PHARMACOLOGY & THERAPEUTICS
COURSE INTRODUCTION

I. PHARMACOLOGY & THERAPEUTICS: COURSE GOALS AND OBJECTIVES

Course Goals:
The central goals of the Pharmacology and Therapeutics course are:

1. To provide students with a solid grounding in the basic concepts and scientific underpinnings of the pharmacological sciences

2. To provide students with a comprehensive introduction to the fundamental Pharmacology and uses of the major classes of clinically important drugs currently used in medical practice.

Specific key concepts and learning objectives will be provided for each individual lecture topic. However, the general course goals are as follows:

Course Learning Objectives:
At the end of the course students will be able to:

MEDICAL KNOWLEDGE

1. Explain how the fundamental pharmacological properties of pharmacokinetics and pharmacodynamics influence routes of administration; drug distribution and drug levels in the body; drug efficacy and potency; potential for drug-drug interactions; drug toxicity; and the appropriate choice of drug for pharmacotherapy in a given patient.

2. Explain how to use drug-specific and patient-specific pharmacokinetic parameters to calculate the physiochemical properties that influence rates of drug disposition and clearance in the body, and how these parameters can be used to monitor, design and modify appropriate dosing regimens of drugs in specific patient populations.

3. Describe the process by which new drugs are discovered, developed, tested and finally approved by the Federal Drug Administration for use in the clinic.

4. Discuss the fundamental principles of pharmacogenomics including how specific patient genotypes can influence the pharmacokinetic and pharmacodynamics properties of a drug, thereby affecting the clinical response to particular classes of medications.

5. Describe how pharmacogenomics approaches can be used to influence the drug discovery process and the choice of drugs in the treatment of specific diseases.

6. List the major drugs and drug classes currently used in medical practice and describe their pharmacology including their indications, contraindications, clinical use, mechanisms of action, physiological effects, pharmacokinetic properties, major adverse effects and clinically significant drug interactions.

7. Apply knowledge of the pharmacology of the major drugs and drug classes currently used in medical practice, together with both disease-specific and patient-specific factors to select the most appropriate medication(s) for the effective pharmacotherapy of a given disease or condition in a specific patient.

8. Demonstrate an understanding of the molecular, cellular and physiological mechanisms underlying the pathophysiological changes that occur in the etiology of the most common disease states and describe how targeting these mechanisms with the appropriate choice of drug(s) can act to effectively treat, cure, or mitigate the underlying disease causes and/or symptoms.

9. Discuss the theoretical considerations and principles that underlie the successful pharmacotherapy of the major diseases and conditions.

10. Recognize and explain the rationales behind the use of widely used, national organization-approved treatment algorithms for the management and treatment of common diseases and conditions, including identifying the currently accepted diagnostic criteria required to initiate drug therapy and the anticipated therapeutic goals likely to be achieved by therapeutic intervention.

11. Identify any clinical testing requirements for monitoring the effectiveness and potential toxicity of specific drugs used in the treatment of common diseases and conditions.

12. Explain the physiological, pharmacological, and psychological effects of acute and chronic exposure of individuals to drugs with abuse potential, and the consequences of sudden withdrawal of such a drug from a drug-dependent individual.

13. Describe the effective use of non-pharmacological therapeutic interventions in the treatment of specific diseases, conditions and symptoms.

14. Discuss the basic principles of toxicology; the mechanisms by which excess exposure to certain drugs, toxins, chemicals, heavy metals and poisons can lead to adverse toxicological effects; and the basic principles of clinically managing the poisoned patient.

15. Evaluate the relative advantages and disadvantages in the use of dietary supplements and herbal medications in the treatment of certain specific conditions or diseases, including their efficacy, potential for causing adverse effects and drug interactions.

16. Compare and contrast the major differences in the laws and regulations governing the approval, safety, efficacy and marketing of dietary supplements and herbal medications compared to conventional FDA-approved drugs.

17. Demonstrate an understanding of the design and conduct of basic scientific and clinical research and explain how these findings can be applied to both develop new therapeutic modalities and influence patient care.

INTERPERSONAL AND COMMUNICATION SKILLS

18. Demonstrate the ability to effectively communicate and work collaboratively together with peers in the small group setting to successfully address problems of pharmacological significance.

19. Contribute to the education of peers by actively engaging in small group sessions and other required group work within the course.

