



**Ohio University**  
**College of Osteopathic Medicine**  
**Centers for Osteopathic Research and Education**  
**Years III and IV Clerkship Curriculum**  
**CORE Clinical Rotation: Radiology**



**Course Title:** OCOM 867 Radiology  
**Instructor of Record:** Peter B. Dane, D.O.  
**Credit Hour:** 3 credit hours per week of rotation  
**Rotation Length:** 1 wk – 4 wks., length varies by CORE Site  
**Prerequisites:** Successful completion of the 6-week Family Medicine Clerkship

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*Last update: 7/21/2003*

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**1. Rotation Description, Purpose, and Philosophy**

The purpose of this rotation is to provide the student with an overview of the clinical specialty of Radiology. This rotation is not intended to transform the student into a Radiologist, but rather it is to provide the clinical clerk a survey of the specialty.

**2. Rotation Objectives**

A set of learning objectives is provided below. The objectives are intended to guide for the student's learning activities and to serve as a baseline for assessment of the student's knowledge, skills, and professional behavior. Not all of the objectives listed below will be encountered during any single rotation. While each student is expected to further expand his/her knowledge base and to care for all assigned patient cases, he/she is also expected to avail him/herself of the educational materials provided and to master the following objectives.

**NOTE:** **Many of the diseases/conditions listed are considered "common" to more than one required rotations. The post-rotation exam will assess the students mastering of the objectives related *only to the diseases/conditions listed above.* See Appendix A and Appendix B for a complete list of diseases/conditions by the rotation in which they will**

**Rotation Objectives: Knowledge Domain**

A statewide survey of CORE preceptors identified the following as the most common diseases/conditions found on the Radiology Rotation at the CORE hospitals. The post-rotation exam may include questions on any of the topics listed.

1. Diagnostic approach to interpret
  - a. Chest X-Rays
  - b. Abdominal X-Rays
  - c. Extremity X-Rays

For each disease or condition listed above, the student should be able to describe/assess the following:

1. Presenting signs and symptoms
2. Physical findings
3. Basic interpretations of appropriate diagnostic studies
4. Major differential diagnoses
5. Management alternatives, including: treatment plans, patient education, and addressing modifiable risk factors
6. Possible complications
7. Prognosis
8. Follow-up care

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9. Somatic dysfunction related to the disease/condition and the osteopathic treatment(s) for the somatic dysfunction

**NOTE:**

**Students are expected to interact with and provide appropriate care for *all* patients they encounter on a rotation regardless of whether or not the patient's condition is listed above. However, for purposes of the post-rotation exam, students will be responsible only for the diseases and conditions listed above. Students are expected to master the objectives related to the listed disease/conditions regardless of whether or not they encounter any patients with those diseases/conditions while on rotation.**

**Rotation Objectives: Clinical Skills Domain**

During the Radiology Rotation, students are expected to develop their competencies in many basic clinical skills. While not every skill listed below can be performed during this brief rotation, the student should avail him/herself of as many of the following procedures as possible, and to seek out opportunities to perform these skills in other rotations as well.

1. Indications or advantages
2. MRI
3. CT
4. Ultrasound

**3. Orientation to the Rotation**

The rotation orientation provides an opportunity to answer questions and define roles, assess skill level and experience, set expectations, and anticipate and proactively resolve problems. The student should try to meet with the preceptor either prior to or early on the first day of the rotation. Clarifying the following details with the preceptor will help to ensure a rewarding and successful rotation:

- a. Student responsibilities on the service.
- b. Preceptor expectations of the student on the service.
- c. Goals, objectives, and the structure of the rotation.
- d. Required rotation assignments and responsibilities in the preceptor's practice (e.g. clinics, lectures, conferences, other didactics, journal clubs, rounds, office hours, morning report).

The student should ask for feedback several times during the rotation, especially at mid-rotation. In addition, he/she should be prepared to share past clinical experiences and personal objectives for this rotation with the preceptor.

**4. Required Learning Activities, Assignments, and Responsibilities for *ALL CORE STUDENTS***

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The following activities are required for satisfactory completion of this rotation:

- a. For your information – there is no post-rotation exam for this rotation.
- b. Attend and participate in all CORE education day presentations.

