Rotation 1:

1. Knowledge Based Objectives
   At the end of the rotation the resident should be able to:
   - Discuss thoroughly the ultrasound procedures and findings in:
     - gallbladder/biliary tree ultrasound (cholelithiasis/cholecystitis)
     - renal ultrasound (obstruction/renal failure)
     - pelvic ultrasound (ectopic pregnancy)
     - cranial ultrasound (intracranial hemorrhage)
     - duplex Doppler (venous thrombosis of extremities)
   - Discuss the basic ultrasound physics and instrumentation, especially related to equipment operation and the specifications for various probes.
   - Describe, from observation, the technique used to perform each of the routinely performed procedures.
   - Demonstrate learning of at least one-third of the knowledge-based objectives, focusing on basic ultrasound physics, nomenclature, tissue echo characteristics and basic abdominal and pelvic pathology.

Assessment:
Competency/Completion measured by (circle all that apply):

Observation  OSCE  Global rating by faculty

Written Exam (ACR in-service, ABR)  Passport (new)

Cases reviewed by/with attending  Report Signed by attending

Procedure Log

2. Technical Skills
   At the end of the rotation the resident should:
   - Be able to demonstrate proficiency in scanning skills including:
     1. First week - paired with sonographer
        - How to hold transducer.
        - Appropriate choice of transducer.
        - Machine and keyboard skills including: labeling, gain settings, TGC, calipers.
        - Successful abdomen, pelvis, early OB scans with supervision.
     2. Second week - paired with sonographer
        - Abdomen scans with concentration on gallbladder and kidneys.
        - OB scans: measurements, M-mode, amniotic fluid volume.
        - Transvaginal scanning including: OB and pelvis.
     4. Third week - paired with sonographer
        - Abdomen scans including: liver, biliary tree, pancreas, and spleen.
        - OB scans including: fetal anatomy and biophysical profiles.
        - Scrotum scans.
        - Mark for taps including: ascites, pleural effusion.
     4. Fourth week - scanning alone
        - Refining OB, pelvis, abdomen and scrotum scanning techniques.
        - Knowing indications and techniques for Doppler.
   - Successfully perform a minimum of (fill in #:) ____________ basic ultrasound examinations with faculty supervision commensurate with experience and individual competence.
Dictate a minimum of (fill in #:) ________________ accurate and concise reports including:
  o Appropriate ultrasound nomenclature.
  o All relevant patient data.
  o A brief and concise description of findings and a short impression.

Be competent in the following management and administrative skills including:
  o UltraSTAR and OBUS
  o IDXRad: begin, end, complete with appropriate exam code, print stickers
  o Folder and report management
  o Transport of inpatients
  o Transducer, machine, and room functions and maintenance, including: converting exam table for vaginal studies, disinfecting and cleaning transducers, disconnecting and reconnecting machine for portable exams, using the DTC for image acquisition

Assessment:
Competency/Completion measured by (circle all that apply):

Observation  OSCE  Global rating by faculty

Written Exam (ACR in-service, ABR)  Passport (new)

Cases reviewed by/with attending  Report Signed by attending

Procedure Log

3. Decision-Marking & Value Judgment Skills
At the end of the rotation, the resident should be able to:

* Demonstrate attendance at the 8:00-8:30am teaching conference in Ultrasound where educational cases selected from recent examinations are shown to the resident in a "hotseat" unknown case format and instruction given to both physician and sonographer trainees.

* Provide compassionate, appropriate and effective patient care commensurate with experience and individual competency.

* Insure the patient’s dignity and privacy and not discriminate against any patient based on religion, ethnic, sexual or educational differences.

* Communicate effectively and use appropriate nomenclature with healthcare professionals, including faculty, technologists, and support staff.

* Communicate with referring physicians about all significant or unexpected radiological findings.

* Recognize limits in personal skill and knowledge, especially when assisting with imaging interpretation and patient management. Obtain help from supervisory faculty when appropriate.

* Demonstrate a professional work ethic including:
  o Altruism.
  o Punctuality.
  o Adherence to all relevant policies and procedures.
  o Proper preparation for rotation, including recommended reading assignments completed.
  o Treat all faculty, technologists, and support staff with respect, understanding, and professionalism.

