PLNU forward

Department of Physician Assistant Education

Master of Science in Medicine

3 units

MSM 6109 FUNDAMENTALS OF MUSCULOSKELETAL DISEASE AND RHEUMATOLOGY

FALL 2025

Office location: 204 **Office hours:** TBA	**Instructor title and name:** Donald Cobbler, DMSc, MS, PA-C **Guest Lecturer:** James Flint, M.D.; Ray Carlson DMSc. PA-C
Final Exam and OSCEs: Monday, 10/6/25 **8:00am-4:00pm**	**Phone:** (619)849-3338
Meeting location: Balboa Campus, Classroom 153, Clinical Skills Lab 223	**Email:** dcobbler@pointloma.edu

PLNU Mission

To Teach ~ To Shape ~ To Send

Point Loma Nazarene University exists to provide higher education in a vital Christian community where minds are engaged and challenged, character is modeled and formed, and service is an expression of faith. Being of Wesleyan heritage, we strive to be a learning community where grace is foundational, truth is pursued, and holiness is a way of life.

COURSE DESCRIPTION

This course covers the epidemiology, etiology, risk factors, pathogenesis, pathophysiology, complications, and differential diagnoses of commonly encountered musculoskeletal diseases and rheumatologic disorders through symptoms-based and systems-based approaches. Management of patients with these diseases and disorders across the life span from initial presentation through follow-up for acute, chronic, and emergent cases will be covered, as will referral when necessary, preventive medicine, and patient education.

COURSE GOALS

The goals of this course are to provide the appropriate basic science background essential to the understanding of and diagnosis of disease patterns related to the musculoskeletal and rheumatic systems and to provide the student with the skills and knowledge necessary for the diagnosis and management of common musculoskeletal and rheumatic disorders.

PROGRAM LEARNING OUTCOMES

The content in this course will contribute to the student's proficiency in this/these area(s):

1. Gather a history and perform a physical examination. (MK, IC, PC, PR)
2. Prioritize a differential diagnosis following a clinical encounter. (MK, PC, PB, PR, SB)
3. Recommend and interpret common diagnostic and screening tests. (MK, IC, PC, PR, PB, SB)
4. Enter and discuss orders and prescriptions. (MK, IC, PC, PR, PB, SB)
5. Document a clinical encounter in the patient record. (MK, IC, PC, PR)
6. Provide an oral presentation of a clinical encounter. (MK, IC, PC, PB, PR)
7. Form clinical questions and retrieve evidence to advance patient care. (MK, PC, PR, PB, SB)
8. Give or receive a patient handover to transition care responsibility. (MK, PC, PR, IC, PB)
9. Collaborate as a member of an inter-professional team. MK, IC, PC, PR, PB, SB
10. Recognize a patient requiring urgent or emergent care and initiate evaluation and management. (MK, IC, PC, PR, PB, SB)
11. Obtain informed consent for tests and/or procedures. MK, IC, PC, PR, PB
12. Perform general procedures of a physician assistant. MK, IC, PC, PR, PB, SB

Initials indicate PA core competency required to meet the PLO.

PA Core Competencies:

MK = Medical Knowledge	IC = Interpersonal Skills & Communication	PC = Patient Care
PR = Professionalism	PB = Practice-based Learning	SB = Systems-based Practice

COURSE LEARNING OUTCOMES

Successful completion of this course requires demonstration of the skills and knowledge outlined here at, minimally, the ADVANCED BEGINNER level.

1. Obtain a history and perform a focused physical examination relevant to musculoskeletal and rheumatic symptoms. (PC2; MK1; IC1; IC7; PR1; PR3; PR5)
2. Prioritize a differential diagnosis based on the history and physical findings in a patient with a musculoskeletal and/or rheumatic complaint. (PC2, PC4, MK2, MK3, MK4, PB1, IC2, PR8
3. Recommend common diagnostic and screening tests, pharmacotherapeutics, and management based on their applicability to the differential diagnosis. (PC4, PC5, PC7, PC9, MK1, MK4, PB9, SB3)
4. Document a clinical encounter including history, physical examination, lab and/or imaging results and a differential diagnoses in the patient record. ((PC4, PC6, IC1, IC2, IC5, PR4, SB1)