**NOTE:**

**If the student is absent from any of the CORE education day presentation without prior approval, he/she will be required to complete a remediation activity. Remediation may consist of a 5-page paper for each missed lecture, or some other assignments at the discretion of the CORE Assistant Dean. These must be completed and accepted by the CORE Assistant Dean in order to receive a grade for the rotation to which you are assigned at the time of the absence.**

- c. Attend and participate in any other workshops, seminars, or professional development activities assigned by the CORE Assistant Dean.
- d. Present all clinical case conferences, as assigned by the CORE Assistant Dean.
- e. Ensure that your preceptor's written evaluation is completed and submitted within 2 weeks of the end of the rotation.
- f. Submit the online Student Evaluation, thru WebCT. If you need instructions, please ask your CORE staff.
- g. Fulfill all required responsibilities identified by the preceptor during orientation.

**5. Student Performance Evaluation and Remediation Procedures**

A student's grade for the Radiology Rotation will be based on following three criteria. The student must pass *parts d & c* in order to pass the rotation.

**a. The Post-Rotation Exam**

For your information – there is no post-rotation exam for this rotation.

**b. The Preceptor's Written Evaluation**

A student must receive a passing grade from the preceptor in order to pass the rotation. If the preceptor considers the student *Marginal*, then a remediation recommendation should be made by the CORE Assistant Dean, in consultation with the preceptor, and submitted to the Associate Dean for approval. If the preceptor fails the student, the student is awarded a grade of "F" for the rotation regardless of the grade he/she received on the post-rotation exam or the CORE Assistant Dean's evaluation. The failure must be forwarded to the CSP.

**NOTE:**

**It is the responsibility of the student to ensure that the preceptor's evaluation is submitted to the CORE office within 2 weeks of the end of the rotation.**

**c. The CORE Assistant Dean's Evaluation**

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Before the end of each quarter, the CORE Assistant Dean or his/her designee will evaluate each student's progress based on a *Pass-Marginal-Fail* basis. Items impacting this grade include: attendance and participation at educational day presentations, attendance and participation at professional development programs (such as jurisprudence or ethics), quality of clinical case presentations, review of skills and procedures log, overall attitude, and performance at other required activities. If the student is given a *Marginal*, the CORE Assistant Dean will submit a recommendation for proper remediation to the Associate Dean for approval. If the student is given a *Fail*, he/she will be required to appear before the CSP.

**NOTE:** **A failure in this area will result in a failure of all rotations during the corresponding quarter.**

**6. Recommended Resources**

The following resources have been identified for this rotation by CORE preceptors.

1. Use this format: Essentials of Clinical Geriatrics, Robert Kane, et. al., Medical Publishers, Philadelphia, 4<sup>th</sup> Edition, 1999.

**7. Academic Dishonesty and Standards of Professional Conduct**

Students are encouraged to study together and to share their knowledge freely with one another during the learning process. During examinations, however, no assistance from other students or from outside sources is allowed, unless explicitly permitted by the CORE office. Books, notes, and other materials must be left at the periphery of the testing area during examinations. Academic misconduct will result minimally in the issuance of a failing grade for the rotation and may, at the discretion of the course coordinator, subject the student to possible suspension or expulsion from their medical college.

Professional standards required of a member of the Osteopathic profession are a requirement for passing this rotation, as is compliance with the professional standards of the hospital and outpatient offices of the student's preceptor. Students are expected to maintain high professional standards of behaviors. They should exhibit such personal characteristics as honesty and integrity, as well as to maintain patient confidentiality at all times. Violation may result in a failing grade in this rotation, regardless of other academic performance on this rotation, and could subject the student to dismissal from the hospital in which they are based. Such professional conduct shall be evaluated by the CORE Assistant Dean through observation of and interaction with the student, his/her preceptor, other hospital attendings and staff.

**8. Tips for Successfully Completing the Rotation**

Being successful on this rotation requires you to be a proactive student. Taking an interest in the specialty and becoming an active team member of the service is critical to learning in a clinical setting. Remember, the clinical learning environment differs from the classroom. You will be "thinking on your feet" and "learning as you go." To capitalize on "the learning moment," seek out opportunities to ask questions and speak up appropriately.

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In addition, be sure to:

1. Review the syllabus to ensure that you understand all requirements.
2. Discuss with your preceptor your previous clinical experiences and personal goals and objectives for this rotation. The rotation orientation is an opportune time to initiate this discussion and to develop positive rapport with you preceptor.
3. Clarify your preceptor's expectations of your activities.
4. Complete your skills and procedure log as you proceed through the rotation; avoid procrastinating until the end.
5. Come prepared to take advantage of the opportunities this rotation has to offer.

