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| **PROFESSOR:**        | **PHONE NUMBER:**        |
| **OFFICE LOCATION:**        | **E-MAIL:**        |
| **OFFICE HOURS:**        | **SEMESTER:**        |

1. **COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDITS:**

**HSC 4159 ADVANCED MEDICAL PHARMACOLOGY (3 CREDITS)**

This course builds on the foundation of pharmacologic practice for RC and CVT Professionals for safe, effective administration of therapeutic drugs via the Oral, Aerosol and Parenteral routes. An emphasis is placed on agents with specific application to cardiopulmonary systems as well as analgesic, sedation and anesthetic agents for critical and emergency care.

1. **PREREQUISITES FOR THIS COURSE:**

**Admission into the BAS Cardiopulmonary Sciences Program; Prior to enrolling in any upper level course (course number beginning with a 3 or 4), students must complete the following courses with a grade of “C” or better: ENC 1101 English Composition I, ENC 1102 English Composition II, and three semester hours of college level mathematics; or permission from the appropriate academic dean.**

**CO-REQUISITES FOR THIS COURSE:**

None

1. **GENERAL COURSE INFORMATION:** Topic Outline.
* General Pharmacological Principles
* Pulmonary Pharmacology
* Cardiac and Renal Pharmacology
* CNS Pharmacology
* Endocrine Pharmacology
* Drugs with important actions on Blood, Inflammation
* Chemotherapeutic Drugs
* Toxicology
1. **All courses at Florida SouthWestern State College contribute to the general education program by meeting one or more of the following general education competencies:**

**C**ommunicate clearly in a variety of modes and media.

**R**esearch and examine academic and non-academic information, resources, and evidence.

**E**valuate and utilize mathematical principles, technology, scientific and quantitative data.

**A**nalyze and create individual and collaborative works of art, literature, and performance.

**T**hink critically about questions to yield meaning and value.

**I**nvestigate and engage in the transdisciplinary applications of research, learning, and knowledge.

**V**isualize and engage the world from different historical, social, religious, and cultural approaches.

**E**ngage meanings of active citizenship in one’s community, nation, and the world.

**A.**  **General Education Competencies and Course Outcomes**

1. Listed here are the course outcomes/objectives assessed in this course which play an integral part in contributing to the student’s general education along with the general education competency it supports.

 General Education Competency: **Evaluate**

 Course Outcomes or Objectives Supporting the General Education Competency Selected:

* Define and discuss the process resulting from a drug binding with its receptor
* Compare and contrast the types of neurotransmitters released by the autonomic nervous system
* Compare and contrast the classes of antiarrhythmic drugs
* Describe how HIV drugs are used in conjunction with each other to treat the viral infection

**2.  Listed here are the course outcomes/objectives assessed in this course which play a *supplemental* role in contributing to the student’s general education along with the general education competency it supports.**

General Education Competency: **Think**

 Course Outcomes or Objectives Supporting the General Education Competency Selected:

* List and discuss the approaches used to control viral diseases
* Compare and contrast tolerance and dependence
* Define and discuss alpha-blockers
* Compare and contrast preganglionic and postganglionic neurons
1. **DISTRICT-WIDE POLICIES:**

**Programs for Students with Disabilities**

Florida SouthWestern State College, in accordance with the Americans with Disabilities Act and the College’s guiding principles, offers students with documented disabilities programs to equalize access to the educational process. Students needing to request an accommodation in this class due to a disability, or who suspect that their academic performance is affected by a disability should contact the Office of Adaptive Services at the nearest campus. The office locations and telephone numbers for the Office of Adaptive Services at each campus can be found at <http://www.fsw.edu/adaptiveservices>.

**REPORTING TITLE IX VIOLATIONS**

Florida SouthWestern State College, in accordance with Title IX and the Violence Against Women Act, has established a set of procedures for reporting and investigating Title IX violations including sexual misconduct.  Students who need to report an incident or need to receive support regarding an incident should contact the Equity Officer at equity@fsw.edu.  Incoming students are encouraged to participate in the Sexual Violence Prevention training offered online.  Additional information and resources can be found on the College’s website at <http://www.fsw.edu/sexualassault>.

