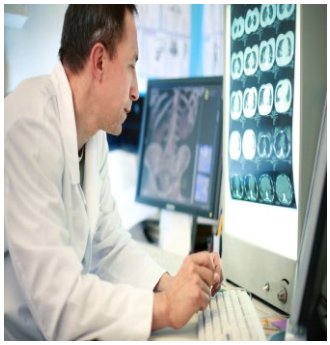
SALT LAKE COMMUNITY COLLEGE
Radiologic Technology Program

Course Syllabus



Course and Credit Hours: RADS 2120 /2 Credits

Name of Course: Sectional Anatomy

Semester and Term:

Class Location and Time:

Instructor and Phone:

Office Location:

Mailbox Location:

Email Address:

Consultation Hours:

Textbook: No textbook required

Required Equipment: Computer with internet access with updated flash player. https://helpx.adobe.com/flash-player.html

Link or Instructions for Accessing Online Course Materials:
Students can access this course in Canvas.

Library Link: For a list of resources that support the program go to: http://libguides.slcc.edu/content.php?pid=16754

Prerequisite: Completion of prior semester courses per established curriculum plan

Diversity Statement: It is my intent that students from all diverse backgrounds and perspectives be well served by this course, that students' learning needs be addressed, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. It is my intent to present materials and activities that are respectful of diversity: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups.

Course Description: Understanding and identifying abdomen, pelvis, head, neck, chest, spine, and extremity anatomy as seen on sagittal, coronal and axial using the modalities of CT and MRI. Basic usage and knowledge of CT instrumentation and function will also be introduced.

SLCC Student Learning Outcomes:
SLCC is committed to fostering and assessing the following student learning outcomes in it programs and courses.

1. Acquire substantive knowledge
2. Communicate effectively
3. Develop quantitative literacies
4. Think critically & creatively
5. Become a community engaged learner
6. Work in professional & constructive manner
7. Develop computer & information literacy

Program Outcomes:

1. Students will be clinically competent
    Students will utilize proper radiation protection practices
    Students will produce diagnostic quality radiographs

2. Students will demonstrate effective communication skills
    Students will explain procedures to patients
    Students will communicate with clinical staff

3. Students will exhibit critical thinking
    Students will analyze radiographic image quality
    Students will modify exams for unique situations

4. Students will model professionalism
    Students will exhibit integrity and confidentiality
    Students will demonstrate lifelong learning

Course Student Learning Outcomes: Student will be assessed with discussion posts and quizzes

1. Recall the functions for operating a CT machine. (SLO- 1,3,4,7)
2. Identify anatomy when looking at it through cross sections. (SLO- 1,4)

Course objectives:

1. Introduction to CT-

- Describe components of the CT imaging system.
- Differentiate between conventional and spiral/helical CT scanners.
- Explain the function of collimators in CT.
- List the CT computer data processing steps.
- Name the functions of the array processor used for image reconstruction.
- Define the term "algorithm" and explain its impact on image scan factors and reconstruction.
- Distinguish the difference between "raw data" and' image data".
- Explain the difference between reconstruction and reformatting an image.
- Name the common controls found on CT operator consoles and describe how and why each is used.
- Identify and recognize the types and appearance of artifacts most commonly affecting CT images and explain how they can be reduced or eliminated.
- List and describe current data storage techniques used in CT.
- Name the radiation protection devices that can be used to reduce patient dose in CT. and illustrate the correct application of each.
- Describe the application of the following terms in relation to CT.
    - Pixel
    - Matrix
    - Voxel
    - Pitch
    - Linear attenuation coefficient

- CT/Hounsfield number
- Partial volume averaging
- Window width (ww)and window leveling (wl)
- Spatial resolution
- Contrast resolution
- Noise
- Annotation
- Region of interest (ROI)
- Standard vs. volumetric data acquisition

2. Introduction to Sectional Anatomy-

- Differentiate between the sagittal, coronal, axial and oblique planes of the body.
- Name the external landmarks of the body in the head, neck and torso.
- Name the major body cavities and list the organs and systems located in each cavity.
- Describe joint classification.
- Identify the different types of diagnostic medical imaging and list their uses, advantages and disadvantages.

3. Cranium and Facial Bones-

- Name and locate the anatomical landmarks of the cranium.
- List and locate the paranasal sinuses and the skull foramina.
- Name the bones in the cranium and face.
- List the components of the temporomandibular joint, explain their function and their relationship to each other.
- Describe the structure and function of the ear.
- Identify the location and function of the facial muscles.
- List and locate the components of the eye.

