and the Americas.

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

1. Describe the historical origins and evolution of various religious conflicts in the modern era.
2. Analyze the ways in which religious myths, rituals and ethics have fueled various conflicts in the modern era.

3. Assess the essential characteristics of religious conflicts in the modern era and the implications of those characteristics for the resolution of current and future religious conflicts.

RESPIRATORY CARE

RESP 100 Respiratory Care Profession (1) Summer

1 hour lecture per week

Comment: RESP 100 may not be taken credit/no credit. RESP 100 may be audited only upon approval of both Respiratory Therapy Program Director and instructor. RESP 100 is only offered in the Summer Semester.

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:

1. Describe the history and development of Respiratory Care as a profession.
2. Identify current local and national issues affecting the Respiratory Care profession.
3. Describe the role of the Respiratory Care Practitioners (RCP) as a member of the health care team.
4. Discuss ethical concerns facing respiratory Care and other health care practitioners.
5. Discuss issues of health literacy and patient safety affecting Respiratory Care practice.
6. Describe the role of a Respiratory Care or Cardiopulmonary Department within the organizational structure of a hospital or health care facility.
7. Describe the role of Respiratory Care in the out-patient setting.
8. Demonstrate an understanding of community-based health care by examining a community-based health agency.
9. Explain the difference between licensure and credentialing in Respiratory Care.
10. Identify geriatric core competencies, describe role of Respiratory Therapist in interdisciplinary team geriatric care.
11. Identify appropriate responses in non-violent crisis intervention.

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:

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

RESP 200 Cardiopulmonary Pathophysiology (3) Fall

3 hours lecture per week

Prerequisite(s): Acceptance into the Respiratory Care program.

Comment: RESP 200 may not be taken credit / no credit. RESP 200 may be audited only upon approval of Respiratory Program Director and Instructor. RESP 200 is offered only in the Fall semester.

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:

1. Define and describe fundamental characteristics of cardiopulmonary diseases and conditions.
2. Discuss etiology, pathology, diagnosis, management, and prognosis of common cardiopulmonary diseases.
3. Match chronic cardiopulmonary diseases to appropriate rehabilitative techniques.
4. Define abnormal lab values as they relate to specific diseases.
5. Discuss traumatic injuries to the chest wall.
6. Describe common pathology seen on chest x-ray exam.

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:

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

RESP 202 Clinical Practice I (5) Fall

16 hours lab or clinical per week

Prerequisite(s): Acceptance into the Respiratory Care Program.

Comment: RESP 202 may not be taken credit/no credit. RESP 202 may be audited only upon approval of the Respiratory Care Program Director and Instructor. RESP 202 is offered only in the Fall semester. Uniform, school patch, scissors, and stethoscope are required. A professional fee of up to \$500.00 is charged.

RESP 202 introduces students to basic respiratory care skills and procedures including charting, medications, oxygen and aerosol therapy, lung inflation therapy, and secretion management.

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

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

RESP 203 Respiratory Care Techniques I (3) Fall

3 hours lecture per week

Prerequisite(s): Acceptance into the Respiratory Care Program.

Comment: RESP 203 may not be taken credit / no credit. RESP 203 may be audited only upon approval of Respiratory Program Director and Instructor. RESP 203 is offered in the Fall semester only.

RESP 203 introduces students to 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:

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

RESP 211 Introduction to Mechanical Ventilation (2)

4 hours lecture/lab per week

Prerequisite(s): Acceptance into the Respiratory Care Program.

Comment: RESP 211 may not be taken credit /no credit. RESP 211 may be audited only upon approval of Respiratory Program Director and Instructor.

RESP 211 introduces students to the concepts and principles of mechanical ventilation.

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

1. List the physiological indications for mechanical ventilation.
2. List the criteria for instituting mechanical ventilation.
3. List the hazards/complications of mechanical ventilation.
4. Describe the physiological effects of positive pressure.
5. Explain the concepts of compliance and resistance.
6. Perform math calculations used in mechanical ventilation.
7. Discuss the appropriate settings when initiating mechanical ventilation.
8. Describe the different modes of conventional mechanical ventilation: Control, Assist-Control (A/C), Synchronized Intermittent Mechanical Ventilation (SIMV), Pressure Support Ventilation (PSV), Pressure Control Ventilation (PCV), Pressure Control Inverse Ratio Ventilation (PCIRV).
9. Explain the different methods of triggering and cycling the ventilator.
10. Explain the different phases of inspiration and exhalation of Continuous Mechanical Ventilation (CMV).
11. Diagram the different graphic waveforms of ventilation.
12. Explain how graphic waveforms are used in mechanical ventilation.
13. Explain the differences between Intermittent Positive Pressure Breathing (IPPB), Pressure Support (PS), and Pressure Control (PC).
14. Explain the effect of flow wave patterns on the inspiratory flowrate of flow variable ventilators.
15. Explain the maintenance of patient-ventilator interface.
16. Describe various methods of weaning and extubation procedures.
17. Discuss the role of the Respiratory Care Practitioner in the ICU environment.
18. Explain the concept of open-lung inflation Rx.
19. Explain the effects of Continuous Positive Airway Pressure (CPAP) and Positive End Expiratory Pressure (PEEP) therapy on improving oxygenation.
20. Describe the procedure for using and titrating Continuous Positive Airway Pressure (CPAP) and Positive End Expiratory Pressure (PEEP).
21. Describe the procedure of using Bilevel Positive Airway Pressure (BiPAP).
22. Explain the concepts of Inspiratory Positive Airway Pressure (IPAP) and Expiratory Positive Airway Pressure (EPAP).
23. Apply concepts of mechanical ventilation into a clinical simulation.

RESP 212 Clinical Practice II (5) Spring

16 hours lab or clinical per week

Prerequisite(s): Acceptance into the Respiratory Care Program.

Comment: Letter grade only. RESP 212 may not be taken credit/no credit. RESP 212 may be audited only upon approval of the Respiratory Care Program Director and Instructor. RESP 212 will only be offered in Spring semesters. Uniform, school patch, scissors, and stethoscope are required. A professional fee of up to \$500.00 is charged.

RESP 212 introduces students to advanced respiratory care skills and procedures including airway management, mechanical ventilation, arterial puncture, and patient transport.

