Syllabus Elective Orthopedics

<table>
<thead>
<tr>
<th>Course No.:</th>
<th>OM elective</th>
<th>Course Title:</th>
<th>Elective Orthopedics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit Hours:</td>
<td>4 weeks, 4 credit hours for each rotation</td>
<td>Chair: Clerkship director:</td>
<td>Marcel Fraix, DO</td>
</tr>
<tr>
<td>Term - Dates:</td>
<td>Variable in OMS IV academic year</td>
<td>Level:</td>
<td>OMS III (if approved), IV</td>
</tr>
</tbody>
</table>

**Educational Goal**

This elective rotation is a two-four (2-4) week introductory, structured clinical experience under direct supervision designed to provide the student experience diagnosing, treating and caring for patients in Orthopedics. Most students electing to take this rotation will be in the fourth year of osteopathic medical school.

**Purpose:**

Clinical experiences are intended to assist the student’s transition from didactic to integrated clinical evaluation and patient management. The goals of this rotation are to gain experience in Orthopedics, treatment of acute and chronic musculoskeletal injuries with and without surgical intervention.
Elective Orthopedics Clerkship Learning Objectives

**Goal** - To gain the basic knowledge to evaluate, diagnose and manage common disorders seen in orthopedics.

**Objectives** - The student will gain basic understanding of:

- The pathology, pathophysiology, natural history, diagnosis and treatment of common acute and chronic orthopedic injuries, including soft tissue, bone and nerve injury.
- The pathology and pathophysiology of acute and chronic medical illness in the active population.
- The psychological aspects of exercise, performance and injury.
- Preventive medicine and possible preventative measures to avoid common orthopedic conditions and injuries.
- Physiology and pathophysiology of hydration, nutrition and the use of pharmacologic agents, including performance enhancing and mood-altering substances of athletes.
- How to diagnose and treat common acute and chronic orthopedic injuries.
- The ability to perform and report a basic orthopedic physical examination of the spine, shoulder, elbow, wrist and hand, pelvis and hip, knee, foot and ankle.
- Normal anatomy, physiology and biomechanics of the musculoskeletal and neurologic system.
- Students are expected to assist in the management of preoperative, perioperative and postoperative patient care under supervision (when available).

**Goal** - To develop the skills to manage common orthopedic disorders.

**Objectives** - The student will gain experience in:

- Obtaining accurate histories regarding orthopedic medicine diseases.
- Performing appropriate physical examinations on patients.
- Care for patients with acute and chronic medical illnesses.
- Performing pre-participation examinations, including counseling and rehabilitation for return to play and sports exclusion.
- Performing a wellness assessment and counsel patients regarding hydration, nutrition, performance enhancing substances and rehabilitation.
- Perform procedures appropriate for the diagnosis and management of musculoskeletal disorders.
- Understanding available treatment alternatives, including both non-operative and operative for common orthopedic conditions and injuries. Students should be able to discuss the relative
merits and limitations of each type of treatment as well as any potential side effects or complications of the treatment.

- Demonstrate ability to assess unique congenital deformities in the head, neck, and spine that can affect pre- and postoperative care.

**Goal** - To communicate effectively with physicians, staff, and patients concerning the evaluation and management of orthopedic medicine conditions.

**Objectives** - The student will gain experience in:

- Describing the diagnosis and treatment plans for diagnosed conditions to patients and their families.
- Counseling patients regarding their injury and incorporate return to play and prevention strategies.
- Accurately convey medical information to colleagues, specialists, athletic trainers and coaches, verbally and written.
- Accurately document patient encounters

**Goal** - To appraise and utilize the best evidence in caring for patients with or at risk for various orthopedic medicine conditions.

**Objectives** - The student will gain knowledge in:

- Integrating evidence-based medicine and new diagnostic or therapeutic strategies into patient care within the orthopedic medicine clinic.
- Analyzing and present current literature in the field of orthopedics on a local and national level.
- Attend any Journal Club, noon conference and orthopedic medicine seminars as directed by the attending.

**Goal** - To work well within the Health System to provide optimum care for patients with orthopedic medicine conditions.

