

Integrated module for the first/second year medical school curriculum

Objectives of the proposed module:

- Facilitate effective learning of the clinical presentations and pathophysiology of rheumatic diseases among pre-clinical students, senior medical students rotating on rheumatology and residents rotating on rheumatology.
- Increase the number of students requesting the rheumatology senior elective
- Increase the number of medical students who indicate an interest in rheumatology training at the time of their graduation.
- Increase the number of students participating in rheumatology centered projects during senior thesis week
- Increase the number of medical students and residents requesting summer or elective experiences in rheumatology research.

Initial Pilot Project [Year One and Year Two]

- Small group [4-6 students] tutorials on the musculoskeletal examination: these small group tutorials led by faculty/fellow will be convened at the beginning of the module to teach the normal musculoskeletal examination.
- Lectures [eight] formatted in Power Point for on-line self-study review covering the pathology, relevant immunology, and clinical presentations of RA, juvenile arthritis, SLE, vasculitides, spondyloarthropathies, systemic sclerosis and inflammatory myopathies, osteoarthritis, and crystal-induced arthropathies. Relevant chapters in the Primer on Rheumatic Diseases [copies placed on review] will be referenced for review.
- On each of two consecutive days: faculty led tutorials/reviews of four of the disease topics [using the Power Point files posted on line] in the morning followed by small group [8-10 students] sessions in the afternoon during which each small group will sequentially meet with four patients representing the disorders discussed in the morning session. During these sessions, faculty/fellow facilitators will review the complete musculoskeletal examination and physical findings of each patient.
- Students will be provided a case history for each patient along with questions to facilitate a subsequent discussion within the small group emphasizing:
 - a) the epidemiology and genetics of the patient's disorder
 - b) the patient's clinical features that are typical or atypical of the disorder
 - c) the features of the disorder the patient has not manifest
 - d) the immunologic mechanisms contributing to the patient's disorder
 - e) cellular, biochemical and/or immunologic targets for treating the disorder
 - f) current areas of investigation relevant to the disorder
- Group reports summarizing the case discussions will be submitted, followed by a review session convened with the entire class to review the patient presentations and discussion questions. The review session will also emphasize summer student research opportunities in the Division of Clinical Immunology and Rheumatology applicable to the respective disorders.

Content of the module will be coordinated with content relevant to rheumatic diseases that is presented in other courses taught in the first and second year. This will include:

- a case-study of gout to accompany the review of purine metabolism in the biochemistry curriculum and the review of NSAIDs/agents for hyperuricemia in the pharmacology curriculum
- case-studies of Ehlers-Danlos syndrome to accompany the review of collagen in the biochemistry curriculum

- case studies of SLE to accompany the review of complement and B cell immunology in the microbiology/immunology curriculum
- case-studies of the complications of axial and peripheral osteoarthritis and vasculitis in the anatomy curriculum

Development of the Integrated Musculoskeletal Curriculum [Year Two and Year Three]

- 3 ½ weeks allocated to cover musculoskeletal anatomy, biochemistry, physiology, correlative pathology and relevant pharmacology [!!!]
- Assigned time: last three weeks of May in first year
- Emphasis on interactive, small group learning
- Integration with musculoskeletal component of Introduction to Clinical Medicine
- Development sequence
 - Submit goals and objective for each activity
 - Submit exam questions
 - Develop interactive lecture presentation and small group case-based exercises
 - Develop case-centered anatomy lab exercises around prosections

Applicability of curriculum components to other trainees:

- on-line components of the module will be used by senior students and residents rotating on the rheumatology service, either through self-study or in the tutorials convened by faculty and fellows for the senior students and residents during their rotation.
- case study/discussion questions will also be incorporated into the tutorials.

Significance with regard to recruitment:

- present available summer research opportunities in the immediate context of the module [taught in late April]
- recruitment of top performing students-- targeted and particularly encouraged to engage in rheumatology summer research or preceptorship programs and to rotate on the senior rheumatology elective.