4. Brain-

- Explain the surface anatomy of the brain, including the structure of the meninges.
- Locate the structures of the brain's ventricular system.
- Describe the arterial blood supply to the brain.
- Identify the major venous sinuses that carry blood from the brain to the internal jugular veins.
- Name the lobes of the cerebrum.
- Describe the location and structure of the cerebellum.
- Identify the components and explain the function of the limbic system.
- Describe the relationships of the basal ganglia.
- Locate and identify the anatomical structures of the brainstem.
- Name the 12 cranial nerves, state the foramina that serve as passageways for each pair of nerves and describe the function of each nerve.

5. Spine-

- Name the components of the spine.
- Identify the features of the vertebrae.
- Describe the differences between cervical, lumbar and thoracic vertebrae.
- Identify the major curves found in the vertebral column.
- Locate the major ligaments found in the spinal column.
- Identify the major muscle groups supporting the spine.
- Describe the major components of the spinal cord.

6. Neck-

- Describe the features of the larynx.
- Locate and describe the features of the pharynx.
- Discuss the relationship of the esophagus and trachea as they descend through the neck.
- Locate and compare the relationships of the 3 sets of major salivary glands.
- Discuss the major muscles of the neck and their functions.
- Identify and locate the lymph nodes in the neck.
- Describe the major arteries and veins of the neck.

7. Thorax (chest)-

- Distinguish the anatomical surface landmarks of the chest.
- Explain the Addison planes.
- Name the skeletal components located in the chest.
- Identify the major muscles of the chest, locate their insertion points and describe their function.
- Describe the levels of the 3 parts of the sternum with respect to the viscera or thoracic vertebrae.
- Describe the structures separating the mediastinum and the pleural cavities.
- Label the chambers of the heart on sectional images.
- Identify and describe the airway structures within the chest.
- Describe the course of blood as it passes through the pulmonary circulation system.
- Describe the major arteries and veins located within the chest and upper arm.
- State the vertebral level of the suprasternal notch, the sternal angle and the xiphisternal junction.
- Identify the components that make up the breast.
- Locate the anatomical structures of the thorax on applicable cross-sectional imaging studies.

8. Abdomen-

- Distinguish the anatomical surface landmarks and regions of the abdomen.
- Explain the Addison planes.
- Locate the vertebral structures of the abdomen.
- Identify the major muscles of the abdomen, locate their insertion points and describe their function.
- Locate and identify the lobes of the liver.
- Describe the biliary system.
- Explain the location and general function of the stomach, gall bladder, pancreas, spleen, adrenal glands and kidneys.
- Name and explain the significance of the peritoneal and retroperitoneal spaces.
- Locate each anatomical structure on computed tomography (CT), magnetic resonance (MR), and ultrasound images in the transverse axial, coronal, sagittal and orthogonal (oblique) cross-sectional imaging planes.

9. Pelvis-

- Describe the 3 bones that form the pelvic girdle.
- Name and locate the contents of the lower abdominal cavity.
- Locate and describe the function of the pelvic muscles.
- Identify and describe the location and function of the pelvic organs.
- Track the flow of urine within the pelvic region.
- Identify and describe the location and function of the components of the male reproductive system.
- Identify and describe the location and function of the components of the female reproductive system.
- Follow the course of arterial and venous blood flow within the pelvis.

10. Extremities-

- Identify and describe the bones that make up the shoulder, elbow, wrist, hip, knee and ankle joints.

- Describe the origin, insertion and action of the muscles of the shoulder, elbow, wrist, hip, knee and ankle joints.
- Describe the major ligaments and tendons of the shoulder, elbow, wrist, hip, knee and ankle joints.
- Identify the anatomical structures displayed on radiographic scans of the shoulder, elbow, wrist, hip, knee and ankle joints.
- List the modalities used to image upper and lower extremity joints, as well as their advantages and disadvantages.

Course Requirements:

Exams.

There are 10-unit quizzes and as this is an online class students are required to take quizzes by designated due dates, students may work ahead. Quizzes are open note. No late test or assignments will be accepted.

Attendance.

Class is online and attendance does not apply.

Student Responsibilities.

If the student is having difficulty in the course, it is the student's responsibility to make arrangements to talk with the instructor. Students are expected to be self-directed and motivated in identifying their learning needs associated with the course content.

Assignments

Each student will search either online or in a current periodical (no longer than 2 years old) for a topic related to sectional anatomy in one the following areas CT, MRI, Nuc. Med. /PET, Ultrasound or Interventional studies. The student will post a 400 word essay about the topic. To get full points the student must include the source. (See rubric for specific grading criteria) Each student will read at least three posting from other students and will comment on one of them. This must be at least 200 words. Refer to the calendar and assignment schedule for due dates.