5. Provide an oral presentation of a clinical encounter for a musculoskeletal and/or rheumatic complaint including discussion of the pathology, laboratory and/or imaging results and justification of the proposed management plan. (PC2; PC6; IC1; IC2; PB1; PR1; PR3)
6. Form clinical questions and retrieve evidence to advance patient care. (PC5, PC7, MK3, MK4, PB1, PB3, PB6, PB7, PB8, PB9
7. Recognize a patient requiring urgent or emergent care for a musculoskeletal and/or rheumatic condition or the patient in whom the manifestation of systemic disease is musculoskeletal and/or rheumatic and initiate evaluation and management. (PC1, PC2, PC3, PC4, PC5, PC6, IC6, PR1, PR5)

INSTRUCTIONAL OBJECTIVES

Upon completion of the **ANATOMY AND PHYSIOLOGY** section of the course, the student will be able to:

1. Contrast osteoclast and osteoblast action in remodeling bone tissue. Analysis, B2.02a, B2.02b
2. Distinguish factors affecting bone development, growth and repair, including nutrition, hormonal secretions, and physical activity. Comprehension, B2.02a, B2.02b
3. Appraise "Wolff's Law" and its affect on remodeling of weight bearing bones. Evaluation, B2.02a, B2.02b
4. Discuss the mechanism of action of acetylcholine, acetylcholinesterase, ATP and creatine phosphate related to muscle contraction. Comprehension, B2.02b
5. Summarize the major events involved in muscle contraction and relaxation. Analysis, B2.02b

Upon completion of the **PATHOPHYSIOLOGY** section of the course, the student will be able to:

6. Analyze the four fundamental mechanical forces that may be applied to bone. Analysis, B2.02c
7. Classify the various types of bone fractures. Evaluation, B2.02c
8. Compare and contrast the pathophysiology of connective tissue disorders. Analysis, B2.02c
9. Evaluate the clinical characteristics of various connective tissue disorders. Evaluation, B2.02c
10. Critique the effects of osteoarthritis on the major diarthrodial joints. Evaluation, B2.02c
11. Differentiate congenital and developmental disorders of the musculoskeletal system. Analysis, B2.02c
12. Determine the effects of rheumatic disorders on connective tissue. Evaluation, B2.02c
13. Differentiate between benign and malignant tumors of the musculoskeletal system. Analysis, B2.02c

Upon completion of the **PHYSICAL DIAGNOSIS** section of the course, the student will be able to:

14. Demonstrate a focused medical history in the evaluation of suspected musculoskeletal disorders. Application, B2.07a
15. Perform a complete, but focused physical examination on a patient with a suspected connective tissue disorder which includes all special examinations relevant to this system (e.g. drawer test, Lachman test, pivot-shift test, McMurry's sign, empty can test, straight leg raise, range of motion). Application, B2.07b
16. Differentiate between normal and abnormal findings in the examination and identify the most likely etiologies. Analysis, B2.07c
17. Outline the expected values in joint aspiration fluid and correctly identify those seen with various musculoskeletal disorders. Analysis, B2.07d

18. Select commonly employed diagnostic tests used in the evaluation of musculoskeletal disorders based on their utility. [Evaluation, B2.07d]

Upon completion of the **CLINICAL MEDICINE** section of the course, the student will: [B2.03]

19. Given a patient across all age groups, with any of the following **signs or symptoms:** interview and elicit a comprehensive, relevant medical history, [B2.07a] perform a complete and focused physical examination and identify the physical findings, [B2.07b] generate a complete list of differential diagnoses prioritizing them appropriately, [B2.07c] recommend an appropriate work-up, order and interpret diagnostic studies, [B2.07d] propose patient management including acute and chronic care plans, [B2.07e] provide patient education and referral. [B2.07f, Evaluation]

a. Acute joint pain

i. Vascular
   1. Spasm
   2. Occlusion
   3. Disruption
   4. Compression

ii. Infectious
   1. Polyarticular
      a. Viral myalgia
      b. Viral arthritis
      c. Disseminated gonococcal infection
      d. Secondary syphilis
      e. Fifth disease
      f. Rubella
      g. Primary HIV infection
      h. Endocarditis
   2. Monoarticular
      a. Articular
         i. Septic arthritis
      b. Periarticular
         i. Cellulitis
         ii. Necrotizing fasciitis
         iii. Septic bursitis
         iv. Abscess
         v. Osteomyelitis

iii. Trauma
   1. Multiple injury sites
   2. Dislocation
   3. Fracture
   4. Open fractures
   5. Acute compartment syndrome
   6. Herniated nucleus pulposus
   7. Achilles tendon rupture

