

**LANCASTER GENERAL COLLEGE OF NURSING AND HEALTH SCIENCES
DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM**

SYLLABUS

- I. Title: DMS 100 - ULTRASOUND IMAGING I
- II. Course Description: This course will introduce the student to ultrasound imaging of the abdomen and pelvis. It includes a brief anatomical review of the systemic arteries, systemic veins, and portal veins, urinary tract and pelvic organs. Cross-sectional anatomy of these structures and their appearance on the sonogram will also be discussed. Classroom instruction will be coordinated with certain lab and clinical activities.
- III. Prerequisite: BIO 175, BIO 176
- IV. Placement: Year I – First Summer Session
- V. Time Allotment: Theory 30 hours
Clinical/Laboratory 120 hours
- VI. Faculty: Robert M. Hess, BS, RDMS
- VII. Credits: 4
- VIII. Evaluation:
- | | |
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| 2 Unit Exams | 200 Points |
| Quizzes | 50 Points |
| Written Assignments | <u>70 Points</u> |
| Total Theory Points | 320 Points |
| Professional Conduct | 60 Points |
| Lab Assignments | <u>Pass/Fail</u> |
| Total Clinical Points | 60 Points |
| Course Grade | 380 Points |
- *A grade of "C" (2.0) is required to pass the course.**
- B. Clinical Grade
- This grade is determined by meeting the lab and clinical objectives of Ultrasound Imaging I. A point system is utilized to evaluate the student's performance. Specific critical behaviors have been identified which address each course objective. The final clinical grade is determined by whether or not the student has met the clinical objectives by the end of the course. Clinical objectives and critical behaviors are found in the Clinical Evaluation Tool.
- IX. Textbooks: DIAGNOSTIC ULTRASOUND, Rumack, 2005

ATLAS OF HUMAN ANATOMY, Netter, 2003
POCKET PROTOCOLS FOR ULTRASOUND SCANNING, Tempkin, 1999
LGH PROTOCOL MANUAL
SDMS REVIEW

- X. Course Objectives: Given the theoretical content and clinical experience, at the completion of Ultrasound Imaging I, the student will demonstrate that he/she has the knowledge to:
1. Describe the operation of the clinical service area.
 2. Perform the computer functions required for clinical services.
 3. Perform the patient care functions required for clinical services.
 4. Document the relevant patient history for the sonogram.
 5. Describe the cross-sectional relationship of normal anatomy within the cardiovascular system, the urinary system and the pelvic organs.
 6. Identify the corresponding anatomical structures on the sonogram, describing the characteristic sonographic appearance.
 7. Perform basic elements of a thoracentesis, retroperitoneal and pelvic sonogram.
- XI. Program Policies: Students are held accountable for all policies in the Student Handbook and any revisions made to those policies during the academic year.
- XII. Class:
- A. Importance of Attending Class
- Students should recognize that active and informed participation in class is essential to the development of their intellectual abilities and scholarly growth. Attendance will be taken.
- B. Student Responsibility for Missed Material
- Students are responsible for all material presented and announcements made in class, regardless of attendance. It is the student's responsibility to obtain materials and assignments if absent.
- XIII. Clinical:
- A. Clinical Activity
- The student will use clinical ultrasound equipment to perform sonograms on each other in a lab setting. He/she will also observe and/or perform exams on clinical patients.

XVIII.

CONTENT	HOURS	STUDENT ACTIVITIES	COURSE OBJECTIVE
<u>Clinical Orientation</u>			
Ultrasound Section: Clinical Operations Phone/Intercom	Lab: 1 hr		1
Computer Programs: SMS Novius PACS	Lab: 4 hrs		1,2
Ultrasound Equipment: Unit #1 Unit #2	Lab: 3 hrs	Equipment Demo Lab Assign: Equipment Transducers	3
Patient Care in Ultrasound: Dept. Policies Body Mechanics	Lab: 4 hrs		3
<u>Ultrasound Procedures</u>			
Physics & Instrumentation Cross-sectional Imaging Thoracentesis	Class: 4 hrs	Demo Thora. Protocol	3

CONTENT	HOURS	STUDENT ACTIVITIES	COURSE OBJECTIVE
<u>Vascular Anatomy</u>			
I. Arterial System A. Review Heart & Arterial Worksheet B. Abdominal Aorta & Branches C. Retroperitoneum Protocol	Class: 2 1/2 hrs	Review syllabus/ lab assignments. Rumack Ch. 12, p. 462-5 SDMS ABD., p. 119-121 Tempkin, p. 341-353 Worksheet: Heart Arterial Scanning Demo: Vascular Protocol Abd. Arteries Lab Assign: Vascular Protocol	4-6
II. Venous System A. Review Venous Worksheet B. IVC & Branches	Class: 1 1/2 hrs	Rumack, Ch. 12, p. 478 SDMS ABD, p. 124-7 Tempkin, p. 354-362 Worksheet: Systemic Veins Scanning Demo: Abd. Veins	4-6
III. Portal System A. Review Portal Worksheet B. MPV & Branches	Class: 2 hrs	Worksheet: Portal Veins Scanning Demo: Portal Veins	4-6
IV. Fetal Circulation	Class: 1 hr		5
V. Vascular Quiz	Class: 1 hr		4-6
VI. Cross-sectional Imaging A. AP Anatomy B. Longitudinal Images C. Transverse Images D. CT Images	Class: 6 hrs	Homework Assignment: AP Vessels Scanning Demo: Long. Abd. Images Trans. Abd. Images	4-6
CONTENT	HOURS	STUDENT ACTIVITIES	COURSE OBJECTIVE

<u>Urinary Tract</u>			
I. Kidney/Ureter/Bladder A. Review Urinary Worksheet B. US Appearance 1. Adult 2. Child C. Measurement Criteria D. Retroperitoneum Protocol E. Quiz	Class: 5 hrs	Rumack, Ch. 9, p. 321-327 SDMS ABD, p. 62-7 Tempkin, p. 305-329 Worksheet: Urinary System Scanning Demo: Urinary Tract Protocol Lab Assign: Urinary Tract Protocol	4-6
<u>Pelvis</u>			
I. Non-Gyn Pelvic Anatomy A. Peritoneal Cavities B. US Appearance	Class: 3 hrs	SDMS O/G, p. 66-74 Scanning Demo: Pelvic Bones & Muscles	4-6
II. Female Reproductive System A. Review Gyn Worksheet B. US Appearance C. Pelvis Imaging Protocols D. Size Criteria E. Menstrual Cycle (Changes in US Appearance)	Class: 4 hrs	Rumack, Ch. 15, p. 527-534 p. 553-555 SDMS O/G, p. 74-9 Tempkin, p. 364-386 (Menstrual Cycle) Worksheet: GYN Anatomy Scanning Demo: Pelvis-TA Protocol Lab Assign: Pelvis-TA Protocol	4-6
<u>Clinical Experience</u>			
Demonstrations Student Practice Clinical Procedures	Lab: 12 18 Clinical: 90	Competency Exams: None	6,7