9-2013

AHAT 322.01: Assessment of the Lower Extremity

Jessica L. Moore
University of Montana - Missoula, jessica.moore@mso.umt.edu

AHAT 322 ASSESSMENT OF THE LOWER EXTREMITY

Instructors: Jessica Moore MSEd, ATC, LAT, PES
Campus: U of MT - Missoula
Office Phone: 406-243-6816 **Cell:** 802-345-0263
Office Hours:
E-mail: Jessica.moore@mso.umt.edu
Credit Hours Lecture: 2
Credit Hours Lab: 1

Semester: Fall 2013
Office: McGill 203

Course Meeting Lecture: ***LA 336*** Tuesday and Thursday 9:10am-10am
Course Meeting LAB: ***MCG 235*** Tuesday 10:10am-12:00pm

Course Prerequisites: HHP 242, HHP 334

Textbooks and Readings:

Required:
Starkey, C., Brown, S.D., Ryan, J. (2010). *Examination of Orthopedic and Athletic Injuries* (3rd Ed.). Philadelphia, PA: F.A.-Davis Company.

Starkey, C., Brown, S.D., Ryan, J. (2010). *Orthopedic and Athletic Injury Examination Handbook* (2nd Ed.). Philadelphia, PA: F.A.-Davis Company.

Kendall, F.P., McCreary, E.K., Provance, P.G., Rodgers, M.I., Romani, W.A. (2005). *Muscles: Testing and Function* (5th Ed.). Baltimore, MD: Lippincott Williams & Wilkins.

Recommended:
Biel, A. (2010). *Trail Guide to the Body: A hands on guide to locating muscles, bones, and more* (4th Ed.). Boulder, CO: Books of Discovery.

Biel, A. (2010). *Trail Guide to the Body: Student workbook* (4th Ed.). Boulder, CO: Books of Discovery.406

Biel, A. (2010). *Trail Guide to the Body: Flashcards Vol. 1* (4th Ed.). Boulder, CO: Books of Discovery.

Biel, A. (2010). *Trail Guide to the Body: Flashcards Vol. 2* (4th Ed.). Boulder, CO: Books of Discovery.

Teaching Methodology: The primary method of instruction will be through lecture and discussion. The lectures and discussions will be supplemented by the laboratory portion as they pertain to the development of skills necessary to perform evaluations of athletic injures of the lower extremity.

Lecture Objectives: at the completion of the course, the student should be able to:

1. Define terminology pertinent to anatomical positions, motions, and sites related to the lower extremity, hip, pelvis, and lumbar spine.
2. Explain physiological properties of specific tissues (i.e., muscles, tendons, cartilage, bone & nerves), and what impact these properties have on trauma and healing
3. Define the components and demonstrate a primary & secondary survey used for injury assessment.
4. Design a consistent assessment protocol for evaluating the lower extremity, hip, pelvis and lumbar spine.
5. Acquire the ability to consistently explain assessment findings at both the professional and patient level.
6. Identify and describe the common mechanisms, pathologies, signs and symptoms of sport-related injuries of the lower extremity, hip, pelvis and lumbar spine.
7. Describe normal motions and positions of the body during all phases of the gait cycle.
8. Correctly identify and use common medical terminology and abbreviations.
9. Identify and palpate bony landmarks & soft tissue structures of the lower extremity, pelvis and lumbar spine.
10. Describe and demonstrate skill in performing appropriate range of motion tests, manual muscle testing, neurological assessments and special tests for lower extremity, hip, pelvis and lumbar spine injuries.
11. SEE SPECIFIC **CAATE** EDUCATIONAL COMPETENCIES & CLINICAL PROFICIENCIES.

Lab Objectives: at the completion of the course, the student should be able to:

1. Students will be able to perform manipulative and motor skills necessary to perform a comprehensive injury evaluation of the musculoskeletal system.
2. Students will be able to interpret the results of the injury evaluation and make appropriate decisions, actions and medical referrals.
3. Students will be able to objectively measure, muscular strength, girth and other measurements as determined for each anatomical structure.
4. Identify voluntary muscular movement including proximal to distal attachments of muscles, major motions and functions, and peripheral and segmental nerve innervations in the lower extremity, hip, pelvis and lumbar spine.
5. Demonstrate neurological assessment procedures.
6. Students will be able to identify indications and contraindications as they relate athletic participation regarding general medical conditions/illnesses and systemic diseases.
7. Demonstrate techniques and procedures for evaluating common injuries.
8. Demonstrate neurological assessment procedures.
9. Demonstrate special tests used to evaluate injuries to the lower extremity, hip, pelvis and lumbar spine.