Recruitment Outcome Assessment:

- track numbers of students participating in rheumatology summer research
- track the numbers of students requesting rheumatology senior elective rotations
- track numbers of students with senior thesis projects related to rheumatology-related topics
- track graduating students entering residencies in internal medicine or pediatrics with an expressed interest in rheumatology.

Date/Time	Topic	Format	Instructor(s)	Suggested Readings
Monday, 12 May				
1000-1050	<i>Introduction to MSS Module Skeletal Muscle Development and Histology</i>	Lecture Review	M Bamman M Bamman	
1100-1150	<i>Skeletal Muscle Physiology I</i>	Lecture	M Bamman	Guyton Ch 6-7
1150-1300				
1300-1350	<i>Skeletal Muscle Physiology II</i>	Lecture	M Bamman	Guyton Ch 6-7
1400-1450	<i>Muscle Metabolism</i>	Lecture	M Bamman	
Tuesday, 13 May				
1000-1050	<i>Muscle Repair, Regeneration, & Growth</i>	Lecture	M Bamman	
1100-1150	<i>Mechanisms and Consequences of Skeletal Muscle Atrophy</i>	Large Group Discussion	M Bamman & J Cross	
1150-1300				
1300-1350	<i>Skeletal Muscle Disease I</i>	Lecture	G Claussen	
1400-1450	<i>Skeletal Muscle Disease II</i>	Lecture	G Claussen	
Wednesday, 14 May				
1000-1050	<i>Histopathology of Muscle Disease I</i>	Laboratory	K-J Ho	
1100-1150	<i>Histopathology of Muscle Disease II</i>	Laboratory	K-J Ho	
1150-1300				
1300-1500	<i>Anatomy of the Back</i>	Lecture	S Tubbs	
Take-Home Assignment I—Skeletal Muscle—Disseminated today				
Thursday, 15 May				
0800-1000	<i>Case Conference I—Muscle</i>	Groups 1-6	D Pillion/M Bamman	
1000-1050	<i>Bone Development, Growth, & Maturation</i>	Lecture	M Klein	
1100-1150	<i>Skeletal Radiology</i>	Lecture	M Pitt	
1150-1300				
1300-1500	<i>Myopathies Clinic</i>	Groups 1-9	G Claussen	
1500-1700	<i>Myopathies Clinic</i>	Groups 10-18	G Claussen	
Friday, 16 May				
0800-1000	<i>Case Conference I—Muscle</i>	Groups 7-12	D Pillion/M Bamman	
1000-1050	<i>Histopathology of Bone Diseases</i>	Laboratory	M Klein	
1100-1150	<i>Differential Diagnosis in Bone Diseases I</i>	Lecture	M Klein	
1150-1300				
1300-1500	<i>Anatomy of the Shoulder and Axilla</i>	Lecture	G Salter	
1500-1700	<i>Case Conference I—Muscle</i>	Groups 13-18	D Pillion/M Bamman	
Monday, 19 May				
Take-Home Assignment I—Skeletal Muscle—Due today by 0900				
1000-1050	<i>Differential Diagnosis in Bone Diseases II</i>	Lecture	M Klein	
1100-1150	<i>Fracture and Normal Bone Healing</i>	Lecture	S Gilbert	
1150-1300				
1300-1500	<i>Anatomy of the Arm, Elbow, and Forearm</i>	Lecture	S Zehren	
Tuesday, 20 May				
1000-1050	<i>Tendons, Ligaments, Cartilage,</i>	Lecture	R Serra	

