Course Syllabus

NOTE: This syllabus is subject to change during the semester. Please check this syllabus on a regular basis for any updates.

Department : Radiologic Technology

Course Title : Advanced Medical Imaging

Section Name : RADR 2333

Start Date : 8/27/12

End Date : 12/7/12

Modality : Face-to-face

Credits : 3

Instructor Information

Name : Carrie Nanson

OC Email : cnanson@odessa.edu

OC Phone # 335-6469

Course Description

Specialized imaging modalities. Includes concepts and theories of equipment operations and their integration for medical diagnosis. An introduction to the use of computers in medical imaging, to include neuroradiography, computed and digital x-ray imaging, angiography, arteriography, and interventional procedures. (ICOs 1, 2, 4, 5)

Prerequisites/Corequisites

PREREQUISITE: RADR 1313, RADR 2305, RADR 2309, RADR 2431 or consent of the department chair

COREQUISITES: RADR 2217 and RADR 2366

ICOS

1, 2, 4, 5

Course Objectives

Differentiate the specialized imaging modalities and associated equipment; and identify and compare anatomy as image by different modalities. The student will have a thorough understanding of advanced radiographic procedures, image intensified and digital fluoroscopic equipment, mobile radiography, and contrast pressure injectors.

Required Readings/Materials

Fundamentals of Special Radiographic Procedures, Snopek

Merrill's Atlas of Radiographic Positions, Ballinger.

Radiographic Anatomy and Positioning Workbook, Hayes.

Radiologic Science for Technologists, Bushong

Radiologic Science for Technologists, Student Workbook

Course Requirements (Lectures, Assignments and Assessments)

A. Regular and punctual attendance of all lectures.

B. Read and discuss textbook assignments and outside readings when they are assigned.

C. Complete all course assignments to include worksheets, laboratory exercises, written papers, examinations, etc.

D. Demonstrate proficiency of the requirements set forth in this course by attainment of a grade of "C" or better.

Grading Policy

Grading Criteria:

A - 93-100
B - 84-92
C - 75-83

Weight of Course Requirements:

15% - Daily Grades
35% - Unit Exams
10% - Projects
40% - Final Exam

METHOD OF EVALUATION:

Students will be allowed to make up tests; however, **10 points will be deducted for each class day a student fails to schedule and complete the examination.**

ATTENDANCE POLICY:

Student attendance at every class, lab and clinical practicum is expected. Students shall be prompt to class and clinical practicums. Points will be deducted from a student's final course grade for absences. (1-2 abs = .5 pt ea.; 3-5 abs = .75 pt. ea.; 6-7 abs = 1 pt. ea.) A student is considered absent if more than 30 minutes late to lecture or lab or more than two (2) hours late for clinical practicums. Four (4) or more absences will constitute an administrative drop.

ACADEMIC ETHICS:

You are expected to complete your own assignments and take tests without notes or other outside assistance. ALL WORK IS EXPECTED TO BE YOUR OWN. If unethical behavior is detected, ALL parties involved will be denied points for that project exam. The questioned material and a report of the ethics violation will be submitted to the department chair for further action as deemed necessary by the department chair.

Statement of Academic Dishonesty:

Ethics, Cheating and Plagiarism

"Using someone else's ideas or phrasing and representing those ideas or phrasing as our own, either on purpose or through carelessness, is a serious offense known as plagiarism."Ideas or phrasing" includes written or spoken material, of course, from whole papers and paragraphs to sentences, and, indeed, phrases. but it also includes statistics, lab results, art work, etc. "Someone else" can mean a professional source, such as a published writer or critic in a book, magazine, encyclopedia, or journal; an electronic resource such as material we discover on the World Wide Web; another student at our school or anywhere else; a paperwriting "service" (online or otherwise), which offers to sell written papers for a fee." (statement taken from http://webster.commnet.edu/mla/plagiarism.shtml)

Special Needs

Odessa College complies with Section 504 of the Vocational Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. If you have any special needs or issues pertaining to your access to and participation in this or any other class at Odessa College, please feel free to contact me to discuss our concerns. You may also call the Office of Disability services at 432-335-6861 to request assistance and accommodations.

