

Pharmacology 761 - Medical Pharmacology Spring 2008

Course Information	
General	<p>Course Format: Lecture and Small Group Discussion</p> <p>Course Director: David J. Smith, 3146 HSN, 3-4470, djsmith@hsc.wvu.edu</p> <p>Coordinator of Learning Exercises: Karen Woodfork, 3623 HSS, 3-1997, kwoodfork@hsc.wvu.edu</p> <p>Coordinator of Examinations: Leah Hammer, 3619 HSS, 3-1521, lhammer@hsc.wvu.edu</p> <p>Schedule: M,W,Th & F 8:00-11:50 AM; T 8:00-9:50 AM</p> <p>Location: Lectures occur in 1909 Learning Center Small group exercises occur in conference rooms of the Learning Center and 7th floor of HSS.</p> <p>Office Hours The course director and other faculty are usually available during working hours, but arranging appointments may be necessary.</p>
Course Description	<p>Pharmacology 761 integrates the basic knowledge of drug action with significant exposure to the practical use and problems associated with drugs as used by clinical faculty. One of the great strengths of the subject of pharmacology is that it unifies knowledge of anatomy, biochemistry, pathology and physiology into an understanding of the actions of drugs. Information is conveyed to students via several modes: lectures, small group and problem solving interactions, clinical correlations and computer-aided instruction. Active, student-centered learning is a significant part of the module. The overall goal of this course is to expose the students to basic science information and allow them to develop the skills needed to solve therapeutic problems of the practice of medicine.</p>
Expected Competencies and Learning Outcomes	<p>Students are expected to understand the principles by which drugs produce effects in the human system and how the human system handles foreign substances. Levels of analysis will include:</p> <ol style="list-style-type: none"> 1. The cellular mechanism of action of each of the major classes of pharmacological agents 2. How organ systems and whole body physiology are affected by these cellular actions

<p>Expected Competencies and Learning Outcomes (continued)</p>	<p>3. The use of knowledge of cellular mechanisms to predict therapeutic and adverse effects of drugs.</p> <p>In addition to mastering the specific information, students will learn how to approach problems, develop critical thinking skills and be familiar with techniques for assessing and predicting effects of drugs.</p> <p>As students study pharmacology, they will be developing selected competencies adopted by the WVU School of Medicine. These include:</p> <ol style="list-style-type: none"> 1. Medical Knowledge – The student will gain appreciation for the normal structure and function of the human body, with appreciation of the organ systems and the cellular, molecular, and biochemical mechanisms leading to homeostasis. Lectures as well as small group activities are promoted as central foci for acquiring the Competency of Medical Knowledge. 2. Practice Based Learning and Improvement – In lecture and in small group learning exercises, the student will continue to retrieve, manage and critically appraise sources of medical information and research, and practice the scientific method. The student will be challenged to practice life-long learning skills, and to recognize and accept limitations in knowledge. 3. Patient Care – The student will learn principles of the therapeutic management of disease and gain an understanding of the risks associated with therapy. Also, the student will further practice deductive reasoning to prioritize and solve clinical problems during small group problem solving sessions, as well as during their integration of material to solve clinical problems presented in lecture and for examinations. 4. Interpersonal and Communication Skills – Particularly through small group interactions, the student will practice effective listening skills and demonstrate effective verbal and non-verbal communication and reading skills as they interact with colleagues and faculty 5. Professionalism – The student is expected to display a continuing commitment to excellence, adhere to high ethical standards and display honesty and respect for others as they participate in all aspects of the pharmacology course 6. Systems-based Practice – Students will have an opportunity to
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	<p>demonstrate their respect for others and to recognize one's own limitations. The opportunity for fair and thoughtful interaction occurs during interaction with faculty and students throughout the course, particularly in small group activities and in exam review sessions. Also, students begin to appreciate advocacy as they study and consider ethical issues associated with drug development, clinical trials, and patient counseling on medication use and side effects, and as they evaluate the ramifications of using generic versus trade names for drugs in medical practice.</p>
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Evaluation of Student Performance

