GEORGE MASON UNIVERSITY
Department of Health, Fitness and Recreation Resources

ATEP 270 – General Medical Conditions and Pharmacology in Physically Active Populations (3)

Day/Time:	MW 10:30-11:45a	Location:	BRH 257
Professor:	Dr. Lucy Chung	Email Address:	Lchung@gmu.edu
Office Hours:	By appt.	Class Website:	gmu.blackboard.com

PRE/CO-REQUISITES:

Pre-requisites: Formal acceptance to the professional phase of the ATEP; ATEP 150, 180, 250, 255, 256, 260, 265, 266; BIOL 124, 125; HEAL 110, 230; PHED 300
Co-requisite: None

COURSE DESCRIPTION

An examination of assessment and management techniques of general medical conditions and pharmacological principles in physically active populations.

COURSE OBJECTIVES

At the completion of this course students should be able to complete the following:

1. Differentiate body systems as a series of interrelated functional systems;
2. Recognize acute and chronic physiological and pathological responses of the body to various stimuli e.g. environment, drugs, pathogens, and physical activity;
3. Describe mechanisms of general medical conditions in the physically active including the etiology, pathogenesis, pathomechanics, signs, symptoms, and epidemiology of these conditions;
4. Describe basic principles of management of general medical conditions in physically active populations;
5. Interpret and use appropriate medical terminology and employ medical documentation techniques;
6. Recognize legal regulation of pharmaceuticals, and the athletic trainer's responsibility in storing, transporting, dispensing, and recording of prescription and non-prescription medications;
7. Demonstrate the use of the Physician's Desk Reference, the Drug Facts and Comparisons and other pharmacy resources;
8. Explain general pharmacodynamic and pharmacokinetic principles and the influence of physical activity on these processes;
9. Compare and contrast common routes used to administer medications; and
10. Discuss performance-enhancing substances and identify which ones are banned in physically active settings

COURSE OVERVIEW

This didactic course will focus on developing the cognitive competencies necessary for students to understand common general medical conditions commonly seen in the physically active population. Students will also learn pharmacological principles and the role of athletic trainers in medication dispensation.

Attendance

Students are expected to be on time, attend all class meetings and be prepared for in class assignments and quizzes. Excused absences include the following: illness (must bring a receipt or note from a doctor), family death, athletic/academic event, and others at the discretion of the instructor. For known upcoming absences, students must contact the instructor at least one week in advance to the missed class to make up work. In the case of illness or some other unforeseen absence, the student must contact the instructor via e-mail. At the next attended class meeting the student will discuss material that is to be completed. It is the student's obligation to pursue any make-up work.

ACCREDITATION STANDARDS

Upon completion of this course, students will meet the following Commission on Accreditation of Athletic Training Education (CAATE) competencies and proficiencies:

