



PHARMACOLOGY AND THERAPEUTICS PH722

University Medical Center
Department of Pharmacology and Toxicology
Richard Roman, Ph.D., Chair

Credit Hours: 12 semester hour

Course Prerequisites: There are no course prerequisites, although students in the pharmacology program are expected to be enrolled in, or to have already completed, basic courses in biochemistry, physiology and pharmacology. Students in other programs should have background in one of these disciplines. Prior approval by the course director (see below) as well as the Graduate Director of the program in which the student is enrolled or the student's faculty advisor are required.

Course Dates: Fall and Spring Term (August-April)

Course Times: TBA.

Course Location: M2 Lecture Hall School of Medicine (SOM Auditorium 122), general class sessions and testing. Small group rooms to be determined in SOM building.

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Required Text and Other Learning Resources:

Basic and Clinical Pharmacology, 13th edition
B. G. Katzung, S. B. Masters and A. J. Trevor, editors; McGraw-Hill/Lange, 2015.
ISBN: 978-0-07-182505-4
ISSN: 0891-2033

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PREFACE and OBJECTIVES

A primary objective of *Introduction to Pharmacology and Therapeutics* is to provide a core of fundamental information and the general principles underlying the use of pharmacological agents in the practice of medicine. A secondary objective is to provide the opportunity for you to develop the skills needed to acquire and critically evaluate therapeutically relevant details of an ever increasing number of pharmacological agents, advances in biomedical sciences, and evolving concepts of acceptable medical practice throughout your professional career.

The faculty involved in this course will try to achieve these objectives by familiarizing you with the principles underlying the therapeutic use of pharmacological agents. For the most part, these principles will encompass new information about an ever-increasing body of drugs. They include the basic terminology and methods for quantitative pharmacokinetic determinations and evaluation of drug-receptor interactions. Also, for each drug, and especially for those identified as prototypes for a specific drug class, information will be presented related to mechanisms of action, the major indications for its use, its most frequent or medically significant therapeutic actions, and the most common or medically deleterious adverse effects associated with its use. In some instances, knowledge of chemical structure, pharmaceutical formulation, pharmacokinetics and clinically relevant drug interactions also will be required. In addition, you will be presented with problems or asked to develop a critical question related to pharmacology and therapeutics for which you must provide an appropriate solution through a process that involves development of a strategy for finding appropriate evidence-based information, retrieval of that information from the biomedical literature, evaluation of the experimental or therapeutic data, and compilation of an informed, critical conclusion.

Specific learning (knowledge) objectives

To a large extent, learning the core material will involve memorization. However, for you to fully understand the principles of pharmacology as applicable to the practice of medicine, you must go further: you also will need to integrate your knowledge of other basic sciences with newly acquired information concerning the actions and clinical utility of drugs.

You will succeed in this course if you can

- demonstrate the mathematical and interpretative skills needed to assess quantitative aspects of pharmacodynamic (drug-receptor interactions) and pharmacokinetic (absorption, distribution and elimination) manifestations of selected major or prototypical drugs.
- discriminate among a body of pharmacological agents and substances, based upon the generic drug name, pharmacological classification, primary mechanism of action, major clinical uses and/or most prevalent/clinically significant adverse effects.
- integrate previously acquired knowledge of anatomy, biochemistry, physiology, and pathophysiology with newly acquired information concerning the actions of drugs as well as their application in clinical medicine.
- evaluate clinical problems and reason deductively to an appropriate pharmacological solution.
- access, through electronic means, the available biomedical literature relevant to the pharmacological basis of medical practice.

Once you master these objectives you will have the fundamental knowledge of pharmacology as well as the reasoning skills needed to readily evaluate therapeutically relevant details of new

pharmacological agents and evolving concepts of therapeutics and assimilate that understanding into practice throughout your professional career.