Evaluation and Grading

Chris, can B, C and D be set in as parts of A

- A. Passing performance in Pharmacology 761 requires that the student achieve a passing grade in each of three components of the course. Component One and Two are the demonstration of the acquisition of an acceptable level of knowledge in the discipline through examinations. Component Three is the demonstration of the ability to apply the knowledge to solve problems in therapeutics. The methods used to assess performance are described below.
- B. Component One (acquisition of a body of knowledge) will be determined from performance on three regular examinations. The three regular exams are equally weighted. **The average grade on these three examinations must be at or above 75% to pass this component.** All scores will be rounded to a whole number using a standard mathematical method.
- C. Component Two (acquisition of a body of knowledge) is achieving a **passing grade at or above the 12th percentile on an NBME Shelf Board exam** which is provided as a comprehensive final.
- D. Component Three (ability to apply knowledge) is to be assessed in small group-based, problem-solving sessions (active learning exercises: ALE). A student's ability to reason and apply pharmacological concepts to therapeutics is assessed based on the quality of performance in these sessions, which includes effective interaction with other members of the group. The student should be guided by criteria found in the section **Active Learning Exercises - Evaluation of Student Performance in ALE (below).**
- Attendance and punctuality are mandatory. (see Policies: Missing a Small Group Activity, below).**
- Passing in this component requires satisfactory performance, attendance and punctuality.**

<p>Evaluation and Grading (continued)</p>	<p>E. A written narrative evaluation is prepared to describe each student's overall performance in Pharmacology. The faculty facilitators of the small groups prepare an initial evaluation of each of their students, which is then reviewed and approved by the teaching faculty, and forwarded to the Office of Dean.</p> <p>The evaluation expresses general performance on examinations and achievement in small group and problem solving exercises. For the latter, the narrative will support performance with respect to the criteria set forth, and describe the student's attendance and punctuality.</p> <p>The narrative description of student performance assists the Committee on Academic and Professional Standards to understand the nature of the student's strengths and/or weaknesses. The evaluation can be a flag that indicates to the Committee on Academic and Professional Standards that a student may be having academic and professional difficulty. Narratives will be forwarded to the Dean and become a part of the student's permanent record.</p> <p>E. The final course grade for Medical Students passing all components of the course will be:</p> <ul style="list-style-type: none"> • Honors (H) • Satisfactory (S) <p>A grade of Unsatisfactory (U) will be given if students fail to pass one or more of the three components of the course.</p> <p>The honors (H) designation will be awarded to students (no more than 15% of the class enrollment) who demonstrate an outstanding performance on departmental examinations, and consistently demonstrate achievement of the criteria defined in "Evaluation of a Student's Performance in Active Learning Exercises". Students must also meet the behavioral requirements that in the opinion of the teaching faculty merit outstanding designation among medical students.</p>
<p>Evaluation and Grading of Graduate Students</p>	<p>Graduate students will be assigned grades of "A", "B", "C", etc. based upon their final course grade. Their course requirements and examination schedule may be different from that of medical students. All students - other than medical students - must receive prior approval from the Department and contact the course director at the beginning of the course.</p>

