

Sonography of Obstetrics/Gynecology (DMSO 2405)



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

Prerequisite/Co-requisite: Completion of DMSO 1441 and DMSO 1355 with a C or better/ DMSO 1342, DMSO 2341, and DMSO 1366

Course Description

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

Required Textbook and Materials

1. *Textbook of Diagnostic Ultrasonography, Sixth Edition Vol. I & II*, by Hagen-Ansert. ISBN: 978-0-323-02803-5
2. *Textbook of Diagnostic Ultrasonography Workbook, Vol. I & II*, by Hagen-Ansert. ISBN: 978-0-323-04202-4

Course Objectives

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 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.

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

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- 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. Asking and Answering Questions using Successful intelligence
 - 2. Gather Information
 - 3. Analyze and Clarify Information
 - 4. Evaluate information
 - 5. Improve Creative Thinking
 - 6. Practical Thinking Skills
 - 7. Making Decisions
- 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 |
| 73.5 and below | F |

Course Evaluation

Final grades will be calculated according to the following criteria:

Lecture is 75% of Grade

- 10% Class participation/Homework assignments
- 60% Exams
- 30% Final Exam

Lab is 25% of Grade

- 60% Lab Quizzes
- 40% Lab Final

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. 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.

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

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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.

Course Schedule

| Week of | Topic | Reference |
|----------------|--|--------------------------|
| Week 1 | Normal Anatomy/Physiology of Female Pelvis | Chapter 35 page 853 |
| Week 1 | Sonographic and Doppler Evaluation of the Female Pelvis | Chapter 36 page 873 |
| Week 2 | Pelvic Pathology | Chapter 37-39 page 898 |
| Week 3 | Female Infertility | Chapter 40 page 958 |
| Week 4 | Clinical Ethics for OB Sonography | Chapter 41 page 969 |
| Week 5 | Biology of Prenatal Development Video & Normal 1 st Trimester | Chapter 43 page 43 |
| Week 6 | OB Sonography of 2 nd & 3 rd Trimesters | Chapter 45 page 1015 |
| Week 7 | 2 nd Trimester OB Sonography | |
| Week 8 | Fetal Anatomy & Biometry | |
| Week 9 | Fetal Growth Assessment | Chapter 47 page 1074 |
| Week 10 | Placenta | Chapter 1138 |
| Week 11 | Umbilical Cord & Amniotic Fluid | Chapters 51-52 page 1138 |
| Week 12 | Fetal Circulation | |
| Week 13 | Fetal Skull & Brain | Chapter 55 page 1205 |
| Week 14 | Fetal Face & Neck | Chapter 54 page 1181 |
| Week 15 | Fetal Abdomen & GU Tract | Chapter 58-59 page 1257 |
| Week 16 | TBA | |