20. Demonstrate the ability to utilize effective oral and written communication skills to summarize and explain the clinical significance of pharmacologically relevant scientific studies to individuals of diverse educational backgrounds, including patients, using language appropriate to their level of understanding

PRACTICE-BASED LEARNING AND IMPROVEMENT

21. Critically evaluate one's performance in the course to identify strengths and personal limitations in either pharmacological knowledge or study methods; develop learning goals to address any deficiencies and actively seek out assistance from appropriate sources to successfully remediate these deficiencies.

22. Demonstrate an ability to use online resources to objectively identify and evaluate the primary basic scientific and clinical literature relevant to pre-clinical drug discovery and drug development.

PROFESSIONALISM

23. Demonstrate professional behavior by completing all course requirements, including course evaluations, in a timely manner

24. Demonstrate professionalism by behaving in a professional, courteous and respectful manner when engaged in course activities or interacting with course faculty and staff.

25. Demonstrate responsibility and accountability by attending and being punctual at all required course activities such as small groups, team-based learning exercises and exams.

26. Demonstrate professional behavior by requesting any excused absence from required course activities well ahead of the scheduled date.

27. Demonstrate professional behavior by responding to direct communication from the Course Director in a timely fashion, particularly in circumstances when a face-to face meeting is requested to discuss issues related to academic performance

28. Demonstrate professional and ethical behavior by honestly completing course examinations without attempting to seek an advantage by unfair means; and by reporting any unethical behavior of peers to the course administration.

II. ORGANIZATION OF THE COURSE.

A. Syllabus

Pharmacology & Therapeutics content is delivered over the course of the entirety of the M2 year from August to February, but is divided into two separate courses (Pharm I and Pharm II), each of which must be passed in order to progress academically.

Pharm I: Monday, August 5th, 2024 – Friday, October 4th, 2024
Pharm II: Monday October 14th, 2024 – Friday March 7th, 2025

You will receive an **individual** grade for **both** Pharm I and Pharm II

Pharm I:
There are five major areas of emphasis in Pharm I:

(i) Basic Principles –in this series of lectures you will be introduced to the fundamental concepts of Pharmacology including pharmacokinetics, pharmacodynamics, pharmacogenomics, drug metabolism, drug interactions, drug transporters and drug discovery

(ii) Antimicrobial Drugs–this section of the semester will provide an introduction to the pharmacology and clinical use of antibiotic drugs used to treat bacterial diseases.

(iii) Autonomic Pharmacology/ NSAID medications- this section of the course will introduce you to the pharmacology of the autonomic nervous system and the NSAID class of drugs.

(iv) Pharmacology of blood coagulation - in this section you will be introduced to the major drug classes involved in treating abnormalities in the blood coagulation cascade

(v) Cardiovascular Pharmacology – in this series of lectures you will be introduced to the major drug classes that are used to treat diseases of the cardiovascular system. These drug classes include those used to control hyperlipidemia, hypertension, angina, cardiac arrhythmias and congestive heart failure.

There will be a total of **FOUR** exams in Pharm I on the following dates:

August 19th, 2024; August 30th, 2024; September 13th, 2024; October 4h , 2024.

Pharm II
There are five major areas of emphasis in Semester IV:

(i) Neuropharmacology – this series of lectures will provide an introduction to the pharmacology and clinical use of the analgesics ; the anesthetics, antiepileptics and drugs used to treat neurodegenerative diseases

(ii) Psychopharmacology – this series of lectures will provide an introduction to the pharmacology of drugs used in the treatment of common psychiatric illnesses, including the antidepressants, mood stabilizers, anxiolytics, anti-psychotics and stimulants. There will also be lectures on sedative hypnotic drugs and drugs used to treat drug abuse.

(iii) ***Endocrine Pharmacology*** – this section of the course will discuss the pharmacology of drugs used to treat disorders of the endocrine system. Topics included are hypothalamic and pituitary hormones ; estrogens, progesterones and androgens ; Adrenocorticosteroids ; drugs used to treat thyroid disorders ; drugs to treat osteoporosis, and drugs to treat diabetes.

(iv) Chemotherapy and drugs affecting the immune system– the final section of the semester will focus on the pharmacology of drugs used in chemotherapy and the treatment of cancer, as well as drugs used in transplantation and the treatment of autoimmune disease

(v) Miscellaneous topics- Other lecture topics that will be introduced throughout the course include : Drugs used to treat viral, fungal and parasitic infections ; Drugs to treat allergies ; Drugs to treat anemia ; Drug toxicology; Drugs used in the management of GI disorders; Herbal Medications and Drug Supplements.