*If you have any questions, contact your CORE Administrator or CORE Assistant Dean.*

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**Assigned Required Rotations**

**Appendix A**

<b>Most Common Conditions Seen by Preceptors in the CORE by Required Rotation</b>																									
<p><b>Emergency Medicine:</b>  Resuscitation/cardiac arrest (ABC's)  Major/multiple trauma (including C Spine fractures)  Chest pain/angina/acute Myocardial Infarction  Vomiting (including hematemesis)/diarrhea/dehydration  Cardiovascular accidents  Head trauma/ seizures  Acid-Base disorders (including diabetic keto-acidosis)  Management of overdose  Acute respiratory distress/asthma/COPD  Shock  Assessment of low back pain  Diagnosis and initial management of minor trauma  (including fractures, sprains, bites, burns)  Acute abdomen /Pelvic pain</p>	<p><b>Geriatrics:</b>  Constipation/Impaction  Dementia/Delirium/Depression  Osteoarthritis  Hypertension  Osteoporosis  Diabetes  Urinary incontinence/Urinary tract infection (UTI)  Assessment of functional capacity/preventive measures  Polypharmacy  Benign Prostate Hypertrophy (BPH)/Prostate cancer  Parkinson's disease  Sexual dysfunction/Erectile dysfunction  Falls</p>																								
<p><b>Family Medicine:</b>  Sinusitis/rhinitis/URI  Otitis media  Hypertension  Diabetes  Low back pain  UTI  Bronchitis/Pneumonia  Hyperlipidemia  Headache, (migraine, etc.)  Obesity/Dietary Management  Depression &amp; anxiety  GERD /Dyspepsia  Pain management  COPD/Asthma  Minor trauma (sprains/strains)  Abdominal pain (IBD/Peptic ulcer)  Dermatological conditions (risks, etc.)  Pelvic Inflammatory Disease</p>	<p><b>Internal Medicine:</b></p> <table border="0"> <tr> <td><b>Heart</b></td> <td><b>GU</b></td> </tr> <tr> <td>Hypertension</td> <td>Renal failure</td> </tr> <tr> <td>Congestive heart failure</td> <td>Fluid/electrolyte balance</td> </tr> <tr> <td>Arrhythmias</td> <td><b>Joints</b></td> </tr> <tr> <td><b>Lung</b></td> <td>Osteoarthritis/ Rheumatoid arthritis</td> </tr> <tr> <td>COPD</td> <td><b>Endocrine</b></td> </tr> <tr> <td>Asthma</td> <td>Diabetes</td> </tr> <tr> <td>Bronchitis</td> <td>Thyroid disease</td> </tr> <tr> <td>Pneumonia</td> <td><b>Neuro</b></td> </tr> <tr> <td><b>Gastrointestinal</b></td> <td>Stroke</td> </tr> <tr> <td>Diverticulitis</td> <td><b>Circulatory</b></td> </tr> <tr> <td>Hepatitis</td> <td>Anemia</td> </tr> </table>	<b>Heart</b>	<b>GU</b>	Hypertension	Renal failure	Congestive heart failure	Fluid/electrolyte balance	Arrhythmias	<b>Joints</b>	<b>Lung</b>	Osteoarthritis/ Rheumatoid arthritis	COPD	<b>Endocrine</b>	Asthma	Diabetes	Bronchitis	Thyroid disease	Pneumonia	<b>Neuro</b>	<b>Gastrointestinal</b>	Stroke	Diverticulitis	<b>Circulatory</b>	Hepatitis	Anemia
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<p><b>General Surgery:</b>  Gall bladder disease  Hernias  Appendicitis  Breast disease – cyst/cancer  Colon cancer  Bowel obstruction  GI bleeding  Anorectal disease (hemorrhoids/ fissures/abscesses)  Fluid and electrolyte balance  Total Peripheral Nutrition (TPN)  Inflammatory Bowel Disease/Abdominal pain/Irritable  Bowel Syndrome (IBS)  Post-op complications – wound infections,  systemic infections  Wound management</p>	<p><b>Managed Care Concepts*:</b>  Managed care organizations and their products  Healthcare payers and payment systems  Cost control methods  Cost containment and utilization management  Clinical practice guidelines  Quality assessment organizations  Continuous Quality Improvement (CQI)  Population-based quality management  Measuring health care quality  Medical ethics related to managed care</p>																								

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**Assigned Required Rotations**

