El Paso Community College
Syllabus
Part II
Official Course Description

SUBJECT AREA	**Pharmacy Technology**
COURSE RUBRIC AND NUMBER	**PHRA 1404**
COURSE TITLE	**Pharmacotherapy and Disease Process**
COURSE CREDIT HOURS	**4 (Credits) 4 : 0 (Lec Lab)**

I. Catalog Description

Studies the disease state and therapeutic properties of drugs used in pharmaceutical therapy. A grade of "C" or better is required in this course to take the next course. **(4:0).**

II. Course Objectives

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

A. Unit I. Introduction to Pharmacotherapy and the Disease Process
1. Define the phases of pharmacology and drug therapy.
2. Describe how drugs are grouped into major classes.
3. Differentiate among controlled substances Schedules I-V.
4. Explain how the pregnancy categories assigned to drugs help to assess safety of taking them during pregnancy.
5. Describe the difference between prescription and over-the-counter medications as well as brand and generic drug names.
6. Distinguish common dosage forms and the routes by which they are administered.
7. Define the dose-response relationship.
8. Identify key components of the dose-response curve that represent therapeutic range, efficacy, potency, and steady state.
9. Describe the factors that influence absorption, distribution, metabolism, and excretion of drugs from the body.

B. Unit II. Diseases of the Immune System, Vaccines and Infectious Diseases, and Related Drugs
1. Identify the basic anatomy and components of the immune system.
2. Describe the normal physiology of the immune system that is responsible for acquired immunity and immunization.
3. Describe the characteristics of pathogens (bacteria, viruses, and fungi) that cause infection.
4. Explain the therapeutic effects of antibiotics, antiviral drugs, and antifungal agents.
5. State herbal and alternative therapies used to treat common infections.
6. Explain the therapeutic effects of vaccines.
7. Explain the therapeutic effects of immunologic drugs used for viral and autoimmune diseases.
8. Explain the therapeutic effects of drugs used for immunosuppression.

C. Unit III. Diseases of the Skeletal and Integumentary Systems and Drug Therapy
1. Describe the basic anatomy of the skeletal system and joints.
2. Describe the basic physiology of bone homeostasis.
3. Explain the pathophysiology of osteoporosis, arthritis, and gout.
4. Explain the therapeutic effects of prescription and nonprescription medications commonly used to treat osteoporosis, arthritis, and gout.

5. State herbal and alternative therapies used to treat osteoarthritis.
6. Identify the basic anatomy and physiology of the dermatologic system.
7 Describe common pathophysiologies of the skin including intrinsic and extrinsic aging, acne, dandruff, infection, hair loss, dermatitis, eczema, psoriasis, and burns.
8. Explain the therapeutic effects of prescription and nonprescription medications used to treat diseases of the dermatologic system.
9. List herbal and alternative therapies commonly used for skin conditions.

D. Unit IV. Diseases of the Nervous System and Muscular System, Psychiatric and Mood Disorders, and Headaches and Anesthesia and Related Drug Therapy

1. Identify the basic anatomy of the nervous system including the brain.
2. Describe the basic physiology of neurotransmission and effects of the autonomic nervous system.
3. Describe the basic pathophysiology of seizure disorders, Parkinson's disease (PD), dementia (including Alzheimer's disease), and attention-deficit hyperactivity disorder (ADHD).
4. Explain the therapeutic effects of prescription and nonprescription medications used to treat seizures, Parkinson's disease, dementia, and ADHD.
5. Explain the therapeutic effects of adrenergic inhibitors (alpha and beta blockers) and adrenergic agonists (vasopressors and sympathomimetics).
6. Describe anticholinergic drug effects and therapeutic use of herbal and alternative therapies for dementia and memory loss.
7. Describe the basic anatomy and physiology of nerve transmission as it relates to depression, anxiety, bipolar disorder, schizophrenia, and psychosis.
8. Explain the therapeutic effects of prescription and nonprescription medications commonly used to treat psychiatric and mood disorders and insomnia.
9. State herbal and alternative therapies commonly used for insomnia, anxiety, and depression.
10. Describe the basic anatomy and physiology of pain sensation including acute and chronic pain, somatic and visceral pain, neuropathic pain, and sympathetically mediated pain.
11. Describe the basic anatomy and physiology of headache pain.
12. Describe the basic anatomy and physiology of anesthesia.
13. Explain the therapeutic effects of prescription and nonprescription medications commonly used to treat pain and headache.
14. Explain the therapeutic effects of medications that provide anesthesia.
15. State herbal and alternative therapies commonly used for pain and headache.
16. Describe the basic anatomy of the muscular system.
17. Describe the basic physiology of muscle function and the neuromuscular junction.
18. Explain the basic pathophysiology of muscle spasm, muscle spasticity, and other muscle disorders such as myasthenia gravis, rhabdomyolysis, and fibromyalgia.
19. Explain the therapeutic effects of prescription and nonprescription medications commonly used to treat disorders of the muscular system.
20. State the role of herbal and alternative therapies in treating disorders of the muscular system.