**Objectives** - The student will gain knowledge in:

- Appropriately utilize consultation with specialists for the co-management of orthopedic disorders.
- Appropriately utilize imaging techniques at local imaging offices.
- Appropriately utilize special services such as physical and occupational therapy.
- Care for patients in a cost effective manner.
- Streamline the care of patients/athletes between school and the Health System and identify accessible resources for their care.
• Understand coding for orthopedic office visits, procedures and supplies.
• Understand insurance requirements and reimbursement for orthopedic conditions and supplies, including worker’s compensation

**Goal** - To demonstrate commitment to carrying out professional responsibilities, adherence to ethical principles and sensitivity to diversity when dealing with orthopedic medicine problems.

**Objectives** - The student will be able to:

• Demonstrate respect and sensitivity in dealing with patients, regardless of race, cultural background or sexual orientation.
• Demonstrate good work habits, including maturity, punctuality, availability and efficiency.
• Reliably perform duties, including clinic, training room and athletic event coverage.

**Goal** - To understand the integration of Osteopathic Philosophy and Osteopathic Manipulative Medicine with orthopedic medicine conditions.

• Demonstrate the ability to perform and record an osteopathic structural examination on a surgical patient and document such using acceptable osteopathic terminology.
• Demonstrate the application of the osteopathic philosophy into the pre- and post-operative care of the surgical patient.
• Demonstrate an understanding of palpatory findings, which are found in common conditions, encountered in a surgical practice.
• Demonstrate ability to assess sensory and perfusion of extremities after injury and after reconstruction.
• Demonstrates understanding and application of osteopathic manipulative treatment (OMT) by application of multiple methods of treatment as appropriate, such as but not limited to: high-velocity, low-amplitude (HVLA), strain-counterstrain and muscle energy techniques.
• Demonstrates, as documented in the medical record, integration of osteopathic concepts and OMT in patient care as it relates to musculoskeletal disorders.
• Understand the philosophy behind osteopathic concepts and demonstrates this through integration into all patient care activities.
• Describe the role of the musculoskeletal system in disease including somatovisceral reflexes, alterations in body framework, and trauma.
• Understands the indications and contraindications to osteopathic manipulative treatment.

At the end of this rotation, the student should:

1. Demonstrate understanding of the diagnosis and management of common orthopedic medicine conditions. (*COMP/AOA core competencies 2, 3; Institutional outcomes 1, 2*)
2. Demonstrate understanding of when operative versus nonoperative therapy is indicated. 
   (COMP/AOA core competencies 1, 2, 3, 6; Institutional outcomes 1, 2, 7, 8)
3. Demonstrate understanding of the risks and benefits of various interventional procedures. 
   (COMP/AOA core competencies 2, 3, 6; Institutional outcomes 1, 2, 7)
4. Obtain an accurate history and perform an accurate physical examination of the orthopedic 
   medicine patient. (COMP/AOA core competencies 2, 3; Institutional outcomes 1, 2)
5. Demonstrate the preoperative and postoperative evaluation of the orthopedic medicine patient. 
   (COMP/AOA core competencies 2, 3; Institutional outcomes 1, 2)
6. Demonstrate the evaluation of the acute patient. (COMP/AOA core competencies 2, 3; 
   Institutional outcomes 1, 2)
7. Demonstrate the ability to prepare a focused SOAP note. (COMP/AOA core competencies 2, 3, 
   4, 5; Institutional outcomes 1, 2)
8. Demonstrate the ability to prepare and deliver an oral focused presentation. (COMP/AOA core 
   competencies 2, 3, 4, 5; Institutional outcomes 1, 2)
9. Demonstrate the development of differential diagnoses for orthopedic medicine conditions.  
   (COMP/AOA core competencies 2, 3; Institutional outcomes 1, 2)
10. Demonstrate understanding of the clinical, laboratory, and radiological resources used for 
    diagnosing general orthopedic medicine conditions. (COMP/AOA core competencies 2, 3, 6, 7; 
    Institutional outcomes 1, 2, 7)
11. Demonstrate effective communication with the team, attendings, residents, physician assistants, 
    nurse practitioners, nurses, ancillary personnel, etc. (COMP/AOA core competencies 1, 2, 3, 4, 5, 
    6, 7; Institutional outcomes 1, 2, 3, 4, 8)

Core Topics of Study

Fractures, Dislocations, and Subluxations: Students should be able to define, describe and discuss:
Discuss open and closed fractures, dislocations, and subluxations.
Discuss the clinical and radiological features of fractures.
Discuss management priorities in treating fractures, dislocations and subluxations.