1. **REQUIREMENTS FOR THE STUDENTS:**

This course is presented in a web-based format.

Students will be responsible for completing and submitting all assignments listed in each lesson by the stated deadline. Discussion will take place through the use of discussion forum postings, e-mail, and telephone (if necessary).

Discussion forums are simply computerized versions of the cork bulletin boards with which we're all familiar. Just as with traditional message boards, users of electronic discussion forums may post new messages, read others' messages, and respond to others' messages. The CANVAS Discussion will be used in class for electronic discussions. Students are required to participate in class electronic discussions. In other words, they are required to post messages and reply to messages on the discussion forum.

Course Emails: All course emails must be sent through the CANVAS system only. Emails regarding questions about the course sent through Eagle mail will be returned requesting that the email be resent through CANVAS email.

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

• Define and discuss the purpose of a receptor

• Define and discuss the process resulting from a drug binding with its receptor

• Define and explain what effects the level of response from a drug/receptor interaction

• Compare and contrast types of agonists

• Define and discuss antagonists

• Define and explain therapeutic index

• Define and explain first-pass effect

• Define and discuss bioavailability of a drug

• Define and explain zero-order kinetics

• Define half-life of a drug

• Define steady-state concentration

• Define loading dose

• List and explain the acids used in phase II liver metabolism

• Compare and contrast enzymes used in phase I liver metabolism

• List and explain enzymes used in phase I liver metabolism

• Define and discuss the different processes of how a drug crosses a cell’s membrane

• List and explain the three physiological processes used in renal excretion of drugs

• Define and discuss the divisions of the autonomic nervous system

• Compare and contrast preganglionic and postganglionic neurons

• List and explain the key features of the sympathetic nervous system

• Compare and contrast the types of neurotransmitters released by the autonomic nervous system

• Define and discuss how the effects of neurotransmitters are terminated

• Compare and contrast the receptors used by the autonomic nervous system

• Define and explain the types of beta receptors

• Define and discuss cholinergic agonists

• List and explain the side effects of muscarinic antagonist

• Define and discuss the divisions of the autonomic nervous system

• Compare and contrast preganglionic and postganglionic neurons

• List and explain the key features of the sympathetic nervous system

• Compare and contrast the types of neurotransmitters released by the autonomic nervous system

• Define and discuss how the effects of neurotransmitters are terminated

• Compare and contrast the receptors used by the autonomic nervous system

• Define and explain the types of beta receptors

• Define and discuss cholinergic agonists

• List and explain the side effects of muscarinic antagonist

• Define and discuss the receptors affected by the sympathetic nervous system

• Compare and contrast indirect-acting and direct acting beta agonist

• Define and discuss adrenergic agonists

• Compare and contrast norepinephrine and epinephrine

• Define and discuss alpha blockers

• Compare and contrast beta blockers

• List and explain the groups of diuretics

• Explain how ACE inhibitors work

• List and explain the toxic side effects resulting from cardiac glycosides

• Define and discuss the action potential of non-pacemaker cardiac cells

• Compare and contrast the class of antiarrhythmic drugs

• List and explain the phases of hemostasis

• Define and discuss platelet aggregation inhibitors

• Define and discuss the how heparin works

• Compare and contrast first and second generations of thrombolytic drug

• Define and discuss how warfarin works

• Define and discuss the how statins work to prevent heart disease works

• List and explain how dementia affects the brain

• Define cross-tolerance

• Compare and contrast tolerance and dependence

• Compare and contrast barbiturate and benzodiazepines

• Define and discuss the characteristics of barbiturates

• Define and discuss the withdrawal symptoms from benzodiazepine dependency

• Define and discuss the characteristics of benzodiazepines

• List and discuss how antidepressants work

• List and discuss the groups of antidepressants

• Compare and contrast serotonin-specific reuptake inhibitor and serotonin/norepinephrine reuptake inhibitors

