

MASTER SYLLABUS

EMS 1614
Pharmacology
August, 2017

INSTRUCTOR: NELSON
OFFICE HOURS: AS POSTED
CLASS TIME(S)/SECTIONS: M-R 8-4

OFFICE LOCATION: AHS
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Course Description: This course introduces the paramedic student to the many different types of medications both encountered and used by the paramedic on a day-to-day basis. The student is taken through how the medications alter cell function, and they are introduced to pathophysiology of diseases and the biological ramifications of the use of multiple medications, and how these medications can either work together, or against each other when a patient takes them. The student is introduced to the many medications that are carried on an advanced life support ambulance, and how these medications are used based on specific patient conditions. The “6 Rights” of medication administration are addressed and the student will learn to employ this mode of accountability prior to giving any medication to any patient. (4 sch.)

Textbook(s) and Material(s):

Brady Paramedic Care: Principles and Practice (2017) Volume 1
Chapters 12-14 (Pathophysiology- Pharmacology- IV Administration)

Student Learning Outcomes:

Upon completion of this course, the student will be able to do the following:

1. Discuss bioavailability of a drug
 2. Discuss half-life
 3. Discuss pharmacodynamics, pharmacotherapeutics, pharmacokinetics
 4. Discuss the different classifications of drugs
 5. Know the difference between a chemical, generic, and trade name
 6. Define receptor
 7. Define an enzyme and a substrate
 8. Define competitive versus non-competitive inhibition
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| <ol style="list-style-type: none">1. Explain the pathophysiological principles of pharmacology and the assessment findings to formulate a field impression and implement a pharmacologic management plan.<ol style="list-style-type: none">a. Describe historical trends in pharmacology. (EMS7, EMS9, EMS10, EMS11, EMS12)b. Differentiate among the chemical, generic (nonproprietary), and trade (proprietary) |
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	<p>names of a drug.</p> <ul style="list-style-type: none"> c. List the four main sources of drug products. d. Describe how drugs are classified. e. List the authoritative sources for drug information. f. List legislative acts controlling drug use and abuse in the United States. g. Differentiate among Schedule I, II, III, IV, and V substances. h. List examples of substances in each schedule. i. Discuss standardization of drugs. j. Discuss investigational drugs, including the Food and Drug Administration (FDA) approval process and the FDA classifications for newly approved drugs. k. Discuss special consideration in drug treatment with regard to pregnant, pediatric, and geriatric patients. l. Discuss the paramedic's responsibilities and scope of management pertinent to the administration of medications. m. Discuss the specific anatomy and physiology pertinent to pharmacology with additional attention to autonomic pharmacology. n. Describe general properties of drugs. o. Describe liquid and solid drug forms. p. Differentiate routes of drug administration. q. Differentiate between enteral and parenteral routes of drug administration. r. Describe mechanisms of drug action. s. Differentiate the phases of drug activity, including the pharmaceutical, pharmacokinetic, and pharmacodynamic phases. t. Describe the processes called pharmacokinetics and pharmacodynamics including theories of drug action, drug-response relationship, factors altering drug responses, predictable drug responses, iatrogenic drug responses, and unpredictable adverse drug responses. u. Differentiate among drug interactions. v. Discuss considerations for storing and securing medications. w. List the component of a drug profile by classification. x. Describe drugs that the paramedic may administer according to local protocol. y. Assess the pathophysiology of a patient's condition by identifying classifications of drugs. z. Demonstrate the proper technique for obtaining a history by identifying classifications of drugs. aa. Discuss the necessity for the administration of medications by a paramedic to affect positive therapeutic effect. bb. Explain drug education through identification of drug classifications. (At a minimum, the state-approved drug list for paramedics must be covered.)
2.	<p>Integrate pathophysiological principles of pharmacology and assessment findings to formulate a field impression and implement a pharmacologic management plan. (EMS7, EMS9, EMS10, EMS11, EMS12)</p> <ul style="list-style-type: none"> a. Integrate pathophysiological principles of pharmacology with patient assessment. b. Synthesize patient history information and assessment findings to form a field impression. c. Synthesize a field impression to implement a pharmacologic management plan.