1. Fractures
   Type-
   Open/Closed
   Stress fracture
   Pathologic fracture
   Location-
   Proximal
   Distal
   Epiphysis
   Diaphysis
   Pattern-
   Transverse
   Spiral or Oblique
   Comminuted
   Impacted
   Compression
   Greenstick
**Displacement**
- Apposition
- Angulation
- Rotation
- Length

**Growth Plate Fractures**
- Salter-Harris type I-V

**Dislocation and Subluxation**
- Clinical and radiologic features of dislocations and subluxations
- Management

**Rehabilitation of Function**

**Complications**
- **Local** - infection, delayed union, nonunion, malunion, avascular necrosis.
- **Systemic** - shock, sepsis, tetanus (open injuries), gas gangrene, venous thrombosis, pulmonary embolism, fat embolism

2. **Evaluation of Patients with Musculoskeletal Trauma**
   - Symptoms
   - Vascular integrity
   - Radiology

3. **Fracture Management** - Discuss indications and complications
   - Reduction
   - Maintenance of Reduction
     - Cast
   - Internal Fixation
   - External Fixation
   - Traction

4. **Compartment Syndrome**
   - “4 Ps”

5. **Common Fractures, Dislocations, and Ligament Injuries**
   - Carpal Scaphoid Fracture
   - Colles Fracture
   - Olecranon Fracture
   - Supracondylar Humerus Fracture
   - Shoulder Dislocation
   - Hip Fracture
   - Femoral Shaft Fracture
   - Hip Dislocation
   - Tibia/Fibular Shaft Fracture
   - Ankle Injuries
   - Spinal Fractures
   - Pelvic Fractures

6. **Discuss common fractures and joint injuries; identify specific problems with their diagnosis and management.**
7. Traumatic Amputations and Replantation
a. Discuss the indications and contraindications for replantation of an amputated appendage.
b. Discuss the proper method of transporting the amputated part.

8. SPORTS MEDICINE - Students should be able to define, describe and discuss:
(More Common Injuries)
1. Stress Fractures
2. Lateral Epicondylitis (Tennis Elbow)
3. Rotator Cuff Tendinitis (Shoulder Bursitis)
4. Plantar Fasciitis (Heel Spur)
5. Patellar Overload Syndrome (Chondromalacia Patella)
6. Exercise Compartment Syndrome (Shin Splints)
7. Sprains
8. Ankle Sprains
9. Knee Ligament Sprains
10. Meniscal Injury
11. Acromioclavicular (Shoulder) Separation
12. Gamekeeper’s Thumb
13. Mallet (Baseball) Finger
14. Boxer’s Fracture
15. Achilles Tendon Rupture
16. Turf Toe
17. Myositis Ossificans
18. Describe the pathophysiology of attritional sports-related injuries as they affect bone, muscle, and tendon.
19. Define the term sprain and its three gradations. Discuss the methods of diagnosing the common sprains at the knee and ankle.

9. MUSCULOSKELETAL INFECTION - Students should be able to define, describe and discuss:
1. Osteomyelitis
2. Septic Arthritis
3. Infection Hand Flexor Tenosynovitis
4. Discuss the symptoms and signs of infectious, processes of bone and joints (osteomyelitis and septic arthritis)
5. List and discuss the diagnostic workup used in making a definitive diagnosis of bone and joint infection.

10. ARTHRITIS - Students should be able to define, describe and discuss:
1. Osteoarthritis
2. Rheumatoid Arthritis
3. Discuss the symptoms and signs of inflammatory (noninfectious) joint disease.
4. List and discuss the laboratory and radiological techniques used in making the diagnosis of rheumatoid arthritis and osteoarthritis.
5. List and discuss the nonsurgical and surgical treatment options of degenerative joint disease of the hip, knee, and spine.
11. METABOLIC ENDOCRINE DISORDERS - Students should be able to define, describe and discuss:
1. Osteoporosis
2. Osteomalacia
3. Hyperparathyroidism
4. Paget’s Disease
5. Define osteoporosis and osteomalacia and list common etiologies of each.
6. Discuss the pathophysiology, symptoms, and laboratory and radiographic findings of hyperparathyroidism and Paget’s disease.

12. BONE NECROSIS - Students should be able to define, describe and discuss:
1. Discuss the pathophysiology of osteonecrosis.