The information presented in this course concerning general classes of drugs and specific drugs within each class is recognized by the biomedical community as appropriate for students at your stage of professional development and closely follows the national standard as defined by groups such as the American Society of Pharmacology and Experimental Therapeutics, popular medical textbooks as well as UMMC clinical faculty. For example, Knowledge Objectives and an Essential Drug List for a basic course in medical pharmacology compiled by the Association of Medical School Pharmacology Chairs are posted on the *Introduction to Pharmacology and Therapeutics* site on Canvas. These objectives were updated in 2012 and indicate relationships between specific learning objectives in pharmacology with competencies identified by the LCME (Liaison Committee on Medical Education). These objectives can be found on-line at https://www.aspet.org/uploadedFiles/Divisions_and_Chapters/ASPET_Divisions/Pharmacology_Education/Content/Educational_Assets/Knowledge%20Objectives%202012%20Edition%20Final.pdf.

A concerted effort is made to integrate basic science facts with clinically relevant aspects of pharmacology through the use of case reports, clinical vignettes and presentation of clinical correlations. These aspects of the course offer a preview of what will be required of you to successfully bridge the gap between understanding the mechanistic aspects of pharmacology (as well as other basic sciences courses) to the rational and successful application of pharmacological intervention in the treatment of disease.

The core content for this course is defined operationally as the agents that are detailed in the required text; the 13th edition of *Basic and Clinical Pharmacology*, B. G. Katzung, S. B. Masters and A. J. Trevor, editors; McGraw-Hill/Lange, 2015. For the purposes of this course – both in relation to preparation for specific sessions as well as testing of content for which you are responsible, faculty presume that you have read and are familiar with the content related to the topics which they discuss in class.

Your mastery of the material in this course will be assessed through your performance on internal examinations, assignments given as a part of this course, and the National Board of Medical Examiners subject examination in pharmacology. Furthermore, your ability to integrate pharmacology with other basic science content will be assessed by your performance on the United States Medical Licensure Examination, Step 1.

COURSE INFORMATION and GROUND RULES

COURSE SCHEDULE

The schedule for *Introduction to Pharmacology and Therapeutics* is, as is the schedule for the entire second year medical curriculum, derived through a concerted effort by all M2 course directors and key members of the administration. The overall class schedule is such that a change in the scheduling for one course directly impacts all other second year courses. Accordingly, the schedule for *Introduction to Pharmacology and Therapeutics* will not be changed except under the most extenuating circumstances.

If and when a change in the pharmacology schedule does occur, you will be notified by an announcement in class, on the Pharmacology Canvas site, and/or through Outlook. A 'current' version of the schedule is posted on the Canvas pharmacology course site (Modules: Pharmacology

Course Documents). The schedule for pharmacology is also incorporated into the M2 Weekly Class Schedule, and the latter will be updated as needed to reflect changes in the pharmacology schedule.

CLASSROOM

All formal class sessions occur in the new School of Medicine (SOM) M2 Lecture Hall (Room 122). All Exams, will be given in the lecture hall unless otherwise indicate. Small group activities will be held in designated rooms in the SOM building. For the small group sessions related to autonomic and cardiovascular drugs, refer to *Small Group Assignments* handout that will be posted later to determine the room to which you should report. For the small group activities conducted in collaboration with microbiology and pathology, refer to the respective course information to determine your group and room assignments.

ATTENDANCE

In accordance with the University of Mississippi School of Medicine Attendance Policy, you are expected to attend and participate in all course activities (see The School of Medicine 2014-2015 Student Handbook, page 22:

<https://www.umc.edu/uploadedFiles/UMCedu/Pages/Education/Schools/Medicine/School%20of%20Medicine%20Handbook.pdf>. Although attendance at regularly scheduled formal class sessions is not mandatory, the freedom provided by that stipulation is intended to provide some flexibility during extenuating circumstances and should not be misconstrued as an open invitation to miss class.

With minor exceptions*, attendance is not required at any class session in the medical pharmacology course. Nonetheless, there can be opportunities in all course activities for accrual of points that will contribute to your formative grade. In addition, pharmacology small group sessions are associated with narrative evaluations of your interpersonal skills and professional conduct (see NARRATIVE ASSESSMENT below).