Code	Competency
MC-C1	Describe and know when to refer common congenital or acquired abnormalities, physical disabilities, and diseases affecting people who engage in physical activity throughout their life span (e.g., arthritis, diabetes).
MC-C2	Understand the effects of common illnesses and diseases in physical activity.
MC-C3	Describe common techniques and procedures for evaluating common medical conditions and disabilities including taking a history, inspection/observation, palpation, functional testing, special evaluation techniques (e.g., assessing heart, lung and bowel sounds), and neurological and circulatory tests.
MC-C4	Describe and know when to refer common eye pathologies from trauma and/or localized infection (e.g., conjunctivitis, hyphema, corneal injury, stye, scleral trauma).
MC-C5	Describe and know when refer common ear pathologies from trauma and/or localized infection (e.g., otitis, ruptured tympanic membrane, impacted cerumen).
MC-C6	Describe and know when to refer common pathologies of the mouth, sinus, oropharynx, and nasopharynx from trauma and/or localized infection (e.g., gingivitis, sinusitis, laryngitis, tonsillitis, pharyngitis).
MC-C7	Describe and know when to refer common and significant respiratory infections, thoracic trauma, and lung disorders. (e.g., influenza, pneumonia, bronchitis, rhinitis, sinusitis, upper-respiratory infection (URI), pneumothorax, hemothorax, pneumomediastinum, exercise-induced bronchospasm, exercise-induced anaphylaxis, asthma).
MC-C8	Explain the importance and proper use of a peak flowmeter or similar device in the evaluation and management of respiratory conditions.
MC-C9	Describe strategies for reducing the frequency and severity of asthma attacks.
MC-C10	Explain the possible causes of sudden death syndrome.
MC-C11	Describe and know when to refer common cardiovascular and hematological medical conditions from trauma, deformity, acquired disease, conduction disorder, and drug abuse (e.g., coronary artery disease, hypertrophic cardiomyopathy, heart murmur, mitral valve prolapse, commotion cordis, Marfan's syndrome, peripheral embolism, hypertension, arrythmogenic right venricular dysplasia, Wolf-Parkinson-White syndrome, anemias, sickle cell anemia and sickle cell trait [including rhabdomyolysis], hemophilia, deep vein thrombosis, migraine headache, syncope).
MC-C12	Describe and know when to refer common medical conditions that affect the gastrointestinal and hepatic-biliary systems from trauma, chemical and drug irritation, local and systemic infections, psychological stress, and anatomic defects (e.g., hepatitis, pancreatitis, dyspepsia, gastroesophageal reflux, peptic ulcer, gastritis and gastroenteritis, inflammatory bowel disease, irritable bowel syndrome, appendicitis, sports hernia, hemorrhoids, splenomegaly, liver trauma).
MC-C13	Describe and know when to refer common medical conditions of the endocrine and metabolic systems from acquired disease and acute and chronic nutritional disorders (e.g., diabetes mellitus and insipidus, hypothyroidism, Cushing's syndrome, thermoregulatory disorders, gout, osteoporosis).
MC-C14	Describe and know when to refer common medical conditions of the renal and urogenital systems from trauma, local infection, congenital and acquired disease, nutritional imbalance, and hormone disorder (e.g., kidney stones, genital trauma, gynecomastia, monorchidism, scrotum and testicular trauma, ovarian and testicular cancer, breast cancer, testicular torsion, varicoceles, endometriosis, pregnacy and ectopic pregnancy, female athlete triad, primary amenorrhea, oligomenorrhea, dysmenorrhea, kidney laceration or contusion, cryptorchidism).
MC-C15	Describe and know when to refer common and/or contagious skin lesions from trauma, infection, stress, drug reaction, and immune responses (e.g., wounds, bacteria lesions, fungal

	lesions, viral lesions, bites, acne, eczema dermatitis, ringworm).
MC-C16	Describe and know when to refer common medical conditions of the immune system from infection, congenital and acquired disease, and unhealthy lifestyle. (e.g., arthritis, gout, upper respiratory tract infection [URTI], influenza, pneumonia, myocarditis, gastrointestinal infection, urinary tract infection [UTI], sexually transmitted diseases [STDs], pelvic inflammatory disease, meningitis, osteomyelitis, septic arthrosis, chronic fatigue and overtraining, infectious mononucleosis, human immunodeficiency virus (HIV) infection and AIDS, hepatitis B virus infection, allergic reaction and anaphylaxis, childhood infectious diseases [measles, mumps, chickenpox]).
MC-C17	Describe and know when to refer common neurological medical disorders from trauma, anoxia, drug toxicity, infection, and congenital malformation (e.g., concussion, postconcussion syndrome, second-impact syndrome, subdural and epidural hematoma, epilepsy, seizure, convulsion disorder, meningitis, spina bifida, cerebral palsy, chronic regional pain syndrome [CRPS], cerebral aneurysm).
MC-C18	Describe and know when to refer common psychological medical disorders from drug toxicity, physical and emotional stress, and acquired disorders (e.g., substance abuse, eating disorders/disordered eating, depression, bipolar disorder, seasonal affective disorder, anxiety disorders, somatoform disorders, personality disorders, abusive disorders, and addiction).
MC-C19	Describe a plan to access appropriate medical assistance on disease control, notify medical authorities, and prevent disease epidemics.
MC-C20	Describe and know when to refer common cancers (e.g., testicular, breast).
MC-C21	Describe and know when to refer common injuries or conditions of the teeth (e.g., fractures, dislocations, caries).
MC-C22	Explain the importance and proper procedures for measuring body temperature (e.g., oral, axillary, rectal).
PH-C1	Explain the laws, regulations, and procedures that govern storing, transporting, dispensing, and recording prescription and nonprescription medications (Controlled Substance Act, scheduled drug classification, and state statutes).
PH-C2	Identify appropriate pharmaceutical terminology and abbreviations used in the prescription, administration, and dispensing of medications.
PH-C3	Identify information about the indications, contraindications, precautions, and adverse reactions for common prescription and nonprescription medications (including herbal medications) using current pharmacy resources.
PH-C4	Explain the concepts of pharmacokinetics (absorption, distribution, metabolism, and elimination) and the suspected influence that exercise might have on these processes.
PH-C5	Explain the concepts related to bioavailability, half-life, and bioequivalence.
PH-C6	Explain the general pharmacodynamic principles as they relate to the mechanism of drug action and therapeutic effectiveness (e.g. receptor theory, dose-response relationship, potency, and drug interactions).
PH-C7	Describe the common routes used to administer medications (e.g., oral, inhalation, and injection) and their advantages and disadvantages.
PH-C8	Explain the relationship between generic or brand name pharmaceuticals.
PH-C9	Identify medications that might cause possible poisoning, and describe how to activate and follow the locally established poison control protocols.
PH-C10	Explain the known usage patterns, general effects, and short- and long-term adverse effects for the commonly used performance-enhancing substances.
PH-C11	Identify which therapeutic drugs and non-therapeutic substances are banned by sport and/or workplace organizations in order to properly advise patients about possible disqualification and other consequences.