13. SPINE - Students should be able to define, describe, and discuss:
1. Lumbar Spine
   Etiology of Low Back Pain
   Lumbar Strain
   Spondylolysis
   Disc Herniation
   Spinal Stenosis
2. Cervical Spine
   Cervical Disc Protrusion
   Cervical Spondylosis
   Rheumatoid Arthritis of the Cervical Spine
3. List and discuss common causes of low back pain and cervical pain.
4. Discuss the symptoms and signs and outline the diagnostic workup for a patient with lumbar or cervical herniation.

14. BONE TUMOR - Students should be able to define, describe and discuss:
1. Diagnostic workup for a patient with a suspected primary and secondary malignant neoplasm of bone

15. GAIT- Students should be able to define, describe and discuss:
1. Basic components of gait and discuss common gait abnormalities in relation to mechanical or neurological disorders

Rotation Faculty

OAA Administrative Support:
Pomona:
Marisa Orser, M.Ed, Manager of Clinical Education and Rotations Department (909) 469-5253
Desiree Inglis, Lead Rotations Coordinator

Lebanon:
Linda Martin, M.Ed, Manager of Clinical Education and Rotations Office (541) 259-0212

Texts and Media
It is strongly recommended that students spend approximately 10 hours per week reading independently. Students should not rely solely on the review books to be adequately prepared for the rotation as they do not provide the knowledge base needed to successfully pass the rotation.

**Recommended Textbooks**

*Basic Orthopedic Exams*
by Zachary Child · Lippincott Williams & Wilkins · Paperback · 276 pages · ISBN 0781763339

*Current Diagnosis and Treatment Orthopedics,*
by Harry Skinner, Michael Fitzpatrick · McGraw-Hill Education · Paperback · 272 pages

**Other Suggested Textbooks**


**Rotation Format, Evaluation, Grading, and Student Feedback**

Refer to the Clinical Education Manual for policies and procedures. Additional information is located in the Clinical Education Manual at: http://www.westernu.edu/bin/ime/cem-2014.pdf

**Rotation Schedule**

Each site will provide students with a schedule on their first day of the rotation. These schedules are rarely available prior to the start of the rotation.

**Evaluations:**

The evaluation of the student is based upon, but not limited to the following:

1. Knowledge of the orthopedic and sports medicine disorders, pathology, and management for assigned patients.
2. Knowledge of the diagnosis and treatment of common orthopedic and sports medicine disorders.
3. Knowledge of procedural skills related to assigned patients.
4. Presentation of assigned patients on daily rounds.
5. Completion of paperwork (history and physicals, progress notes, orders, etc) on assigned patients.
6. Performance of an independent presentation as assigned by the resident or attending physician.
7. Professionalism and rapport with patients, residents, attendings, and ancillary staff.
8. Attendance at lectures, conferences, and meetings.
9. Submission of completed case logs and procedure logs to COMP via New Innovations. **Failure to submit the logs will count as failure to complete the clerkship.**
General Policies

Policy on Disability Accommodations: To obtain academic accommodations for this rotation, students with disabilities should contact the Center for Disability Issues and the Health Professions and the system coordinator within ten days of the beginning of the system. Disability Services can be reached at 909.469.5380.


Academic Dishonesty: Complete confidence in the honor and integrity of the health professions student and health care professional is essential. Such confidence depends entirely on the exemplary behavior of the individual health care provider in his or her relations with patients, faculty and colleagues. Strict honesty as a personal way of life should be nurtured during the period of education for professional service. The student shall conduct all aspects of his or her life with honor and integrity. This includes accountability to oneself and to relationships with fellow students, future colleagues, faculty, and patients who come under the student’s care or contribute to his or her training and growth, and members of the general public. This applies to personal conduct that reflects on the student’s honesty and integrity in both academic and non-academic settings, whether or not involving a University sponsored activity. Upon accepting admission to the University, each student subscribes to and pledges complete observance to the Standards of Academic and Professional Conduct as outlined in the University Catalog for each academic program. A violation of these standards is an abuse of the trust placed in every student and could lead to suspension or dismissal.
WU INSTITUTIONAL OUTCOMES

1. **Critical Thinking**
   The graduate should be able to identify and solve problems that require the integration of multiple contexts when performing patient care.

2. **Breadth and Depth of Knowledge in the Discipline/Clinical Competence**
   The graduate should be able to perform appropriate diagnostic and therapeutic skills, to apply relevant information to patient care and practice, and to educate patients regarding prevention of common health problems.