***Exceptions for which attendance is MANDATORY are**

- 1. exams, for reasons that are obvious.**
- 2. the small group sessions held in conjunction with microbiology, pathology and the School of Pharmacy since these programs require attendance.**
- 3. the introductory session for the Evidence-Based Medicine module.**

TEACHING AND LEARNING

Teaching and learning are reciprocal, mutually-dependent processes. Faculty cannot teach without your active participation. Nor can you learn without becoming actively involved. Although you can memorize details in isolation, real learning and the development of an understanding of how those details relate to disease and the therapeutic use of drugs will be best achieved through interaction with faculty and peers. To that end, you should view faculty as important resources and lectures and other activities in this course as opportunities for learning. In the least, attendance allows you to gauge the relative importance of the content. More importantly, attendance offers 'face-to-face' time between you and the faculty. You are encouraged to use that time to your advantage. Actively engage the faculty by asking questions. Participate by responding to questions asked of the class. Be actively, rather than passively, involved by taking your own notes or jotting down what you think are the major concepts; both can serve later as study guides.

Keep in mind that you will achieve the greatest benefit from attending class if you prepare beforehand. For this course, it is our expectation that you will, in fact, come to class prepared and ready to actively participate in learning. For you, that means familiarizing yourself with the basic content by reading and studying the pertinent material before you come to class. For us as faculty, it means that we will not simply reiterate content. Rather, we – along with you – will discuss concepts, pose problems, and examine the rationale selection of drugs as well as their therapeutic consequences. Much of that discussion will be premised upon the underlying biochemistry, physiology and pathology of the disease and the organ-system(s) affected by the drug.

SMALL GROUP ACTIVITIES

There are a number of small group activities associated with this course, some of which are conducted in association with Microbiology and Pathology. Small group activities are designed to promote collaboration and team work between you and your peers, enhance your problem-solving skills and encourage discussion with your peers and faculty.

Materials related to each small group session will be provided to you either before or at the time of the session. You and the other members of the group to which you belong are charged with reviewing the cases/problems, defining specific responsibilities between members, identifying valid resources to answer all the accompanying questions, sharing answers and being prepared to participate in a discussion.

The small group sessions on autonomic and cardiovascular drugs can include a pre-test on pertinent lecture material or an out-of-class assignment related to the cases/problems to be discussed. Your performance on these items as well as faculty assessment of your behavior during the small group sessions can contribute to your grade in this course. You will be asked also to complete peer- and self-evaluations in association with these two small group activities and will receive points that contribute to the 'professionalism' component of your grade for complying with that request. A copy of the peer- and self-evaluation is appended (Appendix 3).

Faculty assessment of your performance in pharmacology small group sessions can also impact your grade. For the autonomic and cardiovascular small groups, faculty will give you an overall rating of 'not meeting expectations', 'meeting expectations' or 'exceeding expectations' based on the criteria defined on the Small Group Narrative Assessment Tool (Appendix 2). For each activity, those ratings, respectively, will result in the addition of 0, 3 or 5 points to your formative score. Those points can be considered 'bonus' in the sense that they will be added only to the total formative points earned.

Small group activities and any associated credit cannot be made up if you are absent.

NARRATIVE EVALUATIONS

To comply with an education standard of the LCME, a narrative assessment of your performance during small group activities will be compiled by the faculty facilitator(s). You will be evaluated on the basis of your preparedness, quality of your answer, quality of presentation, effort beyond what was minimally required, your ability to apply the information as well as your general interaction and participation during the session. [A copy of the small group evaluation template is provided at the end of this document (Appendix 2) and on the M2 Curriculum site on Canvas.]

