

Online Summer Medical Pharmacology

| Course Information | |
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| General | <p>Course Format: Online lecture (video and audio, available as downloads from the course web site), threaded discussion forum, chat room.</p> <p>Course Director: Karen Woodfork 3623 Health Sciences South (304) 293-1997 kwoodfork@hsc.wvu.edu</p> <p>Location: Lectures and regular exams are accessed via the course web site; shelf board/comprehensive final is given in Morgantown, WV.</p> |
| Course Description | <p>This online course is designed for medical students who need to remediate or catch up in Medical Pharmacology. It may also be taken by graduate level students in the health professions or biomedical sciences. Students will attend a virtual classroom by viewing online lectures, available at any time, and will interact with faculty and classmates through an online discussion forum and chat room.</p> <p>This course integrates the basic knowledge of drug action with significant exposure to the practical use and problems associated with the clinical use of drugs. 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. 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> |
| Learning Outcomes | <p>After completing this course, the student will be able to:</p> <ol style="list-style-type: none">1. Describe the cellular mechanism of action of each of the major classes of pharmacological agents.2. Explain how organ systems and whole body physiology are affected by the cellular actions of drugs.3. Use the knowledge of drug mechanisms of action to predict the therapeutic and adverse effects of drugs.4. Describe the ways in which the human body eliminates drugs.5. Apply pharmacological principles to develop an understanding of the actions of toxic substances on the body. |

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| Expected Competencies | <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"><li>1. Clinician – 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. 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 during their integration of material to solve clinical problems presented in lecture and for examinations.<li>2. Communicator –Through interactions in the online forum and chat room, the student will practice effective written communication skills as they interact with colleagues and faculty.<li>3. Professional –Students are 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.<li>4. Collaborator – Students will have an opportunity to interact with faculty and students throughout the course via online forum and chat room activities. |
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Evaluation of Student Performance

Evaluation and Grading

Passing performance in Summer Medical Pharmacology requires that the student achieve a passing grade in each of the two components of the course. Component One is the demonstration of the ability to acquire knowledge, and is assessed through four regularly scheduled online examinations. Component Two is the demonstration of the ability to retain and integrate the knowledge gained throughout the course, and is assessed through a comprehensive final examination given on-site at WVU.

All students enrolled in this course will take the same exams for Component One.

For Component Two, students enrolled in medical school will take the National Board of Medical Examiners (NBME) Shelf Board Examination. Because non-medical students are not permitted by the NBME to take the shelf board, they will instead take a comprehensive final exam written by WVU faculty that we believe to be equivalent in scope and difficulty to the NBME Shelf Board. Positive identification must be provided to take the Component Two exam.

The final course grade will be determined as follows.

Medical students will receive grades of:

- Satisfactory (**S**) for earning an average grade of at least 75% on the regular online exams **and** a passing score (12th percentile or greater) on the NBME Shelf Board.
- Unsatisfactory (**U**) for earning an average grade of less than 75% on the regular online exams **or** a non-passing percentile score (below 12th percentile) on the NBME Shelf Board.

Graduate-level students in the health professions or biomedical sciences will be assigned grades of "A", "B", "C", etc. using the standard WVU School of Medicine grading scale. Their final score will be determined from their regularly scheduled exams (100 points each) and final exam (200 points) as:

percentage grade = student's total points/total points possible

Online Resources

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| <p>SOLE</p> | <p>The course web site is located on SOLE, the WVU Health Sciences online education portal. All lecture material and online exams are available through this site. It is expected that students will spend between 4 – 5 hours per day viewing lecture material, plus additional study time as needed.</p> |
| <p>Course Web Site Content</p> | <p>The Schedule link on the course web site provides access to the list of lectures to be covered each week and the media that are available for each lecture. Each lecture will generally include:</p> <ul style="list-style-type: none"> • Camtasia files: streaming video (with audio) of recorded lectures; available for access at any time. • Print: pdf file suitable for printing to take notes on. • Lecture source: PowerPoint file and/or Word document that was presented by the instructor during each lecture. • MP3 file: downloadable audio file to play on a computer, burn to a CD, or listen to with an iPod or other MP3 player. <p>The Communication Tools link provides access to course instructors and fellow students through:</p> <ul style="list-style-type: none"> • Announcements: important news from the instructor is posted here • Forum: This threaded discussion forum is used to ask the instructors questions regarding the material. The Forum is organized by week, and, within each week, by instructor. Students should post questions to a specific instructor in the instructor’s area of the Forum for that week. <i>Instructors will monitor the Forum, so please use this method to ask questions about the material – do not use individual emails!</i> • Chat room: This area is used to conduct reviews of exam material. <p>The Sample Questions link provides sample exam questions for each lecture.</p> <p>The Exams link provides access to the online exams. These exams are scheduled for 10:00 AM – 12:00 PM Eastern Time on June 11, June 18, June 25, and July 3. These exams are closed book, closed notes, with no use of any web sites (except SOLE Exam) or outside assistance. Each student must do his/her own work on exams. Academic dishonesty will be dealt with according to WVU policy (below); failure to do one’s own work makes it less likely that the student will be able to pass the comprehensive final exam, required for passing the course, which is taken on-site at WVU.</p> <p>The Surveys link contains the Course Startup Survey and the Course Evaluation, to be taken at the beginning and end of the course, respectively.</p> |