REQUIRED TEXTBOOKS

1) Cuppett M, Walsh KM. *General Medical Conditions in the Athlete*. St. Louis, MO: Elsevier Mosby; 2005.
2) Mangus, B, Miller, M. *Pharmacology Application in Athletic Training*. Philadelphia, PA: F. A. Davis Company; 2005.

EVALUATION

Students will be evaluated on content standards (knowledge gained) and performance (demonstration of the content). Content standards will be assessed via written quizzes and written exams. Performance will be assessed through completion of class assignments.

Quizzes
Quizzes will be administered weekly at the beginning of class as listed in the schedule. Each quiz will be worth 10 points and will contain 5-10 questions (multiple choice, fill-in-the-blank, short answer or true/false). Quizzes will cover information from the previous readings, lecture material, class activities/discussion and will not be cumulative from week to week. There will be 11 quizzes total, but the lowest quiz grade will be dropped, therefore only the top 10 scores will counted toward the final grade. Scantrons will not be required for quizzes.

Written Examinations
Three examinations will be administered. The format of these examinations may be multiple choice, true/false, short answer, matching and fill-in-the-blank type questions. Each of the examinations will test the material covered in the assigned readings and during the prior class meetings. The final examination is **cumulative**. Each examination will require a scantron and #2 pencil.

Case Study Paper
For this assignment, you will be required to write your own case study report. You choose your own case from this semester's experiences or from past experiences. The case study must involve a general medical condition. The format of this paper will coincide with *AMA* guidelines. This assignment should be of a length, quality, and style that emulates a case study article found a peer-review scholarly medical journal (*for example: Journal of Athletic Training, Athletic Therapy Today, American Journal of Sports Medicine, Medicine and Science in Sports and Exercise, Journal of Sports Rehabilitation, JAMA).* A typed written proposal (one paragraph maximum) is to be handed in on ***March 22 at the beginning of class***. Proper grammar & spelling will be counted as part of your grade. The completed paper must placed in the digital drop box of the course website on Blackboard no later than ***April 26 at 12:00 noon***. More information regarding this assignment will be provided.

COURSE GRADING SCALE

ASSESSMENT METHOD	NUMBER	POINTS EACH	POINTS TOTAL
Quizzes	11	10	100 (lowest score dropped)
Drug Reference Assignment	1	15	15
Written Exams	2	75	150
Case Study Proposal	1	15	15
Case Study Paper	1	70	70
Final Exam (Cumulative)	1	150	150
TOTAL	—	—	**500**

The student's final letter grade will be earned based on the following scale:

A: 465 – 500 pts. (93%)
A-: 450 – 464 pts. (90%)
B+: 435 – 449 pts. (87%)
B: 415 – 434 pts. (83%)
B-: 400 – 414 pts. (80%)
C+: 385 – 399 pts. (77%)
C: 365 – 384 pts. (73%)
C-: 350 – 364 pts. (70%)
D: 315 – 349 pts. (63%)
F: < 315 pts.

MAKE UP WORK

Students who are absent or who arrive late without an official university or a medical doctor's excuse may miss quizzes or other in-class activities. There will be no make-up quizzes or exams unless an excused absence has been warranted. Students who miss an examination quiz or other class activity because of an excused absence must complete the assignment on their first time back in class. All make-up work must be completed by the last day of class unless other approved arrangements are made. It is the student's obligation to pursue any make-up work.