E. Unit V. The Cardiovascular System and Blood and Drug Therapy

1. Describe the basic anatomy of the heart and coronary arteries.
2. Describe the basic physiology of heart function, blood flow in the circulatory system, and maintenance of blood pressure.
3. Describe the basic pathophysiology of the heart and cardiovascular system including hypertension, cardiac arrhythmias, angina and heart attack, heart failure, and hyperlipidemia.
4. Explain the therapeutic effects of prescription and nonprescription medications commonly used to treat hypertension, cardiac arrhythmias, angina and heart attack, heart failure, and hyperlipidemia.
5. Describe herbal and alternative therapies used for hyperlipidemia and other cardiovascular system disorders.
6. Describe the cells and components that make up blood.
7. Describe the basic physiology of blood clot formation and coagulation.
8. Describe the basic pathophysiology of anemia, stroke, and clotting disorders.

9. Explain the therapeutic effects of prescription and nonprescription medications commonly used to treat anemia, stroke, and clotting disorders.

F. Unit VI. The Renal System and Fluids and Electrolytes and Drug Therapy

1. Describe the basic anatomy of the renal system including the kidneys and nephrons.
2. Describe the basic physiology of the renal system including the kidneys and nephrons.
3. Describe the pathophysiology of the renal system including urinary tract infections, overactive bladder, and benign prostatic hyperplasia (BPH).
4. Describe the types and stages of kidney failure.
5. List laboratory blood tests used to assess renal function and use the Cockcroft and Gault equation for determining creatinine clearance.
6. Explain the therapeutic effects of diuretics and other prescription and nonprescription medications used for urinary tract infections, overactive bladder, BPH, and kidney failure.
7. Describe herbal and alternative therapies commonly used for BPH and urinary tract infections including saw palmetto and cranberry juice.
8. Describe the physiology of how fluids and electrolytes are maintained in the body.
9. Describe the basic physiology of acid-base balance (including acidosis and alkalosis).
10. Describe the basic pathophysiology of dehydration and edema (fluid overload).
11. Describe the basic pathophysiology of common electrolyte imbalances.
12. Explain the therapeutic effects of fluids and solutions including concepts of tonicity in crystalloids and colloids.
13. Explain the therapeutic effects of electrolyte mixtures and replacement products.
14. Explain the therapeutic effects of acidifying and alkalinizing agents.

G. Unit VII. The Respiratory System and Drug Therapy

1. Describe the basic anatomy and physiology of the respiratory system—in particular, the lower respiratory tract.
2. Describe the pathophysiology of the respiratory system including asthma, chronic obstructive pulmonary disease (COPD), pneumonia, tuberculosis, and cystic fibrosis.
3. Explain the therapeutic effects of the prescription and nonprescription medications commonly used to treat asthma, COPD, pneumonia, and tuberculosis as well as for smoking cessation.
4. List herbal and alternative therapies commonly used to prevent or resist common respiratory tract conditions.

H. Unit VIII. The Gastrointestinal System and Drug Therapy and Nutrition and Drugs for Metabolism

1. Describe the basic anatomy and physiology of the gastrointestinal (GI) system including the pancreas and liver.
2. Describe the pathophysiology of the GI system including diarrhea, constipation, gastro esophageal reflux disease (GERD), peptic ulcer disease (PUD), nausea and vomiting, and hemorrhoids.
3. Explain the therapeutic effects of the prescription and nonprescription medications commonly used to treat diarrhea, constipation, GERD, PUD, nausea and vomiting, and hemorrhoids.
4. List the herbal and alternative therapies commonly used for the GI system including ginger and probiotics.
5. Describe methods to measure nutritional status including ideal body weight (IBW) and body mass index (BMI).
6. Identify recommended daily intake amounts and common doses of vitamins and minerals.
7. Describe the signs and symptoms of micronutrient abnormalities.
8. Explain the therapeutic effects of vitamins and minerals.
9. Describe the basic principles of enteral and total parenteral nutrition (TPN) therapies.
10. Explain the therapeutic effects of prescription and nonprescription medications commonly used to treat obesity.
11. List herbal and alternative therapies commonly used to promote weight loss.