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

1. Perform routine physical assessment on the critically ill patient in the intensive care unit.
2. Interpret and evaluate diagnostic tests such as Arterial Blood Gases, electrolytes, and chest x-rays.
3. Document results of the patient's assessment and diagnostic tests in the patient's record.
4. Communicate the patient's respiratory care plan, response to therapy, and progress to other members of the health care team.
5. Perform suctioning through tracheostomy and endotracheal tubes (ETT).
6. Perform tracheostomy care.
7. Perform manual ventilation with self-inflating bag.
8. Select and insert oral and nasal airways to maintain airway patency.
9. Inflate and measure endotracheal and tracheostomy tube cuff pressures.
10. Securing the ETT with cloth tape or other appropriate devices.
11. Perform bedside ventilatory assessment such as Negative Inspiratory Force (NIF), Tidal Volume (TV), Vital Capacity (VC), and minute volume.
12. Set-up and test for function the mechanical ventilator prior to patient use.
13. Adjust ventilator settings per order or protocol.
14. Check and document ventilator-patient interface.
15. Administer respiratory care medications to mechanically ventilated patients.
16. Monitor and evaluate the patient's response to respiratory therapy.
17. Discuss the role of the respiratory care practitioner as part of the health care team in the intensive care unit (ICU).

RESP 213 Respiratory Care Techniques II (3) Spring

3 hours lecture per week

Prerequisite(s): Acceptance into the Respiratory Care Program.

Comment: Letter grade only. RESP 213 may not be taken credit / no credit. RESP 213 may be audited only upon approval of Respiratory Program Director and Instructor. RESP 213 will only be offered in Spring semesters.

RESP 213 introduces students to advanced 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:

1. Evaluate information from physical assessment of the critically ill patient on mechanical ventilation.
2. Describe the procedure for and importance of ventilation assessment.
3. 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.
4. Evaluate the hemodynamic measurements as they relate to the patient's condition.
5. Explain the clinical implications of using invasive and noninvasive pulmonary and cardiac monitoring to assess the critically ill patient.
6. Discuss the importance of nutrition of the critically ill patient on mechanical ventilation.
7. Discuss clinical case studies of common cardiopulmonary diseases.
8. 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:

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

RESP 222 Clinical Practice III (5)

An average of 32 clinical hours per week for 10 weeks

Prerequisite(s): Acceptance into the Respiratory Care Program.

RESP 222 enables students to implement advanced respiratory care skills and procedures in the hospital setting.

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

1. Perform routine physical assessment on the critically ill patient in the intensive care unit.
2. Interpret and evaluate diagnostic tests such as arterial blood gases, electrolytes, and chest x-rays.
3. Document results of the patient's assessment and diagnostic tests in the patient's record.
4. Communicate the patient's respiratory care plan, response to therapy, and progress to other members of the health care team.
5. Perform suctioning through tracheostomy and endotracheal tubes (ETT).
6. Perform tracheostomy care.
7. Perform manual ventilation with self-inflating bag.
8. Select and insert oral and nasal airways to maintain airway patency.
9. Inflate and measure endotracheal and tracheostomy tube cuff pressures. Secure the ETT with cloth tape or other appropriate devices.
10. Perform bedside ventilatory assessment such as Negative Inspiratory Force, Tidal Volume, Vital Capacity, and minute volume.
11. Set-up and test for function the mechanical ventilator prior to patient use.
12. Adjust ventilator settings per order or protocol.
13. Check and document ventilator-patient interface.
14. Administer respiratory care medications to mechanically ventilated patients.
15. Monitor and evaluate the patient's response to respiratory therapy.
16. Communicate with mechanically ventilated patient and relay his or her needs to other members of the health care team.

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:

1. Describe drugs administered by the RCP in terms of indications, actions, routes, doses, delivery systems, and adverse reactions.
2. Apply ACLS algorithms in the 10 required cases.
3. Recommend changes in medication, dose, or delivery systems.
4. Select appropriate medications and delivery systems based on pathophysiology and case interpretation.
5. Recommend appropriate cardiac and emergency drugs.
6. Calculate drug dosages.

7. Complete the ACLS final exam with a passing score.
8. Perform 12 lead ECG and interpret rhythms.
9. Perform advanced airway management techniques.
10. Utilize the AED/Defibrillator to deliver electric therapy to the heart.
11. Successfully complete ACLS certification.
12. 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

1. Describe fetal anatomy and physiology.
2. Identify the landmarks of the maternal-fetal circulation.
3. Explain the maternal-fetal circulation.
4. Describe the path of oxygenated blood from maternal (placenta) through the fetal circulation.
5. List maternal factors that may affect the health of the fetus.
6. Identify the components of the APGAR score.
7. Identify two scoring systems used in gestational age assessment.
8. Identify the components of the Silverman score and explain how it is used to assess respiratory distress of the neonate.
9. Explain the physiological changes that immediately occur after a normal birth with respect to: ductus arteriosus, ductus venosus, foramen ovale, PVR, SVR.
10. 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.
11. 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

1. 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.
2. Identify and explain pediatric respiratory care equipment: SPAG, oxygen hood, tents, nasal CPAP, suction (bulb, Deelee).

Module 3

1. 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.
2. 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

1. 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.
2. Explain the purposes of the following special procedures:
 - surfactant replacement Rx, inhaled nitric oxide, high
 - frequency ventilation, HFJV, HFOV, transillumination of the chest.
3. Explain the process used in resuscitation with respect to NRP/PALS.
4. 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:

1. Perform routine physical assessment on premature, full term newborn, and pediatric patients.
2. Perform routine physical assessments on pediatric patients in the medical ward.
3. Interpret and evaluate diagnostic tests such as ABG's, capillary blood stick, and chest x-rays.
4. Document results of the patient's assessment and response to therapy in the patient's record.
5. Monitor and evaluate the patient's response to respiratory therapy.
6. Communicate the patient's respiratory care plan, response to therapy, and progress to other members of the health care team.
7. Collect the necessary supplies, test for equipment function, and administer oxygen, humidification, and aerosol devices.
8. Measure respiratory care medications as ordered and administer using the appropriate devices.
9. Monitor and evaluate the patient's response to respiratory therapy.
10. Perform secretion management techniques such as chest percussion and postural drainage.
11. Document results of the patient's assessment and diagnostic tests in the patient's record.
12. Perform nasotracheal suctioning.
13. Perform manual ventilation with self-inflating and flow-inflating bag.
14. Monitor neonatal/pediatric patients via the HR and EKG monitor, TCM, and ETCO2 monitor.
15. Setup a nasal CPAP.
16. Perform patient-ventilator checks in the NICU/PICU.
17. Assist in patient-ventilator transport.
18. Communicate with the pediatric patient and relay his or her needs to other members of the health care team.
19. Discuss the role of the respiratory care practitioner as part of the health care team in the NICU, PICU, medical ward.
20. Apply universal precaution in the patient care setting.
21. 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:

