

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

**SYLLABUS**

- I. Title: DMS 110 - ULTRASOUND IMAGING II
- II. Course Description: This course, together with Ultrasound Imaging I, will prepare the student to perform sonograms of the abdomen and pelvis. Didactic instruction includes a review of liver/biliary tract/pancreas anatomy and function. Cross-sectional anatomy of these structures and their appearance on the sonogram will also be discussed. The course includes a discussion of specific abnormalities related to the abdominal aorta and to the non-pregnant female pelvis. Classroom instruction will be coordinated with certain lab and clinical activities.
- III. Prerequisite: DMS 100
- IV. Placement: Year I – Second Summer Session
- V. Time Allotment: Theory 45 hours  
Clinical/Laboratory 120 hours
- VI. Faculty: Robert M. Hess, BS, RDMS  
Brent A. Miles, RDMS, RVT
- VII. Credits: 5
- VIII. Evaluation:
- |                              |                   |
|------------------------------|-------------------|
| 4 Unit Exams                 | 320 Points        |
| 2 Quizzes                    | 50 Points         |
| Written Assignments          | <u>30 Points</u>  |
| Total Theory Points          | 400 Points        |
| Professional Conduct         | 30 Points         |
| Patient Care Objectives      | Pass/Fail         |
| Lab Assignments              | Pass/Fail         |
| 3 Clinical Proficiency Exams | <u>300 Points</u> |
| Total Clinical Points        | 330 Points        |
| Course Grade                 | 730 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 II. 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, 2006  
POCKET PROTOCOLS FOR ULTRASOUND SCANNING, Tempkin, 1999  
LGH PROTOCOL MANUAL  
SDMS GUIDELINES
- X. Course Objectives: Given the theoretical content and clinical experience, at the completion of Ultrasound Imaging II, the student will demonstrate that he/she has the knowledge to:
1. Describe the cross-sectional relationship of anatomy associated with the normal liver/biliary tract/pancreas/spleen.
  2. Identify the corresponding normal anatomical structures on a sonogram, describing the characteristic sonographic appearance.
  3. Describe the function of the liver/biliary tract/pancreas and specific lab tests.
  4. Perform basic elements of the abdominal sonogram according to the imaging protocol.
  5. Demonstrate Level I competency in the performance of the sonogram for the following procedures:
    - Retroperitoneum (major vessels, urinary system)
    - Pelvis (transabdominal approach)
    - Thoracentesis
  6. Describe specific disease processes of the retroperitoneum.
  7. Describe specific disease processes related to the non-pregnant female.
  8. Identify clinical and lab findings associated with each abnormality.
  9. Describe characteristic sonographic features of the abnormality.
  10. Explain how the standard sonographic imaging protocol is modified to document the disease process.
- XI. School 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  
Education comprises more than just private reading and passing of exams. Students should recognize that active and informed participation in class is essential to the development of their intellectual abilities and scholarly growth. Students must also recognize the importance, for both the present and the future, of achieving an academic record that reflects their intellectual ability. Such records are seldom achieved without regular attendance and participation in class activities. 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.

C. Unit Examinations

Examinations should only be missed in extenuating circumstances. A student who misses an examination will be required to make up the examination on the next day of lecture. Contact the Course Faculty prior to the next lecture day to make arrangements to take the exam.

A student who misses an examination, regardless of the reason, will have ten percent (10%) deducted from the grade achieved on the exam. Example: The exam is worth sixty (60) points, the student takes the exam and achieves a grade of 52/60. The score of 52 is then decreased by ten percent (10%) or five (5) points, thus the grade on the exam will be 47/60. An alternate examination may be given for the make-up examination.

D. Clinical Competencies

All clinical competency exams must be successfully completed by the last clinical day of the semester. A student will receive a "0%" for any exam not taken by that date.

If a student achieves an eighty-four percent (84%) or higher on each clinical competency exam of the semester, the student has met all of the clinical requirements and will progress academically. If a student's score on a clinical competency exam is less than 84%, the exam must be repeated. When a competency exam is repeated, the score on the original exam will be used to calculate the course grade. A total of two repeat exams is allowed per semester.

Example: If the student receives an 80% on a competency exam, the 80% score will be used to calculate the clinical grade. The student will be required to repeat the exam. The student must achieve a score of 84% or higher on the second exam and all other competency exams in the semester to progress academically.

E. Class Behavior

Once class has started, the instructor has the prerogative not to admit students into lecture. Students will be dismissed from class for any inappropriate behavior.

F. Written Assignments:

All submitted written work must follow the College of Nursing and Allied Health Writing Guidelines.

XIII. Other:

A. Academic Dishonesty and Plagiarism

Academic dishonesty violates the spirit and purpose of an academic community, and is therefore subject to disciplinary action. Academic dishonesty includes cheating on examinations, unauthorized duplicated submission of work, and/or unauthorized possession of exams.

Plagiarism is an act of academic dishonesty. Any work submitted that is not your own is an act of plagiarism. In preparing assignments, you must acknowledge in writing, any use of outside sources or any assistance you received in preparing an assignment.

If an instructor believes that a student has committed an act of academic dishonesty or has plagiarized material, the instructor will award a failing grade for that assignment to the student. If the occurrence is during an examination, the student will receive a zero for that portion of their grade and must leave the room.