These assessments and those associated with other second year courses will be completed in E-Value, and they should be available to both you and your preclinical advisor. The purpose of the narrative evaluations is to serve as a formative assessment of your professional and interpersonal

skills and provide an opportunity for you to build upon your strengths as well as improve in those areas in which you are weaker. You should be aware, however, that narrative comments that are representative of patterns of behavior (positive or negative) during the course of your medical training may be reflected in the Medical Student Performance Evaluation; aka, the Dean's Letter.

CLINICAL CORRELATIONS/CLINICAL SIMULATIONS/CASE STUDIES

A number of clinical correlations and simulations of clinical cases are included in this course to offer a preview of how the basic pharmacology of specific drugs relates to clinical practice. In most instances, a case history will be presented, and you will be asked to discuss and make decisions related to diagnosis, treatment options and expected outcomes. For you to obtain the most benefit from these sessions, you will need to prepare in advance. Review the pharmacology of the drugs to be discussed as well as any other information you deem necessary to familiarize yourself with the general management of the patients or conditions to be presented.

TESTING

The purpose of testing is to provide a means of evaluating your knowledge of the facts and principles of pharmacology. Questions may be based on content covered in any class session, including simulations, clinical correlations and small group activities, the required text as well as any other material provided or assigned to you.

There will be five (5) tests plus a final examination in this course. Pharmacology questions will be short answer, multiple choice or matching. For the most part, questions will be written in styles advocated by the NBME (National Board of Medical Examiners). However, we reserve the right to utilize questions in other formats if doing so provides the best means to assess your understanding of an important concept. On any given examination, you might be asked to calculate pharmacokinetic parameters or to interpret clinical, graphical or tabular data. Matching and multiple choice questions may have up to ten selections from which you must select the single best answer. Examples of pharmacology test questions are provided on Canvas. Generally, there will be 4-5 questions per hour of content. The contribution of each test to your final grade is directly related to the total number of questions on that examination (e.g., a 100 question exam has twice the weight of a 50 question exam).

As the pharmacology course progresses, you should reasonably expect test questions to become increasingly comprehensive. This will occur partially because the content presented later in the course will build upon content presented earlier. In addition, all pharmacology tests subsequent to test 1 will include some comprehensive questions. A minimum of 5% of the questions on pharmacology tests 2-5 will be related to material previously tested; with the remainder being on 'new' material. Specific content included as new material on any given exam is indicated on the pharmacology course schedule. You should also expect the questions to become increasingly complex and to integrate material from other first and second year courses.

Prior to each internal examination, the approximate composition of the test (i.e., questions/topic) will be provided to you so you can gauge the effort you need to direct toward each topic.

You cannot assume that questions will merely reflect the factual content covered in class. For all intents and purposes, the content of the required textbook and other ancillary material that might be provided define the minimal limits of testable material for this course. Class sessions are intended to highlight information relative to a particular drug or class of drugs, ideally emphasizing what the lecturer perceives to be most important or to help you understand and/or integrate that information. Realistically, however, given the time restraints, the ever increasing number of drugs and the

burgeoning amount of information related to various drug classes, the lecturer may feel that everything presented in class (or provided in a handout) is important, with the lecture representing a succinct compilation of current knowledge of that drug or drug class. Moreover, you should realize that everything that is important about a drug or drug class cannot (and will not) be covered within the context of a 50 minute session. Even if the lecture is restricted to 'general concepts', understanding of those concepts and their integration across different areas of pharmacology and across different disciplines requires detailed knowledge of the systems affected and the mechanisms by which a drug acts. *The learning of those details and integration of the underlying concepts is ultimately your responsibility.* That being said, we will strive to construct a test in which the majority of questions is representative of material that was emphasized by the faculty, with the realization that some questions may be based on information in assigned reading or otherwise provided to you whether or not the material was specifically presented 'in class'. In any event, questions will be based on the learning objectives provided to you for each topic. Also, we will endeavor to write questions that are straightforward and have an identifiable best answer.