1. Perform routine pulmonary function tests.
2. Perform advanced pulmonary function tests under supervision.
3. Observe diagnostic bronchoscopy and, under supervision, assist with procedure.
4. Observe and assist, under supervision, with cardiopulmonary exercise testing.
5. Observe and assist, under supervision, with polysomnographic examinations.
6. Observe and assist, under supervision, with neurodiagnostic examinations.
7. Perform preventive maintenance and calibrations of cardiopulmonary diagnostic equipment.
8. Correlate anatomy and physiology of the cardiopulmonary system with procedures and techniques.
9. 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:

1. Define the role of cardiopulmonary diagnostics in patient care.
2. Describe, evaluate, and interpret arterial blood gas analysis, pulmonary function tests, polysomnographic tests, cardiopulmonary exercise tests, and neurodiagnostic exams.
3. Describe and discuss the fundamentals of a lung bronchoscopic exam.
4. Describe and discuss arterial blood gas sampling procedures, including the care and maintenance of analyzers, cooximeters, and blood gas electrodes.
5. Explain methods to diagnose lung volumes, capacities, diffusion.
6. Explain methods and protocols to diagnose sleep related disorders.
7. Explain methods and protocols to diagnose neurodiagnostic disorders.
8. 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:

1. Complete 30 computerized clinical simulations covering 10 major content areas.
2. Complete the National Board for Respiratory Care on-line Entry-Level Self-Assessment Examination.
3. Complete the National Board for Respiratory Care on-line Written Registry Self-Assessment Examination.
4. Complete the National Board for Respiratory Care on-line Clinical Simulation Self-Assessment Examination.
5. Develop a study plan for the Entry-Level Certified Therapist Examination.
6. Complete 3 practice entry-level and written registry examinations.
7. Relate diagnosis, clinical condition, physical findings, therapeutic interventions and modifications per the Examination Matrices of the National Board for Respiratory Care.
8. 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:

1. Perform routine physical assessment on the critically ill patient in the intensive care unit.
2. Interpret and evaluate diagnostic tests such as ABG's, electrolytes, and chest x-rays.
3. Calculate shunt, deadspace, static compliance and airway resistance.
4. Evaluate hemodynamic parameters such as CVP, SVR, PVR, MAP, PCWP, CO, and CI.
5. Identify basic abnormal and life-threatening EKG patterns.
6. Document results of the patient's assessment and diagnostic tests in the patient's record.
7. Communicate the patient's respiratory care plan, response to therapy, and progress to other members of the health care team.
8. Perform suctioning through tracheostomy and endotracheal tubes (ETT).
9. Perform tracheostomy care.
10. Perform manual ventilation with self-inflating bag.
11. Select and insert oral and nasal airways to maintain airway patency.
12. Inflate and measure endotracheal and tracheostomy tube cuff pressures.

13. Secure the ETT with cloth tape or other appropriate devices.
14. Perform bedside ventilatory assessment such as NIF, TV, VC, and minute volume.
15. Set-up and test for function the mechanical ventilator prior to patient use.
16. Initiate and manage a new ventilator patient in the intensive care unit (ICU).
17. Manage at least three ventilator patients in the ICU.
18. Adjust ventilator settings per ABG's.
19. Make clinical recommendations based on various patient data.
20. Identify and troubleshoot common ventilator problems.
21. Wean patient off the ventilator following weaning protocols.
22. Perform ABG stick and draw arterial blood from an arterial line.
23. Check and document ventilator-patient interface.
24. Administer respiratory care medications to mechanically ventilated patients.
25. Monitor and evaluate the patient's response to respiratory therapy.
26. Identify the actions of common medications used in the ICU: antimicrobial agents, paralyzing agents, respiratory stimulants/depressants, and analgesics/anesthetics.
27. Communicate with mechanically ventilated patient and relay his or her needs to other members of the health care team.
28. Discuss the role of the respiratory care practitioner as part of the health care team in the ICU.
29. Apply universal precaution in the patient care setting.
30. Attend ICU rounds and physician and respiratory care departmental inservices.

SCIENCE

SCI 295 (Alpha) Science, Technology, Engineering, and Mathematics (STEM) Research Experience (1 - 3) KCC AA/DY

3 hours cooperative education/work experience per week per credit

Prerequisite(s): Instructor consent.

Recommended Preparation: Completion of a lab science course as stipulated by the instructor.

Comment: Letter grade only. SCI 295 (alpha) may not be audited. SCI 295 (alpha) may not be taken credit/no credit.

SCI 295 (alpha) offers a research experience in science, technology, engineering and/or mathematics, emphasizing the application of the scientific method to a specific project.

Upon successful completion of SCI 295 (alpha), the student should be able to:

1. Formulate a hypothesis.
2. Design methods to test a hypothesis.
3. Collect and analyze data as appropriate.
4. Document and formally present results of hypothesis testing to an audience.
5. Enhance understanding of scientific concepts.
6. Collaborate as a member of a research team.
7. Work responsibly in a lab setting.

SCI 295BL STEM Research Experience in Biology and/or Marine Biology (1-3) KCC AA/DY

3 hours cooperative education /work experience per week per credit

Prerequisite(s): Instructor Consent.

Recommended Preparation: Completion of BIOL 171L or similar science lab course.

Comment: Letter grade only. SCI 295BL may not be audited. SCI 295BL may not be taken credit/no credit. SCI 295BL may be repeated for a maximum of 6 credits.

SCI 295BL offers a research experience in science, technology, engineering and/or mathematics, emphasizing the application of the scientific method to a specific project in biology and/or marine biology.

Upon successful completion of SCI 295BL, the student should be able to:

1. Formulate a hypothesis.
2. Design methods to test a hypothesis.
3. Collect and analyze data as appropriate.

4. Document and formally present results of hypothesis testing to an audience.
5. Enhance understanding of scientific concepts.
6. Collaborate as a member of a research team.
7. Work responsibly in a lab setting.

SCI 295BT STEM Research Experience in Botany (1-3) KCC AA/DY

3 hours cooperative education /work experience per week per credit

Prerequisite(s): Instructor Consent.

Recommended Preparation: Completion of a lab science course as stipulated by the instructor.

Comment: Letter grade only. SCI 295BT may not be audited. SCI 295BT may not be taken credit/no credit. SCI 295BT may be repeated for a maximum of 6 credits.

SCI 295BT offers a research experience in science (botany), technology, engineering and/or mathematics, emphasizing the application of the scientific method to a specific project in biology and/or marine biology.