**Appendix A**

<b>Most Common Diseases Seen by Preceptors in the CORE by Required Rotation – page 2</b>	
<p><b>Pediatrics:</b>                      Growth and development                      Asthma and cystic fibrosis                      Febrile child                      Otitis media                      Newborn jaundice                      Diarrhea/Gastrointestinal disturbances                      Upper respiratory tract infections/Bronchitis/Pharyngitis                      Common rashes                      Well child care/immunizations                      Child abuse                      Meningitis                      Congenital Anomalies</p>	<p><b>Women’s Health:</b>                      Labor and delivery                      Uterine bleeding (normal and dysfunctional)                      Menopause, Hormone Replacement Therapy                      Endometriosis                      Vaginitis/ Pelvic inflammatory disease                      Contraception                      Breast disease - cancers                      Cervical, uterine &amp; ovarian cancers                      Pap tests/Pelvic exams                      Intrauterine and extrauterine pregnancy                      Gestational diabetes</p>
<p><b>Psychiatry/Psychology:</b>                      Depression                      Anxiety disorders &amp; panic attacks                      Schizophrenia                      Bipolar disorder                      Personality disorders                      Dementia                      Substance abuse, Alcohol withdrawal                      Obsessive-compulsive disorder                      Eating disorders                      Attention Deficit Hyperactivity Disorder                      Chronic pain</p>	

**NOTE:**

Many of the diseases/conditions listed are considered “common” to more than one required rotations.

- Students are expected to interact with and provide appropriate care for *all* patients they encounter on a rotation regardless of whether or not the patient’s condition is listed above.
- Students are expected to master the objectives related to the listed disease/conditions regardless of whether or not they encounter any patients with those diseases/conditions while on rotation.
- The post-rotation exam will assess the students mastering of the objectives related *only to the diseases/conditions listed above.*

**Assigned Selective Rotations**

**Appendix B**

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<b>Most Common Conditions Seen by Preceptors in the CORE by Selective Rotation</b>	
<p><b>Anesthesiology:</b></p> <ul style="list-style-type: none"> <li>• Airway obstruction</li> <li>• Conditions requiring local anesthesia</li> <li>• Conditions requiring general anesthesia</li> <li>• Acute and chronic pain</li> <li>• Blood loss (requiring blood transfusion &amp; fluid management)</li> </ul>	<p><b>ENT:</b></p> <ul style="list-style-type: none"> <li>• Otitis media/externa</li> <li>• Tonsillitis</li> <li>• Sinusitis</li> <li>• Rhinitis/nasal obstruction</li> <li>• Neck mass – cancer, thyroid, adenopathy</li> <li>• Hearing loss</li> <li>• Vertigo</li> <li>• Tinnitus</li> <li>• Hoarseness</li> </ul>
<p><b>Cardiology:</b></p> <ul style="list-style-type: none"> <li>• High blood pressure</li> <li>• Chest pain (cardiac &amp; non-cardiac etiologies)</li> <li>• Dysrhythmia</li> <li>• Cardiomyopathy</li> <li>• CHF (functional assessment &amp; management)</li> <li>• CAD</li> <li>• Dyslipidemia</li> <li>• Murmurs (diagnostic workup)</li> <li>• Syncope (cardiac &amp; non-cardiac)</li> <li>• Pacemaker maintenance</li> </ul>	<p><b>Gastrointestinal:</b></p> <ul style="list-style-type: none"> <li>• Colon cancer</li> <li>• Abdominal pain</li> <li>• Diarrhea</li> <li>• Diverticulosis</li> <li>• Gallbladder disease</li> <li>• GERD</li> <li>• Hepatitis</li> <li>• Inflammatory bowel disease</li> <li>• Irritable bowel disease</li> <li>• Pancreatitis</li> <li>• Peptic ulcer disease</li> </ul>
<p><b>Dermatology:</b></p> <ul style="list-style-type: none"> <li>• Acne</li> <li>• Contact dermatitis</li> <li>• Skin cancer</li> <li>• Spider veins</li> <li>• Psoriasis</li> <li>• Eczema</li> <li>• Actinic keratosis</li> <li>• Warts</li> <li>• Tinea &amp; onychomycosis</li> <li>• Cosmetics</li> </ul>	<p><b>Neurology:</b></p> <ul style="list-style-type: none"> <li>• Altered mental status (coma, encephalopathy, etc.)</li> <li>• Seizures (including epilepsy)</li> <li>• Headache (migraine, etc.)</li> <li>• Multiple sclerosis</li> <li>• Parkinson's disease</li> <li>• Radiculopathy/myelopathy</li> <li>• Stroke</li> <li>• Syncope</li> <li>• Tremor</li> </ul> <p align="center">&lt;&lt; <i>Continue next page</i> &gt;&gt;</p>