Evaluation of Student Outcomes:

Oral Practical Examinations:
Practical exams are intended to assess each student's ability to perform the skills associated with the assessment of injuries to the lower extremity, as well as the lumbar spine. Practical exams will test the performance of skills in the context of completing all or part of an injury evaluation while progressing through the athletic training education program.

In Class/Online Quizzes: Quizzes will be given once a week in class or on Moodle. Each quiz will reflect the topic that is being studied at the time.

Participation: All students are expected to read and be prepared for class daily. Active participation in class discussions and activities is highly encouraged.

Attendance: Attendance is required. You will be allowed 3 unexcused absences, after which unexcused absences will result in a loss of 3% off the final grade for each incident. Three tardy arrivals to class will amount to 1 unexcused absence.
As this class is directly involved in the daily workings of the University of Montana Athletic Training facility, it is understood that students may be required to miss class for team travel. This is excused, ***provided prior notification is given***.

Content and Organization:
-Review of the injury evaluation process of Injuries to the Lower Extremities and Lumbar Spine
-Pathology & Injury Nomenclature
-Specific Body Part Evaluations:

- Anatomy
- Mechanism of Injury
- Observation Techniques
- Palpation of Surface Anatomy
- Ranges of Motion (AROM, MMT, PROM)
- Manual Muscle Testing
- Special Tests
- Kinetic Chain
- Advanced Diagnostic Tools
- Pathology
- Immediate Care of Injuries
- Referral
- Implications for return to sport

Grading Scale:
90-100% = A 80- 89% = B 70- 79% = C 60- 69% = D <60% = F
The instructor reserves the right to award + or – grade where deemed appropriate

- All course requirements must be completed with a grade of C or better to successfully complete this course.

Course Evaluation:

Quizzes	10%
Exam 1	15%
Midterm Practical 1	20%
Midterm Exam (2) (Written)	15%
Exam 3	15%
Final Exam 4 (Written & Practical)	25%
	100%

Americans with Disabilities Act (ADA) The University of Montana upholds the ADA by providing reasonable accommodations to individuals with disabilities. If any student requires reasonable accommodations to adequately perform the duties of the class, please see the instructor as soon as possible so a plan can be made for specific modifications.

Student Conduct Code: All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to me familiar with the Student Conduct Code. The Code is available for review online at:
http//www.umt.edu/SA/VPSA/index.cfm/page/1321

EMERGENCY PREPAREDNESS AND RESPONSE
As members of a learning community we all have responsibilities for each other that extend beyond the teaching/learning experience and transcend our roles in that dimension. We are, as human beings, responsible for the protection and well-being of other members of our group, and one dimension of our individual and group responsibility in that area relates to how we prepare for, and respond to, emergencies. Toward that end, the following are important:

- In the event we need to evacuate the building, our primary route will be through the main doors to McGill Hall located on the west side of the building. If that route is blocked, our secondary route will be through the east door located toward the north end of this wing of the building.
- If you hear an alarm or are told to evacuate, always assume the emergency is real. Be sure to take coats, backpacks and valuables since the building may be closed for some time.
- Everyone should report to either the designated outdoor rally point or the indoor rally point (should conditions make it necessary to seek shelter in another building). Our outdoor rally point is in the area to the west of McGill Hall – at least 300 feet from the building exit. Our indoor rally point is in the Adams Center Lobby. We should reconvene as a group at the rally point so we can determine if anyone is missing.

- Do not use elevators as a means of evacuating, and do not use cell phones until safely away from the building.
- As the instructor of this course, I would ask students who feel they may require assistance in evacuating to privately inform me of that need. Together we will preplan appropriate assistance.
- I would also request that students with a medical condition that could present an emergency privately inform me of that situation. Again, this notification is so we can preplan an appropriate response should an emergency occur.
- As soon as the class roster stabilizes, I will route a sign-up sheet for students to identify whether or not they possess current first aid and/or CPR certification. This information will be passed on to the Facility Emergency Coordinator for use should a need for first aid expertise arise.