Upon successful completion of SCI 295BL, the student should be able to:

1. Formulate a hypothesis.
2. Design methods to test a hypothesis.
3. Collect and analyze data as appropriate.
4. Document and formally present results of hypothesis testing to an audience.
5. Enhance understanding of scientific concepts.
6. Collaborate as a member of a research team.
7. Work responsibly in a lab setting.

SCI 295CH STEM Research Experience in Chemistry (1-3) KCC AA/DY

3 hours Cooperative Education/Work Experience per week per credit

Prerequisite(s): Instructor Consent.

Recommended Preparation: Completion of or concurrent registration in CHEM 161 and 161L course as stipulated by the instructor.

Comment: Letter grade only. SCI 295CH may not be audited. SCI 295CH may not be taken credit/no credit. SCI 295CH can be repeated up to a maximum of 6 credits.

SCI 295CH offers a research experience in science, technology, engineering and/or mathematics, emphasizing the application of the scientific method to a specific project in chemistry.

Upon successful completion of SCI 295CH, the student should be able to:

1. Formulate a hypothesis.
2. Design methods to test a hypothesis.
3. Collect and analyze data as appropriate.
4. Document and formally present results of hypothesis testing to an audience.
5. Enhance understanding of scientific concepts.
6. Collaborate as a member of a research team.
7. Work responsibly in a lab setting.

SCI 295EC STEM Research Experience in Ecology (1-3) KCC AA/DY

3 hours cooperative education/work experience per week per credit

Prerequisite(s): Instructor Consent.

Recommended Preparation: Completion of introductory or majors biology/ecology course, or demonstrated interest in research or ecological management, as stipulated by the instructor.

Comment: Letter grade only. SCI 295EC may not be audited. SCI 295EC may not be taken credit/no credit. SCI 295EC may be repeated up to a maximum of 6 credits.

SCI 295 EC offers a research experience in emphasizing the application of the scientific method to an ecology project.

Upon successful completion of SCI 295EC, the student should be able to:

1. Formulate a hypothesis.
2. Design methods to test a hypothesis.
3. Collect and analyze data as appropriate.
4. Document and formally present results of hypothesis testing to an audience.
5. Enhance understanding of scientific concepts.
6. Collaborate as a member of a research team.
7. Work responsibly in a lab setting

SCI 295MI STEM Research Experience in Microbiology and/or Molecular Biology (1-3) KCC AA/DY

3 hours cooperative education/work experience per week per credit

Prerequisite(s): Instructor Consent.

Recommended Preparation: Completion of a microbiology and/or molecular biology lab science course as stipulated by the instructor.

Comment: Letter grade only. SCI 295MI may not be audited. SCI 295MI may not be taken credit/no credit. SCI 295MI may be repeated for a maximum of 6 credits.

SCI 295MI offers a research experience in science, technology, engineering and/or mathematics, emphasizing the application of the scientific method to a specific project in microbiology and/or molecular biology.

Upon successful completion of SCI 295MI, the student should be able to:

1. Formulate a hypothesis.
2. Design methods to test a hypothesis.
3. Collect and analyze data as appropriate.
4. Document and formally present results of hypothesis testing to an audience.
5. Enhance understanding of scientific concepts.
6. Collaborate as a member of a research team.
7. Work responsibly in a lab setting.

SECOND LANGUAGE TEACHING

SLT 102 Language Learning (3) KCC AA/DS

3 hours lecture per week

Prerequisite(s): A grade of "C" or higher or concurrent enrollment in ENG 100, a grade of "C" or higher or concurrent enrollment in ESL 100.

Comment: Students must do Service Learning in the Education pathway as a requirement of this course.

SLT 102 introduces the post-method viewpoint of learning in the classroom. The course will begin with identifying the students' intuitions and insights about language learning. Students will then examine different language learning goals and needs as well as explore some basic needs in order for language to be acquired and factors that can accelerate or hinder language learning. In the second portion of the course, students will be introduced to ethnographic case studies of language learners and learn how to do their own ethnographic study on an individual or on one group of student language learners.

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

1. Describe the language development cycle, including each stage.
2. Describe the various language learning frameworks commonly found in educational settings.
3. Describe the various motivational and socio-cultural characteristics of language learners .
4. Create scenarios of various language learning situations.
5. Complete an ethnographic study of a language learner including:
 - Observation
 - Interview
 - Artifact collection
 - Secondary research
 - Data analysis
 - Data reporting

SLT 103 Language Teaching (3) KCC AA/DS

3 hours lecture per week

Prerequisite(s): A grade of "C" or higher or concurrent enrollment in ENG 100, a grade of "C" or higher or concurrent enrollment in ESL 100.

Comment: Students must do Service Learning in the Education pathway as a requirement of this course.

SLT 103 introduces the post-method viewpoint of teaching in the classroom. The course will begin by identifying the students' intuitions and insights about language teaching. The students will examine ways that instruction can facilitate and accelerate language learning. The students will explore how heritage language, motivation, learning styles, variation in input, etc. can influence their teaching. As the students address the issues of language teaching, they will develop their own definitions of second language

pedagogy. In the second portion of the course, students will be introduced to ethnographic case studies of language teachers and learn how to do their own ethnographic study on one teacher's classroom practices.

Upon successful completion of SLT 103, the student should be able to:

1. Describe language teaching in the context of the language development cycle, including each stage
2. Describe the various language teaching frameworks commonly found in educational settings
3. Describe how the various motivational and socio-cultural characteristics of language learners can influence their teaching
4. Describe their own definitions of second language pedagogy
5. Complete an ethnographic study of a language teacher including:
 - Observation
 - Interview
 - Artifact collection
 - Secondary research
 - Data analysis
 - Data reporting

SLT 202 (Alpha) Concepts and Issues in Second Language Teaching (SLT) (3) KCC AA/DH

3 hours lecture per week

Prerequisite(s): A grade of "C" or higher or concurrent enrollment in ENG 100, a grade of "C" or higher or concurrent enrollment in ESL 100; a grade of "C" or higher or concurrent enrollment in SLT 102, consent of instructor.

Comment: Students must do Service Learning in the Education pathway as a requirement of this course.

SLT 202 (Alpha) continues the exploration of classroom-based language development. SLT 202 (Alpha) students begin the course by exploring language skills from various perspectives and investigating the different ways that research and experts view instruction of language skills in various classroom settings. SLT 202 (Alpha) students also explore the relationship between pedagogy and language skills development and compile a portfolio of strategies for helping learners develop language skills.