There will be **FIVE** exams in Semester IV on the following dates:

October 25h, 2024; **November 15th, 2024; December 12th, 2024; December 20th, 2024; January 24th, 2025; February 14th, 2025; March 7th, 2025

***** - This exam will only cover content from a single Pharmacology lecture***

B. Integration with other courses

The Pharmacology and Therapeutics course will run concurrently with Mechanisms of Human Disease. You will find that the lecture topics in these have been integrated so that related topics are coordinated and will be taught in a contemporaneous fashion. This will ensure that you will first hear about the underlying scientific basis of a disease process, its associated pathologies, and symptoms, prior to being introduced to the Pharmacology of the drugs used to treat that specific disease process. The topic areas are further integrated in small group sessions within both the Mechanisms and Pharmacology courses that aim to dovetail knowledge gained from both courses into addressing specific clinical scenarios. It is hoped that by integrating the course material in this way, it will aid the overall educational experience and will greatly facilitate the learning process.

C. Lectures

All lectures will be pre-recorded using the Panopto software platform and delivered asynchronously to view at your convenience. All lectures will be accompanied by the following:

a) A list of specific learning objectives.
b) A list of the important drugs to be covered during the lecture.
c) A PPS file of the PPT presentation
d) A PDF containing copies of the PPT slides
e) A URL to the Panopto Lecture video recording

f) Charts illustrating key Pharmacological features of each drug covered in the lecture, and/or a brief review of key points made in the lecture.
g) Miscellaneous materials e.g. handouts, optional reading, useful reviews and other documents

D. Small Group Case Studies

In addition to lectures, Pharm I also includes four small group sessions. These small group sessions are scheduled to last 90 min and will take place in person in assigned rooms within SSOM. They will be focused on basic pharmacological concepts such as pharmacokinetics, pharmacodynamics drug dosing, drug metabolism, and drug interactions. The case vignettes and associated study questions will be made available online. Individual small group assignments, room numbers, and the names of the group facilitators will be posted in Sakai. Note that in many cases, Pharmacological topics and the use of drugs in the treatment of specific diseases will be discussed in small group cases delivered within the Mechanisms of Human Disease course.

In addition to the small group cases there will also be two pharmacology demonstrations that will use clinical simulators and standardized patients to illustrate important aspects in the use of the autonomic & cardiovascular drugs, respectively. These demonstrations will take either in SSOM Rm 190 or 390. You will be expected to have reviewed the cases prior to the class and to come to these sessions ready to fully participate in the discussions.

In line with current school policy attendance at Small Groups is Mandatory. Failure to attend and participate in small groups will result in an evaluation of DOES NOT MEET EXPECTATIONS in your Professional competency component of the course. If, for whatever reason, you find that you have a legitimate reason for being unable to attend a particular small group session you should seek advance permission from the Office of Student Affairs. Please note that small group sessions will not be recorded.

E. Independent Pharmacology Study & Communication assignment (IPSC)

The IPSC assignment is an independent **PASS/FAIL component** of the Pharm II course that is a two-part exercise designed to both enhance your lifelong learning skills and practice communicating complex translational and clinical studies to patients.

Part 1 of the assignment is an independent self-study exercise aimed at preparing you for the type of independent bioinformatics research you will need to perform in the clerkships and in future clinical practice. **These are all skills and behaviors identified by the medical school accrediting body – the Liaison Committee on Medical Education (LCME) - as being essential for every medical student to develop, and as a result are enshrined within the standards to which every medical school is held accountable**. As part of this portion of the assignment you will identify a disease or condition in which you are particularly interested, or would like to learn more about, then will identify a drug available to treat that disease/condition that has recently been approved by the FDA within the last 5 years. After identifying a specific drug, you will then search the primary literature to identify published peer-reviewed studies documenting: a) the discovery/molecular mechanism of action of the drug; and b) the clinical trial study that formed the basis for the drug's approval by the FDA.

As part of this portion of the assignment you will provide:

a) the name of your identified disease/condition
b) the generic name of the drug approved to treat that disease
c) full citations of the relevant studies describing the molecular mechanism of action of the drug and the relevant clinical trial.

