

South Plains College-Reese Campus  
Course Syllabus

COURSE: **RADR 2331 (3:3:0), ADVANCED RADIOGRAPHIC PROCEDURES**

SEMESTER: **Fall 2014**

CLASS TIMES: **TR, 11:00 – 12:15**

INSTRUCTOR: **Clinton Bishop**

OFFICE: **RC512H**

OFFICE HOURS: **MTWR, 8:00-11:00 & by appointment**

E-MAIL: [cbishop@southplainscollege.edu](mailto:cbishop@southplainscollege.edu)

FACEBOOK: **Facebook:** The radiologic technology program has a Facebook page at [www.facebook.com/spradiologictechnologyprogram](http://www.facebook.com/spradiologictechnologyprogram). In addition to the South Plains college websites, this Facebook page will be used to keep students up-to-date on program activities, weather delays, South Plains college announcements and will help with program recruitment. "Liking" the radiologic technology program's Facebook page is not mandatory, nor are personal Facebook accounts in order to access this page.

BlackBoard: Blackboard is an e-education platform designed to enable educational innovations everywhere by connecting people and technology. This education tool will be used in this course throughout the semester.

*"South Plains College improves each student's life."*

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**GENERAL COURSE INFORMATION**

**COURSE DESCRIPTION**

This course is a study of the continuation of positioning, alignment of the anatomical structure and equipment and evaluation of images for proper demonstration of advanced anatomy and related pathology.

**STUDENT LEARNING OUTCOMES**

The student will:

1. Utilize the skills required for advanced radiographic procedures.
2. Evaluate images for proper demonstration of anatomy and pathology obtained by advanced radiographic procedures.

**COURSE OBJECTIVES**

The student will:

1. Identify the radiographic requirements, skills and considerations for the following advanced areas/procedures:
  - Angiography: vascular, cardiac and interventional.
  - Arthrography.
  - Digital subtraction.
  - Foreign body detection.
  - Myelography.
  - Skull, facial bones and sinuses.
2. Identify the radiographic requirements, skills and considerations for the following radiographic specialties:
  - Geriatric radiography.

- Mobile/trauma radiograph.
- Pediatric radiography.
- Surgical radiography.

## EVALUATION METHODS

The course grade will be determined by a combination of major exams and a comprehensive final exam. The following guidelines will be followed regarding exams:

- The student is expected to complete a major exam at the scheduled time. **Make-up exams will not be given.**
- If one major exam is missed for any reason, the percentage value of that exam is added to the weight of the final exam grade. Any additional missed major exam will result in a zero being recorded for the missed exam.
- A student arriving late for a major exam will not be allowed to take the exam if any student has completed the exam and left the classroom.
- All major exams must be completed within the designated class time.
- A comprehensive final exam will be given during the time designated by South Plains College. This exam will not be corrected for additional points.
- **Cell phones cannot be used as calculators during class.** No exceptions.
- It is the responsibility of the student to bring an appropriate calculator to class. **Students will not be allowed to share calculators during any quiz or exam.**

## ACADEMIC INTEGRITY

It is the aim of the faculty of South Plains College to foster a spirit of complete honesty and a high standard of integrity. The attempt of any student to present as his or her own any work which he or she has not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offender liable to serious consequences, possibly suspension.

**Cheating** - Dishonesty of any kind on examinations or on written assignments, illegal possession of examinations, the use of unauthorized notes during an examination, obtaining information during an examination from the textbook or from the examination paper of another student, assisting others to cheat, alteration of grade records, illegal entry or unauthorized presence in the office are examples of cheating. Complete honesty is required of the student in the presentation of any and all phases of coursework. This applies to quizzes of whatever length, as well as final examinations, to daily reports and to term papers.

**Plagiarism** - Offering the work of another as one's own, without proper acknowledgment, is plagiarism; therefore, any student who fails to give credit for quotations or essentially identical expression of material taken from books, encyclopedias, magazines and other reference works, or from themes, reports or other writings of a fellow student, is guilty of plagiarism.

## SCANS and FOUNDATION SKILLS

Scans and foundation skills are identified for specific course objectives. A complete list explaining these skills is attached to the back of the syllabus for your information.