Upon successful completion of SLT 202 (Alpha), the student should be able to:

1. Describe language skills from various perspectives
2. Discuss concepts and issues associated with the instruction of language skills in various classroom settings
3. Create and implement lesson plans, activities, and materials that are appropriate for developing language skills in various classroom settings
4. Compile a teaching strategies portfolio that contains lesson plans, activities, and materials for developing language skills in various classroom settings

SLT 202B Concepts and Issues in Second Language Teaching (SLT) – Language Skills (3) KCC AA/DH

3 hours lecture per week

Prerequisite(s): A grade of "C" or higher or concurrent enrollment in ENG 100, a grade of "C" or higher or concurrent enrollment in ESL 100; a grade of "C" or higher or concurrent enrollment in SLT 102, consent of instructor.

Comment: Students must do Service Learning in the Education pathway as a requirement of this course.

SLT 202B continues the exploration of classroom-based language development. SLT 202B students begin the course by exploring language skills from various perspectives and investigating the different ways that research and experts view instruction of language skills in various classroom settings. SLT 202B students also explore the relationship between pedagogy and language skills development and compile a portfolio of strategies for helping learners develop language skills.

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

1. Describe language skills from various perspectives
2. Discuss concepts and issues associated with the instruction of language skills in various classroom settings
3. Create and implement lesson plans, activities, and materials that are appropriate for developing language skills in various classroom settings
4. Compile a teaching strategies portfolio that contains lesson plans, activities, and materials for developing language skills in various classroom settings

SLT 203 (Alpha) Integrating Content and SLT (3)

3 hours lecture per week

Prerequisite(s): A grade of "C" or higher or concurrent enrollment in ENG 100, a grade of "C" or higher or concurrent enrollment in ESL 100; a grade of "C" or higher or concurrent enrollment in SLT 103, consent of instructor.

Comment: Students must do Service Learning in the Education pathway as a requirement of this course.

SLT 203 (Alpha) introduces students to strategies for using content to facilitate second language development. SLT 203 (Alpha) students begin by exploring different strategies necessary for developing language in content classrooms. Then the students examine activities and materials appropriate for developing language skills in specific content areas, such as language arts, mathematics, science and social studies. The students also conduct case studies of a content classroom and develop activities, materials and lesson plans appropriate for facilitating language development in that setting.

Upon successful completion of SLT 203 (Alpha), the student should be able to:

1. Describe the strategies necessary for developing language through content
2. Describe critical issues for creating lesson plans to facilitate language development
3. Conduct case-study research on language learners in language classrooms including:
 - a. Observation
 - b. Analysis
 - c. Reporting
4. Create and implement content-based activities, materials and lesson plans that are appropriate for particular language learners and contexts
5. Compile a teaching portfolio that contains activities, materials and lesson plans for facilitating language development

SLT 203B General Education (3)

3 hours lecture per week

Prerequisite(s): A grade of "C" or higher or concurrent enrollment in ENG 100, a grade of "C" or higher or concurrent enrollment in ESL 100; a grade of "C" or higher or concurrent enrollment in SLT 103, consent of instructor.

Comment: Students must do Service Learning in the Education pathway as a requirement of this course.

SLT 203B introduces students to strategies for using content to facilitate second language development. SLT 203B students begin by exploring different strategies necessary for developing language using the content of general education classrooms. Then the students examine activities and materials appropriate for developing language skills in specific general education content areas, such as language arts, mathematics, science and social studies. The students also conduct a case study of a general education classroom and develop activities, materials and lesson plans appropriate for facilitating language development in that setting.

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

1. Describe the strategies necessary for developing language using general education content
2. Describe critical issues for creating lesson plans and materials to facilitate language development using general education content
3. Conduct case-study research on language learners in various general education classrooms including:
 - a. Observation
 - b. Analysis
 - c. Reporting
4. Create and implement content-based activities, materials and lesson plans that are appropriate for particular language learners in various general education classrooms
5. Compile a teaching portfolio that contains activities, materials and lesson plans for facilitating language development using general education content

SLT 290 Second Language Assessment (3)

3 hours lecture per week

Prerequisite(s): A grade of "C" or higher or concurrent enrollment in ENG 100, a grade of "C" or higher or concurrent enrollment in ESL 100; a grade of "C" or higher or concurrent enrollment in SLT 202, consent of instructor; a grade of "C" or higher or concurrent enrollment in SLT 203, consent of instructor.

Comment: Students must do Service Learning in the Education pathway as a requirement of this course.

SLT 290 introduces students to strategies for using assessment to facilitate second language development. SLT 290 students begin by examining issues associated with assessing content-area language needs of students. Then the students examine issues associated with assessing materials appropriate for facilitating language development of students in content-area classrooms. The students also do a study of language needs and activities in a content-area classroom.

Upon successful completion of SLT 290, the student should be able to:

1. Describe language standards at the national, state and local levels
2. Describe the various types of language assessment conducted in the content-area classroom
3. Conduct assessments of materials that are appropriate for facilitating language development in content-area classrooms
4. Conduct various types of survey research on language in content-area classrooms including:
5. Standards
 - a. Needs
 - b. Skills
 - c. Peer and Self-Assessment
 - d. Development
6. Compile a portfolio that contains materials assessments and survey research on language

SOCIAL SCIENCE

SSCI 200 Social Science Research Methods (3) KCC AA/DS

3 hours lecture per week

Prerequisite(s): Qualification for ENG 100; qualification for MATH 100; instructor approval.

Comment: Letter grade only. SSCI 200 may not be audited. SSCI 200 may not be taken credit/no credit.

SSCI 200 focuses on the various methods of social science research. Introduces research design methods, selection of data collection approaches, use of specialized statistical software to analyze the data, data interpretation, and dissemination of findings.

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

1. Apply critical thinking skills to solve research problems.
2. Demonstrate the basic skills required to perform social science research in an applied field.
3. Demonstrate the techniques to perform elementary statistical analyses of data with computer assistance.

SSCI 260 Society and Food (3) KCC AA/DS and KCC AS/SS

3 hours lecture per week

Prerequisite(s): Qualification for ENG 100.

SSCI 260 harnesses concepts and approaches in a variety of social science fields to explore patterns and variations in food production, distribution, and consumption in historical and contemporary contexts. The course examines the way in which socio-cultural, political, and economic forces interact to influence food habits and nutritional status. The course explores central social science themes such as religion, inequality, gender, media and corporate capitalism as they relate to food consumption. SSCI 260 examines issues of social and environmental sustainability with particular emphasis on industrial food systems and alternative approaches.

