BSC 514. PHARMACOLOGY

COURSE SYLLABUS: SPRING 2020

INSTRUCTOR INFORMATION

Instructor: Hyun-Joo Nam, PhD
Office Location: STC 233
Office Hours: MW 12:30 – 2:30 PM
Office Phone: 903-468-8648
University Email Address: Hyun-Joo.Nam@tamuc.edu
Preferred Form of Communication**: email**
Communication Response Time: Less than 48 for e-mails (excluding weekends and holidays)

COURSE INFORMATION

Textbook(s) Required: Basic and Clinical Pharmacology 14th Edition, Bertram Katzung, ISBN-13: 978-1259641152
Software Required: Please see technology requirements.

COURSE DESCRIPTION

This course is designed for graduate students with a background in biology, cell biology and chemistry. This course provides students with a greater understanding of general concepts of pharmacology. First, specific drugs and sites of drug action are examined beginning with the autonomic nervous system. We then will focus on the pharmacology of the heart, the vascular and renal systems, followed by pharmacology of the respiratory system, then endocrine system and drugs affecting the immune system. Finally, we examine the pharmacology of central nervous system. Pre-requisites: BSC 303/CHEM 1411.

STUDENT LEARNING OUTCOMES

Upon completion of this course you should be able to:

1. Tell the basic groups of endogenous proteins that are bound by drugs, the effects of drug binding on their molecular targets and methods for analyzing drug binding.

2. Explain the major types of receptors, their structures and associated signal transduction mechanisms.

3. Discuss the chemical mediators and peripheral nervous system, components and basic physiology of cholinergic transmission and drugs acting on cholinergic system.

4. Articulate on the basic physiology of noradrenergic, 5-hydroxytryptamine and purinergic transmission and associated drugs; cannabinoids and local hormones and their importance.

5. Explain the importance of nitric oxide signaling; gain general understanding of adverse cardiovascular conditions and drugs used to treat these conditions.

6. Discuss about anti-inflammatory drugs and drugs used to treat respiratory, GI and kidney disorders.

7. Understand the basic concepts of endocrine and reproductive system disorders and associated drugs for treatment.

8. Explain the basic disease/disorder mechanisms of the central nervous system and know the major drugs acting on CNS.

9. Discuss the basic concepts of addiction, drug toxicity, individual variations in drug effectiveness and sports drugs.

COURSE REQUIREMENTS

Minimal Technical Skills Needed

Standard skills necessary to use web browsers to access course materials is required. Students should also be able to submit their work as necessary. Students should be able to use Microsoft Word and PowerPoint.

Instructional Methods

This is a fully online course. All course materials will be posted in D2L. I will post announcements on the home page of the course or send email notifications.

Student Responsibilities or Tips for Success in the Course

Dedicated time to learn course materials

The *syllabus/schedule are subject to change.*

Have the required technology (a computer, a secure and reliable internet connection, and other requirements detailed in this syllabus – please read "Technology Requirements" section.
Take exams and quiz within the specified time
Submitting assignments before deadlines
If special accommodations need to be made notifying the instructor in advance
Checking both D2L and emails for course related announcements.

GRADING

Final grades in this course will be based on the following scale:

A = 90%-100%

B = 80%-89%

C = 70%-79%

D = 60%-69%

F = 59% or Below

Assessments

There will be three types of assessments that will contribute to the grade. These are:
1. Quizzes
2. Exams
3. Assignments

Distribution:

Quiz = 30% (4 quiz; 7.5%/quiz)
Exams = 30% (3 exams; 10%/exam)
Assignment = 10% (two; 5% for each)
Final Exam* = 30%
*Final exam is a comprehensive exam that will cover all the chapters.

Exams and quizzes consist of multiple-choice questions. Questions are drawn from the same test pool. Therefore, some questions may be repeated. Students are expected to make sure they have the necessary device and a reliable connection. Use of smart phones and/or Wi-Fi of a restaurant or store are discouraged.

Important information:
1. There will not be any additional points extra credits. A student's grade will come only from the points he/she earns in the three types of assessments.
2. Exams and Quizzes:
   (a) You will have one minute to answer each question. If, for example an exam has 20 questions you will need to complete and submit in 20 minutes. No additional time will be provided.
   (b) Please read the instructions, if any, carefully before beginning the exam/quiz.

(c) Students cannot take the exams or quizzes before the designated time starts. Trying this will result in losing your time without viewing the questions.
(d) Exams and quizzes will be usually held on Fridays and Saturdays. Students can take the exam/quiz online during this 48-hour time window.
The syllabus/schedule are subject to change.
(e) No requests to open the exams or quizzes earlier will be accepted.
(f) All requests for make-up exams/quizzes must accompany supporting documents (e.g. a doctor's note). The reasons for not taking an exam/zero within the designated should be acceptable, as outlined in your student handbook. Forgetting to take the exam/quiz will not be an acceptable reason.
(g) Failure to take the exams or quizzes within the designated time will result in ZERO credit.

3. All assignments should be submitted before the deadlines. Late submissions will automatically receive ZERO points. Assignments will be checked for plagiarism.