There will be 4 additional discussion topics that will require student postings.

Assignment descriptions are found on Canvas.

Incomplete

Students must complete all requirements and maintain a C grade to remain in the program.

Class Procedure or Format:

This course will be online and will include ASRT module presentations, internet assignments, Power Point presentations, discussions and examinations. There are study guides for each ASRT module to guide you on what you need to know. If the topic is not on the study guide you can skip that slide. I recommend doing the quiz-lets and drag and drop activities before you take the quiz.

Course Evaluation

Intro to CT Quiz	26 points
Intro to Sectional Anatomy Quiz	27 points
Cranium and Facial Bones Quiz	22 points
Brain Quiz	19 points
Spine Quiz	20 points
Neck Quiz	21 points
Thorax Quiz	20 points
Abdomen Quiz	24 points
Pelvis Quiz	24 points
Extremities Quiz	23 points

Discussion (5)		50 points
Current topics assignment		50 points
Total		326 points

Grading:

95-100	**A**	75-77	**C**
90-94	**A-**	71-74	**C-**
87-89	**B+**	67-70	**D+**
83-86	**B**	64-66	**D**
80-82	**B-**	Below 64	**E**
78-79	**C+**		

Student Handbook:
Students must adhere to all policies and procedures of the Radiologic Technology Program as documented in the Student Handbook. It is the student's responsibility to be aware of, and follow, all requirements as listed in the Handbook.

Emergency Evacuation Procedures
Not applicable

The SLCC Department of Public Safety is using an app called the Crisis Manager to inform students and staff about Emergency Procedures. The app allows SLCC to instantly update these procedures. To download this app go to the App Store or Google Play Store, type **SchoolDude CrisisManager** in the search box and click "Get" or "Install. For questions regarding the Emergency Procedures or downloading the app to your device, please contact [redacted]

Academic Grievance Policy

In accordance with the Salt Lake Community College Student Code of Conduct, http://www.slcc.edu/policies/docs/Student_Code_of_Conduct.pdf, the grievance policy for students with reference to academics can be found in Section III. Students are encouraged to seek resolution with the instructor(s) whenever possible.

It is the goal of the School of Health Sciences to be forthright and consistent with specific academic policies throughout divisions and programs. This policy singularly addresses academic issues and the general principles for disciplinary actions as noted in the Student Code of Conduct Section III. It should be noted it is up to the faculty's discretion to provide warning (verbal or written), suspension, or dismissal based upon program policy and severity of the issue at hand. It is realized in some health sciences programs a failing grade, as stated in the syllabus and/or policy manual, may result in program dismissal.

STEP ONE: A student has the right, as per college policy, to grieve a grade, warning (verbal or written), suspension, or dismissal received within a program of study. A student, as per policy, must make an appointment to meet with the instructor of the class. A meeting, for anything other than a final grade, should be made within ten (10) days of the incident. Final grade disputes require a meeting within 30 days of the student receiving the grade. Every effort should be made to find resolution and provide evidence from both parties with respect to the grade issued.

STEP TWO: If a resolution cannot be made, the student must request in writing five (5) business days from the date of meeting with the faculty, a committee review of the grievance to the Associate Dean of the specific division. The grievance will be reviewed by a committee consisting of three (3) to five (5) faculty outside the program in which the student is enrolled. This will include the following members, the Associate Dean and two to four faculty members outside the discipline. The Associate Dean will serve as committee chair. One faculty and the program coordinator of the program involved in the grievance can attend the procedure, as can the

student with one representative. Each of these parties will only be allowed to present evidence to the committee and not vote on the issue in question. Legal representation is allowed by either party. The proceedings will be recorded for accuracy. Upon completion of the proceedings, the committee ONLY will vote on the issue(s) noted in the student's grievance. A formal letter will be provided by the committee chair within ten (10) business days of the end of the proceeding with the committee's decision regarding the issue.

STEP THREE: If the student is not satisfied with the outcome, they may appeal to the Academic Dean of the School of Health Sciences. This must be done in writing within five (5) days of receiving the formal letter from the grievance committee chair. The Dean will review the appeal, all evidence, and render a decision to the student within ten (10) days of receiving the formal letter from the student. The decision of the Dean of the School of Health Sciences is final and cannot be appealed.

Please see the Intuitional Recourses link on Canvas for College resources and Polices.