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

1. Describe the global history of food production and consumption patterns in connection with issues of social and environmental sustainability.
2. Evaluate key social and environmental challenges to food system sustainability in the contemporary industrial food system and some alternative strategies to the dominant food system.
3. Discuss how the meaning of food, food habits, and perceptions of health are influenced by cultural and religious perspectives.
4. Describe how the individual relates to the wider issues of sustainability.
5. Describe how traditional and indigenous perspectives inform practices of sustainability.
6. Define the social construction of obesity, ideal body, and gender identity.
7. Articulate the concept of food insecurity and its relationship to inequality and sustainable food systems.
8. Identify strategies used by the food industry to influence consumption patterns and food regulatory policies.
9. Express and communicate ideas and opinions clearly in writing.

SOCIAL SCIENCES

SOCS 225 Statistical Analysis for Social Sciences (3) KCC AA/DS

3 hours lecture per week

Prerequisites: Qualification for ENG 100; qualification for MATH 100 or higher level mathematics. Completion of a social sciences course with a grade of "C" or higher in PSY 100, a grade of "C" or higher in SOC 100, a grade of "C" or higher in ANTH 151, a grade of "C" or higher in ECON 130, a grade of "C" or higher in POLS 110, a grade of "C" or higher in FAMR 230, a grade of "C" or higher in GEOG 101, a grade of "C" or higher in GEOG 102, a grade of "C" or higher in GEOG 151, a grade of "C" or higher in JOUR 150, a grade of "C" or higher in WS 202.

SOCS 225 uses statistical reasoning in the analysis of social science data. Topics covered include descriptive statistics, probability, parameter estimation, hypothesis testing, tests for independent and dependent measures, analysis of variance, correlation and regression, and nonparametric statistical tests.

Upon successful completion of SOCS 225, the student should be able to:

1. Organize, summarize, and communicate a group of numerical observations using different types of descriptive statistics.
2. Make general estimates about the larger population using different types of inferential statistics.
3. Interpret advanced statistical procedures in research articles.

SOCIOLOGY

SOC 100 Introduction to the Study of Sociology (3) KCC AA/DS and KCC AS/SS

3 hours lecture per week

Prerequisite(s): Qualification for ENG 100; qualification for MATH 24.

SOC 100 is an introduction to the scientific discipline of sociology. It will focus on key concepts, main theoretical perspectives, and research findings used by sociologists to explain the social world and social interaction. The course examines the fundamental components and institutions that make up the structure of human societies as well as the basic processes and direction of social change.

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

1. Identify the basic social institutions of a society in terms of structure, function, change, and interrelationships.
2. Evaluate arguments and ideas about human social behavior in relation to sociological theories.
3. Apply sociological theories and explanations to contemporary social processes and events.
4. Describe the societal roots of social processes and social problems and how societal and cultural processes affect individuals' behavior and thinking patterns.
5. Identify one's own values and behavior in relation to larger social forces.
6. Evaluate the process, assumptions, strengths, and limitations of the scientific method.
7. Critically evaluate social research data.
8. Express and communicate ideas and opinions clearly in writing.
9. Apply a global perspective when examining social processes and events.

SOC 214 Introduction to Race and Ethnic Relations (3) KCC AA/DS and KCC AS/SS

3 hours lecture per week

Prerequisite(s): Qualification for ENG 100; qualification for MATH 24.

Recommended Preparation: SOC 100.

SOC 214 focuses on race and ethnic relations in world perspective; social, economic and political problems associated with perception, existence, and accommodation of varying racial and ethnic groups within the wider society.

Upon successful completion of SOC 214, the student should be able to:

1. Identify the major ways in which "race" has been defined throughout human history.
2. Identify "races" and "ethnic groups".
3. Compare and contrast varying racial and ethnic groups that make up the population of the American society and discuss the diversity in backgrounds.
4. Describe the basic social processes that affect societies and individual behavior.
5. Give examples of the relationship of individuals and the social and cultural environment.
6. Evaluate predictions concerning the size and composition of the minority populations being studied for the future.
7. Describe how prejudice and discrimination may be related, or unrelated, to each other.

8. Identify the components of assimilation, including the less tangible aspects such as values, sentiments, and attitudes.
9. State ideas and opinions clearly in writing.
10. Define and give examples of each of the major patterns of intergroup relations, assimilation, pluralism, subjugation, segregation, expulsion, and annihilation.
11. Describe the theoretical perspectives that relate to the study of race and ethnic relations.
12. Apply a global perspective when examining race and ethnic relations.

SOC 218 Introduction to Social Problems (3) KCC AA/DS and KCC AS/SS

3 hours lecture per week

Prerequisite(s): Qualification for ENG 100; qualification for MATH 24.

Recommended Preparation: SOC 100.

SOC 218 focuses on theoretical and substantive survey of the nature and causes of social problems; selected problems will vary from semester to semester.

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

1. Apply critical thinking skills to evaluate social problems.
2. Evaluate proposed solutions to social problems.
3. Define sets of circumstances which become problematic for large segments of the population.
4. Identify attitudinal changes toward social problems.
5. Give examples of an objective approach to the observation and analysis of social problems in society.
6. Demonstrate a global perspective when examining social problems, issues and concerns.
7. Describe the theoretical perspectives that relate to the study of social problems.
8. Evaluate and explain thoughts, feelings and ideas relevant to selected social issues.

SOC 231 Introduction to Juvenile Delinquency (3) KCC AA/DS and KCC AS/SS

3 hours lecture per week

Prerequisite(s): Qualification for ENG 100; qualification for MATH 24.

Recommended Preparation: SOC 100.

SOC 231 covers the sociological analysis of the social realities of juvenile delinquency in contemporary societies, its nature, prevalence, etiology, treatment and future.

Upon successful completion of SOC 231, the student should be able to:

1. Define juvenile delinquency, in particular, socio-legal and statistical characterizations of that form of youthful deviance.
2. Explain the underlying, finite and multiple causes of juvenile delinquency which refer in particular to the sociogenic, psychogenic, and biogenic etiologies popularly offered in the sociological study of juvenile delinquency.
3. Give examples of official and unofficial reactions to youthful offenders, especially in light of victim and offender characteristics, Juvenile Justice System policies and operations, and community sensitivity to and reporting of the problem (victimization surveys) of delinquency.
4. Explain the Juvenile Justice System: its background, functions, interrelations, structure, and its evaluation in the prevention of juvenile delinquency.
5. Give examples of the family as a malfunctioning institution and as a preventive institution.
6. Give examples of the school as a dysfunctional institution and as another preventive institution.
7. Identify the career stages in the development of a juvenile delinquent.
8. Identify the types of delinquents in terms of their being official and quasidelinquents.
9. Give examples of the nature of delinquent gangs; their structure, functions, dynamics, and etiology.
10. Describe the hidden delinquency patterns of American youths.
11. Explain the class and sex variations of juvenile delinquents, especially in light of racism and sexism in the Juvenile Justice System.
12. Evaluate the varied sociological research methodologies and panel presentations.