8. Cauda equina syndrome
9. Infectious joint pain
10. Avascular necrosis

iv. Autoimmune/Inflammatory
    1. Monoarticular
        a. Gout
        b. Pseudogout
        c. Early rheumatic disease
    2. Oligoarticular (1-4 joints)
        a. Gout
        b. Psoriatic
        c. Rheumatic fever
        d. Lyme disease
    3. Polyarticular (> 4 joints)
        a. Peripheral only
            i. Rheumatoid arthritis
            ii. Juvenile rheumatoid arthritis
            iii. SLE
            iv. Sjogren's Syndrome
            v. Scleroderma
            vi. CREST syndOsteochondromarome
            vii. Polymyalgia rheumatic
            viii. Polymyositis
            ix. Rheumatic fever
        b. Peripheral and axial
            i. Ankylosing spondylitis
            ii. Psoriatic arthritis

v. Metabolic
    1. Osteoporosis
    2. Paget's Disease
    3. Renal osteodystrophy
    4. Osteomalacia/Ricketts

vi. Iatrogenic
    1. History of prior surgery

vii. Neoplastic
    1. Nonaggressive
        a. Osteochondroma
        b. Bone cysts
        c. Osteoid osteoma
        d. Osteoblastoma
        e. Chodroblastoma
        f. Chondromyxoid fibroma

2. Aggressive
    a. Multiple lytic lesions
        i. Multiple myeloma
    b. Broad or indistinct margin
        i. Benign
            1. Enchondroma
            2. Giant cell tumor
        ii. Malignant
            1. Osteosarcoma
            2. Chondrosarcoma
            3. Ewing's sarcoma

viii. Congenital
1. Scoliosis
2. Talipes equinovarus
3. Meta tarus adductus
4. Bowleg
5. Knock-kneed

ix. Degenerative
1. Degenerative disc disease
2. Herniated nucleus pulposus
3. Osteoarthritis
4. Osteoporosis

b. Chronic joint pain

i. Peri-articular
1. Aseptic bursitis
2. Slipped epiphysis
3. Apophysitis (Osgood-Schlatter Disease)
4. Enthesitis
5. Tendinopathy
6. Tendon rupture
7. Impingement (spinal stenosis)
8. Tenosynovitis
9. Ganglion cyst
10. Stress fracture
11. Charcot joint
12. Pathologic fracture
13. Periostitis
14. Epicondylitis
15. Fasciitis
16. Delayed onset muscle soreness
17. Fibromyalgia
18. Myositis ossificans

ii. Intra-articular
    1. Stress fracture
    2. Charcot joint
    3. Osteoarthritis
    4. Chondromalacia
    5. Baker cyst
    6. Ganglion cyst
    7. Carpal tunnel syndrome
    8. Adhesive capsulitis
    9. Monoarthritis
    10. Polyarthritis

c. Deformity/Limp

i. Infection
    1. Septic arthritis
    2. Cortical hypertrophy
    3. Osteomyelitis

ii. Inflammation
    1. Rheumatoid arthritis
    2. Toxic synovitis
    3. Reactive arthritis (Reiter syndrome)

iii. Other causes
    1. Osteoarthritis
    2. Osteomalacia
    3. Rickets
    4. Boutonniere deformity
    5. Trigger finger
    6. Hallux valgus
    7. Gamekeeper's thumb
    8. Mallet finger
    9. Swan neck deformity

iv. Hip joint
    1. Hip dysplasia
    2. Slipped capital femoral epiphysis
    3. Legg-Calve-Perthes Disease

v. Knee joint
    1. Patellofemoral syndrome (chondromalacia patellae)
    2. Osgood-Schlatter Disease
    3. Patella (tendon rupture, dislocation, subluxation)
    4. Meniscal tears
    5. ACL injury
    6. PCL injury