Resources	
Required Text	<i>Basic and Clinical Pharmacology</i> , 10 th Edition, McGraw-Hill, New York, 2006 (Ed. B. Katzung). ISBN 0071451536.
Recommended Texts & Other Readings	<p><i>Pharmacology Study Guide 2007</i> (Ed. Course Faculty).</p> <p><i>Modern Pharmacology</i>, 6th Edition, Lippincott Williams and Wilkins, 2004 (Ed. C.R. Craig and R.E. Stitzel). ISBN 0781737621</p> <p>Goodman and Gilman's <i>The Pharmacological Basis of Therapeutics</i> 11th Edition, McGraw-Hill, 2006 (Eds. Brunton, Lazo, Parker, Buxton and Blumenthal). ISBN 0071422803. Available in on-line format.</p> <p>Goodman and Gilman's <i>Manual of Pharmacology and Therapeutics</i> 1st Edition, McGraw-Hill, 2008 (Eds. Brunton, Parker, Blumenthal and Buxton). ISBN 9780071443432</p>
Other Useful Printed Resources	<p>Katzung and Trevor's <i>Pharmacology Examination and Board Review</i> 8th Edition, 2007 (Eds. Trevor, Katzung and Masters), Lange/McGraw-Hill. ISBN 0071488693</p> <p>USMLE Road Map: <i>Pharmacology</i> 2nd Edition, 2005 (Eds. Katzung and Trevor) Lange/McGraw-Hill. ISBN 0071445811</p> <p><i>Lippincott's Illustrated Reviews: Pharmacology</i>, 3rd Edition, Lippincott Williams and Wilkins, 2005 (Eds. Howard, Mycek, Harvey & Champe). ISBN 0781772893.</p>
Computer-Based Resources	<p>Selected resources are suggested for the student's use and are provided via SOLE. These include:</p> <ol style="list-style-type: none"> 1. Drug Buddy, <i>a pronunciation and drug information guide</i> 2. Web version of the <i>Study Guide</i> 3. Internet-based resources for drug specific pharmacological information such as: <ol style="list-style-type: none"> a. <i>Clinical Pharmacology</i>, including a download for PDAs b. <www.fda.gov>, for the US Food and Drug Administration <p>Students are encouraged to use electronic resources to provide information and solve problems presented in class or in small group.</p>

Policies	
Late Assignments	Students missing an assignment deadline must obtain approval to take a make-up of the assignment from the course director. If approval is not obtained, a grade of 0% will be given for that assignment. It is generally necessary to request permission in advance from the course director, and

	to make up the assignment within two class days. Failure to comply will result in the awarding of a 0% or unsatisfactory for the assignment.
Missing an Examination	It is an expectation that students will take examinations when they are offered. However, it is recognized that occasionally a student may experience a substantial reason (e.g. illness or death in the family) to be absent. In such an instance, it is generally necessary to request an excused absence by obtaining permission in advance from the Office of Student Services, as well as the course director, and to make up the examination within two class days. A grade of 0% will be given for a missed examination when the absence is not excused, approval is not obtained or the exam is not taken. This does not apply to make-up of shelf exams. Shelf exams have their own distinct schedules and costs related to students for their makeup.
Missing a small group activity (ALE)	<p>Attendance and punctuality are mandatory in small group activity (ALE). Students who are absent or who fail to regularly be present at the beginning of small group activities are at risk of not receiving a passing grade in this component of the course. One unexcused absence is allowed, but a second constitutes failure in the small group component of the course.</p> <p>An excused absence generally requires prior notification of the Office of Student Services and the course director, and is reserved for substantial reasons (e.g. illness or death in the family).</p> <p>For either excused or unexcused absences from ALE, the student must complete the activity on his or her own time, then will meet with the ALE group facilitator or designee for an oral evaluation of their comprehension of the material. Failure to do so results in receiving an unsatisfactory in the small group component of the course.</p>
Examination Appeals	Examination review sessions are held after each regular examination. Students have the opportunity to hear the faculty's explanation for the correct answer, and may request consideration of alternative answers or explanations. The faculty decides the final disposition of the question.
Proctoring an Examination	All examinations will be taken and proctored in accordance with School of Medicine guidelines available at http://www.hsc.wvu.edu/som/students/handbook/examineepolicy.asp
Social Justice	West Virginia University is committed to social justice. The faculty concurs with that commitment and expects to foster a nurturing learning environment based upon open communication, mutual respect, and non-discrimination. Our University does not discriminate on the basis of race, sex, age, disability, veteran status, religion, sexual orientation, color or national origin. Any suggestions as to how to further such a positive and