SOC 251 Introduction to Sociology of the Family (3) KCC AA/DS and KCC AS/SS

3 hours lecture per week

Prerequisite(s): Qualification for ENG 100; qualification for MATH 24.

Recommended Preparation: SOC 100.

SOC 251 examines family patterns, mate selection, parent-child interaction, socialization of roles, legal sanctions, and trends in

organization and functions. The theoretical and empirical bases are related to the students' experiences and observations.

Upon successful completion of SOC 251, the student should be able to:

1. Employ the sociological perspective and research methods in studying marriage and family.
2. Recognize the basic sociological theories and concepts that have been employed in the study of marriage and family.
3. Examine the origins of such basic institutions including their life cycles.
4. Identify diverse and universal forms of marriage and family and their impact on American societies.
5. Identify the major societal changes affecting marriage and family and their resultant institutional consequences.
6. Demonstrate awareness of family dysfunction and its impact on society.
7. Recognize the family's role in modern society, and speculate about the future of marriage and family as global institutions.

SOC 257 Sociology of Aging (3) KCC AA/DS and KCC AS/SS

3 hours lecture per week

Prerequisite(s): Qualification for ENG 100; qualification for MATH 24.

Recommended Preparation: SOC100.

SOC 257 is an overview of significant sociological perspectives, social issues, and empirical social science research pertaining to the phenomenon of aging in society.

Upon successful completion of SOC 257, the student should be able to:

1. Give examples of aging as a social phenomenon and not simply as a biological process.
2. Evaluate and interpret ageism and other social attitudes, values, and practices with respect to aging and their implication on the aging experience.
3. Identify global and diverse perspective in the understanding of social issues, problems, and concerns in aging society.
4. Identify fundamental concepts of aging issues and societal changes as they reflect demographic, economic, political, ethnic, family, health and long-terms care dynamics of aging society.
5. Differentiate between and evaluate major social gerontology theories to the explanation of aging as a socio phenomenon.
6. Apply and interpret social science research findings in relation to societal roots of the aging experience.
7. Express and communicate ideas clearly in writing.

SPANISH

SPAN 101 Elementary Spanish I (4) KCC AA/HSL

4 hours lecture per week

SPAN 101 is an introduction to the sounds and basic structures of the Spanish language emphasizing the acquisition of speaking, writing, reading, and listening comprehension skills for communicative proficiency, and an appreciation of the essential elements of Hispanic culture in the context of Spanish-speaking countries.

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

1. Produce the sounds of Spanish and read words with acceptable pronunciation.
2. Reproduce simple patterns of speech based on classroom models with acceptable pronunciation.
3. Respond orally to familiar simple conversational models to demonstrate communicative competency at a basic level.
4. Read aloud familiar materials with pronunciation comprehensible to a native-speaker.
5. Write phrases in Spanish that demonstrate appropriate use of present tense grammatical forms in familiar contexts.
6. Demonstrate knowledge of essential geography and basic concepts of Hispanic culture, and contrastive cultural practices in the context of six countries where Spanish is spoken.

SPAN 102 Elementary Spanish II (4) KCC AA/HSL

4 hours lecture per week

Prerequisite(s): A grade of "C" or higher in SPAN 101, or satisfactory score on language placement test, or instructor consent.

SPAN 102 is a continuation of SPAN 101 with further development of basic Spanish sentence structures, vocabulary, reading, oral and written communication skills and an enhanced appreciation of Hispanic culture.

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

1. Reproduce patterns of speech based on classroom models with acceptable pronunciation.
2. Respond orally in natural conversation to demonstrate communicative competency.
3. Read aloud familiar materials with pronunciation comprehensible to a native-speaker.
4. Write simple sentences in Spanish that demonstrate appropriate use of grammatical forms in familiar contexts.
5. Demonstrate knowledge of basic concepts of Hispanic culture presented in class.

SPAN 201 Intermediate Spanish I (3) KCC AA/HSL

3 hours lecture per week

Prerequisite(s): A grade of "C" or higher in SPAN 102, or satisfactory score on language placement test, or instructor consent.

SPAN 201 reviews and expands upon the basic language skills acquired in Beginning Spanish through reading, writing, grammar review, introduction of more detailed and advanced functional grammar concepts, vocabulary development, listening comprehension, conversation and oral presentations. Communicative practice with peers, native-speakers, and the instructor will enhance fluency and develop confidence in written and oral expression. Thematic discussion topics, and regional area studies of Spanish-speaking countries will develop critical thinking skills, expressed in Spanish, and enhance knowledge, appreciation and awareness of the countries and cultures where Spanish is spoken.

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

1. Demonstrate through class discussion, conversation, and writing, the ability to read, understand, analyze and comment upon short, non-technical articles related to daily life, society, excerpts from literature, and Hispanic countries and cultures.
2. Demonstrate through class discussion, conversation, and writing the integration of the elements of Spanish vocabulary, pronunciation, and grammatical structure to the ability to communicate to a native-speaker and be understood on topics related to Hispanic countries and cultures.
3. Demonstrate through class discussion, presentations, conversation, and writing an understanding of some essential aspects of the culture, geography, and important figures of at least five Hispanic countries or geographical regions.
4. Demonstrate through class discussion, conversation, and writing the integration of the elements of Spanish vocabulary, pronunciation, and grammatical structure the ability to communicate to a native-speaker and be understood on topics related to daily life, society, and Hispanic cultures.

SPAN 202 Intermediate Spanish II (3) KCC AA/HSL

3 hours lecture per week

Prerequisite(s): A grade of "C" or higher in SPAN 201, or satisfactory score on the language placement test, or instructor consent.

SPAN 202 reviews and expands upon the early intermediate language skills acquired in Intermediate Spanish I through increasingly advanced reading, writing, grammar review, introduction of more detailed functional grammar concepts, vocabulary development, listening comprehension, conversation, and oral and written presentations. Communicative practice with peers, native-speakers, and the instructor will enhance fluency and develop confidence in written and oral expression. Thematic discussion topics, and regional area studies of Spanish-speaking countries will develop critical thinking skills, expressed in Spanish, and enhance knowledge, appreciation and awareness of the countries and cultures where Spanish is spoken.