3. Demonstrate vascular access and medication administration. (EMS7, EMS9, EMS10, EMS11, EMS12)
- a. Explain the specific anatomy and physiology pertinent to medication administration.
 - b. Demonstrate mathematical equivalents.
 - c. Differentiate temperature readings between the Centigrade and Fahrenheit scales.
 - d. Discuss formulas as a basis for performing drug calculations.
 - e. Discuss applying basic principles of mathematics to the calculation of problems associated with medication dosages.
 - f. Demonstrate mathematical conversions from the household system to the metric system.
 - g. Describe the indications, equipment needed, technique used, precautions, and general principles of peripheral venous or external jugular cannulation.
 - h. Describe the indications, equipment needed, technique used, precautions, and general principles of intraosseous needle placement and infusion in all patients.
 - i. Describe the indications, equipment needed, technique used, precautions, and general principles of management of indwelling catheters and implanted central IV ports in all patients.
 - j. Discuss legal aspects affecting medication administration.
 - k. Discuss the “six rights” of drug administration, and correlate these with the principles of medication administration.
 - l. Discuss medical asepsis and the differences between clean and sterile techniques.
 - m. Describe the use of universal precautions and body substance isolation (BSI) procedures when administering a medication.
 - n. Differentiate among the different dosage forms of oral medications.
 - o. Describe the equipment needed and general principles of administering oral medications.
 - p. Describe the indications, equipment needed, techniques used, precautions, and general principles of administering medications by the inhalation route.
 - q. Describe the indications, equipment needed, techniques used, precautions, and general principles of administering medications by the intranasal route.
 - r. Describe the indications, equipment needed, techniques used, precautions, and general principles of administering medications by the gastric tube.
 - s. Describe the indications, equipment needed, techniques used, precautions, and general principles of rectal medication administration.
 - t. Describe the indications, equipment needed, techniques used, precautions, and general principles of administering and monitoring thrombolytic medication.
 - u. Differentiate among the different parenteral routes of medication administration.
 - v. Describe the equipment needed, techniques used, complications, and general principles for the preparation and administration of parenteral medications.
 - w. Differentiate among the different percutaneous routes of medication administration.
 - x. Describe disposal of contaminated items and sharps.
 - y. Synthesize a pharmacologic management plan including medication administration.
 - z. Integrate pathophysiological principles of medication administration with patient management.
 - aa. Explain the paramedic standards of medication administration.
 - bb. Explain the universal precautions and body substance isolation (BSI).
 - cc. Formulate a pharmacologic management plan for medication administration.

- dd. Demonstrate medical asepsis techniques.
- ee. Perform as a role-model for advocacy while performing medication administration.
- ff. Perform as a role-model for disposing contaminated items and sharps.
- gg. Use universal precautions and body substance isolation (BSI) procedures during medication administration.
- hh. Demonstrate cannulation of peripheral or external jugular veins.
- ii. Demonstrate intraosseous needle placement and infusion.
- jj. Demonstrate accessing indwelling catheters and implanted central IV ports.
- kk. Demonstrate clean technique during medication administration.
- ll. Demonstrate administration of oral medications.
- mm. Demonstrate administration of medications by the inhalation route.
- nn. Demonstrate administration of medications by the intranasal route.
- oo. Demonstrate administration of medications by the gastric tube.
- pp. Demonstrate rectal administration of medications.
- qq. Demonstrate the preparation, administration, and maintenance of thrombolytic medications.
- qq. Demonstrate preparation and administration of parenteral medications.
- rr. Demonstrate preparation and techniques for obtaining a blood sample.
- ss. Demonstrate the disposal of contaminated items and sharps.

Attendance: The student will follow both school and program-specific attendance requirements as outlined in the CCC and Health Science handbooks.