TENTATIVE CLASS SCHEDULE

This schedule is subject to change at instructor's discretion

Date:	Time	Topic	Reading/Class Participation
27-Aug	9:10-10:00	Syllabus. Introduction, Nomenclature	Chapter 4
LAB	**10:10-12:00**	Injury Nomenclature/End Feel/MMT	
29-Aug	9:10-10:00	Injury Nomenclature. Evaluation Process	Chapter 1 & 4
3-Sep	9:10-10:00	Injury Evaluation and Evidence-based Practice	Chapter 1 & 3
LAB	**10:10-12:00**	Evaluation/Diagnostic Process, History	
5-Sep	9:10-10:00	Acute Injuries	Chapter 2
10-Sep	9:10-10:00	Diagnostic Techniques	Chapter 5
LAB	**10:10-12:00**	Diagnostic Process/Documentation	
12-Sep	9:10-10:00	Posture	Chapter 6
17-Sep	9:10-10:00	Toe and Foot	Chapter 8
LAB	**10:10-12:00**	Posture, Toe and Foot	
19-Sep	9:10-10:00	Toe and Foot	Chapter 8
24-Sep	9:10-10:00	Toe/Foot, Ankle and Lower Leg	Chapter 8 & 9
LAB	**10:10-12:00**	Ankle and lower Leg evaluation	
26-Sep	9:10-10:00	Ankle and Lower Leg	Chapter 9
1-Oct	9:10-10:00	Ankle and Lower Leg	Chapter 9
	10:10-12:00	**EXAM 1: Nomenclature, Eval, SOAP, EBP, Toe/Foot**	
3-Oct	9:10-10:00	Knee	Chapter 10
8-Oct	9:10-10:00	Knee	Chapter 10

LAB	**10:10-12:00**	Knee Pathology and Evaluation	
10-Oct	9:10-10:00	Knee	Chapter 10
15-Oct	9:10-10:00	Knee Evaluation	Chapter 10
LAB	**10:10-12:00**	Knee Pathology and Evaluation	
17-Oct	9:10-10:00	Knee and Patellofemoral Articulation	Chapter 10 & 11
22-Oct	9:10-10:00	Patellofemoral Articulation	Chapter 11
LAB	**10:10-12:00**	Knee and Patellofemoral Articulation	
24-Oct	9:19-10:00	Thigh, Hip, Pelvis	Chapter 12
29-Oct	9:10-10:00	**PRACTICAL 1 - ankle, lower leg, Knee**	Chapter 12
	10:10-12:00	**EXAM 2: Ankle, Lower leg, Knee, PFJ**	
31-Oct	9:10-10:00	Thigh, Hip, Pelvis	Chapter 12
5-Nov	9:10-10:00	Thigh, Hip, Pelvis	Chapter 12 & 7
LAB	**10:10-12:00**	Thigh, Hip, Pelvis Evaluation and Gait	
7-Nov	9:10-10:00	Thigh, Hip, Pelvis, Lumbar Spine	Chapter 12 & 13
12-Nov	9:10-10:00	Lumbar Spine	Chapter 13
LAB	**10:10-12:00**	Thigh, Hip, Pelvis	
14-Nov	9:10-10:00	Lumbar Spine	Chapter 13
19-Nov	9:10-10:00	Lumbar Spine	Chapter 13
	10:10-12:00	**EXAM 3: Thigh, Hip, Pelvis**	
21-Nov	9:10-10:00	Lumbar Spine	Chapter 13
Nov 25-29		**THANKSGIVING BREAK - NO CLASS!!!**	

3-Dec	9:10-10:00	Lumbar Spine	Chapter 13
LAB	**10:10-12:00**	Lumbar Spine Evaluation	
5-Dec	9:10-10:00	Lumbar Spine	Chapter 13
		Final Exam Dec 9-13	
		PRACTICAL 2 - PFJ, Thigh, Hip, Pelvis, Lumbar	
		Written - Lumbar spine, overall concepts	