3. **Interpersonal Communication Skills**
   The graduate should be able to effectively use interpersonal skills that enable them to establish and maintain therapeutic relationships with patients and other members of the health care team.

4. **Collaboration Skills**
   The graduate should be able to collaborate with clients and with other health professionals to develop a plan of care to achieve positive health outcomes for their patients.

5. **Ethical and Moral Decision Making Skills**
   The graduate should be able to perform the highest quality of care, governed by ethical principles, integrity, honesty and compassion.

6. **Life Long Learning**
   The graduate should be able to engage in life-long, self-directed learning to validate continued competence in practice.

7. **Evidence-Based Practice**
   The graduate should be able to utilize research and evidence-based practice and apply relevant findings to the care of patients.

8. **Humanistic Practice**
   The graduate should be able to carry out compassionate and humanistic approaches to health care delivery when interacting with patients, clients, and their families. They should unfailingly advocate for patient needs.

---

COMP/AOA CORE COMPETENCIES

<table>
<thead>
<tr>
<th>Competency: Osteopathic Medical Students are part of an educational continuum that leads to residency and the curriculum provides the foundation for the following outcomes:</th>
</tr>
</thead>
</table>
| 1. **Osteopathic Philosophy and Osteopathic Manipulative Medicine**
   Residents are expected to demonstrate and apply knowledge of accepted standards in Osteopathic Manipulative Treatment (OMT) appropriate to their specialty. The educational goal is to train a skilled and competent osteopathic practitioner who remains dedicated to life-long learning and to practice habits in osteopathic philosophy and manipulative medicine. |
| 2. **Medical Knowledge**
   Residents are expected to demonstrate and apply knowledge of accepted standards of clinical medicine in their respective specialty area, remain current with new developments in medicine, and participate in life-long learning activities, including research. |
| 3. **Patient Care**
   residents must demonstrate the ability to effectively treat patients, provide medical care that incorporates the osteopathic philosophy, patient empathy, awareness of behavioral issues, the incorporation of preventative medicine, and health promotion. |
| 4. **Interpersonal and Communication Skills**
   residents are expected to demonstrate interpersonal/communication skills that enable them to establish and maintain professional relationships with patients, families, and other members of health care teams. |
| 5. **Professionalism**
   residents are expected to uphold the Osteopathic Oath in the conduct of their professional activities that promote advocacy of patient welfare, adherence to ethical principles, collaboration with health professionals, life-long learning, and sensitivity to a diverse patient population. residents should be cognizant of their own physical and mental health in order to effective care for patients. |
| 6. **Practice-Based Learning and Improvement**
   residents must demonstrate the ability to critically evaluate their methods of clinical practice, integrate evidence-based medicine into patient care, show an understanding of research methods, and improve patient care practices. |
| 7. **Systems-based Practice**
   residents are expected to demonstrate an understanding of health care delivery systems, provide effective and qualitative patient care within the system, and practice cost-effective medicine. |
<table>
<thead>
<tr>
<th>Critical Thinking</th>
<th>1</th>
<th>1, 2, 3, 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breadth and Depth of Knowledge in the Discipline/Clinical Competence</td>
<td>2</td>
<td>1, 2, 3, 4, 5, 6, 7</td>
</tr>
<tr>
<td>Interpersonal Communication Skills</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Collaboration Skills</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Ethical and Moral Decision Making Skills</td>
<td>5</td>
<td>1, 3, 5, 6</td>
</tr>
<tr>
<td>Life Long Learning</td>
<td>6</td>
<td>1, 2, 3, 6, 7</td>
</tr>
<tr>
<td>Evidence-Based Practice</td>
<td>7</td>
<td>1, 2, 3, 6, 7</td>
</tr>
<tr>
<td>Humanistic Practice</td>
<td>8</td>
<td>3, 4, 5</td>
</tr>
</tbody>
</table>

**Copyright Statement:**
Copies of documents used in this rotation were made available under Section 107 of the Copyright Act of 1976, the Fair Use Statute. This material has been made available solely for use in this class and the material may not be further distributed to any person outside the class, whether by copying or by transmission in electronic or paper form. If Fair Use does not apply, copyright permission to reproduce these documents has been applied for or granted through the Copyright Clearance Center or the copyright owner.