Learning Resource Center (Library)

The Library, known as the Learning Resources Center, provides research assistance via the LRC's catalog (print books, videos, e-books) and databases (journal and magazine articles). Research guides covering specific subject areas, tutorials, and the "Ask a Librarian " service provide additional help.

Student E-mail

Please access your Odessa College Student E-mail, by following the link to either set up or update your account: http://www.odessa.edu/gmail/. **All correspondence will be submitted using your Odessa College email.**

Student Portal

Please access your Odessa College Student E-mail, by following the link to either set up or update your account: http://www.odessa.edu/gmail/. **All correspondence will be submitted using your Odessa College email.**

Technical Support

For Blackboard username and password help and for help accessing your online course availability and student email account contact the Student Success Center at 432-335-6878 or online at https://www.odessa.edu/dept/ssc/helpdesk_form.htm.

Important School Policies

For information regarding student support services, academic dishonesty, disciplinary actions, special accommodations, or student's and instructors' right to academic freedom can be found in the Odessa College Student Handbook.

COURSE COMPETENCIES

1XRA.09.00 DISCUSS ETHICS - A BRANCH OF PHILOSOPHY

1XRA.09.03 Reflect upon and reinforce the personal choice of health professions career by contact with peers and mentors during this course.

1XRA.09.04 Recognize “ethics” as a branch of philosophy, and the moral, social and cultural basis of the development of an ethic.

1XRA.09.05 Appreciate medical/professional ethics in the context of a broader societal ethic.

1XRA.09.06 Explore, reflect upon, and appreciate ethics as a “search for ideal behavior” a dynamic process; an ongoing perfection of behavior; not a fixed set of rules.

1XRA.11.00 DISCUSS/EMPLOY ETHICAL ISSUES AND DILEMMAS IN HEALTH CARE AND EMPLOY CRITICAL THINKING SKILLS FOR SOLUTIONS

1XRA.11.01 Recognize and identify those situations and conditions which give rise to ethical dilemmas in health care.

1XRA.11.02 Identify and employ a basic system of examination, clarification, determination of alternatives and decision making in ethical questions.

1XRA.11.03 Identify, discuss and define the concepts embodied in principles of patient's rights; the doctrine of informed (patient) consent; and other issues related to patient's rights.

1XRA.11.04 Identify/discuss/define legal implications of professional liability; malpractice; professional negligence/carelessness; legal doctrines applicable to professional practice.

1XRA.11.06 In groups, & individually, explore, discuss and articulate responses to theoretical situations and questions relating to the ethics of care and health care delivery.

1XRA.12.00 UNDERSTAND/DISCUSS THE LEGAL RESPONSIBILITIES OF RADIOGRAPHERS

1XRA.12.01 Define direct professional liability.

1XRA.12.02 Define indirect professional liability.

1XRA.12.03 Define gross negligence.

1XRA.12.04 Define contributory negligence.

1XRA.12.05 Define standard of care.

1XRA.12.06 Define negligence.

1XRA.12.07 Define libel/slander.

1XRA.12.08 Define assault/battery.

1XRA.12.09 Define false imprisonment.

1XRA.12.10 Define invasion of privacy.

1XRA.12.11 Define breach of confidentiality.

1XRA.12.12 Discuss the elements necessary for a valid malpractice claim.

1XRA.12.13 Define and discuss the doctrine of vicarious liability.

1XRA.12.14 Define and discuss the doctrine of borrowed servant.

1XRA.12.15 Define and discuss the doctrine of respondent superior.

1XRA.12.16 Define and discuss the doctrine of res ipsa loquitur.

1XRA.12.17 Discuss the ASRT Scope of Practice for the radiographer and describe the elements that comprise it.

1XRA.12.18 Discuss the limits of responsibility for the radiographer as defined by the Scope of Practice.

1XRA.12.19 Differentiate between professional and legal standards and describe how each relates to radiography practice.

1XRA.12.20 Discuss institutional and professional liability protection typically to the radiographers.