Absence from Class for School Sanctioned Activities

The nature of the educational programs at Coahoma Community College is such that it is necessary for every student to attend class regularly. Instructors will keep accurate class attendance records, and those records will become part of the student's official record. Regular class attendance and punctuality are expected. All arrangements for completing missed work are to be made with the instructor. It is the student's responsibility to initiate these arrangements. *Excessive absences may result in loss of credit for the course concerned as well as loss of grant refunds and/or financial aid eligibility.* For more information, see the Attendance Policy section in the College Catalog.

Make-up Policy:

The student will be allowed one (1) make-up exam for any major exam missed in a given semester. No additional make-up exams shall be given beyond this.

Academic Dishonesty:

Cheating and plagiarism (the representation of someone else's work as your own, usually by directly copying or paraphrasing without a reference to the original source) will not be tolerated. The penalty will be receiving a (0) for that assignment, without any possibility of make-up work or alternative assignments. Additionally, according to the Student Handbook, *such acts will be considered a severe infraction and carry a possible sanction of suspension in semester (s) length or expulsion.* For a more in-depth explanation of academic dishonesty, see the Student Handbook.

Electronic Devices in Class

The use of cellular phones, pagers, CD players, radios, and similar devices is prohibited in the classroom and laboratory facilities.

Non-Discrimination/Disability Policy:

Notice of Non-discrimination. Coahoma Community College does not discriminate on the basis of race, color, national origin, sex, disability, or age in its programs and activities. The following person has been designated to handle inquiries regarding the non-discrimination policies: Michael Houston; Coordinator for Section 504/ADA, Title IX; Vivian M. Presley Administration Bldg, 3240 Friars Point Road; Clarksdale, MS 38614; Telephone # (662) 621-4853; Email: mhouston@coahomacc.edu

Accommodations for Students with Disabilities.

Disability Support Services Coordinator has established open hours when students, staff and faculty may drop in without an appointment. Appointments can be made by call (662) 621-4853 or by email to mhouston@coahomacc.edu

Michael Houston

Disability Support Services Coordinator
Vivian M. Presley Administration Building
(662) 621-4853
mhouston@coahomacc.edu

Instructional Techniques:

Instructors may use many different methods of instruction, to include power-point, video presentations, hands-on participation in the skills lab and any other training aid the instructor feels would benefit the student, given the material being presented at that time, provided there is no unnecessary exposure of the student to risk.

Method(s) of Evaluation:

Didactic and psychomotor examinations at regular intervals throughout each semester. Such evaluations will be a direct measurement of the students' level of retention of the material. *(Method(s) of evaluation must measure the student learning outcomes listed above.)*

Grade Scale:

Coahoma Community College changed from the 3.0 system to the 4.0 system effective, September, 1974. College students' academic progress is evaluated according to the following grading system.

Grading Scale for Paramedic		
Grade	Scale	Quality Points
A – Excellent	94-100	4.0

B – Good	87-93	3.0
C – Average	80-86	2.0
D – Poor	70-79	1.0
F - Failure	69 or below	0.0
I – Incomplete		0.0
W – Withdrawal		0.0
Z – Unassigned Grade		0.0
Failure to attain a course grade of “C” or 80% will prevent the student from progressing to the next scheduled semester in the Paramedic Program. 80% will be considered the “cut score” for all major assignments.		

To be in good academic standing, students are required to maintain a cumulative 2.0 average on the 4.0 system. Each grade reported as having been earned by the student at the end of a semester or summer term will be included in computing the cumulative grade point average. The student should observe that the grade “F” carries zero quality points and will be included in the computation. For more information on the Coahoma Community College Grade Scale, students should see the College Catalog.

Revised Fall of 2009
Office of Institutional Effectiveness

COURSE OUTLINE
EMS 1614
Pharmacology
August, 2016

CHAPTER	ASSIGNMENT	
12	Pathophysiology	
	*Multiple opportunities for testing throughout chapter 12	
13	Emergency Pharmacology	
	Students will complete ‘drug cards’ with specific information included on each card to be used as a reference throughout their time in the paramedic program	

	MID TERM EXAMS	
14	Intravenous Administration & Medications	

This outline is intended as a guideline for the course. The institution and the instructor reserve the right to make modifications in content, schedule, and requirements as necessary to enhance each student's educational experience and student learning outcomes.