In part 2 of the assignment, you will summarize what you have learned about the drug and describe your findings in a simulated email communication to a typical patient (i.e. someone with **no prior** scientific or medical knowledge). The premise of this assignment is that you have been asked a question via email on MyLoyola from a patient of yours that suffers from the disease/condition identified in part 1 above (or is the parent/guardian/caregiver of the patient with the disease) and has recently heard about a new drug that is available to treat their disease. They would like you to explain the drug to them including how it works; how we know it is effective; are there any major concerning side effects they should be aware of; and, do you think the drug is right for them (please provide a rationale for why you would or would not recommend the drug). Your assignment is to respond to the patient in a simulated MyLoyola email answering their questions in words and terms that they should be able to readily understand (e.g. imagine describing the study to your grandparents or a family friend). The simulated email should be brief and contain only the essential information to answer the patients' questions (typically no longer than ~400 words)- the more important point is that it be in simple language that can be readily understood by a lay individual.

Further details, including learning objectives, and the process and forms for submission of the completed final assignment will be made available through Sakai. Submitted assignments will be graded on a **PASS/FAIL**

basis, as outlined below in the section on course grading and competency evaluation policy.

F. BENCH-TO-BEDSIDE PROJECT

The Bench-to-Bedside project is a small group exercise in the Pharm II course in which you and your group will engage with the primary biomedical literature in order to both develop important lifelong learning skills and gain an understanding of the ways in which basic, clinical and translational research are performed, evaluated, and applied to patient care. Specifically, how new drugs are discovered, developed, and tested prior to regulatory approval.

Each group will be provided with the name of a drug that is either currently undergoing clinical trials, or that has been recently FDA-approved. In the first scheduled session of this project, you will work collaboratively together as a group to search the literature in order to identify the relevant published papers describing how the drug was initially discovered; its molecular mechanism of action; and the details of the clinical trial studies demonstrating the safety and efficacy of the drug used to support its application for FDA approval. You will then work collectively to summarize and organize your findings into the form of a group presentation that describes the following:

a) a brief review of the disease/condition the drug is designed to treat
b) any unmet clinical need that the drug fills
c) a brief description of how the drug was discovered
d) a description of the key pharmacological properties of the drug including its mechanism of action
e) a brief description of the key findings from the clinical trial showing efficacy of the drug to include:
    - the specific trial design
    - the patient population included in the study
    - the specific clinical end point being measured
    - the relevant control group used in the study
    - the clinical outcome/quantitative effects of the drug on the clinical endpoint that were the basis for the drug's approval
    - any major adverse effects associated with the drug

During the second scheduled session each group will then deliver their group presentation to peers from other small groups in the assigned room, as well as a faculty member who will be responsible for evaluating the presentation, asking the group questions related to their presentation and providing feedback.

This project is designed to achieve five major goals: (1) gain an understanding of the ways in which basic and clinical research are performed and evaluated; (2) develop and hone lifelong learning skills including identifying, critiquing and assessing the credibility of relevant biomedical research; (3) working collaboratively and effectively as a team; (4) developing and honing communication and presentation skills and (5) developing the skills of communicating complex biomedical and clinical concepts to peers, and ultimately patients.

Attendance and participation in this project and the group presentations are **expected.** Presentations will be evaluated by a faculty facilitator who will provide a report on student participation and an assessment of each group's performance to the Course Director. The project will be graded as a **Pass/Fail component** of the course. Only those members of the group that actively, and, satisfactorily, participate in the group presentations will receive a passing grade. Students that either do not participate, or fail to meet expectations, will be required to remediate their performance.

III. TIPS ON STUDYING FOR PHARM

As indicated above, the first section of Pharm I will introduce you to the basic scientific principles of Pharmacology. By its very nature this section of the course is very conceptual and deals with very basic fundamental aspects of Pharmacology. However, the remainder of Pharm I and Pharm II will quickly become very specific and is organized in a stepwise fashion to introduce you to the different classes of currently available drugs that are used to treat specific diseases and clinical conditions. This will expose you to a very large amount of information. In order to facilitate your learning and understanding of this material it is helpful to consider the following specific pieces of information for each drug or class of drugs that is covered.

For each drug/drug class you should know the following:

a) INDICATIONS* ** - under what circumstances is the drug used.

b) DRUG ACTION* ** - what clinical effect does the drug have.

c) MECHANISM OF ACTION* ** - how does the drug work at the molecular and physiological level.

d) ADVERSE EFFECTS* ** - are there any major clinically relevant side effects of the drug.

e) CONTRAINDICATIONS* ** - are there circumstances in which the drug should not be administered to certain patient populations e.g. the elderly, those with renal insufficiency, pregnant women etc.

f) PHARMACOKINETICS - are there any factors such as absorption, metabolism, excretion or half-life that might significantly affect the drug action.

g) DRUG INTERACTIONS - are there any interactions with other potentially concomitantly administered drugs that might significantly affect the clinical efficacy, bioavailability or toxicity of either drug.