1XRA.13.00 UNDERSTAND THE NEED FOR PATIENT CONSENT AND ASSIST IN OBTAINING WHEN NECESSARY

1XRA.13.01 Define the term informed consent.

1XRA.13.02 Describe the elements necessary for informed consent.

1XRA.13.03 Discuss standards for disclosure relative to informed consent.

1XRA.13.04 Describe how consent forms are utilized relative to specific radiographic procedures.

1XRA.13.05 Discuss how consent forms are used in legal action.

1XRA.20.00 DISCUSS RESPONSIBILITIES OF HEALTH CARE FACILITY AND RADIOGRAPHER AND THE SCOPE OF PRACTICE FOR THE RADIOGRAPHER

1XRA.20.01 Discuss the responsibilities of the health care facility.

1XRA.20.02 Discuss the responsibilities of the radiographer.

1XRA.20.03 Discuss the Scope of Practice for the radiographer.

1XRA.25.00 CONTROL INFECTIONS EMPLOYING UNIVERSAL PRECAUTIONS

1XRA.25.01 Define infectious pathogens.

1XRA.25.02 Define communicable diseases.

1XRA.25.03 Define nosocomial infections.

1XRA.25.04 Define Centers for Disease Control and Preventions (CDC).

1XRA.25.05 Define Human Immunodeficiency Virus (HIV).

1XRA.25.06 Define Hepatitis B Virus (HBV).

1XRA.25.07 Describe the utilization of Universal Precautions and Isolation Procedures.

1XRA.25.08 Describe source and modes of transmission of infections and diseases.

1XRA.25.09 Describe institutional/departmental procedures for infection control through Universal Precautions.

1XRA.25.10 Discuss psychological considerations for the management of patients utilizing Universal Precautions.

1XRA.26.00 IDENTIFY/DISCUSS/MANAGE MEDICAL EMERGENCIES

1XRA.26.01 Identify symptoms which manifest cardiac arrest.

1XRA.26.02 Identify symptoms which manifest shock.

1XRA.26.03 Identify symptoms which manifest convulsion/seizure.

1XRA.26.04 Identify symptoms which manifest hemorrhage.

1XRA.26.05 Identify symptoms which manifest apnea.

1XRA.26.06 Identify symptoms which manifest vomiting.

1XRA.26.07 Identify symptoms which manifest aspiration.

1XRA.26.08 Identify symptoms which manifest suspected or confirmed fractures.

1XRA.26.09 Identify symptoms which manifest diabetic coma/insulin shock.

1XRA.26.10 Describe the emergency medical code system for the institution and disease the role of the student in this procedure.

1XRA.26.11 Given a CPR mannequin, demonstrate CPR competency.

1XRA.26.12 Discuss acute care procedures for cardiac arrest.

1XRA.26.13 Discuss acute care procedures for shock.

1XRA.26.14 Discuss acute care procedures for convulsion/seizure.

1XRA.26.15 Discuss acute care procedures for hemorrhage.

1XRA.26.16 Discuss acute care procedures for apnea.

1XRA.26.17 Discuss acute care procedures for vomiting.

1XRA.26.18 Discuss acute care procedures for aspiration.

1XRA.26.19 Discuss acute care procedures for suspected or confirmed fractures.

1XRA.26.20 Discuss acute care procedures for diabetic coma/insulin shock.

1XRA.26.21 Discuss the use of medical emergency equipment and supplies.

1XRA.26.22 Given simulations, demonstrate the use of oxygen and suction equipment.

1XRA.26.23 Given simulations, demonstrate basic first aid techniques.

1XRA.27.00 DEAL WITH ACUTE PATIENT CARE SITUATIONS

1XRA.27.01 List the special considerations necessary when performing radiographic procedures on an infant or a child.

1XRA.27.02 List the special considerations necessary when performing radiographic procedures on a generic patient.

1XRA.27.03 List the symptoms of a patient with a head injury.

1XRA.27.04 List the precautions to be taken when working with a patient with a head injury.

1XRA.27.05 List the symptoms of a patient with a spinal injury.

1XRA.27.06 List the precautions to be taken when working with a patient with a spinal injury.