• List and explain the actions of heterocyclics

• Define MAO inhibitors

• List and explain neuroleptics

• Compare and contrast first and second generation antipsychotic block

• List and explain the therapies for Parkinson disease

• Define and discuss how drugs are used in conjunction for Parkinson disease

• Define and discuss the side effects of anticholinergic therapy

• Define and discuss the withdrawal symptoms from benzodiazepine dependency

• List and discuss the types of seizures associated with epilepsy

• Compare and contrast the drugs used to treat epilepsy

• List and discuss the opioid receptors

• Compare and contrast local and general anesthesia

• List and explain the ways a bacteria can become resistant to an antibiotic

• List and discuss the adverse effects of antibiotics

• Compare and contrast gram-positive and gram-negative antibiotics

• Describe how antibiotics work

• List and discuss the antibiotic groups that inhibit cell wall synthesis

• Compare and contrast the different spectrums of antibiotics

• Define and discuss the toxicity of antibiotics

• List and explain the diseases macrolides are use as treatment

• Define the characteristics of folate antagonists

• List and discuss the uses of quinolones

• Define how quinolones work

• List and discuss the drugs used to treat tuberculosis

• Describe how tuberculosis drugs are in conjunction

• List and discuss the drugs used to treat leprosy

• Describe how leprosy drugs are in conjunction

• Compare and contrast the classification of antifungal drugs

• List and explain the groups of helminths

• Define and discuss the drugs used to treat helminths

• List and discuss the approaches used to control viral diseases

• Define and discuss the life cycle of a virus

• List and discuss the drugs used to HIV

• Describe how HIV drugs are in conjunction to treat the viral infection

• List and discuss the drugs used to treat influenza

• Define and discuss the types of protozoa and the diseases associated with each

• List and discuss anti-malaria drugs

• Compare and contrast the cytotoxic drug and hormones used in cancer treatment

• Define log kill

• List and discuss the side effects of anticancer drugs

• Compare and contrast antibiotics used as anticancer drugs

• Define kinase inhibitors

• List and discuss the groups of adrenocortical steroids

• Define and discuss the uses of glucocorticoids

• Define and discuss the side effects of glucocorticoids

• Compare and contrast the groups of sex steroids

• List and discuss thyroid drugs

• List and discuss parathyroid drugs

• Compare and contrast the drugs used for type I diabetes mellitus

• Compare and contrast the drugs used for type II diabetes mellitus

• List and discuss the types of histamines

• Define and discuss the uses of antihistamines

• Define and discuss the drugs used to treat bronchoconstriction

• List and discuss the risks of using long acting beta 2 agonist

• Define and discuss leukotriene modifiers

• Compare and contrast the drugs used for the upper and lower GI tract

• List and discuss the types nonsteroidal anti-inflammatory drug

• List and discuss cox-2 inhibitors

• Define and discuss salicylates

• List and discuss antigout agents

• Compare and contrast types of immunosuppressive

• Compare and contrast drugs used in osteoporosis

• Define and discuss agents used in the treatment of poisoning

In addition to Lecture and Live Discussion during class meetings, there will be weekly on-line quizzes, essay questions, and discussion board activities that will enable each student to explore clinical effects for patients. One patient case study will serve as examples of the interaction of pharmacologic agents. There will be a required formal paper to write. This paper will cove Medication errors.

1. **ATTENDANCE POLICY:**

This course is an on-line course. All of the work will be done on-line. There will be assignments and discussion boards' postings due for specific modules throughout the semester. Each question on the discussion boards will relate to that week's topic. The assignments and postings must be submitted or made by the due date for each module, unless prior arrangements have been made with the professors. Each assignment will consist of multiple-choice or short answer questions. These questions will come from the reading assignments for that particular module. Each module assignment is to be completed on an individual basis. You are expected to complete the module assignment on your own without the assistance of others. Evidence of collaboration with other individuals will result in a grade of zero plus further sanctions for breach of academic honesty, which may result in suspension or expulsion.

Attendance— This is an online course and attendance is measured by participation in discussion forums and submission of assignments. Students will be responsible for completing all assignments listed in each module and submitting them by the stated deadline. Discussion will take place through the use of discussion forum postings, e-mail, and telephone (if necessary). Technology is not an excuse for late submission of assignments or postings to the discussion forum.