MASON
School of Recreation, Health, and Tourism

- All students are held to the standards of the George Mason University Honor Code [See http://www.gmu.edu/catalog/apolicies/#Anchor12]
- University policy states that all sound emitting devices shall be turned off during class unless otherwise authorized by the professor
- Students with disabilities who seek accommodations in a course must be registered with the Office of Disability Services (ODS) and inform the instructor , in writing, at the beginning of the semester [See www.gmu.edu/student/drc]
- For additional School of Recreation, Health, and Tourism information, please visit the website at http://rht.gmu.edu

TENATIVE CLASS SCHEDULE *Note: Faculty reserves the right to alter the schedule as necessary=*

Class #	Date Day	Quiz #	Quiz Class Material	Topic	Readings
1	1/20 W			Syllabus Review Introduction to General Medicine & CBC Drug References – Physician's Desk Reference (PDR) Elements of a Prescription	C&W Ch. 1-2 C&W Appendix A &B Handout & Assignment
2	1/25 M			Introduction to Pharmacology	M&M Ch. 1
3	1/27 W	1	1 & 2	Pharmacodynamics	M&M Ch. 2
4	2/1 M			Pharmacokinetics	M&M Ch. 2
5	2/3 W	2	3 & 4	Anti-Inflammatory Medications **Drug Reference (PDR) Assignment due**	M&M Ch. 3
-	2/8 M			**SNOW DAY**	
-	2/10 W			**SNOW DAY**	
6	2/15 M			Genitourinary and Gynecological Conditions	C&W Ch. 7
7	2/17 W	3	5 & 6	Skeletal Muscle Relaxants Eye, Ear, Nose, Throat & Mouth Disorders	M&M Ch. 4 C&W Ch. 9 & 10
8	2/22 M			Respiratory Disorders	C&W Ch. 4
9	2/24 W	4	7 & 8	Respiratory Drugs + Proper Inhaler Technique	M&M Ch. 7
10	3/1 M			Colds & Allergies	Handout
11	3/3 W	**EXAM I – Covers all material through & including 3/1 (Classes 1-10)**			
SPRING BREAK					
12	3/15 M			Dermatological Conditions	C&W Ch. 13
13	3/17 W	5	12	Gastrointestinal Disorders	C&W Ch. 6
14	3/22 M			Drugs for Gastrointestinal Disorders	M&M Ch. 8
15	3/24 W	6	13 & 14	Cardiovascular Disorders **Proposal for Case Study Paper due**	C&W Ch. 5
16	3/29 M			Drugs for Cardiovascular Disorders and Hypertension	M&M Ch. 6
17	3/31 W	7	15 & 16	Infectious Diseases	C&W Ch. 12
18	4/5 M			Drugs for Infectious Diseases Disease Control, Notification & Prevention	M&M Ch. 9 C&W Ch.1
19	4/7 W	8	17 & 18	Systemic Disorders (Cancers, Hyper/Hypothyroidism) Thermoregulatory Disorders Cushing's Syndrome & Osteoporosis	C&W Ch. 11 C&W pg. 396 Handouts
20	4/12 M			Analgesics & Local Anesthetics	M&M Ch. 10
21	4/14 W	**EXAM II - Covers all material including dates 2/24 – 3/31 (Classes 12-21)**			
22	4/19 M			Systemic Disorders (Diabetes Mellitus)	C&W Ch. 11
23	4/21 W	9	22	Drugs for Diabetes Mellitus	M&M Ch. 5
24	4/26 M			Neurological Disorders Psychological Disorders	C&W Ch. 8 and 15
25	4/28 W	10	23 & 24	Musculoskeletal Disorders	C&W Ch. 14
26	5/3 M			Muscle Building Agents Used in Sports and Stimulants **Case Study Paper Due**	M&M Ch. 11 and 12
27	5/5 W Make-Up	11	25 & 26	Natural & Ergogenic Supplements	M&M Ch. 13 and 14
28	5/7 F Make-Up			Social Drugs, Recognition & Rules Drug Testing in Sports	M&M Ch. 15 Handouts
29	5/12 W NEW EXAM DATE	**FINAL EXAM CUMULATIVE 9:45 AM – 11:45 AM** 50% of questions will cover previously unexamined material 25% of questions will cover material from Exam I 25% of questions will cover material from Exam II			