1XRA.27.07 List the symptoms of a patient with an upper/or lower extremity fracture.

1XRA.27.08 List the precautions to be taken when working with a patient with an upper/or lower extremity fracture.

1XRA.27.09 List the symptoms of a patient with massive wounds.

1XRA.27.10 List the precautions to be taken when working with a patient with massive wounds.

1XRA.27.11 List the symptoms of a patient with burns.

1XRA.27.12 List the precautions to be taken when working with a patient with burns.

1XRA.27.13 List the signs and symptoms of a patient having a reaction to contrast media.

1XRA.27.14 Describe the medical intervention for a patient having a reaction to contrast media.

1XRA.29.00 CARE FOR PATIENTS WITH TUBES

1XRA.29.01 Given specific tube management situations, explain the indication and procedure.

1XRA.29.02 Given specific tube management situations, identify the precautions involved.

1XRA.29.03 Identify the steps in the operation and maintenance of suction equipment.

1XRA.30.00 CARE FOR PATIENTS DURING SPECIAL PROCEDURES

1XRA.30.01 Given an EKG strip, determine a normal pattern from an abnormal pattern.

1XRA.30.02 Identify the patient education, patient care, Intrathecal drug administration and special precautions for a patient undergoing Myelography.

1XRA.30.03 Identify the patient education, patient care, drug administration and special precautions for a patient undergoing Computerized Tomography.

1XRA.30.04 Identify the patient education, patient care, drug administration and special precautions for a patient undergoing Urography.

1XRA.30.05 Identify the patient education, patient care, drug administration and special precautions for a patient undergoing Cardiovascular-Interventional Procedures.

1XRA.30.06 Demonstrate knowledge of Cardiac Monitoring to include preparation for and recognition of EKG rhythms.

1XRA.30.07 Consider patient care in regards to adverse reactions to contrast media and other medical conditions.

1XRA.30.08 Consider patient care in regards to venipuncture protocols.

1XRA.30.09 Identify the patient education, patient care, and special precautions for a patient undergoing Ultrasound.

1XRA.31.00 CARE FOR PATIENTS DURING BEDSIDE RADIOGRAPHY

1XRA.31.02 List three situations in which bedside radiography may be preferable to examination in the radiography department.

1XRA.31.03 List four important factors to be noted during initial survey prior to radiography in the intensive care unit.

1XRA.42.00 KNOW/DISCUSS/DEMONSTRATE THE STRUCTURE AND FUNCTION OF THE NERVOUS SYSTEM

1XRA.42.01 Describe the structure of the different types of nerve cells.

1XRA.42.02 State the function of the different types of nerve cells.

1XRA.42.03 Describe the structure of the brain and the relationship of its component parts.

1XRA.42.04 Describe the brain functions.

1XRA.42.05 List the meninges, describe and discuss the function of each.

1XRA.42.06 Discuss the formation, circulation, and function of cerebrospinal fluid.

1XRA.42.07 Describe the structure and discuss the function of the spinal cord.

1XRA.42.08 Discuss the distribution and function of cranial nerves.

1XRA.42.09 Discuss the distribution and function of spinal nerves.

1XRA.42.10 Discuss the structure and function of components of the autonomic nervous system.

1XRA.46.00 KNOW/DISCUSS/DEMONSTRATE THE STRUCTURE AND FUNCTION OF THE CARDIOVASCULAR SYSTEM

1XRA.46.01 describe the composition and functions of blood.

1XRA.46.02 list the types of blood cells and state their functions.

1XRA.46.03 Differentiate between blood plasma and serum.

1XRA.46.04 Explain the clotting mechanism.

1XRA.46.05 List the blood types.

1XRA.46.06 Explain the term Rh factor.

1XRA.46.07 Explain the antigen/antibody relationship and its use in blood typing.

1XRA.46.08 Given diagrams of the heart, label the parts.

1XRA.46.09 Trace the flow of blood through the body, and identify the main vessels.

1XRA.46.10 Describe the structure and function of arteries, veins and capillaries.

1XRA.46.11 Differentiate between arterial blood in systematic circulation and arterial blood in pulmonary circulation.