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Appendix B

<b>Most Common Conditions Seen by Preceptors in the CORE by Selective Rotation – page 2</b>	
<p><b>Ophthalmology:</b></p> <ul style="list-style-type: none"> <li>• Amblyopia/strabismus</li> <li>• Cataracts</li> <li>• Conjunctivitis</li> <li>• Diabetic retinopathy</li> <li>• Glaucoma</li> </ul>	<p><b>Pulmonology:</b></p> <ul style="list-style-type: none"> <li>• Acute bronchitis</li> <li>• ARDS</li> <li>• Asthma</li> <li>• COPD/Emphysema</li> <li>• Lung cancer</li> <li>• Obstructive sleep apnea</li> <li>• Pneumonia</li> <li>• Pulmonary embolism</li> <li>• Respiratory failure</li> <li>• Sleep apnea</li> <li>• Chronic cough</li> </ul>
<p><b>Orthopedics:</b></p> <ul style="list-style-type: none"> <li>• Spine defects and injuries</li> <li>• Shoulder injuries</li> <li>• Knee injuries</li> <li>• Ankle injuries</li> <li>• Sports injury</li> <li>• Arthritis</li> <li>• Hip injuries</li> </ul>	<p><b>Radiology:</b></p> <ul style="list-style-type: none"> <li>• Diagnostic approach to interpretation of               <ul style="list-style-type: none"> <li>○ Chest X-Rays</li> <li>○ Abdominal X-Rays</li> <li>○ Extremity X-Rays</li> </ul> </li> </ul>
<p><b>Physical Medicine:</b></p> <ul style="list-style-type: none"> <li>• Stroke</li> <li>• Joint replacement</li> </ul>	

**NOTE:**

Many of the diseases/conditions listed are considered “common” to more than one required rotations.

- Students are expected to interact with and provide appropriate care for *all* patients they encounter on a rotation regardless of whether or not the patient’s condition is listed above.
- Students are expected to master the objectives related to the listed disease/conditions regardless of whether or not they encounter any patients with those diseases/conditions while on rotation.
- The post-rotation exam will assess the students mastering of the objectives related *only to the diseases/conditions listed above.*

**Skills and Procedures List**

**Appendix C**

The following procedures are to be tracked by the student during their clinical clerkship years. Each student is given a logbook for recording these procedures. Procedure tracking includes: the preceptor signature, the date, the rotation, and whether it was observed, assisted, or performed.

1. Adenoidectomy
2. Administration of blood and blood products
3. Airway management/intubation
4. Apgar score at one and five minutes
5. Arterial blood gases (ABG's)
6. Arterial line placement
7. Arterial puncture
8. Arthroscopy
9. Biopsy procedures (punch & shave)
10. Bone marrow aspiration
11. Brain & spine film review
12. Bronchoscopy
13. Cardiac catheterization
14. Cardiac exam
15. Cardiopulmonary resuscitation (CPR)
16. Cardioversion
17. Casting/Splinting
18. Central venous line placement
19. Cesarean section
20. Chest tube placement
21. Cryosurgery
22. Culture (Blood, Sputum, Stool, Throat, Urine, Urethral, Wound)
23. Direct ophthalmoscopy
24. Ear lavage
25. Echocardiogram
26. Electrocardiogram (ECG)
27. Electromyography (EMG)
28. Endoscopy (Flexible sigmoidoscopy, Colonoscopy, Esophagogastroduodenoscopy (EGD))
29. Episiotomy
30. Exam of spine & extremities
31. Excision (elliptical)
32. Facial wounds
33. Fetal monitoring
34. Foreign body removal (ear, eye, nose, throat, skin)
35. Fracture reduction
36. Functional status examination of the elderly
37. Gastric/peritoneal lavage
38. Hemocult
39. Holter monitor
40. Imaging (CT/CXR)

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41. Incision and drainage of abscess
42. Induction of labor
43. Injection (intra dermal, subcutaneous, intramuscular, intravenous)
44. Insertion of peripheral IV
45. Joint aspiration/injection (Arthrocentesis)
46. KOH/Wet mount
47. Laceration repair (including surgical suturing)
48. Laryngoscopy
49. Lumbar puncture
50. MRI
51. Nasal packing
52. Nasogastric tube placement
53. Nerve conduction studies
54. Neurological exam
55. Neuromuscular exam
56. Osteopathic Manipulative Treatment (OMT)
57. Pacemaker insertion
58. Pap smear
59. Pelvic examination
60. Regional anesthesia
61. Sclerotherapy
62. Septoplasty
63. Slit lamp exam
64. Spirometry/PFT
65. Stress tests
66. Thoracentesis
67. Tonsillectomy
68. Tympanostomy
69. Ultrasound
70. Urethral catheterization
71. Urinalysis (dipstick and microscopic)
72. Vaginal delivery
73. Venipuncture
74. Visual acuity/visual field testing