Course Number: BSC 427; CRN: 81381
Course Title: Pharmacology
Fall 2015

Instructors
Lecture: Dr. Kodeeswaran Parameshwaran  
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<th>Day</th>
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<tr>
<td>Lecture</td>
<td>MWF 9:00 am – 09:50 am</td>
<td>BA 338</td>
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Final Exam: TBA

Office Hours, Location, Phone & E-mail:
Monday & Wednesday: 10:00 – 12:00 pm
or by appointment

Office: Science # 201  
Phone: 903-468-8648  
Fax: NA  
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UNIVERSITY STATEMENTS

Academic Integrity
By accepting this syllabus, you pledge to uphold the principles of Academic Integrity expressed by the Texas A&M University-Commerce Community. You agree to observe these principles yourself and to defend them against abuse by others. The first instance of cheating will result in an automatic zero on the exam and/or assignment. A second instance will result in a zero in the course. Cheating constitutes copying information from another student or non-allowable material as well as plagiarism. Plagiarism is a criminal activity. You must cite all sources of information. Copying of
material, whether parts of sentences, whole sentences, paragraphs, or entire articles, will result in a score of zero for your essay and can result in further disciplinary action.

**Conduct Policy**
All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. (See Student’s Guide Handbook, Policies and Procedures, Conduct)

**Special Needs and Accommodations**
Please advise the instructor of any special problems or needs at the beginning of the semester. 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 132**
**Phone (903) 886-5150 or (903) 886-5835**
**Fax (903) 468-8148**
**StudentDisabilityServices@tamuc.edu**

**Access to Student Work**
Copies of your work in this course including copies of any submitted papers and your portfolios may be kept on file for institutional research, assessment and accreditation purposes. All work used for these purposes will be submitted anonymously.

**University Policy on Weather Closings**
Snow closings are generally announced on area television and radio stations. Unless otherwise advised by radio announcement or by official bulletins on the number listed above, students are expected to report for class as near normal time as possible on days when weather conditions are adverse. Decisions as to snow closing or delayed opening are not generally made before 5:00 AM of the working day. Students are expected to attend class if the University is not officially closed.

**Textbook:** There is no required text book for this course
**BROAD PURPOSE OF THE COURSE**
This course is designed for undergraduate students with a background in biology, cell biology and chemistry. Therefore, this course provides students with a greater understanding of general concepts of pharmacology. Next, specific drugs and sites of drug action are further examined beginning with the peripheral, followed by the central 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 infectious disease. 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.

**TEACHING METHOD**
Formal lectures will be supplemented with appropriate audiovisual materials, and home assignments. This is a lecture only course (no lab). I will post announcements on the home page of the course (eCollege) for reminders of important due dates in addition to announcing them in the class.
There will be three exams followed by a cumulative final. Questions for quizzes and exams are derived from the same Test Pool. Therefore some questions may be repeated.

**Attendance and Absences:** You are expected to attend ALL scheduled lectures and take the exams as scheduled. You will be held responsible for all information covered in lecture. There will be a 6 point credit for attendance. If a student fails to maintain a minimum of 80% attendance at ANY GIVEN TIME he/she will be dropped from the course. Excused absences as defined in the Student Handbook of the university will be accepted.

**Assignments and Quizzes:** At home questions will be assigned beginning in the second week of the course. Quizzes will be administered in the class. Full credit will be given to home assignments if they are turned in the same week (before Friday 5.00 PM CST). If they are done in the subsequent week it will be treated as a quiz.

**Exams:** Consist of multiple choice questions and short answer questions. Questions are drawn from the same test pool. Exams will be taken in class.

**Makeup Policy:** The student is responsible for requesting a makeup when they are unable to attend the regularly scheduled examination and must schedule the makeup within 2 days of the absence. Makeup exams will be scheduled only in the event of an EXCUSED absence (as defined in the Student’s Guidebook). If the test is not made-up, the student will receive a zero for that exam.

**GRADING SYSTEM**

**Grading scale:**
The final course letter grade will be assigned based upon the following breakdown:

- 90 - 100% = A
- 80 - 89% = B
- 70 - 79% = C
- 60 - 69% = D
- 00 - 59% = F

**Distribution:**
- Quiz = 24% (4 quiz; 6%/quiz)
- Exams = 30% (3 exams; 10%/exam)
- Attendance = 6%
- Assignment = 10% (two; 5% for each)
- Final Exam* = 30%
Final exam is a comprehensive exam that will cover all the chapters.

**TOPICS COVERED**

**Week 1:**
Meet and Greet

*Chapter 1 - General principles of drug action:* drug binding, protein targets of drug binding, agonist types, drug-receptor interactions, measurement of drug binding, drug antagonism, desensitization.

**Week 2:**

*Chapter II – Molecular aspects of drug action:* receptor groups, structure and signal transduction mechanisms, ion channels, G-protein coupled receptors

**Week 3:**

*Chapter II (contd.):* receptor tyrosine kinases, nuclear receptors

*Chapter III: Absorption and translocation of drugs:* translocation of drug molecules, drug disposition, special delivery systems.

**Week 4:**

*Chapter IV: Drug elimination and pharmacokinetics:* drug metabolism, renal excretion of drugs and drug metabolites, biliary excretion, pharmacokinetics.

**Week 5:**

*Chapter V: Chemical mediators of the autonomic nervous system:* peripheral nervous system, chemical transmission, mechanisms of transmitter release, termination of transmitter action.

**Week 5:**

*Chapter VI: Cholinergic transmission:* acetylcholine receptors, physiology of cholinergic transmission, effects of drugs on cholinergic transmission.

*Chapter VII: Noradrenergic transmission:* classification, physiology and drugs.
Week 6: Chapter VIII: 5-Hydroxytryptamine, purines, local hormones, cannabioinds:

Week 7: Chapter IX: Peptides and proteins as mediators and nitric oxide signaling:

Week 8: Chapter X: Drugs affecting heart, circulatory system and blood.

Week 9: Chapter XI: Anti-inflammatory drugs, respiratory system, kidney, GI tract, glucose metabolism and obesity.

Week 10: Chapter XII: pituitary, adrenal cortex, thyroid, reproductive system and bone metabolism. Chapter XIII: drugs acting on the central nervous system

Week 11: Chapter XIV: Neurodegenerative diseases, anesthetic and analgesic drugs

Week 12: Chapter XV: Anxiolytic and hypnotic drugs Antipsychotic and antidepressant drugs

Week 13: CNS stimulants, addiction, dependence and abuse Drugs used for treatment of infections, cancer and immunological disorders.

Week 14: Special topics: individual variations, drug interactions, harmful effects, lifestyle drugs, sports drugs, etc.

Cumulative Final: December 16th 2015, 8.00 AM – 10.00 AM.

*ALL DATES AND ASSIGNMENTS ARE TENTATIVE AND SUBJECT TO CHANGE*