I. Unit IX. The Endocrine System and the Reproductive System and Drug Therapy

1. Describe the basic anatomy of the endocrine system.

2. Describe the basic physiology of the endocrine system including the circadian rhythm of cortisol and the maintenance of normal glucose metabolism and blood levels by the pancreas.
3. Describe the basic pathophysiology of the endocrine system including Type 1 diabetes, Type 2 diabetes, hyperthyroidism, hypothyroidism, Addison's disease, and Cushing's disease.
4. Explain the therapeutic effects of medications commonly used to treat diabetes including oral and injectable medications plus insulins.
5. Explain the therapeutic effects of thyroid hormone products.
6. Describe herbal and alternative therapies commonly used for diabetes including chromium and cinnamon.
7. Describe the basic anatomy of the male and female reproductive systems.
8. Describe the basic physiology of the female reproductive system including the menstrual cycle and menopause.
9. Describe the basic physiology of the male reproductive system including testosterone and sperm production.
10. Describe the pathophysiology of the reproductive system including erectile dysfunction, infertility, and sexually transmitted diseases.
11. Explain the therapeutic effects of prescription and nonprescription medications used for contraception as well as home pregnancy tests and home ovulation kits.
12. Explain the therapeutic effects of prescription and nonprescription medications commonly used for hormone replacement therapy, erectile dysfunction, infertility, and sexually transmitted diseases.
13. Describe herbal and alternative therapies commonly used for symptoms of menopause.

J. Unit X. Cancer and Chemotherapy and Drugs for the Eyes, Ears, and Nose
1. Explain the basic pathophysiology of malignancy and tumor cell growth.
2. Explain the general therapeutic effects of types of cancer treatment (including primary, adjuvant, hormonal, targeted, and palliative therapies) and classes of medications commonly used to treat cancer.
3. Explain the therapeutic effects of specific medications commonly used to treat cancer.
4. Describe the basic anatomy of the eye, ear, and upper respiratory tract.
5. Describe the basic pathophysiology of common eye, ear, and upper respiratory tract conditions.
6. Explain the therapeutic effects of prescription and nonprescription medications commonly used for glaucoma, eye and ear infections, chronic dry eye and allergies, rhinitis, seasonal allergies, and the common cold.
7. Explain how to administer ophthalmic ointment, eye drops, and eardrops.
8. State herbal and alternative therapies used for the common cold and macular degeneration.

III. THECB Learning Outcomes (WECM)

1. Define various disease processes, patterns, and pathogenic organisms.
2. Describe the various types of drugs utilized in the treatment of each disease.

IV. Evaluation

A. Challenge Exam

Students who wish to challenge the course may contact the Instructional Dean for permission. The exam must be taken before the census cut-off date.

B. Pre-assessment

Students' prerequisites will be reviewed during first week of class. Those who do not qualify will be directed to Admissions.

C. Post-assessment

A continuous record of each of the student's progress will be maintained on an institutionally approved grade sheet or computerized substitute. Records will be kept in such a way that information would be clear to a second party performing an audit.

D. Unit Exams

Written unit exams will consist of the following question types: multiple-choice, completion, essay, matching, spelling, analysis, drawing, and definition or any combination of these. The number and type of exams will be at the discretion of the instructor.

E. Assignments

Written projects will be devised and assigned throughout the semester at the instructor's discretion.

F. Final Exam

A comprehensive final exam will be administered at the end of the course.

G. Grading Scale:

Average Grade	Letter Grade
91-100%	A
81-90.9%	B
74-80.9%	C
<74%	F
Incomplete	I
Withdrawn	W

Note: All health occupations programs require a grade of "C" or better in a course for it to be counted toward the degree plan. For this reason, no D's will be awarded.

H. Remediation
At the instructor's discretion, students may be allowed to rewrite papers or retest for higher grades. Students requiring additional help may be referred to tutoring services.

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.