1XRA.47.00 KNOW/DISCUSS/DEMONSTRATE THE STRUCTURE AND FUNCTION OF THE LYMPHATIC SYSTEM AND UNDERSTAND IMMUNITY

1XRA.47.01 List the components of the lymphatic system and explain their function.

1XRA.47.02 Given diagrams, label major pathways of lymphatic circulation.

1XRA.47.03 Given diagrams, locate the major lymph node clusters.

1XRA.47.04 Explain the difference between nonspecific defenses and specific immunity.

1XRA.47.05 Explain antibody production and function.

1XRA.47.06 List the different types of T-cells and explain their function.

1XRA.47.07 Discuss the chemical mediation of the immune response.

1XRA.50.00 KNOW/DISCUSS DEMONSTRATE THE STRUCTURE AND FUNCTION OF THE REPRODUCTIVE SYSTEM

1XRA.50.01 Name the male reproductive organs

1XRA.50.02 Given diagrams, label the parts of the male reproductive organs.

1XRA.50.03 Explain the functions of each of the male reproductive organs.

1XRA.50.04 Trace the flow of seminal fluid.

1XRA.50.05 Name the female reproductive organs.

1XRA.50.06 Given diagrams, label the parts of the female reproductive organs.

1XRA.50.07 Explain the functions of each of the female reproductive organs.

1XRA.50.08 Locate and explain the functions of the mammary glands.

1XRA.50.09 Describe the hormonal control of breast development.

1XRA.50.10 Explain the human reproductive process.

1XRA.50.11 Explain the ovarian and menstrual cycles.

1XRA.50.12 Describe menopause.

1XRA.54.00 DEMONSTRATE/DISCUSS GENERAL RADIOGRAPHIC PROCEDURAL CONSIDERATIONS

1XRA.54.01 Discuss general procedural considerations for radiographic examinations.

1XRA.55.00 DISCUSS POSITIONING CONSIDERATIONS FOR ROUTINE RADIOGRAPHIC PROCEDURES

1XRA.55.51 Describe the process for routine and special views of the endoscopic retrograde cholangiographic pancreatography (ERCP).

1XRA.55.52 Describe the process for routine and special views of the mammography.

1XRA.55.53 Describe the process for routine and special views of the pelvimetry (as needed).

1XRA.55.54 Describe the process for routine and special views of the fetography (as needed).

1XRA.55.66 Given radiographs of the reproductive system, evaluate in terms of: positioning, centering, and overall image quality.

1XRA.55.67 Given radiographs, identify relevant anatomy.

1XRA.56.00 PRODUCE RADIOGRAPHS

1XRA.56.52 Produce radiographs of the endoscopic retrograde cholangiographic pancreatography (ERCP) (with appropriate supervision).

1XRA.57.00 DISCUSS/DEMONSTRATE POSITIONING CONSIDERATIONS FOR ROUTINE CONTRAST STUDIES

1XRA.57.49 Given the names of various contrast studies, indicate the contrast media typically used, the usual dosage and route of administration.

1XRA.57.75 Given radiographs, identify relevant anatomy.

1XRA.58.00 DISCUSS/DEMONSTRATE PROCEDURAL CONSIDERATIONS FOR ROUTINE SPECIAL STUDIES

1XRA.58.01 Discuss equipment and supplies necessary for each of the studies below.

1XRA.58.02 Describe the patient preparation necessary for the special studies below.

1XRA.58.03 Describe the general procedure for arthrography.

1XRA.58.04 Describe the general procedure for bronchography.

1XRA.58.05 Describe the general procedure for dacryocystography.

1XRA.58.06 Describe the general procedure for hysterosalpingography.

1XRA.58.07 Describe the general procedure for lymphangiography.

1XRA.58.08 Describe the general procedure for myelography.

1XRA.58.09 Describe the general procedure for venography.

1XRA.58.10 Given the names of various special studies, list their general purpose and what anatomy/function is demonstrated.

1XRA.58.11 Given the names of various special studies, indicate the contrast media typically used, the usual dosage and route of administration.

1XRA.58.12 Given special Sialography study images, identify the specific study being done, the structure visualized and the function demonstrated.

