Sonography of Obstetrics/Gynecology (DMSO 2405)

Credit: 4 semester credit hours (3 hours lecture, 2 hours lab)

Course Description

Detailed study of the pelvis and obstretrics/gynecology as related to scanning techniques, patient history and laboratory data, transducer selection, and scanning protocols.

Required Textbook and Materials

1. *Textbook of Diagnostic Sonography, Seventh Edition Vol. II*, by Hagen-Ansert. *ISBN# 978-0-323-07301-1*

Course Objectives (with applicable SCANS skills after each)

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

1. Identify the sonographic appearances of normal and abnormal female pelvis. (SCANS: F1, F2, F3, F5, F6, F10, F11)
2. Identify normal and abnormal obstetrical findings. (SCANS: F1, F2, F3, F5, F6, F10, F11)
3. Demonstrate appropriate scanning techniques using standard protocols. (SCANS: C5, C6, C7, C8, C18, C19)
4. Evaluate patient history and laboratory data as it relates to ultrasound. (SCANS: F1, F2, F5, F10, F11)
5. Select appropriate transducer for area of interest. (SCANS: C5, C6, C7, C18, C19)

SCANS Skills and Competencies

Beginning in the late 1980's, the U.S. Department of Labor **S**ecretary's **C**ommission on **A**chieving **N**ecessary **S**kills (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 competences are further defined in the SCANS attachment.

Course Outline

A. Normal Anatomy/Physiology of Female Pelvis:
   1. Pelvic landmarks
   2. Pelvic muscles
   3. Vasculature
   4. Pelvic ligaments
   5. Uterine positions
   6. Menstrual cycle
   7. Ovarian cycle
   8. Congenital Anomalies

B. Sonographic and Doppler Evaluation of the Female Pelvis
   1. Pelvic Vasculature
   2. Doppler within the pelvis
   3. Sonographic technique
      a. Transabdominal
      b. Transvaginal

C. Pelvic Pathology
   1. Inflammatory & Infections
   2. Clinical signs & symptoms
   3. Cervical Pathology
   4. Uterine Pathology
   5. Benign Ovarian Pathology
   6. Malignant Ovarian Pathology

D. Female Infertility
   1. Causes
   2. PCOS
   3. Endometriosis
   4. Ovarian Induction Therapy
   5. In-vitro fertilization

E. Clinical Ethics for OB Sonography
   1. Recommendations for OB ultrasound
   2. Patient history
   3. Ultrasound safety
   4. Ultrasound registry
   5. Patient records
   6. Documentation
      a. 1st trimester
      b. 2nd & 3rd trimester
   7. Ethics
   8. Veracity & Integrity
   9. Justice
   10. Confidentiality

F. Normal 1st Trimester
   1. Sonographic technique
   2. Developmental stages
   3. Early embryogenesis
   4. Gastrulation
   5. hCG levels 1st trimester
   6. Prenatal development of the brain
   7. Multiple gestations
   8. Nuchal translucency

G. Obstetric Sonography of 2nd & 3rd Trimester
   1. Cervical measurement
   2. Trimesters
   3. Pregnancy Hx
   4. Fetal presentation
   5. Fetal anatomy
   6. AFI
   7. BPP

H. 2nd Trimester OB Sonography
   1. BPD
   2. HC
   3. Cephalic Index
   4. AC
   5. FL
   6. Ultrasound report
   7. Measurement ratios
   8. Lateral ventricles
   9. Cisterna Magna
   10. Cerebellum
   11. Nuchal fold

I. Fetal Anatomy & Biometry
   1. Fetal presentation
   2. Fetal head
   3. Fetal face
   4. Fetal spine
   5. Fetal thorax
   6. Fetal heart
   7. Fetal spine
   8. Fetal GU tract
   9. Fetal extremities