## FACEBOOK

The Radiography Program has a Facebook page at <http://www.facebook.com/spcradiologicstechnologyprogram>. In addition to the South Plains College websites, this Facebook page will be used to keep students up-to-date on program activities, weather delays, South Plains College announcements and will help with program recruitment. "Liking" the

Radiologic Technology Program Facebook page is not mandatory, nor are personal Facebook accounts in order to access this page.

## BLACKBOARD

Blackboard is an e-Education platform designed to enable educational innovations everywhere by connecting people and technology. This educational tool will be used in this course throughout the semester.

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## SPECIFIC COURSE INFORMATION

### TEXT AND MATERIALS

Frank, E., Long, B., Smith, B.; Merrill's Atlas of Radiographic Positions and Radiologic Procedures, Volumes I - III. 11<sup>th</sup> Edition. 2007. Mosby.

### ATTENDANCE POLICY

Class and lab attendance is mandatory. During class, the student will have the opportunity to acquire the knowledge and skills required of a staff radiographer. During lab, the student will have the opportunity to practice those skills learned in class and achieve competency in radiographic imaging. These skills are not only important to the student's success in achieving the objectives of this course, but also insuring the effectiveness of the clinical and practicum courses that will enable the student to complete the clinical competencies required for graduation and ARRT certification board exam eligibility.

It is important that students arrive for class on time. **Tardiness** disrupts the instructor and the other students. Students that chronically arrive late for class will be counseled. Blatant disregard of this policy is an indication of rude, unprofessional behavior and a lack of interest in achieving the objectives of the course. If the student continues to arrive late for class, he or she may be dropped from the class regardless of his or her grade point average.

Policies regarding absences coincide with those established for South Plains College as outlined in the SPC General Catalog.

Perfect attendance to class is awarded **2** points to **final average**.

### CLASSROOM PARTICIPATION

Attending class regularly will provide the student opportunity to supplement their reading assignments and acquire a better understanding of the course material. Class time missed will result in information gaps and will increase course difficulty. It is the student's responsibility to attend class which will enable him or her to take notes, ask questions, and participate in class discussions. Copies of PowerPoint presentations will not be given out. Information handouts may be given in certain instances, but the student should not rely on them. The student is encouraged to take adequate notes during class. Recording class is permitted.

### ASSIGNMENT POLICY

The student is responsible for being prepared for class, which means reading the assigned chapters and/or pages from the textbook prior to class. In some instances, information from the reading assignments not covered during class may be included on an exam.

### REVIEW

Time is limited and the amount of information that must be covered during class is significantly large. Therefore, classroom time will not be used for extensive review. If a student needs assistance with reviewing information for a test, the student is encouraged to make an appointment with the instructor.

**COMMUNICATION POLICY**

Electronic communication between instructor and students in this course will utilize the South Plains College email system. Instructor will not initiate communication using private email accounts. Students are encouraged to check SPC email on a regular basis.

**STUDENT CONDUCT**

Students in this class are expected to abide by the standards of student conduct as defined in the SPC Student Guide pages 11-14.

**CELL PHONES**

Cell phone use, including text messaging, is not allowed during class. Cell phones are to be turned **OFF** during scheduled class periods, unless prior approval has been given from the instructor. Cell phones are to be used **OUTSIDE** the classroom only. **STUDENTS THAT FLAGRANTLY IGNORE THIS POLICY WILL BE DROPPED FROM CLASS.**

**GRADING RUBRIC** - Grades in this course will be determined using the following criteria:

Assessment Tool	Assessment Criteria	Percentage Score	Grade
<b>MAJOR EXAMS 50%</b>	✓ Exceptional unit content knowledge & understanding	91 – 100	A
	✓ Good unit content knowledge & understanding	83 – 90	B
	✓ Average unit content knowledge & understanding	75 – 82	C
	✓ Unacceptable unit content knowledge & understanding	0 – 74	F
<b>FINAL EXAM 50%</b>	✓ Exceptional course content knowledge & understanding	91 – 100	A
	✓ Good course content knowledge & understanding	83 – 90	B
	✓ Average course content knowledge & understanding	75 – 82	C
	✓ Unacceptable unit content knowledge & understanding	0 – 74	F

Course Grade: A 91 – 100  
 B 83 – 90  
 C 75 – 82  
 F 0 – 74

**A grade average of C (75) must be maintained in all RAD TECH classes.** Failure to do so will result in the student being dropped from the Program.