	<i>and Extracellular Matrix Biology</i>			
1100-1150	<i>Physiology & Biomechanics of Joints</i>	Lecture	M Bamman	
1150-1300				
1300-1500	<i>Anatomy of the Hand and Wrist</i>	Lecture	S Tubbs	
Wednesday, 21 May				
1000-1050	<i>Upper Extremity Musculoskeletal Disorders</i>	Lecture	M Ellen	
1100-1150	<i>Anatomy of the Gluteal Region, Hip, and Thigh</i>	Lecture	S Tubbs	
1150-1300				
1300-1350	<i>Anatomy of the Leg and Knee</i>	Lecture	G Salter	
1400-1450	<i>Peripheral Nerve Entrapment Syndromes</i>	Lecture	P Roy	
Take-Home Assignment II—Bone—Disseminated today				
Date/Time	Topic	Format	Instructor(s)	Suggested Readings
Thursday, 22 May				
0800-1000	<i>Case Conference II—Bone</i>	Groups 1-6	S Gilbert	
1000-1150	<i>Anatomy of the Foot and Ankle</i>	Lecture	S Zehren	
1150-1300				
1300-1350	<i>Lower Extremity Musculoskeletal Disorders</i>	Lecture	S Lal	
1400-1450	<i>Acute Arthritis</i>	Lecture	W Chatham	
Friday, 23 May				
0800-1000	<i>Case Conference II—Bone</i>	Groups 7-12	S Gilbert	
1000-1050	<i>Osteoarthritis and Crystal Induced Arthropathies</i>	Lecture	L Hughes	
1100-1150	<i>Seronegative Spondyloarthropathy</i>	Lecture	W Chatham	
1150-1300				
1300-1350	<i>Rheumatoid Arthritis</i>	Lecture	L Bridges	
1400-1450	<i>Juvenile Idiopathic Arthritis</i>	Lecture	T Beukelman	
1500-1700	<i>Case Conference II—Bone</i>	Groups 13-18	S Gilbert	
Monday, 26 May				
Memorial Day—No Classes				
Tuesday, 27 May				
Take-Home Assignment II—Bone—Due today by 0900				
1000-1050	<i>Scleroderma and Vasculitis</i>	Lecture	B Fessler	
1100-1150	<i>SLE and Sjogren's Syndrome</i>	Lecture	W Chatham	
1150-1300				
1300-1350	<i>Histopathology of Rheumatic Diseases</i>	Lecture	M Klein	
1400-1450	<i>Histopathology of Rheumatic Diseases</i>	Laboratory	M Klein	
Wednesday, 28 May				
1000-1050	<i>NSAIDs, DMARDs, glucocorticoids</i>	Lecture	W Chatham	
1100-1150	<i>Malnutrition and Frailty (Nutrition & Geriatrics Themes)</i>	Lecture	C Ritchie	
1150-1300				
1300-1500	<i>Soft Tissue and Anaerobic Infections</i>	Laboratory	K Waites	

Take-Home Assignment III—Joints—Disseminated today

Thursday, 29 May				
0800-1000	<i>Case Conference III—Sports Medicine</i>	Groups 1-6	L Kezar	
1000-1050	<i>Imaging Musculoskeletal Pathologies</i>	Lecture	M Klein/M Pitt	
1100-1150	<i>Osteoporosis (Nutrition & Geriatrics Themes)</i>	Lecture	S Morgan	
1150-1300				
1300-1500	<i>Rheumatology Clinic</i>	Groups 1-9	W Chatham	
1500-1700	<i>Rheumatology Clinic</i>	Groups 10-18	W Chatham	
Friday, 30 May				
0800-1000	<i>Case Conference III—Sports Medicine</i>	Groups 7-12	L Kezar	
1000-1050	<i>Surgical Approaches to the Joints</i>	Lecture	H Siegel	
1100-1150	<i>Spinal Cord Injury</i>	Lecture	CS Bickel	
1150-1300				
1300-1350	<i>Diagnosis & Non-Surgical Treatment of Low Back Pain (Piriformis Syndrome, etc)</i>	Lecture	L Kezar	
1400-1450	<i>Surgical Approaches to the Spine</i>	Lecture	S Theiss	
1500-1700	<i>Case Conference III—Sports Medicine</i>	Groups 13-18	L Kezar	

Date/Time	Topic	Format	Instructor(s)	Suggested Readings
Monday, 02 June				
Take-Home Assignment III—Joints—Due today by 0900				
1000-1200	<i>Musculoskeletal and Skin Module Anatomy Exam</i>			

Musculoskeletal & Skin Module 2008