1XRA.58.13 Given various special study images, identify the specific study being done, the structure visualized and the function demonstrated.

2XRA.02.00 DISCUSS/OPERATE IMAGE INTENSIFIED FLUOROSCOPY

2XRA.02.01 Define image intensified fluoroscopy.

2XRA.02.02 Diagram the components of an image intensifier.

2XRA.02.03 Explain the function of an image intensifier.

2XRA.02.04 Discuss gain and conversion factors as related to intensification.

2XRA.02.05 Describe the optical system of an image intensifier.

2XRA.02.06 Discuss image formation in terms of image size, framing and brightness.

2XRA.02.07 Discuss applications of image intensified fluoroscopy and brightness.

2XRA.03.00 DISCUSS/OPERATE RECORDING MEDIA AND TECHNIQUES

2XRA.03.01 Discuss the purpose, construction and application of video tubes.

2XRA.03.02 Describe the purpose, construction and application of video recorders.

2XRA.03.03 Discuss the purpose, construction and application of cine radiographic equipment and processor.

2XRA.03.04 Describe the purpose, construction and application of strip/cut film cameras.

2XRA.03.05 Discuss the purpose, construction and application of automatic film changers and contrast media pressure injectors.

2XRA.03.06 Describe the purpose, equipment/film and procedures of duplication and subtraction.

2XRA.03.07 Discuss the purpose and procedure of radiographic magnification.

2XRA.03.08 Discuss the purpose, principles, motions, equipment, procedure, and application of conventional tomography.

2XRA.04.00 DISCUSS/OPERATE SPECIALIZED IMAGING EQUIPMENT

2XRA.04.01 Discuss specialized imaging equipment in terms of purpose, principles of operation, equipment and material required and procedures.

2XRA.39.00 DISCUSS THE HISTORY OF COMPUTERS

2XRA.39.01 Discuss the history and development of computers.

2XRA.40.00 UNDERSTAND THE FUNDAMENTALS OF COMPUTERS

2XRA.40.01 Define computer.

2XRA.40.02 Define various terms related to computer fundamentals.

2XRA.40.03 Identify types of computers.

2XRA.41.00 IDENTIFY/DIFFERENTIATE AMONG VARIOUS COMPUTER COMPONENTS

2XRA.41.01 Define various terms related to components of computers.

2XRA.41.02 List major functions of Central Processing Unit (CPU).

2XRA.41.03 Given a list of input/output devices, differentiate among them.

2XRA.41.04 Define memory and describe the types.

2XRA.41.05 Describe the care and preventive maintenance for the computer system.

2XRA.42.00 DISCUSS/EXPLAIN COMPUTER OPERATIONS

2XRA.42.01 Define various terms related to computer operation.

2XRA.42.02 Discuss analog to digital conversion, distinguish between analog computers and digital computers.

2XRA.42.03 Explain the binary function.

2XRA.42.04 Define programming and describe its purpose.

2XRA.42.05 Discuss application of various types of software.

2XRA.43.00 IDENTIFY/EMPLOY COMPUTER APPLICATIONS IN RADIOLOGY

2XRA.43.01 Identify various types of computer imaging in radiology (these techniques are fully described under Imaging Equipment of specialized curricular areas).

2XRA.45.00 DISCUSS PHARMACOLOGY, IDENTIFYING VARIOUS CATEGORIES OF DRUGS

2XRA.45.01 Recognize various categories of drugs.

2XRA.45.02 Recognize common drug nomenclature and basic concepts of pharmacology.

2XRA.45.03 Discuss specific drugs in each category, particularly those associated with CPR procedures.

2XRA.45.04 Discuss each drug's expected action, reactions and possible interactions.

2XRA.45.05 Discuss drugs used for premedication including recognition of initial and peak response times.

2XRA.46.00 IDENTIFY/DISCUSS DIAGNOSTIC CONTRAST AGENTS

2XRA.46.01 Define the categories of contrast agents and give specific examples for each category.

2XRA.46.02 Discuss the pharmacology of barium and iodine compounds.