***- indicates most relevant HIGH YIELD information that is essential to master in order to perform well on the USMLE Step 1 exam.

This information will be discussed for each drug and/or drug class discussed throughout the course. In many cases, the information will be summarized in the charts that will accompany your lecture handouts. By learning this information for each drug/drug class, you will gain a greater appreciation for both the uses and limitations of these drugs in the effective treatment of specific patient populations. Knowing, understanding and being able to apply this information will not only be critical for performing well in examinations both in the Pharmacology course and in the USLME-step 1 exam, but will also be critical foundational knowledge for use in the clerkships next year.

IV. PREPARATION FOR EXAMINATIONS.

A. With the exception of the first exam block, which is focused on basic pharmacology concepts, the vast majority of questions (>95%) in both Pharm I and Pharm II will focus on aspects of drugs related to their indications, mechanism of action and major adverse effects- your study efforts should ideally focus on these areas.

B. As part of the handouts for each lecture you should also receive a chart(s) illustrating the major features of the drugs discussed during that lecture

(i.e. indications, mechanism of action, adverse effects, contraindications, drug interactions). Alternatively, some lecturers may supply you with a list of key review points for the lecture. In either case, these materials should be invaluable resources in your preparations for each exam. We recommend that you utilize these resources in a spaced repetition learning format to enhance your learning and to promote long-term retention of information. Alternatively, you may study this material using pre-prepared ANKI decks, just ensure that any ANKI decks being used are congruent with material being presented in lecture.

C. Many students have also found value in using certain 3rd part resources that review pharmacology content in a number of different ways, including visual form (e.g. Sketchy Pharm), however, recognize that these resources are study aids and not primary source material. They are designed to link key concepts with a visual trigger and ideally used to aid in memory retention. Ideally, these resources are utilized after you have initially reviewed, understood, and learned lecture content. You should also ensure that any 3rd party resources used for studying are also congruent with material presented in lecture.

D. USMLE type questions with explanations can be found at the end of each chapter in Katzung and Trevor's *Examination and Board Review (13th Edition)*.

E. The BRS Pharmacology contains an extensive number of short format pharmacology-related questions complete with answers.

F. An online student Resource Center accompanies the 15th edition of Katzung "*Basic & Clinical Pharmacology*". This includes chapter questions and answers with detailed rationales.

G. The following represent Pharmacology-related exam questions that are available online:

URL http://www.pharmacology2000.com/learning2.htm
URL http://tmedweb.tulane.edu/pharmwiki/doku.php/all_pharmwiki_quizzes

V. EXAM FORMAT

A. There will be a total of **ELEVEN** exams throughout the year that contain Pharmacology and Therapeutics questions: Four in Pharm I and 7 in Pharm II. NOTE: The Pharm II on November 15th will only cover material from a single pharmacology lecture.

B. The total number of questions containing Pharmacology material will vary from exam to exam and will depend on the total number of Pharmacology lectures given during that section of the course.

C. The exams are **NOT** cumulative. Each exam will consist of **three questions per lecture hour and one questions per small group session that were delivered during the corresponding section of the course.** All questions will all be multi choice format in the style of the United States Medical Licensing Exam (USMLE-Step 1). Total time allowed for each exam will vary depending on the number of exam question- the average time allotted to answer each question will be 1 min 30 sec (Note: Time allotted during USLME step 1 is 1 min 20/question).

D. All questions will be in the USMLE-best answer format and will be directly linked to a specific learning objective.

E. After each exam you will receive back a report including your exam score and a list of the learning objectives linked to the questions that you answered incorrectly. This list should serve as the basis for re-reviewing course content to ensure your full understanding of course concepts and content for the future.

VI. EXAM SCHEDULING AND MISSED EXAM POLICY.

All students are expected to sit for each exam at the date and time indicated in the course schedule, as documented in the SSOM Academic Policy Manual. If circumstances arise that may prevent you from taking a scheduled examination (e.g. serious illness or an emergency situation) you should immediately contact the Office of Student Affairs as soon as possible, so that a timely determination can be made regarding a potential excused absence. Students who are unable to sit for an exam for a **legitimate** reason, as adjudicated by the Office of Student Affairs, will have their exam rescheduled for a later date. The rescheduling of any exams will be determined by mutual agreement of the Office of Student Affairs, the Office of Educational Affairs, and the Course Director, as outlined in the SSOM Academic Policy Manual.