vi. Spine/stature

1. Osteoporosis
2. Scoliosis/spinal curvature
3. Kyphosis
4. Lordosis
5. Torticollis

d. Myalgia

i. Polyarteritis nodosa

e. Paresthesia

i. Thoracic outlet syndrome

f. Soft tissue

i. Septic
   1. Septic bursitis
   2. Necrotizing fasciitis
   3. Septic tenosynovitis
   4. Cellulitis

ii. Aseptic
   1. Intraarticular
      a. Sprain
      b. Dislocation
      c. Osteochondritis dissecans
      d. Bone contusion
      e. Chondromalacia
      f. Traumatic synovitis
      g. Monoarthritis
      h. Polyarthritis
      i. Synovial osteochondromatosis
      j. Meniscal injury
      k. Labral injury
      l. SLAP lesion
      m. Fracture
      n. Spontaneous osteonecrosis
   2. Periarticular
      a. Aseptic bursitis
      b. Sprain
      c. Dislocation
      d. Tendon rupture
      e. Muscle strain
      f. Fracture
      g. Contusion
      h. Fat pad contusion
      i. Hematoma
      j. Plantar fasciitis

g. Tumor (Primary)

i. Benign
   1. Osteochondroma
   2. Osteoid osteoma
   3. Osteoblastoma
   4. Friboxanthoma
   5. Fibrous dysplasia
   6. Non-ossifying fibroma
   7. Chodroblastoma
   8. Chondromyxoid fibroma
   9. Periosteal chondroma

ii. Aggressive, non-malignant
   1. Enchondroma
   2. Giant cell tumor
   3. Aneurysmal bone cyst

iii. Malignant
   1. Multiple myeloma
   2. Osteosarcoma
   3. Chondrosarcoma
   4. Ewing's sarcoma
   5. Fibrosarcoma
   6. Liposarcoma
   7. Rhabdomysarcoma
   8. Leiomyosarcoma
   9. Malignant fibrous histiocytoma

20. Given a patient across all age groups, with any of the following disorders: interview and elicit a comprehensive, relevant medical history, [B2.07a] perform a complete and focused physical examination and identify the physical findings, [B2.07b] generate a complete list of differential diagnoses prioritizing them appropriately, [B2.07c] recommend an appropriate work-up, order and interpret diagnostic studies, [B2.07d] propose patient management including acute and chronic care plans, [B2.07e] provide patient education and referral. [B2.07f, Evaluation]

a. Fractures, dislocations, and soft tissue injuries of the shoulder, arm, forearm, wrist, hand, fingers, pelvis, hip, thigh, knee, lower leg, ankle, foot and toes.
b. Fractures, dislocations and soft tissue injuries of the spinal column
   i. Jefferson's fracture
   ii. Hangman's fracture
   iii. Burst fractures
c. Chest wall deformities and fractures.
   i. Pectus excavatum
   ii. Pectus carinatum
   iii. Flail chest

21. Differentiate the evaluation and treatment approach in acute, chronic and emergent musculoskeletal and rheumatologic diseases and disorders. Analysis, B2.07e, B2.08b

22. Identify the patient requiring emergent intervention for an acute musculoskeletal disorder. Evaluation, B2.08b

23. Working with the appropriate health care professional recommend a suitable prevention program, or post-event rehabilitation plan as needed. Evaluation, B2.08b

24. Working with the appropriate health care professional recommend a suitable rehabilitation plan as needed. Application, B2.08b

25. Discuss common musculoskeletal and rheumatologic diseases and disorders presenting in children and the elderly, their varying presentations and propose a management plan including consideration of co-morbidities and polypharmacy. Application, B2.02d, B2.07e, B2.08a

26. Working with the appropriate health care professional, develop an appropriate patient education plan as needed. Application, B2.07f

27. Working with the appropriate health care professional, recommend an appropriate patient referral plan as needed. Application, B2.07f

28. Working with the appropriate health care professional, recommend an appropriate palliative care plan for a patient facing end-of-life decisions. Application, B2.08e

29. Choose a pharmacotherapeutic intervention relating the indications, contraindications, complications, efficacy and effectiveness of the treatment. Evaluation, B2.02d

30. Justify the ordering of diagnostic tests used in the evaluation of musculoskeletal disease identifying the relevance to diagnosis, risk/benefit and cost. Analysis, B2.07d

31. Demonstrate skills in problem solving and medical decision-making through community learning group case discussions and activities. Application, B2.05