Attendance Verification: The student must complete all of the listed activities by 4:30 on the last day of the drop/add period, in order to have your attendance verified. If your attendance is NOT verified, this will affect your financial aid. Specifically, the three activities you MUST complete are as follows:

1. Post to the introductory discussion board

2. View the plagiarism tutorial.

3. Pass the plagiarism quiz.

 Vacations: Students choosing to go on vacation during the semester are responsible for submitting all assignments, discussion forum postings, projects, and examinations by the stated due dates. Lack of Internet access is not an excuse for late submission.

 All work is to be completed solely and independently by the student. Inclusion of facts, ideas, quotes, or other materials from outside sources must be cited and referenced in all work. Failure to cite references may constitute plagiarism. Evidence of cheating and plagiarism are cause for disciplinary action by Florida Southwestern State College. According to Florida Southwestern State College, plagiarism and cheating refer to the use of unauthorized books, notes, using the copy and paste function, or otherwise securing help in a test; copying tests, assignments, reports, or term papers; representing the work of another person as one's own; collaborating without authority with another student during an examination or in preparing academic work, or otherwise practicing academic dishonesty.

 Students agree by taking the course all required papers may be subject to submission for textual similarity review to Turnitin.com for the detection of plagiarism. All submitted papers will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. Use of the Turnitin.com service is subject to the Terms and Conditions of Use posted on the Turnitin.com site.

 **All work submitted must be original and not used in any previous classes at Florida Southwestern State College. Any work that is submitted and does not follow this policy will be considered plagiarized and as a result, there may be consequences as stated in the above paragraph. Using Wikipedia as a resource is not allowed. Any paper submitted using this source will be returned to the student to be fixed and resubmitted. If this causes the paper to be late, the student's grade will be reduced by the amount indicated in the instructions for that assignment.**

 Zero-Tolerance Policy: Florida Southwestern State College maintains a zero tolerance policy for academic dishonesty. Any student found in violation of academic honesty will subject to sanctions, which may include up to receiving a grade of "F" in this course. Any School of Health Profession student that receives a grade of "F" for academic dishonesty in any course may be permanently dismissed from the program they are enrolled.

 Assignments will be graded as they are submitted. The student‘s paper will be graded within 48 hours after submission. If there is going to be a delay, the instructor will notify student of the delay within the 48 hour window. Unless a student has prior permission from the professor, each assignment is to be submitted to the professor by stated due date. Any assignment submitted after the deadline will lose the amount of points stated in each assignment's directions. No assignment will be accepted that is more than 72 hours late. After that time, a zero (0) will be given for that assignment.

1. **GRADING POLICY:**

Include numerical ranges for letter grades; the following is a range commonly used by many faculty:

**90 - 100 = A**

**80 - 89 = B**

**70 - 79 = C**

**60 - 69 = D**

**Below 60 = F**

 **Case study 1 10%**

 **Case study 2 10%**

 **Discussion 10%**

 **Essays 23%**

 **Corrected essays 2%**

 **Quizzes 10%**

 **Project sections 30%**

 **Project final 5%**

Students have one (1) week to make up the Mid -term Exam with prior permission of the instructor. Any exam or assignment not made up within one week will result in a grade of “0” for the exam or assignment. Make up exams will be provided only with prior permission of the professor. The case study is considered the final exam.

(Note: The “incomplete” grade [“I”] should be given only when unusual circumstances warrant. An “incomplete” is not a substitute for a “D,” “F,” or “W.” Refer to the policy on “incomplete grades.)

1. **REQUIRED COURSE MATERIALS:**

Stringer, J.L. (2011) Basic Concepts in Pharmacology: What you Need to Know for Each Drug Class, Fourth Edition / Edition 4 ISBN 0071741046

1. **RESERVED MATERIALS FOR THE COURSE:**

None

1. **CLASS SCHEDULE:**

Module 1 - General principles

Module 2 - Autonomic Nervous system

Module 3 - Autonomic Nervous System and Cardiovascular System

Module 4 - Cardiovascular System

Module 5 - Central Nervous System

Module 6 - Central Nervous System)

Module 7 - Chemotherapeutic Agents

Module 8 - Chemotherapeutic Agents (continued)

Module 9 - Chemotherapeutic Agents (continued)

Module 10 - Endocrine System

Module 11 - Miscellaneous Drug

Module 12 - Miscellaneous Drug (continued)

Module 13 – Final paper

1. **ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:**

None