2XRA.46.03 Describe methods and techniques for the administration of various types of contrast agents.

2XRA.47.00 DISCUSS/OBSERVE DRUG ADMINISTRATION

2XRA.47.02 Discuss the purposes and advantages of intravenous drug administration over other routes.

2XRA.47.03 Differentiate between the two major sites of intravenous drug administration.

2XRA.47.04 Identify, describe and document complications associated with intravenous drug therapy and appropriate actions to resolve these complications.

2XRA.47.05 Discuss the various elements of initiating and discontinuing intravenous drug therapy.

2XRA.47.06 Differentiate and document dose calculations for adult and pediatric patients.

2XRA.47.07 Prepare for injection, contrast agents/intravenous medications , utilizing aseptic technique.

2XRA.48.00 DISCUSS LEGAL AND ETHICAL ISSUES OF MEDICATION ADMINISTRATION

2XRA.48.01 Discuss the current legal and ethical status of the radiographer's role in drug administration.

2XRA.48.02 Discuss a radiographer's professional liability concerning drug administration.

Expectations for Engagement – Face to Face Learning

To help make the learning experience fulfilling and rewarding, the following Expectations for Engagement provide the parameters for reasonable engagement between students and instructors for the learning environment. Students and instructors are welcome to exceed these requirements.

Reasonable Expectations of Engagement for Instructors

1. As an instructor, I understand the importance of clear, timely communication with my students. In order to maintain sufficient communication, I will
    - provided my contact information at the beginning of the syllabus;
    - respond to all messages in a timely manner through telephone, email, or next classroom contact; and,
    - notify students of any extended times that I will be unavailable and provide them with alternative contact information (for me or for my supervisor) in case of emergencies during the time I'm unavailable.

2. As an instructor, I understand that my students will work to the best of their abilities to fulfill the course requirements. In order to help them in this area, I will
    - provide clear information about grading policies and assignment requirements in the course syllabus, and
    - communicate any changes to assignments and/or to the course calendar to students as quickly as possible.

3. As an instructor, I understand that I need to provide regular, timely feedback to students about their performance in the course. To keep students informed about their progress, I will
    - return classroom activities and homework within one week of the due date and
    - provide grades for major assignments within 2 weeks of the due date or at least 3 days before the next major assignment is due, whichever comes first.

Reasonable Expectations of Engagement for Students

1. As a student, I understand that I am responsible for keeping up with the course. To help with this, I will
    - attend the course regularly and line up alternative transportation in case my primary means of transportation is unavailable;
    - recognize that the college provides free wi-fi, computer labs, and library resources during regular campus hours to help me with completing my assignments; and,
    - understand that my instructor does not have to accept my technical issues as a legitimate reason for late or missing work if my personal computer equipment or internet service is unreliable.

2. As a student, I understand that it is my responsibility to communicate quickly with the instructor any issue or emergency that will impact my involvement with or performance in the class. This includes, but is not limited to,

- missing class when a major test is planned or a major assignment is due;
- having trouble submitting assignments;
- dealing with a traumatic personal event; and,
- having my work or childcare schedule changed so that my classroom attendance is affected.

3. As a student, I understand that it is my responsibility to understand course material and requirements and to keep up with the course calendar. While my instructor is available for help and clarification, I will
    - seek out help from my instructor and/or from tutors;
    - ask questions if I don't understand; and,
    - attend class regularly to keep up with assignments and announcements.

"The SEI process for face-to-face and online courses is scheduled for the week of November 26th."

Item(Name)	Type	Description
Design Elements for Advanced Procedures	Lecture/Discussion	Read Chapter 1
Automatic Injection Devices	Lecture/Discussion	Read Chapter 3
Instrumentation and Accessories	Lecture/Discussion	Read Chapter 4
Project	Project	Students must locate an interesting pathology diagnosed using a special modality
Introduction to Pharmacology	Lecture/Discussion	Read Chapter 5
Contrast Media	Lecture/Discussion	Read Chapter 6
Contrast Media Worksheet	Worksheet	Contrast media multiple choice worksheet
Principles of Patient Care	Lecture/Discussion	Read Chapter 7
Principles of Angiography	Lecture/Discussion	Read Chapter 8
Circulatory System & Cardiac Catheterization	Lecture/Discussion	Read Merrill's Vol. 3, Ch. 25; handouts & diagrams
The Cardiovascular System	Medical Terminology Workbook	Medical Terminology Workbook Ch. 5