VII. COURSE GRADING AND COMPETENCY EVALUATION POLICY.

Students will receive an individual grade and competency evaluations for both Pharm I and Pharm II.

A. Pharm I Requirements, Grading and Competency Evaluation

The grade and competency evaluation for Pharm I will be determined solely on the aggregate performance in the individual medical knowledge assessment exams delivered during this portion of the course.

The final grade will be based on the overall total percent of correctly answered questions on all exam assessments delivered during the course (i.e. total number of correctly answered questions on all exams/total number of asked questions on all Pharm I course exams expressed as a percentage)

Grading will be on a Pass/Fail basis

Pass: an aggregate percentage score greater than or equal to **70%**
Fail: an aggregate percentage score of less than **70%**.

In addition, students will also receive an evaluation for the medical knowledge competency, which is a reflection of the extent to which they are meeting the expectations of the competency. These competency evaluations do not appear on the official transcript but do form part of a students' official SSOM academic record and are reviewed, and potentially acted upon, by the Academic Review and Intervention Committee (ARIC) and the Student Promotions Committee when considering fulfillment of SSOM competencies for the purpose of determining student promotion and graduation decisions, as outlined in the SSOM Academic Policy Manual.

Medical knowledge competency evaluations are determined as follows:

"Does not meet" -students who receive a failing grade for the course

"Meets with concerns" - students who achieve a pass, but whose final aggregate percent score is less than 1.65 SD below the class mean (i.e. within the lower 5% of the class).

"Meets expectations" -students who achieve a pass and whose final aggregate percent score is > the class mean minus 1.65 SD.

B. Pharm II Requirements, Grading and Competency Evaluation

In order to pass the Pharm II course, students are required to achieve a passing score for medical knowledge based upon the aggregate performance in the individual medical knowledge assessment exams delivered during this portion of the course, as well as record a pass in each of the Independent Pharmacology Study and Communication (IPSC) assignment and the Bench-to-Bedside project prior to the completion of the course.

The final reported grade for Pharm II will be based upon overall performance in the medical knowledge assessments, as outlined below.

(i) Medical knowledge assessment.

The final grade for Pharm II will be based on the overall total percent of correctly answered questions on all exam assessments delivered during the course (i.e. total number of correctly answered questions on all exams/total number of asked questions on all Pharm II course exams expressed as a percentage).

Grading will be on a **Pass/Fail** basis

Pass: an aggregate percentage score greater than or equal to **70%**
Fail: an aggregate percentage score of less than **70%**.

In addition, students will also receive a medical knowledge competency evaluation for their Pharm II performance, as outlined above for Pharm I.

(ii) Independent Pharmacology Study and Communication (IPSC) assessment.

The IPSC assignment will be graded on a **Pass/Fail** basis.

Pass - students that submit their assignment by the designated deadline and the submitted document adequately meets the expectations of the assignment, as outlined in the assignment description.

Fail- students that either fail to submit the assignment by the designated deadline or the submitted document exhibits significant deficiencies that fall well below expectations. Note: Students that receive a failing grade for the assignment will be directly informed by the course director and will be required to complete a designated make-up exercise to demonstrate a satisfactory level of performance prior to the completion of the course. Successful completion and passing of a designated make-up exercise will be required in order to successfully pass the course.

(iii) Bench-to-Bedside project assessment

The Bench-to-Bedside project will be graded on a **Pass/Fail** basis

Pass- students who fully contribute towards the background research and preparation for the presentation and actively participate in the group oral presentation at a level that meets expectations.

Fail- students that either fail to participate in the project and the oral presentation, or whose participation falls significantly below the expected level. Note: Students that receive a failing grade for the assignment will be directly informed by the course director and will be required to complete a designated make-up exercise to demonstrate a satisfactory level of performance prior to the completion of the course. Successful completion and passing of a designated make-up exercise will be required in order to successfully pass the course.

In addition, based upon their performance in the IPSC assignment and the Bench-to-Bedside project, students will also receive competency evaluations for both the Practice-based learning and improvement and the Interpersonal communication competencies as follows:

Meets expectations - students who achieve a passing grade in both exercises and whose performance fully meets the expectations of both assignments.

Meets with concerns - students who achieve a passing grade in both exercises, but whose performance in one or another of the assignments exhibits significant deficiencies as related to expectations.

Does not meet - students who receive a failing grade in either assignment.

Note: Students who initially receive a failing grade, but then successfully complete a designated make-up exercise will have their competency evaluations for Practice-based learning and improvement and/or the Interpersonal communication competencies converted from a “Does not meet” to a “Meets with concerns”.