J. The Fetal Survey
   1. Cervical length
   2. Placenta location
   3. 4 Ch heart
   4. Fetal heart rate
   5. Fetal brain
   6. Fetal abdomen
   7. Umbilical cord insertion
   8. Fetal kidneys and bladder
   9. Fetal extremities
   10. Fetal spine
   11. AFI
   12. Fetal presentation
   13. Fetal gender

K. Fetal Growth Assessment
   1. Terminology
   2. IUGR
   3. EFW
   4. AFI
   5. BPP
   6. Umbilical artery doppler

L. Placenta
   1. Vascularity
   2. Anatomy
   3. Decidual changes
   4. Functions
   5. Doppler evaluation
   6. Grading
   7. Membranes

M. Umbilical Cord
   1. Formation
   2. Umbilical vein
   3. Umbilical arteries
   4. Gut migration

N. Amniotic Fluid and Membranes
   1. Production
   2. Function
   3. Regulation
   4. Assessment
   5. Volume
   6. Sonographic appearance

O. Fetal Circulation
   1. Flow of blood
   2. Ductus Venosus
   3. Ductus Arteriosus
   4. Foramen Ovale

P. Fetal Skull & Brain
   1. Brain embryology
   2. Scanning planes
   3. Measuring lateral ventricles & cistern magna
   4. Measuring size & shape of fetal head

Q. Fetal Face & Neck
   1. Embryology
   2. Fetal facial structures
   3. Fetal neck structures
   4. Sonographic appearance

R. Fetal Abdomen
   1. Embryology
   2. Sonographic appearance
   3. Fetal stomach
   4. Fetal intestines

S. Fetal GU Tract
   1. Embryology
   2. Fetal kidneys
   3. Fetal bladder
   4. Sonographic appearance

M.

Grade Scale

93 – 100	A
92 – 85	B
84– 75	C
74– 70 (not passing)	D

Course Evaluation

Final grades will be calculated according to the following criteria:

Lecture is 75% of Grade	**Lab is 25% of Grade**
5% Class participation/Homework assignments	50% Lab Quizzes/Participation
65% Exams	50% Lab Final
30% Final Exam	

Course Requirements

1. Unit exams
2. Participation and challenges assigned in lab
3. Workbook assignments

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. *Any student with a semester exam average of 85% or greater is exempt from taking the final exam.*

7. Cheating on any (lecture/lab) exam results in immediate dismissal from the program and an F for the course.

8. 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.

9. Please refer to the Diagnostic Medical Sonography Handbook 2010-2011 for further 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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2405 Course Schedule

Week of	Topic	Reference
Week 1	Scanning female pelvis transabdominal	
	Normal Anatomy/Physiology of Female Pelvis	
Week 2	Normal Anatomy/Physiology of Female Pelvis	
	Sonographic and Doppler Evaluation of the Female Pelvis	
Week 3	Sonographic and Doppler Evaluation of the Female Pelvis	
	Test #1	
Week 4	Review Test #1; Adnexal Pathology	
	Cont. Adnexal Path; Uterine Path	
Week 5	Cont. Uterine Path; Ovarian Path	
	Infertility Powerpoint	
Week 6	Finish Infertility	
	Test #2	
Week 7	2^{nd} & 3^{rd} trimester PP	
	2^{nd} & 3^{rd} trimester PP	
Week 8	Test #3 2^{nd} & 3^{rd} trimester protocol from memory	
	The Biology of Prenatal Development	
Week 9	Normal 1^{st} trimester	
	Normal 1^{st} trimester	
Week 10	Normal 1^{st} trimester	
	Test #4	
Week 11	Review test; Begin Placenta, Umbilical Cord, & AFI	
	All College Day – No class	
Week 12	Placenta, Umbilical Cord	
	Amniotic Fluid	
Week 13	Test #5	
	Fetal Circulation	
Week 14	Fetal Brain & Skull Development	
	Review 2^{nd}/3^{rd} Trimester Images	
Week 15	Test #6	
	Lab image test	
Week 16	Final Exam	

*****This is a tentative schedule it may be changed throughout the semester*****