**ACCOMMODATIONS**

**DIVERSITY STATEMENT**

In this class, the teacher will establish and support an environment that values and nurtures individual and group differences and encourages engagement and interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the larger world and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it should and can be.

## DISABILITIES STATEMENT

Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Special Services Office early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the Coordinator of Special Services. For more information, call or visit the Special Services Office in rooms 809 and 811, Reese Center Building 8, (806) 885-3048 ext. 4654.

## COURSE OUTLINE

### SKULL, FACIAL BONES & SINUSES

The student will:

1. Review and identify the anatomy of the skull, facial bones and sinuses.
2. Identify the variations of thorax viscera due to the differences in body habitus.
3. Identify and describe the procedure for each radiographic projection of the skull, facial bones and sinuses covered in class, including patient position, anatomical structure position, and alignment of the central ray, image receptor and anatomical structure.
4. Identify and describe the structures demonstrated best in each projection covered in class including the use of illustrations and radiographic images.
5. Identify and describe the evaluation criteria for each projection covered in class.
6. Define pathologies and abnormalities affecting the skull, facial bones and sinuses.

TEXTBOOK READING ASSIGNMENT: **Merrill's Atlas, Vol. II**, Chapter 20, 21 & 22

### ARTHROGRAPHY

The student will:

1. Identify the anatomy visualized by this radiographic procedure. (F10;C5,7)
2. Identify the more common indications and contraindications (if applicable) for this radiographic procedure. (F8;C5,7)
3. Identify the equipment and approach for this radiographic procedure. (C5-7,18,19)
4. Identify the contrast media used for this radiographic procedure. (C19)
5. Identify the elements of patient and anatomical positioning used for this radiographic procedure. (C5,7)
6. Identify the possible complications of this radiographic procedure. (F8;C5,7)
7. Identify the more common findings of this radiographic procedure. (C5)
8. Define pathologies and abnormalities affecting the joints of the human body.

Text Assignment: **Merrill's Atlas**, Vol. II, Ch. 12

## MYELOGRAPHY

The student will:

1. Identify the anatomy visualized by this radiographic procedure. (F10;C5,7)
2. Identify the more common indications and contraindications (if applicable) for this radiographic procedure. (F8;C5,7)
3. Identify the equipment and approach for this radiographic procedure. (C5-7,18,19)
4. Identify the contrast media used for this radiographic procedure. (C19)
5. Identify the elements of patient and anatomical positioning used for this radiographic procedure. (C5,7)
6. Identify the possible complications of this radiographic procedure. (F8;C5,7)
7. Identify the more common findings of this radiographic procedure. (C5)
8. Define pathologies and abnormalities affecting the spinal column.

Text Assignment: *Merrill' Atlas*, Vol. III, Ch. 24., pp. 2 - 9

## VASCULAR, CARDIAC & INTERVENTIONAL ANGIOGRAPHY

The student will:

1. Differentiate between angiography, arteriography and venography.
2. Identify and describe the injection techniques used in angiography.
3. Describe the elements of a digital subtraction angiographic procedure. (C15,18,19)
4. Identify the elements that influence magnification in angiographic imaging procedures.
5. Describe the procedure for performing three-dimensional intra-arterial angiography. (C15,18,19)
6. Identify the necessary supplies and equipment for angiography.
7. Identify the advantages of catheterization over needle injection of angiographic contrast media.
8. Identify and describe the steps in catheterization for angiography. (C15,18,19)
9. Identify the pertinent protocol information for:
  - Thoracic aortography. (C15,18,19)
  - Abdominal aortography. (C15,18,19)
  - Pulmonary arteriography. (C15,18,19)
  - Selective abdominal visceral arteriographic procedures. (C15,18,19)
10. Identify the purpose of percutaneous transluminal angioplasty and stenting.
11. Identify and define the principles of cardiac catheterization. (C15,18,19)
12. Identify the general indications, contraindications and associated risks of cardiac catheterization. (F8;C5,7)
13. Identify the methods of introducing the cardiac catheter. (C15,18,19)
14. Identify the basic elements of cardiac catheterization studies and procedures. (C15,18,19)
15. Define the following terms:

▪ Aneurysm	▪ Iatrogenic.	▪ Stent.
▪ Arteriosclerotic.	▪ Ischemic.	▪ Thrombolytic.
▪ Arteriovenous malformation.	▪ Myocardial infarction.	▪ Thrombosis.
▪ Atherosclerosis.	▪ Occlusion.	▪ Thrombus.
▪ Embolus.	▪ Patency.	▪ Vasoconstriction.
▪ Extravasation.	▪ Reperfusion.	
	▪ Stenosis.	

Text Assignment: *Merrill's Atlas*, Vol. III, Ch. 25

## **PEDIATRIC & GERIATRIC IMAGING**

The student will:

1. Identify and discuss factors relative to effective communication with pediatric imaging. (F5,6,15;C5-7,11,14)
2. Identify and explain factors relative to effective radiation protection in pediatric imaging. (F8,9;C3,15,18,19,20)
3. Identify and explain technical factor selection criteria appropriate to pediatric imaging. (F8,9;C3,15,18,19,20)
4. Identify immobilization principles and tools appropriate to pediatric imaging. (F7,8,9;C3,15,18,19,20)
5. Identify and describe the common pediatric imaging procedures. (F8;C15)
6. Identify and describe radiographic procedures unique to the pediatric patient. (F8;C15)
7. Identify the more common findings of pediatric imaging. (C5)
8. Identify and discuss special concerns in pediatric imaging. (F5,6,8,10,12,17;C5-7,15)
9. Identify the physical, cognitive and psychological effects of aging. (F5,6,10,15;C5-7,15)
10. Identify and discuss factors relative to patient care and effective communication with geriatric imaging. (F5,6,15;C5-7,11,14)
11. Define pathologies and abnormalities affecting pediatric patients.
12. Define pathologies and abnormalities affecting geriatric patients.

Text Assignment: *Merrill's Atlas*, Vol. II & III, Ch. 11, 27 & 28

## **FOREIGN BODY DETECTION**

The student will:

1. Identify and explain the methods of foreign body entry. (F8,9;C3,15,18,19,20)
2. Identify and describe the classifications of foreign bodies. (F8,9;C3,15,18,19,20)
3. Identify and explain applicable adjustments to exposure techniques and positioning for foreign body detection. (F8,9;C3,15,18,19,20)

Text Assignment: None

## **MOBILE, TRAUMA & SURGICAL RADIOGRAPHY**

The student will:

1. Identify and differentiate between the battery-operated mobile x-ray unit and the capacitor-discharge mobile x-ray unit.
2. Identify and explain the technical considerations pertinent to mobile and trauma radiography.
3. Identify and explain factors relative to effective radiation protection in mobile and trauma radiography. (F8,9;C3,15,18,19,20)
4. Identify and explain isolation considerations in mobile and trauma radiography. (F8,9;C3,15,18,19,20)
5. Identify and explain the steps in performing mobile and trauma radiography.
6. Identify and explain the adapted procedures common to mobile and trauma radiography for the following:
  - Spine
  - Chest
  - Abdomen
  - Cranium
  - Facial bones
  - Upper and lower extremities
7. Identify the members of the surgical team. (C9)
8. Identify and explain the function of the members of the sterile team. (C9)

9. Identify and explain the function of the members of the non-sterile team. (C9)
10. Identify the components of proper operating room attire and explain their function. (C15,18,19)
11. Identify the proper procedures for maintaining a sterile field in the operating suite. (C15,18,19)
12. Identify the proper handling of the image receptor in the sterile field. (C15,18,19)
13. Identify the principles of aseptic technique in the operating suite. (C15,18,19)
14. Identify the radiographic equipment utilized in the operating suite and the proper care and cleaning of the equipment. (C15,18,19)