	<p>open environment in this class will be appreciated and given serious consideration.</p> <p>If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class, please advise the course director and make appropriate arrangements with Disability Services (293-6700).</p>
Days of Special Concern	<p>WVU recognizes the diversity of its students and the needs of those who wish to be absent from class to participate in Days of Special Concern, which are listed in the Schedule of Courses. Students should notify their instructors by the end of the second week of classes or prior to the first Day of Special Concern, whichever is earlier, regarding Days of Special Concern and observances that will affect attendance. Further, students must abide by the attendance policy of their instructors as stated on their syllabi. Faculty will make reasonable accommodation for tests or field trips that a student misses as a result of observing a Day of Special Concern.</p>
Professionalism	<p>In practice, physicians are held to high standards of professionalism. The medical learning environment should facilitate the acquisition of professional and collegial attitudes for effective, caring and compassionate health care. The School of Medicine has approved its own professionalism code (which can be found at http://www.hsc.wvu.edu/som/students/standards/professionalismcode.asp). There are standards of appropriate behavior on which you will be evaluated. These include:</p> <ol style="list-style-type: none"> 1. honesty and integrity 2. accountability 3. responsibility 4. respectful and nonjudgmental behavior 5. compassion and empathy 6. maturity 7. skillful communication 8. confidentiality and privacy in all patient affairs 9. self-directed learning and appraisal skills. <p>The development of these skills requires mutual respect between teachers and students, staff and students, and between fellow students. Students encompass undergraduate, graduate, and postgraduate trainees. Those in authority are expected to role model these ideals of professionalism in their interactions with patients, patient family members, peers, staff and students.</p>
Standards of Behavior	<p>The classroom role of the medical student involves demonstrating attitudes, values, and behaviors consistent with professional behavior. In the classroom setting, an environment conducive to learning is fostered through mutual respect among students, staff, and faculty. Any behavior</p>

	<p>that jeopardizes that environment is inconsistent with professionalism and will not be tolerated.</p>
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	<p>To ensure an environment that is conducive to learning, we ask that personal communication devices (cell phones and pagers) be turned off, or to silent mode, during our learning experiences. Also, we ask that other distracting behaviors not be exhibited such as loud talking between students, playing of computer games or reading of newspapers.</p>
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<p>Disrespectful Behavior</p>	<p>Mutual respect between individuals is one of the core values of the School of Medicine, and is the foundation for these interactions. Our values of integrity, trust, faith, hope and love can all be demonstrated through this respect. Disrespectful, aggressive and harassing behavior is inappropriate and not tolerated by the School of Medicine. Prevention of these inappropriate behaviors will be an ongoing activity of the institution. Procedures to report misbehavior without fear of retaliation and prompt handling of complaints can be found at http://www.hsc.wvu.edu/som/students/policies/mistreatment.asp</p>
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<p>Academic Dishonesty</p>	<p>Academic dishonesty is defined to include, but is not limited to, any of the following:</p> <ol style="list-style-type: none"> 1) Plagiarism: Plagiarism is defined in terms of proscribed acts. Students are expected to understand that such practices constitute academic dishonesty regardless of motive. Those who deny deceitful intent, claim not to have known that the act constituted plagiarism, or maintain that what they did was inadvertent are nevertheless subject to penalties when plagiarism has been confirmed. Plagiarism includes, but is not limited to, the following: <ol style="list-style-type: none"> a) Submitting as one's own work the product of someone else's research, writing, artistic notebook, speech, outline, theme, thesis, dissertation, commercially prepared paper, musical piece or other written, visual, oral or electronic/computerized material that has been published or unpublished. b) Incorporating in one's submission, without appropriate acknowledgment and attribution, portions of the works of others; that is, failing to use the conventional marks and symbols to acknowledge the use of verbatim and near-verbatim passages of someone one's own, that are incorporated into any work submitted as one's own. 2) Cheating and dishonest practices in connection with examinations, papers, and projects including, but not limited to: <ol style="list-style-type: none"> a) Obtaining help from another student during examinations b) Knowingly giving help to another student during examinations, taking an examination or doing academic work for another student, or providing one's own work for another student to copy and submit as his/her own. c) The unauthorized use of notes, books, or other sources of information during examinations. d) Obtaining without authorization an examination or any part thereof. 3) Forgery, misrepresentation, or fraud: <ol style="list-style-type: none"> a) Forging or altering, or causing to be altered, the record of any grade in a
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	<p>grade book or other educational record.</p> <ul style="list-style-type: none">b) Use of documents or instruments of identification with intent to defraud.c) Presenting false data or intentionally misrepresenting one's records for admission, registration, or withdrawal from the university or from a university coursed. Knowingly presenting false data or intentionally misrepresenting one's records for personal gain.d) Knowingly furnishing the results of research projects or experiments for the inclusion in another's work without proper citation.e) Knowingly furnishing false statements in any university academic proceeding.
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Active Learning Exercises	
Introduction	<p>ALE is designed to assist students in developing active learning skills that are necessary throughout their careers. Students will be evaluated on the application of their knowledge base, reasoning skills, and ability to identify and use appropriate sources of information for problem solving. A student's communication and group skills become important parts of this process, as the practice of medicine usually requires effective interaction and support of others. Moreover, communication allows the faculty facilitator to assess a student's skills.</p> <p>The student's ability to reason and apply pharmacological concepts to therapeutics is to be assessed. Criteria used by faculty facilitators in assessing the quality of the student's performance and skills are presented below.</p>
Evaluation of Student Performance in ALE	<p>A. Knowledge Base</p> <ul style="list-style-type: none"> • Utilizes specific basic science and clinical facts, concepts, and principles that are relevant to the case • Correctly uses medical and scientific terminology • Integrates newly acquired information into the knowledge base <p>B. Reasoning and Problem Solving Skills</p> <ul style="list-style-type: none"> • Demonstrates insight into the nature of a problem and identification of the knowledge that must be obtained to solve it <ul style="list-style-type: none"> ○ Uses evidence to support reasoning ○ Uses quality, authoritative resources ○ Competently uses a variety of different resources (textbooks, electronic resources, journals, etc.) • Separates relevant facts from a large body of information <p>C. Communication and Group Skills</p> <ul style="list-style-type: none"> • Presents appropriate material in a clear, logical manner • Actively participates and cooperates with group members in group activities • Demonstrates group leadership • Provides constructive criticism of others' concepts and ideas • Effectively uses the blackboard and other visual aids • Remains courteous toward group members and leaders <p>Students should schedule a mid-block meeting with the conference facilitator to review performance in the active learning exercises.</p> <p>We reserve the right to ask questions related to group activities on hourly exams. In general, it is expected that the Active Learning Exercises will help students to be better prepared for testing. The exercises should enhance a student's understanding of the therapeutic application of classes of drugs discussed in lectures, and provide relevance of the principles of selected drug</p>

