

# El Paso Community College

## Syllabus

### Part II

## Official Course Description

|                                 |  |                 |                 |                 |                |            |            |
|---------------------------------|--|-----------------|-----------------|-----------------|----------------|------------|------------|
| <b>SUBJECT AREA</b>             | <u><b>Respiratory Care Technology</b></u>  |                 |                 |                 |                |            |            |
| <b>COURSE RUBRIC AND NUMBER</b> | <u><b>RSPT 2317</b></u>  |                 |                 |                 |                |            |            |
| <b>COURSE TITLE</b>             | <u><b>Respiratory Care Pharmacology</b></u>  |                 |                 |                 |                |            |            |
| <b>COURSE CREDIT HOURS</b>      | <table style="width: 100%; border-collapse: collapse; margin: 0;"> <tr> <td style="width: 33%; text-align: center;"><u><b>3</b></u></td> <td style="width: 33%; text-align: center;"><u><b>3</b></u></td> <td style="width: 33%; text-align: center;"><u><b>0</b></u></td> </tr> <tr> <td style="text-align: center;"><b>Credits</b></td> <td style="text-align: center;"><b>Lec</b></td> <td style="text-align: center;"><b>Lab</b></td> </tr> </table> | <u><b>3</b></u> | <u><b>3</b></u> | <u><b>0</b></u> | <b>Credits</b> | <b>Lec</b> | <b>Lab</b> |
| <u><b>3</b></u>                 | <u><b>3</b></u>  | <u><b>0</b></u> |                 |                 |                |            |            |
| <b>Credits</b>                  | <b>Lec</b>   | <b>Lab</b>      |                 |                 |                |            |            |

### I. Catalog Description

A study of drugs that affect cardiopulmonary systems. Emphasis on classification, route of administration, dosages/calculations, and physiological interactions. A grade of "C" or better is required in this course to take the next course. **(3:0)**.

### II. Course Objectives

Upon satisfactory completion of the course, the student will be able to:

- A. Unit I General principles, drug actions and drug calculations
1. Describe fundamental terms; drug actions; sources of drug information principles; the parts of a prescription; legislation affecting drugs.
  2. Describe pharmaceutical, pharmacokinetic, pharmacodynamic phases of inhalation drugs
  3. Describe fundamental terms, physical factors of aerosol deposition patterns of inhalation, aerosol generation devices, the application of variables to aerosol therapy, the use of metered dose inhalers (MDI)
  4. Utilize the metric system of length, volume and weigh measurement
  5. Calculate dosages from prepared-strength liquids, tablets and capsules, calculate dosages from percent-strength solutions, describe fundamental terms of solutions, correctly solve calculation problems
  6. Describe practical methods of proper patient identification and safety including:
    - a. Recall and describe the five rights for medication administration
    - b. Identifying the proper medication for the patient as indicated by their clinical picture
    - c. Describe the proper identification of medications to include trade and generic name and label comparison, the expiration date, and identification of indications and contraindications for patient use.
- B. Unit II The autonomic nervous system and bronchodilators
1. Identify the basic organization of the nervous system, describe the autonomic nervous system, differentiate the functions and operations of the parasympathetic and the sympathetic branches, explain the actions and effects of the different cell receptor sites, describe the autonomic systems control in the lung
  2. Recall the history and development of these drugs
  3. Describe the structure-activity relationships of:
    - a. Catecholamines
    - b. Resorcinols

- c. Saligenins
  - d. Bitolterol
  - e. Potential beta-adrenergic bronchodilators
4. Describe the mode of action of specific adrenergic agents, differentiate between the routes of drug administration, describe the possible adverse side effects of these drugs, recall the history and development of these drugs, identify specific parasympatholytic agents, describe the mode of action of specific adrenergic agents, differentiate between the routes of drug, identify the indications and describe the possible adverse side effects of these drugs
  5. Recall the history and development of these drugs, identify specific xanthine derivative agents, describe the mode of action of specific adrenergic agents, differentiate between the routes of drug administration, describe the possible adverse side effects of these drugs
- C. Unit III Mucus controlling drugs, special respiratory drugs, pediatric applications and skeletal muscle relaxers
1. Describe the anatomy and physiology of mucus production, explain the nature of mucus secretion, identify indications, hazards, and side effects of specific mucus-controlling agents, explain the rationale of mucus-controlling agents, list the actions and side effects of specific mucus-controlling agents, identify the indications, action, and side effects of the following mucus-controlling agents:
    - a. Acetylcysteine
    - b. Dornase Alpha
    - c. Amiloride
    - d. Bland Aerosol
  2. Describe the possible adverse side effects of these drugs
  3. Describe the anatomy and physiology of surfactant agents, explain the rationale of surface-active agents, identify indications, hazards, and side effects of surface-active agents, describe the possible adverse side effects of these drugs
  4. Identify the indications, precautions, hazards, side effects and mode of action, possible adverse side effects of:
    - a. Alpha 1-proteinase Inhibitor
    - b. Nicotine Replacement Therapy
    - c. Nitric Oxide
  5. Describe factors affecting drug therapy in the young, calculate pediatric drug dosages, identify formulae for calculating pediatric dosages of aerosolized drugs, identify methods of administering aerosols to pediatric patients
  6. Recall the history and development of these drugs, describe uses of neuromuscular blocking agents, use with ventilator patients, describe the possible adverse side effects of these drugs
  7. Recall the history and development of skeletal muscle relaxers, describe uses of neuromuscular blocking agents, use with ventilator patients, describe the possible adverse side effects of these drugs
- D. Unit IV Basic Tables and Unit VI Table Attributes
1. Explain the physiology of corticosteroids, describe the mechanism of corticosteroids' antiasthmatic action, describe the indications, actions, hazards and precautions of corticosteroids and specific aerosolized corticosteroids, explain the clinical applications of corticosteroids in Respiratory Care and the possible adverse side effects of these drugs
  2. Recall the history of anti-asthmatics, describe the pathophysiology of asthma, explain the mode of action of anti-asthmatics, identify the clinical use and application of antiasthmatics, list the side effects of anti-asthmatics, explain the allergic response, describe the possible adverse side effects of these drugs
  3. Identify the indications, precautions, hazards, side effects and mode of action of:
    - a. Pentamidine