In that context, you should approach each question as though there is a *single best* answer among the selections provided. All questions are reviewed by the faculty, and questions identified as inappropriate, misleading or otherwise invalid are removed prior to the examination. If you still have concerns about the format or content of a question, you are urged to relay your concerns to your liaison representative(s) (see EVALUATION below) and, if you wish, the course director. You are free to discuss your concerns with the appropriate faculty member as well. But, decisions concerning additional credit, alternate answers or validity of questions will be made only after the course director has conferred with the appropriate faculty member and the liaison representative(s).

All students are encouraged to review pharmacology questions missed on examinations and to clarify the reasoning for the correct answers. Doing so is an ideal way to re-enforce your knowledge and improve your understanding of the material.

If you are excused or otherwise absent from a test, it is your responsibility to contact the course director as soon as possible to arrange a make-up test. Medical students must bring a written excuse from Dr. Clark; graduate students, a written excuse from their Department Chairman. *The format and composition of the make-up examination will be determined by the course director and the faculty involved.*

The National Board of Medical Examiners' Subject Examination in Pharmacology (aka, the Pharmacology Shelf Board) will be the final exam, and it, by default, will be comprehensive.

ON-LINE TESTING

All summative examinations given in this course are computer-based and require functional Wi-Fi capability, albeit to different extents.

Internal Examinations - The 5 internal examinations will be administered through ExamSoft, an on-line testing software. You will need Softest** installed on your laptop in order to take these examinations. Prior to reporting for each examination, you are responsible for down-loading the test into the Softest module. When you report for the exam, a password to unlock the examination will be provided to you by the proctor. When you are finished, you are responsible for closing the exam and showing the '*confirmation screen*' to a proctor before leaving the testing room as stipulated in the SOM On-line Testing Policy. Upon closure of the exam, your answers are automatically up-loaded via Wi-Fi and scored.

If you fully meet the responsibilities detailed above, you will receive 5 points for each examination which will contribute to the professionalism component of your grade.

**Support for Softest is available only through the technical support of ExamSoft (Support Desk at 866.429.8889 or support@examsoft.com).

Additional information about ExamSoft and Softest is available through the following links.

UMMC SOM ExamSoft Portal: <http://www.examsoft.com/dotnet/Default.aspx?f=ummc>

How it works: <http://learn.examsoft.com/how-it-works>

ExamTaker Videos: <http://learn.examsoft.com/demos-for-exam-takers>

Exam Taker tips before and after the exam: <http://learn.examsoft.com/tips-for-exam-takers>

The UMMC contact for help with ExamSoft is Dr. William Lushbaugh (wlushbaugh@umc.edu).

Pharmacology Subject Exam - You also need your computer, with functional Wi-Fi, to take the Subject Exam in Pharmacology. It, however, will not be administered through ExamSoft but through the NBME.

Although power outlets will be available, you should make every attempt to have your computer fully charged before reporting for any examination. As a precaution, you should also bring the power chord with you.

ACADEMIC ACHIEVEMENT POLICY

Students in the Academic Achievement Program or AAP as a result of Academic Achievement Policy*** are encouraged to participate in specific activities associated with this course. Although the format of these activities will vary with individual faculty, they will generally consist of assignments, which can be largely completed during class, and participation in group question and answer/discussion sessions. These activities occur regularly (every other week) throughout the course and relate directly to content covered in class. AAP review sessions occur in G301 at noon on designated Fridays.

***The School of Medicine's Academic Achievement Policy can be reviewed on-line in the School of Medicine 2014-2015 Student Handbook, page 21:

<https://www.umc.edu/uploadedFiles/UMCedu/Pages/Education/Schools/Medicine/School%20of%20Medicine%20Handbook.pdf> .

The pharmacology AAP is intended to provide to you familiarity of the most important points related to pharmacological principles and specific drugs or classes of drugs. As such, it is hoped that it will improve your understanding and working knowledge of pharmacology and, as a consequence, your performance in this course.