Assessment:
Competency/Completion measured by (circle all that apply):

Observation  OSCE  Global rating by faculty

Written Exam (ACR in-service, ABR)  Passport (new)
Rotation 2:

1. Knowledge Based Objectives:
   At the end of the rotation the resident should be able to:
   • ________________________________
   • ________________________________
   • ________________________________
   • ________________________________

   Assessment:
   Competency/Completion measured by (circle all that apply):
   Observation   OSCE   Global rating by faculty
   Written Exam (ACR in-service, ABR)   Passport (new)

2. Technical Skills:
   At the end of the rotation the resident should be able to:
   • Demonstrate skills required for night float.
     List skills: _________________________________________________________
     _____________________________________________________________
     _____________________________________________________________
     _____________________________________________________________
   • Demonstrate proficiency in examinations including:
     o OB exams: especially first trimester and cervical and placental evaluation.
     o Transvaginal scanning.
     o GB, biliary tree and liver.
     o Kidneys.
     o Scrotum.
     o Upper and lower extremity venous by spending 1 week of mornings in the vascular lab.
   • Demonstrate increased competency in the following management and administrative skills including:
     o UltraSTAR and OBUS
     o Transducer, machine, and room functions and maintenance.

   Assessment:
   Competency/Completion measured by (circle all that apply):
   Observation   OSCE   Global rating by faculty
   Written Exam (ACR in-service, ABR)   Passport (new)
3. Decision-Marking & Value Judgment Skills
At the end of the rotation, the resident should be able to:
- Demonstrate attendance at the 8:00-8:30am teaching conference in Ultrasound where educational cases selected from recent examinations are shown to the resident in a “hotseat” unknown case format and instruction given to both physician and sonographer trainees.
- Provide compassionate, appropriate and effective patient care commensurate with experience and individual competency.
- Insure the patient’s dignity and privacy and not discriminate against any patient based on religion, ethnic, sexual or educational differences.
- Communicate effectively and use appropriate nomenclature with healthcare professionals, including faculty, technologists, and support staff.
- Communicate with referring physicians about all significant or unexpected radiological findings.
- Recognize limits in personal skill and knowledge, especially when assisting with imaging interpretation and patient management. Obtain help from supervisory faculty when appropriate.
- Demonstrate a professional work ethic including:
  - Altruism.
  - Punctuality.
  - Adherence to all relevant policies and procedures.
  - Proper preparation for rotation, including recommended reading assignments completed.
  - Treat all faculty, technologists, and support staff with respect, understanding, and professionalism.

Assessment:
Competency/Completion measured by (circle all that apply):
- Observation
- OSCE
- Global rating by faculty
- Written Exam (ACR in-service, ABR)
- Passport (new)
Assessment:
Competency/Completion measured by (circle all that apply):

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Written Exam (ACR in-service, ABR)  Passport (new)

Cases reviewed by/with attending  Report Signed by attending

Procedure Log

2. Technical Skills
At the end of the rotation the resident should:

- Be able to demonstrate increased competency in basic scanning skills.
- Be able to demonstrate competency in the following scanning skills:
  - Thyroid scans.
  - Prostate scans.
  - Fetal echocardiography.
  - Neonatal head and abdomen scans.

- Have Participated in and observed procedures performed by attending radiologists including:
  - Paracentesis scans.
  - Thoracentesis scans.
  - OR cases.
  - Renal biopsies.
  - Thyroid biopsies.
  - Prostate biopsies.

- Have spent one day per week (typically Thursday) observing attending radiologists on a variety of procedures to see interesting or unusual cases (“pseudocheck” day).

- Have shared responsibility for portable examinations with the fellow, usually one or two afternoons per week.

Assessment:
Competency/Completion measured by (circle all that apply):

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Written Exam (ACR in-service, ABR)  Passport (new)

Cases reviewed by/with attending  Report Signed by attending

Procedure Log

Decision-Marking & Value Judgment Skills: At the end of the rotation, the resident should be able to:

- Provide compassionate, appropriate and effective patient care commensurate with experience and individual competency.

- Insure the patient’s dignity and privacy and not discriminate against any patient based on religion, ethnic, sexual or educational differences.