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

1. Demonstrate, through class discussion, conversation, and writing, the ability to read, understand, and talk about short, cultural articles related to society and Hispanic and American cultures.
2. Demonstrate, through class discussion, conversation, and writing one- to two-page essays about the integration of the elements of vocabulary and grammatical structures of Spanish necessary to communicate on most topics related to society and Hispanic and American cultures.
3. Communicate orally on topics related to society, and Hispanic and American cultures with pronunciation comprehensible to a native speaker.
4. Demonstrate through class discussion, conversation, and writing, an understanding of the essentials of history, culture and society of Spain and Latin American countries.

SPAN 250 Latin American Literature and Culture (3) KCC AA/DL

3 hours lecture per week

Prerequisite(s): A grade of "C" or higher in SPAN 202, or equivalent, or permission of instructor.

SPAN 250 is a study of selected excerpts from works of Latin American literature from the pre-Columbian era to the present, focusing on how the literature represents the history, culture and society of Spanish-speaking Latin American countries and peoples. Taught in

Spanish at the high intermediate level, this course is especially recommended for students considering a Spanish certificate or major at UH Manoa, heritage speakers, and qualified students who seek back credits in Spanish.

Upon successful completion of SPAN 250, the student should be able to:

1. Consider a work of literature as a reflection of its cultural milieu and compare that milieu with his/her own.
2. Analyze and evaluate the theme and style of representative literary excerpts and how they represent an expression of the cultural, historical, social, and geographical contexts of a particular Latin American region or people; especially with respect to Identity, Gender, Social Justice/Human Rights, Globalization, and Environment.
3. Describe in writing and discussion the uniqueness and diversity among cultural and national groups of Latin America.
4. Describe in writing and discussion the similarities of theme, style, and purpose that characterize Latin American literature.
5. Participate in discussions about Latin American literature and culture using appropriate vocabulary, grammar, reading, speaking, and writing skills.
6. Communicate thoughts, background knowledge, ideas, and opinions using Intermediate level Spanish, orally and in writing, with sufficient skill to be understood as a native speaker.
7. Explain in writing the need for literary evidence to support opinions and ideas regarding a literary work.
8. Recognize the universality in human experience, as well as the qualities that make a particular ethnic or cultural group distinct.
9. Explain the importance of selected major Latin American authors, from the Pre-Columbian era to the present, as literary figures and representatives of their culture and society.

SPEECH

SP 151 Personal and Public Speech (3) KCC AA/OC and KCC AA/DA

3 hours lecture per week

Recommended preparation: Qualification for ENG 100, ENG 160, or ESL 100.

SP 151 emphasizes the development of oral communication skills vital in career and personal life. Focus is on principles and skills of effective interpersonal communication, small group discussions, and public speeches.

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

1. Apply principles of effective verbal and nonverbal communication in interpersonal, small group, and public speaking situations.
2. Identify strengths and weaknesses in your own and others' interpersonal, group, and public communication.
3. Define and demonstrate the basic principles of verbal and nonverbal communication in an interview, small group discussion/presentation, and public speeches.
4. Analyze an audience and adapt a message to listeners in various communication situations.
5. Organize and formally outline ideas with appropriate and adequate supporting materials in an interview, small group, and informative and persuasive speeches.
6. Develop critical listening skills and demonstrate appropriate audience behaviors in various communication situations.
7. Develop self-confidence and competence as a personal and public communicator.

SP 181 Interpersonal Communication (3) KCC AA/DS and KCC AA/OC and KCC AS/SS

3 hours lecture per week

Recommended Preparation: Qualification for ENG 100 or ESL 100.

SP 181 explores the theories and practical skills to be a competent communicator in person-to-person situations. Topics include perception, verbal and nonverbal communication, emotion, listening, and conflict management. Students work individually, in pairs, and in small groups to expand their knowledge and understanding of the role communication plays in the development and maintenance of interpersonal relationships in personal, social, and professional contexts.

Upon successful completion of SP 181, the student should be able to:

1. Describe how the communication process and perception shape our communication.
2. Explain the role self-concept plays in your communication.
3. Differentiate between verbal and nonverbal communication.
4. Describe the complex nature of the listening process.
5. Identify the stages of relational development.
6. Describe effective conflict management strategies.

SP 231 Performance of Literature (3) KCC AA/DA and KCC AA/OC

3 hours lecture per week

Recommended preparation: Qualification for ENG 100.

SP 231 is an introduction to the study of literature through performance. The course helps students to see the performance of literature as a method of increasing literary understanding and enjoyment, both for the performer and the audience. Students write literary analyses and present performances to learn how to use performance as a means to study literature.

Upon successful completion of SP 231, the student should be able to:

1. Define "performance".
2. Define specific terminology concerning interpretation and literary study.
3. Identify performance conventions practiced by the solo performer of literary texts.
4. Evaluate the literary merits of a text.
5. Evaluate artistic merits of a performance.
6. Demonstrate the essentials of character analysis.
7. Render in performance the intellectual, emotional and literary merits of a text.
8. Perform a literary text with appropriate use of vocal characteristics and body language.
9. Function as a critic of performed literature as well as the literary text itself.
10. Incorporate memory techniques in presentations.
11. Recognize the importance of giving and obtaining student feedback.
12. Evaluate the performance of others.

SP 233 Oral Traditions of Storytelling (3) KCC AA/DA

3 hours lecture per week

Recommended Preparation: ENG 100, ESL 100.

SP 233 is an introduction to the oral traditions of storytelling with emphasis on the historical, cultural, and performance perspectives. Students present stories and learn how to analyze their forms.

Upon successful completion of SP 233, the student should be able to:

1. Select and share stories from cultures that follow oral traditions.
2. Analyze stories in terms of character, plot development, setting, cultural context and theme.
3. Complete an oral history study.
4. Complete a critical self-assessment.
5. Present stories with appropriate use of body and voice.
6. Incorporate memory techniques in presentations.
7. Evaluate the performance of others.

SP 251 Principles of Effective Public Speaking (3) KCC AA/OC and KCC AA/DA and KCC AS/AH

3 hours lecture per week

Recommended Preparation: SP 151, ENG 100, ENG 160, or ESL 100.

SP 251 focuses on speech composition and delivery. Emphasis is on critical thinking, clear organization, research skill, appropriate verbal and visual support, and lively delivery. Students present speeches, complete self-analysis papers of their speeches, critique presentations, and evaluate reasoning on important topics.

Upon successful completion of SP 251, the student should be able to:

1. Analyze an audience and apply principles to topic selection.
2. Develop, present, and defend positions on important issues.
3. Organize and formally outline a variety of speeches.
4. Support ideas using a variety of evidence and research.
5. Present ideas with appropriate use of body and voice.
6. Provide oral and written feedback to other speakers.
7. Describe a speaker's ethical responsibilities.
8. Identify speech strengths and areas to improve through written self-analysis of presentations.