QUIZZES, ASSIGNMENTS and IN-CLASS PARTICIPATION

Faculty members may assign work to be completed outside of regularly scheduled hours for this course. Often, these assignments will be indicated on the schedule, and the number of formal class hours will be reduced to compensate for time needed for completion of the assignments.

Faculty may, at their discretion, also give quizzes as a means of formative evaluation, providing them and you with an assessment of your familiarity with material previously covered or to be covered in class. Quizzes may be given either in class or posted on Canvas. In-class quizzes may be unannounced; the format of on-line quizzes will be identified when the quiz is made available.

Please note that you will not specifically be forewarned of activities that will contribute to your formative grade in any session for which attendance is not mandatory. If you choose not to attend class, you accept the possibility of missing points that contribute to your final grade in this course. Points missed because you did not attend class cannot be made up.

Points received for graded assignments, quizzes and other in-class activities will be compiled throughout the course. Your performance on these exercises – on the basis of points earned over total possible points – will be tallied into the formative portion of your grade for the course (See GRADING below).

GRADING

Your performance (points correct/total points) on Tests 1-5, assignments, quizzes, small group activities, and professionalism will determine 100% of your final grade (95% Tests 1 – 5 and 5% Formative. Graduate Students will NOT be required to take the Pharmacology Board with the Medical Students.

The weight of individual tests is proportional to the number of questions, with 80-120 questions per exam depending on content. The point value you can accrue through formative assessments is equivalent to a 2-3 hour, 160-180 point examination. Although those points only account for 5% of your grade, you can significantly impact your final grade simply by assuming the responsibility for and completing the related activities. Specific activities that contribute to your 'professionalism' grade include, but are not necessarily limited to, completion of peer- and self-evaluations, completion of the EBM module, and preparation in advance for on-line testing.

An example of how points accrued during this course are tabulated into your final grade is presented below. Please take note that the values are from a previous academic year, and they will more than likely be different this year. Similarly, the relative contributions of each venue to the formative component of your grade might vary.

Factors Affecting Your Final Course Grade

$$\text{Final Course Grade} = \frac{(\text{Test Average})(0.75) + (\text{Board Score})(0.2) + (0.05)(\text{Formative Score})}{1}$$

	Points	Percent
Tests 1-5	545*	75
Subject Exam		20
Formative	175*	5
Quizzes, Assignments	105*	
TBL, In-class questions	30*	
Professionalism (Evaluations; on-line testing)	40*	
Bonus[§]: Small Groups (2x)		
does not meet expectations (0 x 2)	0	
meets expectations (3 x 2)	6	
exceeds expectations (5 x 2)	10	

* values from 2013-2014 and subject to change this year

§ added to total points earned (numerator) but not total possible points (denominator)

You can calculate your current grade in the course at any time prior to the subject examination using the equations below. Please note that each test grade is weighted to the number of questions.

Current Weighted Test Average, Formative Grade and Overall Course Grade

$$\text{Weighted Test Average (\%)} = \left[\frac{(T1\%)(n1) + (T2\%)(n2) + \dots}{n1 + n2 + \dots} \right]$$

$$\text{Formative Grade (\%)} = \left[\frac{\text{Points Earned}}{\text{Total Points}} \right] \times 100$$

$$= \left[\frac{(\text{Quizzes}) + (\text{Assignments}) + (\text{Professionalism}) + (\text{Participation}) + (\text{Small Group Assessment}^*)}{(\text{Quizzes} + \text{Assignments} + \text{Professionalism} + \text{Participation})} \right] \times 100$$

*bonus points

$$\text{Course Grade (\%)} = \left[\frac{(\text{Weighted Test Average})(0.75) + (\text{Formative Grade})(0.05)}{0.8} \right] \times 100$$

These scores only account for 80% of your final grade; The remaining 20% is derived from the pharmacology subject examination.