32. Demonstrate supportive counseling skills when delivering bad news to a patient. Application, B2.12c

Upon completion of this course, the student will demonstrate competency in:

1. Eliciting a history. Application, B2.07a
2. Performing a complete and focused musculoskeletal physical examination. Application, B2.07b

Upon completion of this course, the student will:

1. Perform proper casting and splinting of extremities. Application, B2.09
2. Evaluate and interpret basic musculoskeletal images. Evaluation B2.09
3. Perform joint injections and explain the indications and contraindications of the procedure. Application , B2.09
4. Perform joint aspirations and explain the indications and contraindications of the procedure. Application,, B2.09
5. Demonstrate and performing local anesthesia and digital blocks and explain the indications and contraindications of the procedure. Application , B2.09

Note: Superscripts identify the Bloom's Taxonomy level or ARC standard for each objective.

REQUIRED TEXTS AND RECOMMENDED STUDY RESOURCES

**Current Diagnosis and Treatment in Orthopedics, 5e
Harry B. Skinner, Patrick J. McMahon
2014, McGraw-Hill Education
ISBN-13: 978-0-07-159075-4
ISSN: 1081-0056

Date	Topic/Instructor	Reading/Assignment
Thursday September 18th 1-5pm	Anatomy and Physiology Pathophysiology	
Friday September 19th 8-5pm	Rheum, Infections, Radiology Basics	Current Orthopedics Chapter 9
Tuesday September 23rd 1-5pm	Upper Extremity	Current Orthopedics Chapter 3
Wednesday September 24th 1-5pm	Upper Extremity Continued	
Thursday September 25th 1-5pm	Joint injections and digital block cadaver lab	

Friday September 26th 9a-5pm	MSK Ultrasound Casting and Splinting lab	
Saturday September 27th	Kaiser OR Day	
Monday September 29th 1-5pm	Lower Extremity	Current Orthopedics Chapter 4
Tuesday September 30th 1-4pm	Lower Extremity Continued	
Wednesday October 1st 1-4pm	Physical Exam Lab	
Thursday October 2nd 1-5pm	Oncology Dr. Flint MD	Current Orthopedics Chapter 9
Monday October 6th 8am -4pm	Final Exam and PC OSCE	

LEARNING MODALITIES

Modalities include lectures, on-line pre-lecture activities, reading assignments, community learning activities, and clinical skills labs. The class schedule and assignments can be found in Canvas.

ATTENDANCE AND PARTICIPATION POLICY

Regular and punctual attendance at all classes is considered essential to optimum academic achievement. However, we recognize that as adults you have other life responsibilities and challenges that may interfere. Ultimately you are responsible for your education and your ability to demonstrate mastery of the course and program objectives.

1. You MUST attend:

    a. PE and clinical skills labs appropriately dressed and with all necessary equipment
    b. Examinations on the date and time for which they are schedule
    c. Community learning group

2. We expect

    a. Active participation in all class activities
    b. Completion of all class preparatory assignments prior to commencement of class
    c. Respect for the class, peers and faculty
    d. On-time arrival for all classes, laboratories, learning groups or any scheduled activities.

Routine tardiness demonstrates a lack of professionalism and will not be tolerated

INCOMPLETES AND LATE ASSIGNMENTS

All assignments are to be submitted/turned in by the beginning of the class session when they are due—including assignments posted in Canvas. Failure to meet the deadline will result in a loss of 10% each day the assignment is not turned in to the requesting faculty member. Incompletes will only be assigned under extremely unusual circumstances. Students failing an examination or practicum must complete the designated remediation (See REMEDIATION below) within the assigned time.

FINAL EXAMINATION POLICY

Successful completion of this class requires taking the final examinations (written and practical) **on their respective scheduled days**. No requests for early examinations or alternative days will be approved.

ASSESSMENT AND GRADING

Student course grades are calculated using all assessment tools utilized during the course. These include quizzes, written examinations, written assignments, practicums, and evaluation of skills.

Learning community groups will be utilized to provide case-based instruction. A clinical case will be presented to each group by the group mentor. Students are expected to utilize knowledge acquired from prior readings and lectures, as well as self/group directed learning to work up the case, develop a working diagnosis, a differential diagnosis and a therapeutic regimen which will include a follow-up plan and patient education. Effective interpersonal communication, clinical reasoning and problem solving abilities, professional behavior and teamwork are paramount to success and development as clinicians.