If the student disagrees with this decision, the student may follow the grievance procedure.

## XIV.

CONTENT	HOURS	STUDENT ACTIVITIES	COURSE OBJECTIVE
<u>Anatomy</u>			
<p>I. Liver</p> <p>A. Review Liver Worksheet  B. Lobar/ Segmental Division  C. Measurement Criteria  D. US Appearance  E. Abdomen Protocol</p>	<p><b>Class:</b> 4 hrs</p> <p><b>Lab:</b> 3 hrs</p>	<p>Rumack, Ch. 4, p. 77-83  SDMS ABD,p. 1-5  Tempkin, p. 87-98  Worksheet:  Liver Anatomy  Scanning Demo:  Ligaments/ Lobes  Segments  Liver Protocol  Lab Assign:  Equipment  Liver Protocol</p>	1,2
<p>II. Biliary Tract</p> <p>A. Review Biliary Worksheet  B. Measurement Criteria  C. US Appearance  Gall Bladder  Bile Ducts  D. Abdomen Protocol</p>	<p><b>Class:</b> 3 hrs</p> <p><b>Lab:</b> 1 hr</p>	<p>Rumack, Ch. 6, p. 171-174  SDMS ABD, p. 60-71  Tempkin, p. 103-107  Worksheet:  Biliary Anatomy  Scanning Demo:  Biliary Protocol  Lab Assign:  Biliary Protocol</p>	1,2
<p>III. Pancreas</p> <p>A. Review Pancreas Worksheet  B. Measurement Criteria  C. US Appearance  D. Abdomen Protocol</p>	<p><b>Class:</b> 1 hr</p> <p><b>Lab:</b> 1/2 hr</p>	<p>Rumack, Ch. 7, p. 213-226  SDMS ABD, p 72-74  Tempkin, p. 108-115  Worksheet:  Pancreas Anatomy  Scanning Demo:  Pancreas Protocol  Lab Assign:  Pancreas Protocol</p>	1,2
<p>IV. Spleen/ Lymphatic System</p> <p>A. Review Lymph/Spleen Worksheet  B. Measurement Criteria  C. US Appearance  D. Abdomen Protocol</p>	<p><b>Class:</b> 2 hr</p> <p><b>Lab:</b> 1/2 hr</p>	<p>Rumack, Ch. 5, p. 147-151  SDMS ABD, p 96-99  Tempkin, p. 120-26  Scanning Demo:  Spleen Protocol</p>	1,2

CONTENT	HOURS	STUDENT ACTIVITIES	COURSE OBJECTIVE
<b><u>Physiology</u></b>			
I. Liver/ Biliary System  A. Functions B. Bile/Bilirubin C. Liver Function Tests	<b>Class:</b>  3 hrs	Assigned reading SDMS ABD, p.5-7, 25-30 Hagen, p. 117-124/166-171 Kawamura, p. 133-140/ p. 198-199	1,2
II. Pancreas  A. Exocrine Enzymes B. Endocrine Enzymes	<b>Class:</b>  2 hrs	Assigned reading SDMS ABD, p.50-2 Hagen, p. 203-205 Kawamura, p. 242-244	1,2
<b><u>Vascular Pathology</u></b>			
I. Arteriosclerosis A. Mechanism B. Types C. Examples/Symptoms II. Aneurysm A. Mechanism B. Types C. Size Criteria D. Symptoms E. US Appearance III. Ruptured Aneurysm A. Mechanism B. Rupture Probability C. Symptoms D. US Appearance IV. Lymphoma A. Symptoms B. US Appearance V. Dissecting Aneurysm A. Types B. Mechanism C. Symptoms D. US Appearance	<b>Class:</b>  10 hrs	Rumack, Ch.12 SDMS ABD, p. 122-8	5,7-9

CONTENT	HOURS	STUDENT ACTIVITIES	COURSE OBJECTIVE
VI. Other Aneurysms A. Symptoms B. US Appearance VII. Miscellaneous Arterial Pathology A. Grafts B. Pseudoaneurysms C. A-V Fistula D. Thrombus VIII. Venous Pathology A. Deep Vein Thrombosis B. Valve Incompetence C. Tumor			
<b><u>Gyn Pathology</u></b>			
I. Uterine Abnormalities A. Congenital 1. Process 2. Cause 3. US Appearance B. Myometrium 1. Fibroids 2. Cancer 3. Adenomyosis C. Endometrium 1. Fluid Collections 2. Hyperplasia/Polyps 3. Cancer 4. IUDs 5. Endometritis D. Cervix 1. Retention Cysts 2. Cervical Polyps 3. Cervical Stenosis 4. Cancer 5. Incompetence	<b>Class:</b>  15 hrs	Rumack, Ch. 15 Rumack, Ch. 60 SDMS OB/GYN, p. 86-89	6-9



CONTENT	HOURS	STUDENT ACTIVITIES	COURSE OBJECTIVE
<b><u>Clinical Experience</u></b>			
Demonstration Student Practice  Sonographic Procedures	Lab: 6 hrs 24 hrs  Clinical:  90 hrs	Clinical Competency: Retroperitoneum TA Pelvis Thoracentesis	3,4