action and/or toxicity.

ALE Schedule

Pre-conference facilitators only 2 pm, 3155 HSN	Faculty Leader(s)	Small Group Date 8:00-10:00	Material
M 3/10/08	Reasor	W 3/12/08	Drug Toxicity
M 3/17/08	Khakoo Woodfork	W 3/19/08	Treatment of Infectious Disease
M 3/24/08	Woodfork Arbogast	W 3/26/08	Hypertension
M 4/7/08	Juckett	W 4/9/08	Herbal Medicine
M 4/14/08	Schreurs Woodfork	W 4/16/08	Treatment of Parkinsonism
M 4/21/08	DeLaGarza Woodfork	W 4/23/08	Geriatric Medicine
M 4/28/08	Woodfork	W 4/30/08	Cancer Chemotherapy

Other Active Learning Exercises (ALE) will include:

ALE on Ionization & Drug Distribution introduced by Dr. Smith in class. Conference facilitators serve as a resource only as needed on an individual basis.

Computer simulation of hemodynamic effects of autonomic drugs: An interactive classroom session facilitated by Dr. Wilks.

Active Learning Exercise Groups

Group A Room 1156, LC Brock/Teng	Group B Room 1157, LC Davis/Nayeem	Group C Room 1158, LC Craig/Van Dyke	Group D Room 1159, LC Molnar/Yu

Group E Room 1160, LC Reasor/Singh	Group F Room 1161, LC Smith/Thomsen	Group G Room 1162, LC Woodfork/Zhang	Group H Room 1163, LC Wonderlin/Masood

Group I Room 1164, LC Hammer/Ansari	Group J Room 1165, LC, Mawhinney	Group K Room 7601, HSS O'Donnell/Doddrill	Group L Room 7605, HSS, Ponnoth