Cases will be issued no more frequently than every other week. There will be 2 cases in this module. Students will receive a collective grade for this exercise.

Learning community group performance expectations include; demonstrating effective interpersonal communication, clinical reasoning and problem solving abilities, professional behavior and teamwork skills. Application, B2.05, B4.03b, B4.03c, B4.03e

ACTIVITY	% OF GRADE
Learning Community	5%
Case Study H&P	5%
Written Examinations	50%
Skills OSCE	15%
Patient-centered OSCE	25%

Grading will be in keeping with Point Loma Nazarene University policy for graduate programs and grading will be as follows:

A=93-100	C=73-76
A-=92-90	C-=70-72
B+=87-89	D+=67-69
B=83-86	D=63-66
B-=80-82	D-=60-62
C+=77-79	F=0-59

REMEDIATION

Remediation is the process by which both the student and the program are assured that performance indicating a deficiency in knowledge or skills is subsequently demonstrated to be satisfactory. This may include a re-test over missed material, a skills demonstration or a review of missed material with completion of corrected answers. It is important to note that this is content remediation, not grade remediation and no grade will be changed based on these activities.

Within 48 hours of the posting of a grade of <70%, the student MUST contact the course director to discuss the student's performance and create a remediation plan. Unless otherwise directed by the course director, remediation activities must be completed within 5 days.

PLNU COPYRIGHT POLICY

Point Loma Nazarene University, as a non-profit educational institution, is entitled by law to use materials protected by the US Copyright Act for classroom education. Any use of those materials outside the class may violate the law.

PLNU ACADEMIC HONESTY POLICY

Students should demonstrate academic honesty by doing original work and by giving appropriate credit to the ideas of others. Academic dishonesty is the act of presenting information, ideas, and/or concepts

as one's own when in reality they are the results of another person's creativity and effort. A faculty member who believes a situation involving academic dishonesty has been detected may assign a failing grade for that assignment or examination, or, depending on the seriousness of the offense, for the course. For all student appeals, faculty and students should follow the procedures outlined in the University Catalog. See Graduate Academic and General Policies for definitions of kinds of academic dishonesty and for further policy information.

Artificial Intelligence (AI) Policy

You are allowed to use Artificial Intelligence (AI) tools (e.g., ChatGPT, Gemini Pro 1.5, GrammarlyGo, Perplexity, etc.) in this course. Any work that utilizes AI-based tools must be clearly identified as such, including the specific tool(s) used. Please use the following sources to guide your citations when using AI.

MLA Style Center: Citing Generative AI
APA Style: How to Cite ChatGPT
Chicago Manual of Style: Citing Content Developed or Generated by AI

PLNU ACADEMIC ACCOMMODATIONS POLICY

PLNU is committed to providing equal opportunity for participation in all its programs, services, and activities in accordance with the Americans with Disabilities Act (ADA). Students with disabilities may request course-related accommodations by contacting the Educational Access Center (EAC), located in the Bond Academic Center (EAC@pointloma.edu or 619-849-2533). Once a student's eligibility for an accommodation has been determined, the EAC will work with the student to create an Accommodation Plan (AP) that outlines allowed accommodations. Professors are able to view a student's approved accommodations through Accommodate.

PLNU highly recommends that students speak with their professors during the first two weeks of each semester/term about the implementation of their AP in that particular course. Accommodations are not retroactive so clarifying with the professor at the outset is one of the best ways to promote positive academic outcomes.

Students who need accommodations for a disability should contact the EAC as early as possible (i.e., ideally before the beginning of the semester) to assure appropriate accommodations can be provided. It is the student's responsibility to make the first contact with the EAC. Students cannot assume that because they had accommodations in the past, their eligibility at PLNU is automatic. All determinations at PLNU must go through the EAC process. This is to protect the privacy of students with disabilities who may not want to disclose this information and are not asking for any accommodations.

This syllabus is subject to change. Students are encouraged to check course messages and emails in order to remain current.

ARC-PA standards (5th edition) addressed in this course: B2.02(a)(b)(c)(d), B2.03, B2.05, B2.07(a-f), B2.08(a)(b)(e), B2.09, B2.12(c), B4.03b, B4.03c, B4.03e