

## Techniques of Medical Sonography (DMSO 1101)

**Credit:** 1 semester credit hours



### Course Description

Scanning techniques. Includes scan protocols and procedures within the laboratory setting utilizing live scanning and/or simulated experience.

### Required Textbook and Materials

1. Ultrasound Scanning Principles and Protocols; 3<sup>rd</sup> Edition Betty Bates Tempkin
  2. Sonography: Introduction to Normal Structure and Function; 3<sup>rd</sup> ed. Curry, Reva Arnez and Tempkin, Betty Bates
  3. Exercises in Sonography: Introduction to Normal Structure and Function, 3<sup>rd</sup> ed. Curry, Reva Arnez, Tempkin, Betty Bates
- Optional: Color Atlas of Ultrasound Anatomy; Block, Berthold

### Course Objectives (with applicable SCANS skills after each)

Upon completion of this course, the student will be able to:

1. Discuss and demonstrate scanning techniques, procedures, and protocols for the area of interest. (SCANS: C3, C5, C6, C15, C18, C19, F1, F5, F7, F8, F9, F10, F11, F12)
2. Identify normal sonographic anatomy during scanning sessions and critiques. (SCANS: C5, C7, C8, C16, C14, F1, F2, F5, F6, F8, F9, F10, F11, F12, F15, F16)
3. Discuss appropriate steps for the initiation and completion of the sonographic exam. (SCANS: C1, C3, C5, C6, C7, C8, C9, C10, C11, F5, F7, F8, F9, F12)
4. Produce, select, and document appropriate sonographic images to complete the exam. (SCANS: C5, F1, F5, F8, F9, F10, F11, F12)
5. Demonstrate appropriate scan ergonomics and patient care and positioning. (SCANS: C3, C5, C7, C9, C10, C11, F5, F7, F8, F9, F12)

### SCANS Skills and Competencies

Beginning in the late 1980's, the U.S. Department of Labor Secretary's Commission on Achieving Necessary Skills (SCANS) conducted extensive research and interviews with business owners, union leaders, supervisors, and laborers in a wide variety of work settings to determine what knowledge workers needed in order to perform well on a job. In 1991 the Commission announced its findings in *What Work Requires in Schools*. In its research, the Commission determined that "workplace know-how" consists of two elements: foundation skills and workplace competencies. The three-part foundation skills and five-part workplace competencies are further defined in the SCANS attachment.

## Course Outline

- A. Your First Scanning Experience:
  - 1. The role of a sonographer
  - 2. Professional standards
- B. Abdominal Aorta
  - 1. Anatomy
  - 2. Patient prep
  - 3. Patient position
  - 4. Transducer selection
  - 5. Breathing techniques
  - 6. Abdominal aorta survey
  - 7. Aorta sonographic images protocol
- B. Inferior Vena Cava
  - 1. Anatomy
  - 2. Patient prep
  - 3. Patient position
  - 4. Transducer selection
  - 5. Breathing techniques
  - 6. IVC anatomical survey
  - 7. IVC sonographic images protocol
- C. Portal Venous System
  - 1. Anatomy
  - 2. Patient prep
  - 3. Patient position
  - 4. Transducer selection
  - 5. Breathing techniques
  - 6. Portal anatomical survey
  - 7. Portal sonographic images protocol
- D. Liver
  - 1. Anatomy
  - 2. Patient prep
  - 3. Patient position
  - 4. Transducer selection
  - 5. Breathing techniques
  - 6. Liver anatomical survey
  - 7. Liver sonographic images protocol
- E. Gallbladder and Biliary Tract
  - 1. Anatomy
  - 2. Patient prep
  - 3. Patient position
  - 4. Transducer selection
  - 5. Breathing techniques
  - 6. Anatomical survey
  - 7. Sonographic images protocol
- F. Pancreas
  - 1. Anatomy
  - 2. Patient prep
  - 3. Patient position
  - 4. Transducer selection
  - 5. Breathing techniques
  - 6. Anatomical survey
  - 7. Sonographic images protocol
- G. Kidneys
  - 1. Anatomy
  - 2. Patient prep
  - 3. Patient position
  - 4. Transducer selection
  - 5. Breathing techniques
  - 6. Anatomical survey
  - 7. Sonographic images protocol
- H. Spleen
  - 1. Anatomy
  - 2. Patient prep
  - 3. Patient position
  - 4. Transducer selection
  - 5. Breathing techniques
  - 6. Anatomical survey
  - 7. Sonographic images protocol
- I. Thyroid
  - 1. Anatomy
  - 2. Patient prep
  - 3. Patient position
  - 4. Transducer selection
  - 5. Breathing techniques
  - 6. Anatomical survey
  - 7. Sonographic images protocol
- J. Breast
  - 1. Anatomy
  - 2. Patient prep
  - 3. Patient position
  - 4. Transducer selection
  - 5. Breathing techniques
  - 6. Anatomical survey
  - 7. Sonographic images protocol
- K. Male Scrotum
  - 1. Anatomy
  - 2. Patient prep
  - 3. Patient position
  - 4. Transducer selection
  - 5. Breathing techniques
  - 6. Anatomical survey
  - 7. Sonographic images protocol