- Communicate effectively and use appropriate nomenclature with healthcare professionals, including faculty, technologists, and support staff.

- Communicate with referring physicians about all significant or unexpected radiological findings.

- Recognize limits in personal skill and knowledge, especially when assisting with imaging interpretation and patient management. Obtain help from supervisory faculty when appropriate.
• Demonstrate a professional work ethic including:
  o Altruism.
  o Punctuality.
  o Adherence to all relevant policies and procedures.
  o Proper preparation for rotation, including recommended reading assignments completed.
  o Treat all faculty, technologists, and support staff with respect, understanding, and professionalism.

Assessment:
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Rotation 4:

Fourth Year Elective
• 2-4 weeks
  o Rotation can be taken in High Risk OB, vascular lab, and/or L1.
  o Volume of cases should increase and hone scanning skills and diagnostic ability.

Assessment:
Competency/Completion measured by (circle all that apply):

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Reading Requirements:


   **Rotation (fill in): _________**


   **Rotation (fill in): _________**


   **Rotation (fill in): _________**


   **Rotation (fill in): _________**
BODY IMAGING: Ultrasound Section

Rotation 1:

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:
1. Discuss thoroughly the ultrasound procedures and findings in:
   a) gallbladder/biliary tree ultrasound (cholelithiasis/cholecystitis)
   b) renal ultrasound (obstruction/renal failure)
   c) pelvic ultrasound (ectopic pregnancy)
   d) cranial ultrasound (intracranial hemorrhage)
   e) duplex Doppler (venous thrombosis of extremities)

2. Discuss the basic ultrasound physics and instrumentation, including: equipment operation and various probes specifications.

3. Describe, from observation, the technique used to perform each of the routinely performed procedures.

Technical Skills: At the end of the rotation, the resident should be able to:
1. Review histories of patients to be examined each day to determine the relevance of the study to clinical symptoms.

2. Record a pertinent history of the patient on the ultrasound worksheet.

3. Advise the technologist about special views or specific parameters of the study that require special attention.

4. Assist with the preparation and presentation of the noon ultrasound conference.

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:
1. Given an ultrasound case, make a preliminary review of the images and advise the technologists when additional views or repeat views are needed.

Rotation 2:

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:
1. Demonstrate thorough knowledge of the ultrasound procedure through performing or assisting the sonographer with performance of the following studies:
   a) liver/biliary tree (biliary obstruction/tumors)
   b) pancreas (acute and chronic inflammatory process/tumors)
   c) renal (transplant rejection/Doppler, tumors and inflammatory processes)
   d) pelvis (uterine leiomyoma/ovarian neoplastic and non-neoplastic diseases)
   e) cranial ultrasound (hydrocephalus/cerebral ischemia and infarction)
   f) duplex Doppler (duplex sonography of carotids and abdominal duplex)

2. Given the appropriate sonograms, identify and discuss significant characteristics of the pathologies listed in #1 above.

Technical Skills: At the end of the rotation, the resident should be able to:
1. Review all scans as they are performed for significant findings that require prompt attention.

2. Assist with preparation/presentation of cases for the ultrasound/imaging conference.

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:
1. Make decisions in regard to notification of the referring physician if the faculty radiologist is not available for consultation.

3. Read and/or dictate films with the assistance and review of the faculty radiologist.

Rotation 3:

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:
1. Discuss all aspects of ultrasound imaging, including indications, pathology, and correlative studies used for each examination.

Technical Skills: At the end of the rotation, the resident should be able to:
1. Review and dictate with the faculty radiologist all scans performed.

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:
1. Make preliminary decisions on all matters of film interpretation and consultation and recognize the need to obtain assistance in situations that require the expertise of the faculty radiologist.

**Senior Elective**

1. Vascular - 1 or 2 weeks (limited availability) - Includes carotids, venous and graft scanning.

2. High Risk OB- 2 to 4 weeks. Resident will be assigned to a room in High Risk. Includes all types of OB ultrasound, including First Looks, transvaginal cervical exams, multiple gestations and fetal anomalies.

3. Senior rotation L1 - 1-4 weeks. Shadow attendings. Train to guide procedures, attend OR cases and check cases with supervision. Resident will collect cases and present morning conference one morning each week with attending assistance.