After completion of the pharmacology subject examination, your final grade will be calculated using the following equation, with all grades expressed as a percentage.

$$\text{Final Grade (\%)} = \left[(\text{Test 1-5})(0.75) \right] + \left[(\text{Formative Grade})(0.05) \right] + \left[(\text{Subject Examination})(0.2) \right]$$

PROFESSIONALISM

The pharmacology faculty anticipate that you will conduct yourselves in a mature and professional manner and that inappropriate behavior during activities related to this course will not be an issue. Please take note that incidences of unprofessional behavior during class as well as during interactions with faculty or staff can be documented and become a permanent part of your student record. In the least, your behavior affects the perception that your peers and others with whom you interact have of you. Documentation of consistent inappropriate behavior can affect the Dean's letter and your acceptance into a residency program. At the worst, unprofessional behavior such as cheating during an examination can be grounds for failure of this course and dismissal from medical school.

As noted under Grading, some activities that occur in association with this course that are considered reflective of your professional behavior contribute to your final grade.

You can review the UMMC School of Medicine *Policy on Professional Behavior* at the M2 Curriculum site on Canvas. You should also note that as of the 2008-2009 academic year, the School of Medicine has adopted a student-derived policy on Professional Appearance that can also be reviewed on the M2 Curriculum site. Likewise, the Medical Student Council adopted a *Code of*

Honorable and Professional Conduct in May, 2009, which was subsequently approved by the School of Medicine's Dean Council in June of that year. Refer to the UMMC SOM Student Handbook to review these and relevant policies:

<https://www.umc.edu/uploadedFiles/UMCedu/Pages/Education/Schools/Medicine/School%20of%20Medicine%20Handbook.pdf> .

REQUIRED TEXT

The required textbook for this course is *Basic and Clinical Pharmacology*, 13th edition, B. G. Katzung, S. B. Masters and A. J. Trevor, editors; McGraw-Hill/Lange, 2015.

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OTHER RESOURCES

Additional resources include, but are not limited to:

Pharmacology Examination & Board Review, 9th Edition, A. J. Trevor, B. C. Katzung and S. B. Masters, Editors, McGraw-Hill, 2010, 9780071701556

Goodman & Gilman's *The Pharmacological Basis of Therapeutics*, 12th edition, L.L. Brunton, B Chabner, editor, McGraw-Hill, 2011; ISBN 978-0-07-162442-8

Pharmacotherapy, principles and practice. M.A. Chisholm-Burns, et al; editors; McGraw Hill, 2008; ISBN 978-0-07-148934-8

On-line resources include:

Electronic databases available through the UMMC Rowland Medical Library (<http://library.umsmed.edu>) include Dyna-Med, Up-To-Date and MD Consult.

Others databases include:

the National Center for Biotechnology Information (NCBI)

<http://www.ncbi.nlm.nih.gov/Literature/>

PubMed (<http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed>)

Drug Information/FDA. (<http://www.fda.gov>)

Doctors' Guide to the Internet. (<http://www.docguide.com>), requires registration (no fee)

A number of Pharmacology Departments at other universities offer web-based instructional material that can be accessed through the home page of the appropriate institution or department. This material should mirror that presented in this course but might be organized in a manner that better compliments your learning style. In that case, please use these sites to your advantage. Also, please advise the course director and/or faculty of formats which you find particularly useful and could improve this course.

These alternative sources of information are intended only to provide additional tools to facilitate your learning of pharmacology. They are not intended to supersede information given during lecture or in the primary text for this course. It is important that you realize that no textbook or other form of communication is absolutely free of error and that differences in materials between sources will undoubtedly be found. These differences might reflect a simple typographical error, a misstatement

of fact, a difference in opinion or a difference in interpretation of data, but they invariably result in information that is incorrect, misleading and confusing. As you take advantage of these and other resources, please bring any discrepancies with information presented in the primary text or during lecture to the attention of the appropriate faculty member or the course directors for clarification. *Such discrepancies should be clarified before an examination, and it is your responsibility to do so.* In any event, the appropriate faculty member, in consultation with the course director, will be the final authority in the clarification of any discrepancies that may arise.