These competency evaluations do not appear on the official transcript but do form part of a students’ official SSOM academic record and are reviewed, and potentially acted upon, by the Academic Review and Intervention Committee (ARIC) and the Student Promotions Committee when considering fulfillment of SSOM competencies for the purpose of determining student promotion and graduation decisions, as outlined in the SSOM Academic Policy Manual.

(iv) Professionalism assessment (see below for details)

Students who exhibit behaviors within the course that fall below the standards expected of a Stritch student will receive either a “Does not meet” or a “Meets with concerns” for their professionalism competency,

depending upon the extent and seriousness of the behavior. Students that receive either outcome in their Professionalism competency will be subject to the review and subsequent actions of the Academic Review and Intervention Committee (ARIC) and the Student Promotions Committee (SPC), as outlined in the SSOM Academic Policy Manual. Please note that any reported professionalism concerns could ultimately affect the content of your MSPE (Dean's letter).

VII. MEDICAL KNOWLEDGE EXAM REMEDIATION POLICY

Students who fail to achieve the minimum score required for a passing grade in the medical knowledge assessments for either Pharm I and/or Pharm II may be allowed the opportunity to take a make-up remediation exam, as outlined in the SSOM Academic Policy Manual. The purpose of the remediation exam is for the student to demonstrate competence of the material presented in the course. The make-up exam will be a rigorous, yet fair assessment, to ensure that the student has achieved sufficient mastery of the course content to be allowed to progress to the next academic level. The composition of the exam will be determined by the course director, together with faculty input, and will consist of representative fair and validated questions that asses critical understanding of core course concepts and high yield course content that reflects the breadth of material presented throughout the course. Remediation exams will be administered at the end of the academic year and will be scheduled by the Office of Student Affairs and the Academic Center for Excellence in consultation with the Course Director and the Office of Educational Affairs. All students requiring remediation should meet with the Course Director well in advance of the scheduled date of the exam to discuss both the exact format of the exam and their proposed study approach. Those students achieving a score of **greater or equal to 70%** on the remediation exam will have their initial F grade converted to a P* and the "Does not Meet" for their Medical Knowledge competency altered to "Meets with Concerns". Students who fail to successfully achieve the minimum passing score will be required either to repeat the course in its entirety during the subsequent academic year, or alternatively, may be subject to automatic administrative action by the Medical School, as outlined in the SSOM Academic Policy Manual.

Please note that students with a **final aggregate course score of <60% may be denied the opportunity to remediate** their course failure by an end-of-year remediation exam and may instead be required to repeat the course in its entirety. The decision to allow such students the opportunity to take a remediation exam will be made by the Student Promotions Committee (SPC).

VIII. PROFESSIONALISM.

Personal responsibility and professionalism are two key areas in the development of a physician. It is expected that professionalism will be extended in all aspects of your conduct in this course.

Appropriate professional behavior includes, but is not limited to the following:

- Adopting appropriate, professional, and respectful interactions with the course directors, lecturers, medical educational coordinators, and other students, including when communicating via email.
- Responding to direct communication from the Course Director in a timely fashion, particularly in circumstances when a face-to face meeting is requested to discuss issues related to academic performance.
- Attendance and participation in all required course sessions (unless an official excused absence has been granted by the Office of Student Affairs)
- Adopting appropriate and professional behavior during all course activities
- Completion and submission of any required course assignment by the designated submission date (including end-of-course-evaluations)
- Honestly completing course examinations without attempting to seek an advantage by unfair means and without attempting to compromise the integrity of the exam process in any way.

Any lack in professional conduct during the course will be noted in the online Professionalism reporting tool and an appropriate designation and narrative comment made to the Professionalism competency evaluation within the student grading system. In such cases, students will be subject to the review and subsequent actions of the Academic Review and Intervention Committee (ARIC) and the Student Promotions Committee (SPC), as outlined in the SSOM Academic Policy Manual.

You are training to be physicians and both we and society expect you to hold yourself to the highest professional and ethical standards.

IX. ACADEMIC HONESTY

It is expected that all students will maintain personal integrity and honesty during the examination process.

Specifically, we do not expect you to participate in and/or enable any of the following:

- the unauthorized access and use of any materials, notes, sources of information, study aids or tools during the exam.
- the assistance of any individual to help answer a question.

- the use of any internet enabled device to search for answers during the exam.
- helping another student commit an act of academic dishonesty.
- engage in any activity aimed at compromising the integrity of course exams either in this or future academic years.