## Grade Scale

100 – 93	A
92 – 85	B
84 – 75	C
74-68 (not passing)	D
67-0	F

## Course Evaluation

Final grades will be calculated according to the following criteria:

1. Image Tests	55%
2. Lab scan final	30%
3. Protocol challenges	10%
4. Workbook Checks & Homework	5%

## Course Requirements

1. Unit exams
2. Participation and challenges assigned in lab
3. Workbook assignments due on each test day
4. Actively volunteers to be a patient model for fellow students
5. Perform a complete abdominal ultrasound final exam

## Course Policies

1. No food, drinks, or use of tobacco products in class.
2. Beepers, telephones, headphones, and any other electronic devices must be turned off while in class.
3. Do not bring children to class.
4. Students are expected to be in class unless prior arrangements have been made. Absences must be limited to serious illness and/or immediate family emergencies; unexcused absences are not allowed. Three (3) absences will result in a letter grade reduction. Excessive tardiness (more than 10 minutes/class or more than 2 consecutive classes) will result in an absence being awarded. In the event that LIT is forced to cancel classes due to inclement weather, DMS classes and clinical rotation will also be canceled. Notification of closures will be made through local radio and TV stations. Students out of the immediate broadcast area should contact the Program Director for information. It is extremely important that students communicate with faculty regarding absences by telephone and/or email at all times.

5. All assignments are due when stated. Late assignments are not accepted. If a student has an *excused absence* with written documentation, assignments will be accepted at the beginning of class upon return. Missed in-class assignments receive a grade of zero.
6. All exams will be on the dates specified unless the instructor makes a change. In case of an absence on exam day, the exam must be completed on the day the student returns to class or a grade of zero will be awarded. Any exam grade less than a 75 is unacceptable and will result in student being placed on academic probation. A score of 75 or greater final average on tests must be met to continue in the program.
7. Cheating on any (lecture/lab) exam results in immediate dismissal from the program and an F for the course.
8. You must pass the abdominal scan final to continue in the program.
9. If you wish to drop a course, the student is responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course, you will earn an 'F' in the course.
10. Academic Dishonesty: "The Institute expects all students to engage in all academic pursuits in a manner that is above reproach and to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. The Institute may initiate disciplinary proceedings against a student accused of any form of academic dishonesty, including but not limited to, cheating on an examination or other academic work, plagiarism, collusion, and the abuse of resource materials." (LIT Student Handbook, 2003-2004, p.55-57) See the Sonography Handbook for penalties.

*Please see the Sonography Student Handbook for program specific policies.*

## **Disabilities Statement**

The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the office in Student Services, Cecil Beeson Building.

## **Contact Information:**

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**Office Hours: TBA**

### Course Schedule

Week of	Topic	Required Reading /Workbook	Lab Activity
Week 1	First Scanning Experience Circulatory System	Chapter 4 Chapter 5	Scan aorta
Week 2	Abdominal Aorta	Chapter 8	Pipe cleaners Aorta Scan aorta
Week 3	Inferior Vena Cava	Chapter 9	Pipe cleaners IVC Scan IVC/ <i>Aorta Due</i>
Week 4	Portal Venous System	Chapter 10	Pipe cleaners portals Scan portal system
Week 5	Exam #1 (Aorta, IVC, & Liver)		Scan Liver/Portal system
Week 6	Liver	Chapter 12	Scan Liver/Portal system
Week 7	Gallbladder & Biliary System	Chapter 13	<i>Liver due</i> Gallbladder protocol
Week 8	Exam #2 (GB, Biliary & Liver)		GB protocol
Week 9	Pancreas	Chapter 14	GB Due Pancreas
Week 10	Kidneys	Chapter 15	<i>Pancreas due</i> <i>Kidneys</i>
Week 11	Exam #3 Spleen Protocol	Chapter 16	<i>Kidneys due</i> Scan spleen
Week 12	Thyroid	Chapter 23	<i>Spleen due</i> Scan Thyroid
Week 13	Breast	Chapter 24	Scan Thyroid
Week 14	Male Scrotum	Chapter 25	<i>Thyroid due</i> <i>Practice for scan final</i>
Week 15	Exam #4 (Kidney, Spleen, and all previous)		

**Dates are tentative and subject to change. Workbook assignments are due on each test day. All tests will contain images.**