OUTLOOK and CANVAS

Information relevant to this course, including the syllabus, the class schedule, learning objectives, drug lists, PowerPoint slides and other handouts can be obtained through Canvas within the UMMC intranet at the 'Introduction to Pharmacology & Therapeutics' site.

General announcements will be made prior to class, through Outlook and/or through Canvas.

The syllabus and schedule for pharmacology are also available at the M2 Curriculum Canvas Site, as is the master M2 Weekly Class Schedule.

FACULTY AND STAFF

Each member of the faculty of the Department of Pharmacology & Toxicology is committed to helping you learn pharmacology. Each of us has a true 'open door' policy. We encourage you to take full advantage of this policy and the attitude reflected by it. Please do not hesitate to ask us to clarify material for you during or after lectures. If you choose to come by our office, it might save you time and trouble if make an appointment. We might not be immediately available because of other obligations. You may also contact us freely by e-mail.

The contact information for the faculty and staff participating in this course are:

Pharmacology Office (R419)

Ms. Pam Banks	R420	pbanks@umc.edu	984-1690
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Course Director

Dr. Stanley V. Smith	R401	svsmith@umc.edu	815-1268
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Associate Course Director

Dr. Jan M. Williams	R400	jmwilliams5@umc.edu	984-1634
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Faculty Participants

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Extensions dialed on campus are preceded by 4 (984 extensions) or 5 (815 extensions).

CW = Classroom Wing
E = Emergency Room
G = Guyton Building
H = Hospital
HS = Heart Station

L = Clinical Sciences
M = Medicine/Rheumatology
N = North Wing
R = Research Wing
S = Hospital, South Wing

SOM = New School of Medicine
U = Learning Resource Center
VA = Veterans' Administration
Hospital WW = Winfred L. Wiser
Hospital

COURSE EVALUATION

The School of Medicine, the School of Graduate Studies and the faculty involved in this course rely on the input of the student body in the evaluation of our teaching program. To obtain an on-going assessment of *Introduction to Pharmacology and Therapeutics*, the following formal procedures will be implemented:

(1) At the beginning of the course, the class should identify one or more representatives who will act as a liaison between the class and the course director to discuss issues related to course content, faculty presentation, evaluation and other issue that impacts the class.

A major role of the liaison representative(s) will be to relay concerns about particular test questions to the course director and to participate in the final resolution of those issues. It is the responsibility of each student to submit concerns to the liaison, and it is the responsibility of the liaison, in turn, to compile the issues raised by the class and to submit them in writing to the course director. All comments or other concerns voiced by the class regarding test questions should be included. The liaison may make recommendations toward the resolution of concerns brought forward and may offer rebuttals to initial decisions made by the course director. Such discussions can occur during formal meetings or through an exchange of e-mails. After due consideration of any recommendation from the liaison, final decisions concerning the outcome of specific questions rests with the course director. Just as importantly, the liaison also has the responsibility to subsequently relay appropriate information back to the class.

(2) A review of comments and concerns expressed on the School of Medicine Curriculum Evaluation web page accessed through the UMMC intranet.

(3) Evaluation of the course and faculty at the conclusion of each test block.

(4) An evaluation by the Evers Society at the end of the course.

(5) An evaluation by graduate students through the School of Graduate Studies at the end of the course.

A valid assessment of *Introduction to Pharmacology and Therapeutics* can be obtained ONLY if all students participating in the course also participate in the evaluation process. Each of you is encouraged to give us your honest perception of the course. *Thoughtful, constructive comments and suggestions for improvement are appreciated and welcome at any time.*

RICE-HOLLAND AWARD

The Rice-Holland Award in Pharmacology and Therapeutics is bestowed by the Department of Pharmacology and Toxicology to a student who has displayed exemplary performance in the medical pharmacology course and in basic or clinical research. An application for the Award can be obtained on the course Canvas site under 'Course Documents' and submitted through January of next year. The award will be granted on Honors Day of your third year.