Text Assignment: *Merrill's Atlas*, Vol. II, Ch. 13; Vol. III, Ch. 29 & 30

## FOUNDATION SKILLS

### **BASIC SKILLS—Reads, Writes, Performs Arithmetic and Mathematical Operations, Listens and Speaks**

- F-1 Reading—locates, understands, and interprets written information in prose and in documents such as manuals, graphs, and schedules.
- F-2 Writing—communicates thoughts, ideas, information and messages in writing and creates documents such as letters, directions, manuals, reports, graphs, and flow charts.
- F-3 Arithmetic—performs basic computations; uses basic numerical concepts such as whole numbers, etc.
- F-4 Mathematics—approaches practical problems by choosing appropriately from a variety of mathematical techniques.
- F-5 Listening—receives, attends to, interprets, and responds to verbal messages and other cues.
- F-6 Speaking—organizes ideas and communicates orally.

### **THINKING SKILLS—Thinks Creatively, Makes Decisions, Solves Problems, Visualizes and Knows How to Learn and Reason**

- F-7 Creative Thinking—generates new ideas.
- F-8 Decision-Making—specifies goals and constraints, generates alternatives, considers risks, evaluates and chooses best alternative.
- F-9 Problem Solving—recognizes problems, devises and implements plan of action.
- F-10 Seeing Things in the Mind's Eye—organizes and processes symbols, pictures, graphs, objects, and other information.
- F-11 Knowing How to Learn—uses efficient learning techniques to acquire and apply new knowledge and skills.
- F-12 Reasoning—discovers a rule or principle underlying the relationship between two or more objects and applies it when solving a problem.

### **PERSONAL QUALITIES—Displays Responsibility, Self-Esteem, Sociability, Self-Management, Integrity and Honesty**

- F-13 Responsibility—exerts a high level of effort and perseveres towards goal attainment.
- F-14 Self-Esteem—believes in own self-worth and maintains a positive view of self.
- F-15 Sociability—demonstrates understanding, friendliness, adaptability, empathy and politeness in group settings.
- F-16 Self-Management—assesses self accurately, sets personal goals, monitors progress and exhibits self-control.
- F-17 Integrity/Honesty—chooses ethical courses of action.

## SCANS COMPETENCIES

- C-1 **TIME** - Selects goal - relevant activities, ranks them, allocates time, prepares and follows schedules.
- C-2 **MONEY** - Uses or prepares budgets, makes forecasts, keeps records and makes adjustments to meet objectives.
- C-3 **MATERIALS AND FACILITIES** - Acquires, stores, allocates, and uses materials or space efficiently.
- C-4 **HUMAN RESOURCES** - Assesses skills and distributes work accordingly, evaluates performances and provides feedback.

### **INFORMATION - Acquires and Uses Information**

- C-5 Acquires and evaluates information.
- C-6 Organizes and maintains information.
- C-7 Interprets and communicates information.
- C-8 Uses computers to process information.



**INTERPERSONAL–Works With Others**

C-9 Participates as a member of a team and contributes to group effort.

C-10 Teaches others new skills.

C-11 Serves Clients/Customers–works to satisfy customer’s expectations.

C-12 Exercises Leadership–communicates ideas to justify position, persuades and convinces others, responsibly challenges existing procedures and policies.

C-13 Negotiates-works toward agreements involving exchanges of resources; resolves divergent interests.

C-14 Works With Diversity–works well with men and women from diverse backgrounds.

**SYSTEMS–Understands Complex Interrelationships**

C-15 Understands Systems–knows how social, organizational, and technological systems work and operates effectively with them.

C-16 Monitors and Corrects Performance–distinguishes trends, predicts impacts on system operations, diagnoses systems performance and corrects malfunctions.

C-17 Improves or Designs Systems–suggests modifications to existing systems and develops new or alternative systems to improve performance.

**TECHNOLOGY–Works with a Variety of Technologies**

C-18 Selects Technology–chooses procedures, tools, or equipment, including computers and related technologies.

C-19 Applies Technology to Task–understands overall intent and proper procedures for setup and operation of equipment.

C-20 Maintains and Troubleshoots Equipment–prevents, identifies, or solves problems with equipment, including computers and other technologies.

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