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| | <p>Additional 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. Resources link: links to outside pharmacology and medical web sites 3. Internet-based resources for drug specific pharmacological information: <ol style="list-style-type: none"> a. <i>Clinical Pharmacology</i>, including a download for PDAs b. <i>AFHS Drug Information</i> |
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| Resources | |
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| Recommended Texts and Readings | <ol style="list-style-type: none"> 1. Textbook: <i>Basic and Clinical Pharmacology</i>, 10th Edition, McGraw-Hill, New York, 2006 (Ed. B. Katzung) <p>OR</p> <ol style="list-style-type: none"> 2. Textbook: <i>Modern Pharmacology</i>, 6th Edition, Lippincott Williams and Wilkins, 2004 (Ed. C.R. Craig and R.E. Stitzel). |
| Other Useful Printed Resources | <p><i>Goodman and Gilman's The Pharmacological Basis of Therapeutics</i> 11th Edition, McGraw-Hill, 2006 (Eds. Brunton, Lazo, Parker, Buxton and Blumenthal). Available in on-line format.</p> <p><i>Lippincott's Illustrated Reviews: Pharmacology</i>, 3rd Edition, Lippincott Williams and Wilkins, 2005 (Eds. Howard, Mycek, Harvey & Champe).</p> <p><i>Katzung & Trevor's Pharmacology: Examination & Board Review</i>. McGraw-Hill, New York, 2004. (Trevor, Katzung, Masters).</p> |

| Policies | |
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| Social Justice | <p>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 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 at (304) 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 participation in course activities. 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/professionalismcode2.asp). There are standard 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.</p> |

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| | <p>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 that jeopardizes that environment is inconsistent with professionalism and will not be tolerated.</p> <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 on-site testing. No talking or other communication between students is allowed during exams.</p> |
| Disrespectful Behavior | <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/standards/mistreatmentpolicy.asp</p> |
| Proctoring an Examination | <p>All on-site 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</p> |
| Missing an Examination | <p>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 board exams. Shelf exams have their own distinct schedules and costs related to students for their makeup.</p> |
| Examination Appeals | <p>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.</p> |

Academic Dishonesty

Academic dishonesty is defined to include, but is not limited to, any of the following:

- 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:
 - 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:
 - 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:
 - a) Forging or altering, or causing to be altered, the record of any grade in a grade book or other educational record.
 - 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.

Summer Medical Pharmacology • 2007

SCHEDULE

| Week 1: June 4 – 8 | | |
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| Lecture | Lecture Title | Lecturer |
| 0. | Welcome (Summer Medical Pharmacology Instruction Guide) | Woodfork |
| 1. | Introduction, Drug Administration | Smith |
| 2. | Drug Distribution I | Smith |
| 3. | Drug Distribution II | Smith |
| 4. | Drug Metabolism & Excretion I | Stitzel |
| 5. | Drug Metabolism & Excretion II | Stitzel |
| 6. | Receptors & Dose-Response Relationships | Fedan |
| 7. | Drug Antagonism | Fedan |
| 8. | Pharmacokinetics I | Davis |
| 9. | Pharmacokinetics II | Davis |
| 10. | Drug Discovery & Development | Craig |
| 11. | Drug Labeling & Adverse Effect Reporting | Woodfork |
| 12. | The Autonomic Nervous System | Fedan |
| 13. | Noradrenergic Transmission | Fedan |
| 14. | Adrenoceptors | Fedan |
| 15. | Adrenoceptor Agonists | Fedan |
| 16. | Alpha Adrenoceptor Antagonists | Fedan |
| 17. | Beta Adrenoceptor Antagonists | Fedan |
| 18. | Control of Plasma Lipids | Reasor |
| 19. | Cholinergic Nervous System I | Wonderlin |
| 20. | Cholinergic Nervous System II | Wonderlin |
| 21. | Neuromuscular Blocking Drugs | Smith |
| 22. | Diuretics I | Stitzel |
| 23. | Diuretics II | Stitzel |
| Exam 1 (lectures 1 – 23): Monday June 11 | | |