Any student that attempts to gain an unfair advantage over other students in an examination by any of these unauthorized means, passes on the details of exam questions to any other student, will be guilty of academic misconduct and will receive a "Does not meet" in their professionalism competency and be promptly reported to the Office of Student Affairs for subsequent action.

Any written work submitted as part of a course requirement should represent the students own work and should not be plagiarized from other sources. Specifically, use of any AI-enabled software (e.g. ChatGPT) to complete any required course written assignment is not permitted. Any student found to be engaging in such activities will be guilty of academic dishonesty and will receive a "Does not meet" in their professionalism competency and will be promptly reported to the Office of Student Affairs for subsequent action.

X. TEXTBOOKS

Recommended:

Katzung, B. G., Masters, S.B. and Trevor, A.J. Basic and Clinical Pharmacology 15th Edition. McGraw Hill: Norwalk, CT. 2021.

- Available through Access Medicine via the Health Sciences Library

This is a textbook that is used by many Pharmacology courses at other Medical Schools around the country- it is the companion textbook to the Board Review book listed below. It offers an in-depth detailed discussion of each topic and can be used as a primary resource textbook. It contains excellent summary charts of points at the end of each chapter.

XI. ADDITIONAL TEXTBOOKS AND E-RESOURCES

A. Textbooks.

1. Goodman & Gilman's The Pharmacological Basis of Therapeutics 14th Edition. McGraw Hill: NY 2017.

This voluminous textbook provides a very comprehensive and in-depth discussion of all areas of modern clinical pharmacology. It is considered as the "gold standard" of Pharmacology textbooks. However, it would probably be overkill for the course for all but the most interested students.

- also available through Access Medicine

2. Howland & Mycek. Lippincott's Illustrated Reviews, Pharmacology 7th Edition., Lippincott Williams &Wilkins, 2018.
8th Edition expected October 8th 2022

A "user friendly" textbook that provides a basic outline of each topic. Provides just about the right amount of detail for easy review of any given topic. Includes many excellent tables, charts and illustrations for easy review of the material.

B. Review Books

1. Katzung, B.G. and Trevor, A.J. Pharmacology: Examination and Board Review 13th Edition. McGraw Hill: Norwalk, CT., 2021.

This Board Review book has previously been recommended by past students of the course. It offers a user-friendly brief synopsis of most pharmacological topics with plenty of diagrams, figures and tables. It also includes a list of practice exam questions complete with annotated answers at the end of each section. However, you should be aware that this book provides only a brief review of each topic, not a comprehensive in-depth coverage.

2. Lerchenfeldt & Rosenfeld BRS Pharmacology 7th Edition, Wolters Kluwer 2019

An excellent resource for exam preparation. Succinct description of each major topic area, pharmacological concept and major drug class. Each chapter concludes with a series of MCQ practice questions complete with answers.

C. E-Resources

1. Decker: Medicine

URL https://online-statref-com.archer.luc.edu/document/FnbJkAT3F6oligCpxpyxIj

This Online Textbook is available through the library e-books collection. It contains a series of excellent up-to-date chapters on a variety of disease process, detailing the underlying biology and pathology of each disease. Most importantly, each chapter ends with a discussion of the available therapeutic approaches to treat each disease, as well as a succinct review of the most important pharmacological aspects of each of the highlighted medications.

2. Up-to-Date
URL http://www.utdol.com/application/search.asp

This website is available through computers on campus and can be accessed via the library web site (under quick links). It provides access to an extensive searchable and clickable database of excellent articles and monographs on specific disease conditions and the medications used to treat them. Provides excellent discussion on all aspects of specific medications including indications, mechanism of action, side effects and drug interactions. An excellent resource of current up-to-date pharmacological information that is widely used on the clinical floors.

3. Medical Pharmacology- Online Pharmacology content & Practice questions
URL http://www.pharmacology2000.com/learning2.htm

This is a privately run web site that provides concise review notes on a comprehensive list of Pharmacological topics and specific medications. In addition, it offers the chance to take a number of different online practice exams for each topic. Although I cannot attest to the complete accuracy of the material, it seems that this site would be a good resource for exam preparation.

XII. KEY CONTACTS

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REMEMBER TO CHECK YOUR E-MAIL ON A REGULAR BASIS. UPDATES AND CHANGES WILL BE ONLY POSTED THROUGH E-MAIL. ALSO CHECK THE WEEKLY COURSE SCHEDULE FOR ANY CHANGES.