AHAT 322 - Assessment of the Lower Extremity			
Code	Description	Instructed	Evaluated
AC-36c	cervical, thoracic, and lumbar spine trauma		
AC-43	Instruct the patient in home care and self-treatment plans for acute ... conditions.		
CE-3	Identify the common congenital and acquired risk factors and causes of ... musculoskeletal injuries and common illnesses that may influence physical activity in pediatric, adolescent, adult, and aging populations.		
CE-4	Describe the principles and concepts of body movement, including normal ... osteokinematics and arthrokinematics.		
CE-5	Describe the influence of pathomechanics on function.		
CE-6	Describe the basic principles of diagnostic imaging and testing and their ... role in the diagnostic process.		
CE-7	Identify the patient's participation restrictions (disabilities) and ... activity limitations (functional limitations) to determine the impact of the condition on the patient's life.		
CE-8	Explain the role and importance of functional outcome measures in ... clinical practice and patient health-related quality of life.		
CE-9	Identify functional and patient-centered quality of life outcome measures ... appropriate for use in athletic training practice.		
CE-10	Explain diagnostic accuracy concepts including reliability, sensitivity, ... specificity, likelihood ratios, prediction values, and pre-test and post-test probabilities in the selection and interpretation of physical examination and diagnostic procedures.		
CE-11	Explain the creation of clinical prediction rules in the diagnosis and ... prognosis of various clinical conditions.		
CE-16	Recognize the signs and symptoms of catastrophic and emergent conditions ... and demonstrate appropriate referral decisions.		
CE-19	Determine criteria and make decisions regarding return to activity and/or ... sports participation based on the patient's current status.		
CE-22	Determine when the findings of an examination warrant referral of the ... atient.		

EBP-11	⊟Explain the theoretical foundation of clinical outcomes assessment (eg, ... disablement, health-related quality of life) and describe common methods of outcomes assessment in athletic training clinical practice (generic, disease-specific, region-specific, and dimension-specific outcomes instruments).		
EBP-12	⊟Describe the types of outcomes measures for clinical practice ... (patient-based and clinician-based) as well as types of evidence that are gathered through outcomes assessment (patient-oriented evidence versus disease-oriented evidence).		
EBP-13	⊟Understand the methods of assessing patient status and progress (eg, ... global rating of change, minimal clinically important difference, minimal detectable difference) with clinical outcomes assessments.		
EBP-14	⊟Apply and interpret clinical outcomes to assess patient status, progress, ... and change using psychometrically sound outcome instruments.		
PHP-2	⊟Identify and describe the measures used to monitor injury prevention ... strategies (eg, injury rates and risk, relative risks, odds ratios, risk differences, numbers needed to treat/harm).		
PHP-3	⊟Identify modifiable/non-modifiable risk factors and mechanisms for injury ... and illness.		
PHP-4	⊟Explain how the effectiveness of a prevention strategy can be assessed ... using clinical outcomes, surveillance, or evaluation data.		
PHP-6	⊟Summarize the epidemiology data related to the risk of injury and illness ... associated with participation in physical activity.		
PS-18	⊟Provide appropriate education regarding the condition and plan of care to ... the patient and appropriately discuss with others as needed and as appropriate to protect patient privacy.		
TI-7	⊟Identify patient- and clinician-oriented outcomes measures commonly used ... to recommend activity level, make return to play decisions, and maximize patient outcomes and progress in the treatment plan.		
CE-12	⊟Apply clinical prediction rules (eg, Ottawa Ankle Rules) during		

	clinical ... examination procedures.		
CE-13	⊟Obtain a thorough medical history that includes the pertinent past ... medical history, underlying systemic disease, use of medications, the patient's perceived pain, and the history and course of the present condition.		
CE-15	⊟Demonstrate the ability to modify the diagnostic examination process ... according to the demands of the situation and patient responses.		
CE-17	⊟Use clinical reasoning skills to formulate an appropriate clinical ... diagnosis for common illness/disease and orthopedic injuries/conditions.		
CE-18	⊟Incorporate the concept of differential diagnosis into the examination ... process.		
CE-20	⊟Use standard techniques and procedures for the clinical examination of ... common injuries, conditions, illnesses, and diseases including, but not limited to:		
CE-20a	history taking		
CE-20b	inspection/observation		
CE-20c	palpation		
CE-20d	functional assessment		
CE-20e	selective tissue testing techniques / special tests		
CE-20f	⊟neurological assessments (sensory, motor, reflexes, balance, cognitive ... function)		
CE-21	⊟Assess and interpret findings from a physical examination that is based ... on the patient's clinical presentation. This exam can include:		
CE-21a	Assessment of posture, gait, and movement patterns		
CE-21b	Palpation		
CE-21c	Muscle function assessment		
CE-21d	Assessment of quantity and quality of osteokinematic joint motion		
CE-21e	Capsular and ligamentous stress testing		
CE-21f	Joint play (arthrokinematics)		
CE-21g	Selective tissue examination techniques / special tests		

CE-21h	Neurologic function (sensory, motor, reflexes, balance, cognition)		
TI-17	⊟Analyze gait and select appropriate instruction and correction strategies ... to facilitate safe progression to functional gait pattern.		