4. It is the students' responsibility to check emails and D2L for exam/quiz dates and assignment postings & deadlines.

TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:
https://community.brightspace.com/s/article/Brightspace-Platform-Requirements

LMS Browser Support:
https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

YouSeeU Virtual Classroom Requirements:
https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu**.**

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each

student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

https://community.brightspace.com/support/s/contactsupport

Interaction with Instructor Statement

Students are encouraged to interact with the instructor during active classroom learning sessions. Response time for Response time to any questions sent by email regarding the course will be within 48 hours. Weekends and holidays are excluded. Students need to use the office hours indicated in this syllabus.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook.
http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum:
https://www.britannica.com/topic/netiquette

TAMUC Attendance

For more information about the attendance policy please visit the Attendance webpage and Procedure 13.99.99.R0.01.
http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf

Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

Undergraduate Academic Dishonesty 13.99.99.R0.03

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf

Graduate Student Academic Dishonesty 13.99.99.R0.10

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf

Students with Disabilities-- ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
Texas A&M University-Commerce
Gee Library- Room 162
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: studentdisabilityservices@tamuc.edu
Website: Office of Student Disability Resources and Services
http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the

basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the Carrying Concealed Handguns On Campus document and/or consult your event organizer.

Web url:
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1

COURSE OUTLINE / CALENDAR

Week 1 Jan 13

Chapter 1. THE NATURE OF DRUGS AND DRUG DEVELOPMENT

drug binding, protein targets of drug binding, agonist types, drug-receptor interactions, measurement of drug binding, drug antagonism, desensitization.

Week 2 Jan 20

Chapter 2. DRUG RECEPTORS AND PHARMACODYNAMICS

receptor groups, structure and signal transduction mechanisms, ion channels, G-protein coupled receptors, receptor tyrosine kinases, nuclear receptors

Week 3 Jan 27

Chapter 3/4 PHARMACOKINETICS AND BIOTRANSFORMATION

translocation of drug molecules, drug disposition, special delivery systems.

Week 4 Feb 3

Chapter 6: INTRODUCTION TO AUTONOMIC PHARMACOLOGY

peripheral nervous system, chemical transmission, mechanisms of transmitter release, termination of transmitter action.

Quiz 1 (Chapters 1, 2, 3/4)

Week 5 Feb 10

Chapter 7/8. CHOLINERGIC TRANSMISSION

acetylcholine receptors, physiology of cholinergic transmission, effects of drugs on cholinergic transmission.

The *syllabus/schedule are subject to change.*

Chapter 9/10. NORADRENERGIC TRANSMISSION
classification, physiology and drugs.

Week 6 Feb 17

Exam 1 (Chapters 1, 2, 3/4, 5, 6, 7/8)
CHAPTER 16. HISTAMINE, SEROTONIN, PURINES, LOCAL HORMONES, CANNABIOINDS

Week 7 Feb 24

Chapter 19. PEPTIDES AND PROTEINS AS MEDIATORS AND NITRIC OXIDE SIGNALING
Selected from Chapters 18 and 36 . ANTI-INFLAMMATORY DRUGS
Assignment 1 Due

Week 8 Mar 2

Selected from Chapters 11~14. DRUGS AFFECTING HEART, CIRCULATORY SYSTEM AND BLOOD
Quiz 2 (**Chapters 9/10, 16, 19)**

Week 9 Mar 9-spring break

Week 10 Mar 16

Chapter 20. RESPIRATORY SYSTEM

Week 11 Mar 23

Chapter 15. URINARY SYSTEM
Chapter 62/41. GI TRACT, GLUCOSE METABOLISM AND OBESITY
Quiz 3 (**Chapters 11~14, 15, 20)**

Week 12 Mar 30

Selected from Chapters 37~40, 42. PITUITARY, ADRENAL CORTEX, THYROID, REPRODUCTIVE SYSTEM AND BONE METABOLISM.

Week 13 Apr 6

Chapter 21. DRUGS ACTING ON THE CENTRAL NERVOUS SYSTEM
Exam 2 (Chapters 9/10, 16, 19, 11~14, 15, 20, 62/41, 37~40/42)

Week 14 Apr13

Chapter 28. NEURODEGENERATIVE DISEASES, ANESTHETIC AND ANALGESIC DRUGS
Chapter 22. ANXIOLYTIC AND HYPNOTIC drugs
Assignment 2 due

Week 15 Apr 20

Chapter 29/30. ANTIPSYCHOTIC AND ANTIDEPRESSANT DRUGS.
Quiz 4 (Chapters 21, 28, 22)

Week 16 Apr 27

Exam 3 (Chapters 21, 28, 22, 29/30)
Chapter 32. DRUGS OF ABUSE

Final Exam*

Final exam is a comprehensive exam that will cover all the chapters

***Please check the academic calendar for details on holidays, start and end dates of the current semester. Semester begins on January 13, 2020.**
***ALL DATES AND CHAPTERS COVERED ARE TENTATIVE AND SUBJECT TO CHANGE.**

The *syllabus/schedule are subject to change.*