

BROWARD COLLEGE COURSE OUTLINE

LAST REVIEW: 2008-2009
(i.e. 2003-2004)

NEXT REVIEW: 2013-2014
(i.e. 2008-2009)

STATUS: A
(A, I, D)

COURSE TITLE: Clinic E

COMMON COURSE NUMBER: SON 2844

CREDIT HOURS: 3

CONTACT HOUR BREAKDOWN
(per 16 week term)

CLOCK HOURS:
(Voc. Course ONLY)

Lecture: Lab:
Clinic: 384 Other:

PREREQUISITE(S): SON 1804, SON 1814, SON 1824, SON 2834

COREQUISITE(S): SON 2401, SON 2161

PRE/COREQUISITE(S):

COURSE DESCRIPTION *(750 character maximum)*: Application of all the materials presented requiring the student to interact in a professional manner, to make judgment decisions regarding the technical aspects, and to generally progress to the point where he/she may be accepted as a competent sonographer. Further mastering of all skills gained emphasizing echocardiography and cardiovascular examination techniques. Clinical application of classroom material is presented.

General Education Requirements – Associate of Arts Degree (AA), meets Area(s): Area
General Education Requirements – Associate in Science Degree (AS), meets Area(s): Area
General Education Requirements – Associate in Applied Science Degree (AAS), meets Area(s): Area

UNIT TITLES

1. Ultrasound Orientation
2. Patient Rapport and Department Protocol
3. Echocardiographic Examination
4. Neurosonology
5. Gynecological Examination (not required)
6. Obstetrical Examination (not required)
7. Abdominal Examination (not required)

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ASSESSMENT:

Please provide a brief description (250 characters maximum) that details how students will be assessed on the course outcomes.

Cognitive and Psychomotor evaluations by observation of exam performance in required echocardiography, and optional Neurosonology – may simulate Neurosonology exam. Cognitive and Affective assessment with Personal and Professional Growth Assessment and Progress and Proficiency Report.

**** Complete the following only if course is seeking general education status ****

GENERAL EDUCATION Competencies and Skills*:

Please highlight in green font all Competencies/Skills from the list below that apply to this course. In the box to the right of the Competency/Skill, enter all specific learning outcome numbers (i.e. 1.1, 2.7, 5.12) that apply.

1. Read with critical comprehension	
2. Speak and listen effectively	
3. Speak and listen effectively	
4. Think creatively, logically, critically, and reflectively (analyze, synthesize, apply, and evaluate)	
5. Demonstrate and apply literacy in its various forms: (highlight in green ALL that apply) (1. technological, 2. informational, 3. mathematical, 4. scientific, 5. cultural, 6. historical, 7. aesthetic and/or 8. environmental)	
6. Apply problem solving techniques to real-world experiences	
7. Apply methods of scientific inquiry	
8. Demonstrate an understanding of the physical and biological environment and how it is impacted by human beings	
9. Demonstrate an understanding of and appreciation for human diversities and commonalities	
10. Collaborate with others to achieve common goals.	
11. Research, synthesize and produce original work	
12. Practice ethical behavior	
13. Demonstrate self-direction and self motivation	
14. Assume responsibility for and understand the impact of personal behaviors on self and society	
15. Contribute to the welfare of the community	

** General Education Competencies and Skills endorsed by '05-'06 General Education Task Force*

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UNITS

Unit 1 Ultrasound Orientation

General Outcome:

- 1.0 The student shall:** demonstrate an understanding of technological and interpersonal skills required of a sonographer

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 1.1 Describe and list the various modes and techniques involved in echocardiographic and neurosonology examinations
- 1.2 Utilize the controls associated with an ultrasonic and/or Doppler unit
- 1.3 Describe various scanning techniques and Doppler techniques
- 1.4 Match sonographic procedures with clinical history of patient
- 1.5 Demonstrate an understanding of the medical ethics involved in sonography
- 1.6 Perform routine exams of the abdomen and pelvis, both gravid and nongravid if appropriate to the assigned clinical affiliate
- 1.7 Demonstrate personal skills and qualifications of a sonographer.
- 1.8 Explain and use methods of patient preparation and care before and after a sonogram
- 1.9 Present a sonographic exam of the heart in completed form
- 1.10 Present an neurosonology exam in completed form or simulate an exam
- 1.11 Explain the protocol for a neurosonology exam
- 1.12 Process the sonograms correctly
- 1.13 Identify on sonograms the anatomical structures concerned in the examination and modify protocol as needed to obtain optimal exam
- 1.14 Interpret Doppler spectral analysis, color-flow patterns, and amplitude Doppler appearance of the various flow patterns

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- 1.15** Demonstrate skills to develop and maintain the special relationship of the sonographer to the patient and to other persons in medicine
- 1.16** Demonstrate laboratory safety techniques as related to sonographic imaging units in the patient examination situation
- 1.17** Use basic techniques for orientation and labeling of sonograms
- 1.18** Demonstrate skills needed to relate with tact and diplomacy with patients, physicians, nurses, other imaging personnel and the general hospital population
- 1.19** Demonstrate those characteristics that reflect the high degree of professionalism associated with the field of ultrasound

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Unit 2 **Patient Rapport and Department Protocol** - (a continuation and improvement of skills gained in all previous terms)

General Outcome:

2.0 The student shall: demonstrate an understanding of patient-sonographer interactions related to the sonographic examination, and of department protocol and procedures.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 2.1 Schedule patients for examinations
- 2.2 Prepare room and equipment for examination
- 2.3 Instruct patient concerning procedure
- 2.4 Prepare and position the patient for the scan
- 2.5 Accurately record the patient's history
- 2.6 Provide psychological support

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Unit 3 Echocardiography Examination

General Outcome:

- 3.0 The student shall:** demonstrate an understanding of sonographic imaging and Doppler techniques used to assess normal and abnormal structure, blood flow and function of the heart

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 3.1 Perform 2-D, M-mode and Doppler (pulsed wave, continuous wave and color flow) scanning procedures for evaluation of the heart
- 3.2 Demonstrate the standard views of parasternal long axis, parasternal short axis (all), apical two and four chamber, subcostal and suprasternal notch
- 3.3 Perform two-dimensional, M-mode and Doppler (PW, CW and Color flow) scanning procedures for the evaluation of the mitral, tricuspid, pulmonic and aortic valves
- 3.4 Evaluate aortic, pulmonic, tricuspid and mitral valve performance and condition using M-mode, Doppler and imaging techniques
- 3.5 Distinguish between normal cardiac anatomy and performance and pathological states
- 3.6 Identify disorders of rhythm
- 3.7 Identify and utilize proper examination techniques to evaluate prosthetic valves
- 3.8 Identify and demonstrate pericardial abnormalities
- 3.9 Describe the types of cardiomyopathies
- 3.10 Describe the uses of contrast echocardiography
- 3.11 Distinguish between pulsed and continuous wave Doppler spectrum and determine proper uses for each
- 3.12 Apply measurement techniques for M-mode, 2-D and Doppler
- 3.13 Evaluate wall motion characteristics
- 3.14 Complete videotape recording examination

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- 3.15** Perform all cardiac examinations, with minimal assistance, according to the protocol of the clinical affiliate
- 3.16** Explain the advantages and techniques associated with transesophageal echocardiography
- 3.17** Explain the advantages and techniques associated with stress echocardiography
- 3.18** Present completed examinations in detail with justification of all techniques, methods or procedures used to obtain data
- 3.19** Integrate patient history and physical findings to determine appropriate area(s) of interest and mode utilized for obtaining diagnostic exams
- 3.20** Demonstrate proficiency in the performance of cardiac ultrasound diagnostic procedures and understanding of the applications and limitations of each of their relationships

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Unit 4 Neurosonology

General Outcome:

- 4.0 The student shall:** demonstrate an understanding of anatomy, physiology, pathophysiology and scanning procedures associated with sonographic examination of the neonatal head.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 4.1 Demonstrate or describe proper transducer placement for a neonatal neurosonology exam using the various windows
- 4.2 or explain scanning procedures of the neonatal head using the following planes, including obliquities:
 - A. Coronal
 - B. Sagittal/parasagittal
- 4.3 Identify on a sonogram the anatomy of the neonatal brain
- 4.4 Demonstrate and/or describe the anatomy of the neonatal brain using proper machine controls (or describe them in a simulating exam)
- 4.5 Distinguish between normal and abnormal structures of the neonatal brain
- 4.6 Present completed examinations or simulations in detail, with justification of all techniques, methods or procedures used to obtain data
- 4.7 Correlate clinical findings with sonographic data
- 4.8 Perform or simulate all scanning procedures of the neonatal brain according to the protocol of the clinical affiliate

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Unit 5 Gynecological Examination (not required)

While the student need not be challenged for competencies in this area, it is expected that he/she will continue to develop skills in gynecological examinations.

General Outcome:

- 5.0 The student shall:** demonstrate competency in sonographic gynecological examination procedures.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 5.1 Perform gynecological examinations, without assistance, following the protocol of the clinical affiliate
- 5.2 Present completed examinations in detail with justification of all techniques, methods or procedures used to obtain data
- 5.3 Identify normal anatomy and gross pathology of the pelvis both on sonograms and related imaging modalities

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Unit 6 Obstetrical Examination (not required)

While students need not be challenged for competencies in this area, it is expected that he/she will continue to develop skills in obstetrical scanning (if appropriate for their particular clinical affiliate experience).

General Outcome:

- 6.0 The student shall:** demonstrate competency in sonographic examination of the obstetric patient.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 6.1 Perform scanning procedures for an obstetrical exam in any stage of pregnancy
- 6.2 Determine fetal age
- 6.3 Determine fetal condition
- 6.4 Perform obstetrical examinations, without assistance, following the protocol of the clinical affiliate
- 6.5 Utilize Doppler techniques when appropriate to the clinical or sonographic findings
- 6.6 Present completed examinations in detail, with justification of all techniques, methods or procedures used to obtain data
- 6.7 Identify normal anatomy and abnormal conditions/gross pathology of the obstetrical patient, both on sonograms and related imaging modalities

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Unit 7 Abdominal Examination (not required)

While students need not be challenged for competencies in this area, it is expected that he/she will continue to develop skills in abdominal scanning.

General Outcome:

- 7.0 The student shall:** demonstrate competency in sonographic examination of the abdomen as appropriate to the assigned clinical affiliate.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

- 7.1 Correlate patient history, laboratory results and sonographic appearance to offer a differential diagnosis
- 7.2 Perform all abdominal examinations, without assistance, according to the protocol of the clinical affiliate.
- 7.3 Present completed examinations in detail with justification of all techniques, methods or procedures (including Doppler techniques) used to obtain data
- 7.4 Identify normal anatomy and gross pathology of the abdomen, both on sonograms and related imaging modalities