Cardiovascular System	Worksheet	Worksheet handout
Cardiac and Thoracic Procedures	Lecture/Discussion	Read Snopek, Ch. 12
Basic Cardiac Assessment for Imaging Staff	Handout/Worksheet	Describes basic cardiac assessment for the radiologic technologist
Vascular Interventional Procedures	Lecture/Discussion	Read Snopek, Ch. 17
Exam: Contrast Media & Circulatory System	Exam	Exam covering handouts, chapters in texts, and worksheets
The Nervous System	Medical Terminology Workbook	Medical Terminology Workbook Ch. 10
Nervous System (including Myelography)	Lecture/Discussion	Read Snopek, Ch. 21 & Merrill's Vol. 3, Ch. 24
Nervous System (including Myelography)	Worksheet/Workbook	Complete workbook, Merrill's, Vol. 2, Ch. 24 & nervous system worksheet
Central Nervous System	Take home test	Test covers anatomy of brain and spinal cord
The Muscular System	Medical Terminology Workbook	Medical Terminology Workbook Ch. 4
Image Capture -- Analog and Digital	Lecture/Discussion	Read Snopek, Ch. 2, Bushong, Ch. 21
Illumination Human Vision	Workbook	Complete Bushong workbook, Ch. 21-1
Image Intensification	Workbook	Complete Bushong workbook, Ch. 21-2
Image Monitoring	Workbook	Complete Bushong workbook, Ch. 21-3
Image Intensification	Handout/Worksheet	Covers image intensification
Television Imaging	Handout/Worksheet	Covers television monitoring
Image Recording	Handout/Worksheet	Covers image recording

Image Intensified Fluoroscopy, Television Monitoring, Image Recording, Nervous System	Exam	Exam covering handouts, worksheets, & reading assignments
Computer Fundamentals	Worksheet	Computer Fundamentals, Bushong, Ch. 24
Computed Radiography	Lecture/Discussion	Read Bushong, Ch. 25
Computed Radiography Image Receptor	Workbook	Bushong, Ch. 25-1
Computed Radiography Reader	Workbook	Bushong, Ch. 25-2
Digital Radiography	Lecture/Discussion	Read Bushong, Ch. 26
Digital Radiography	Workbook	Bushong, Ch. 26-1
Directed Reading	Worksheet	Directed Reading Handout on DR and CR
Digital Fluoroscopy	Lecture/Discussion	Read Bushong, Ch. 27
Digital Fluoroscopy	Workbook	Bushong, Ch. 27-1
The Digital Image	Lecture/Discussion	Read Bushong, Ch. 28
Digital Imaging	Worksheet	Digital Imaging Worksheet
Spatial Resolution	Workbook	Bushong, Ch. 28-1
Contrast Resolution; Contrast Detail	Workbook	Bushong, Ch. 28-2
Digital Image Artifacts	Lecture/Discussion	Read Bushong, Ch. 31
Digital Image Artifacts	Workbook	Bushong Ch. 31-1
The Lymphatic System & Immune System	Medical Terminology WB	Medical Terminology Ch. 6
Computed Radiography, Digital Radiography, & Digital Fluoroscopy	Exam	Exam covering handouts, workbook, and assigned chapters

The Integumentary System	Medical Terminology	Medical Terminology Ch. 12
Multislice Spiral Computed Tomography	Lecture/Discussion	Read Bushong, Ch. 23, Snopek Ch. 9, & Merrill's Ch. 31
Principles of Operation of CT	Workbook	Bushong, Ch. 23-1
Image Characteristics, Image Quality, Quality Assurance	Workbook	Bushong, Ch. 23-2
Multislice Spiral Computed Tomography	Workbook	Bushong, Ch. 23-3
Final Exam	Comprehensive Final Exam	Exam over material covered this semester