- b. Ribavirin
- c. Other aerosolized antibiotics
- 4. Describe the role of aerosolized anti-infective agents in Respiratory Care, describe the possible adverse side effects of these drugs, identify the indications, precautions, hazards, side effects, mode of action and describe the possible adverse side effects of these drugs of:
  - a. Antibiotics
  - b. Antifungal agents
  - c. Antituberculous agents
  - d. Antiviral agents
- 5. Describe the physiology of the release of histamine, identify the indications, action, side effects and possible adverse effects of the following cold and cough agents:
  - a. Decongestants
  - b. Antihistamines
  - c. Expectorants
  - d. Cough Suppressants (antitussive)

### III. THECB Learning Outcomes (WECM)

1. Explain the mode of action, clinical indications, dosages, hazards, and side effects of pulmonary and cardiovascular drugs; calculate drug dosages.
2. Select drugs for optimal therapeutic benefits.

### IV. Evaluation

#### A. Evaluation Weights

|                   |      |
|-------------------|------|
| 8 Unit Tests      | 60%  |
| 1 Final           | 20%  |
| Homework, Quizzes | 20%  |
| Total             | 100% |

|             |        |
|-------------|--------|
| 93 to 100%  | A      |
| 86 to 92%   | B      |
| 78 to 85%   | C      |
| 70 to 77%   | D      |
| 69 or below | I or F |

A minimum grade of "C" or 78% is necessary for successful completion of this course

#### B. Unit Assignments

The course will consist of lecture and practical lab when applicable. Student participation during the lecture and laboratory portion of the course is mandatory. Several lecture and laboratory exercises and homework assignments will be required during the semester. Course presentation will include demonstrations, lectures, slides, videos, overhead transparencies and power point presentations. Supplemental handouts will be given out prior to selected units. Several reading, written and homework assignments will be required for the lecture and lab.

### V. Disability Statement (Americans with/Disabilities Act [ADA])

EPCC offers a variety of services to persons with documented sensory, mental, physical, or temporary disabling conditions to promote success in classes. If you have a disability and believe you may need services, you are encouraged to contact the Center for Students with Disabilities to discuss your needs with a counselor. All discussions and documentation are kept confidential. Offices located: VV Rm C-112

(831-2426); TM Rm 1400 (831-5808); RG Rm B-201 (831-4198); NWC Rm M-54 (831-8815); and MDP Rm A-125 (831-7024).

## **VI. 6 Drop Rule**

Students who began attending Texas public institutions of higher education for the first time during the Fall 2007 semester or later are subject to a 6-Drop limit for all undergraduate classes. Developmental, ESL, Dual Credit and Early College High School classes are exempt from this rule. All students should consult with their instructor before dropping a class. Academic assistance is available. Students are encouraged to see Counseling Services if dropping because exemptions may apply. Refer to the EPCC catalog and website for additional information.

## **VII. Title IX and Sex Discrimination**

Title 9 (20 U.S.C. 1681 & 34 C.F.R. Part 106) states the following "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any educational program or activity receiving Federal financial assistance." The Violence Against Women Act (VAWA) prohibits stalking, date violence, sexual violence, and domestic violence for all students, employees and visitors (male and female). If you have any concerns related to discrimination, harassment, or assault (of any type) you can contact the Assistant to the Vice President for Student and Enrollment Services at 915-831-2655. Employees can call the Manager of Employee Relations at 915-831-6458. Reports of sexual assault/violence may also be reported to EPCC Police at 915-831-2200.