



## School of Pharmacy

### Course Syllabus

Fall – P2

PHAR 6219

**Principles of Drug Action IA (Pharmaceutical Foundations Track)**

**Course Dates:** August 22 – December 9, 2022

**Scheduled Course Time:** Friday, 9:00 – 10:50 AM

**Delivery:** Synchronous/Live (some online/asynchronous content)

**Location:** Campbell Rm 212 (virtual via Zoom)

### Course Coordinator

<b>G. Scott Weston, RPh, MBA, PhD, Associate Dean for Academic Affairs and Professor</b>	
Office Room Number: Campbell 110K	Office Hours: By appointment
Office Phone: (915) 747-8242	E-mail: <a href="mailto:gsweston@utep.edu">gsweston@utep.edu</a>

### Course Faculty

Faculty Lecturers/Facilitators	
Sara Smith, PharmD, Clinical Assistant Professor Office Room Number: Campbell 703 Email: <a href="mailto:scrico@utep.edu">scrico@utep.edu</a> Preferred method of contact: email or in person Office Hours: By appointment	Jose Rivera, PharmD, Founding Dean and Professor Office Room Number: Campbell 110H Email: <a href="mailto:jrivera@utep.edu">jrivera@utep.edu</a> Preferred method of contact: email or in person Office Hours: By appointment

**Note:** The course coordinator may adapt the syllabus/course calendar as appropriate to support student and course success.

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## Office Hours

*Students may request an appointment with the coordinator in person or via e-mail. Guest faculty will provide office hours during lecture days. All appointments should be made at least 2 business days in advance*

Office hours may be held in-person on campus or virtually per the discretion of each faculty member. Instructors will post or announce the location and type of their office hours as necessary. Virtual Office Hours may be held through the online platform of each instructor's choice (i.e., Zoom, Microsoft Teams, etc.). Office hours will be used to discuss any questions regarding course content, course logistic problems, or exam questions. The course coordinator will try to respond as soon as possible (generally within 24-48 hours) to meeting requests. When sending an email, please indicate the course and the issue/topic in the subject line of the email.

Reviewing exams can be done during the course coordinator's office hours, or by appointment with the course coordinator or content instructors. If reviewed live/in-person, exam content can be discussed with detail. If reviewed via a virtual platform, exam content will be discussed generally rather than read or shown to protect exam integrity. To better focus future studying and review, discussion of exam content will focus on concepts related to missed questions rather than just right/wrong answers.

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## Questions Related to the Course and Grading/Exams

In general, questions related to the overall course should be directed to the coordinator. **Content/topic-specific questions** should be directed to the content instructor within **five (5) business days** of the material being presented.

Any questions concerning **assignment/quiz/exam grades** should be discussed with the **course coordinator within five (5) business days** after the grades have been posted.

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## Course Description

This course provides students with the foundational knowledge and skills essential for understanding, applying, and evaluating the medicinal chemistry and pharmacological concepts that ultimately relate to the physiochemical properties of drugs and their pharmacokinetic and pharmacodynamic behaviors.

**Pharmacists' Patient Care Process:** This course will help students learn foundational concepts of medicinal chemistry and pharmacology, providing essential building blocks necessary to apply all parts of the Pharmacists' Patient Care Process



Source: <https://doi.org/10.21019/9781582122564.ch6>

## Course Objectives mapped to National Pharmacy Education Outcomes

At the conclusion of this course, students shall be expected to:

Course Objectives	CAPE Outcomes	PCOA/NAPLEX	Learning Activities	Outcome Measures
1. Explain basic physicochemical and structural factors governing drug properties.	1.1 3.1	2.1.1	Readings, lectures, discussions, and class activities	Quizzes & Exams
2. Locate and name functional groups, heterocyclic rings, and substituent groups on molecular structures of drugs.	1.1 3.1	2.1.2	Readings, lectures, discussions, and class activities	Quizzes & Exams
3. Understand and apply the terminology and principles related to drug-receptor interaction, including three-dimensional shapes, as well as quantitative relationship between drug dose and pharmacological response.				
4. Comprehend the conversion of two-dimensional representations of drug molecules into three-dimensional structures.				
5. Understand and explain the structure-activity relationships for a given drug class and use it to guide drug selection.	1.1 3.1	2.1.3 2.1.4	Readings, lectures, discussions, and class activities	Quizzes & Exams
6. Recognize the meaning of the term $pK_a$ both mathematically and conceptually.	1.1 3.1	2.1.1	Readings, lectures, discussions, and class activities	Quizzes & Exams
7. Given the pH of a molecule in solution and its percent ionization, or acid/base ratio, calculate the $pK_a$ of the solution.				
8. Recognize how changes in pH affect the solubility and absorption of an ionizable drug molecule.				
9. Explain the principles of drug biotransformation and apply them to contemporary pharmacotherapy.	1.1 3.1	2.1.5 2.1.6	Readings, lectures, discussions, and class activities	Quizzes & Exams
10. Critically analyze novel trends in drug discovery.				
11. Understand the origins of pharmacologically active natural products and naturally derived medicines.	1.1	2.3.1 2.3.2 2.3.3 4.7.7	Readings, lectures, discussions, and class activities	Quizzes & Exams

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## Detailed Course Meetings Requirements

This course will be held in-person on Fridays from 9 to 10:50 AM in Campbell 212. Occasionally, class may be held virtually and/or asynchronously per the determination of individual faculty members delivering each day's content. All lectures will be recorded, however, recordings may or may not be available to students per each instructor's individual determination for their content. Exams will be held during regularly scheduled class meeting times in Campbell 212.

In a major disruption (e.g., zombie apocalypse, a new viral pandemic), be prepared to maintain course progress via other means (e.g., Internet, our Blackboard course shell, etc.) and check your UTEP email regularly.

### **Online Platform:**

Blackboard will be utilized as the primary learning management system.

**Accessing Course Content on Blackboard:** All lectures, handouts, and course material will be in Blackboard. To access Blackboard, log into My UTEP.edu and click on the Blackboard link then access the online course for PHAR 6219. Except in cases of a UTEP network being "down" or "offline" students are ultimately responsible to ensure that their computer is connected to the internet, that you have all necessary access, and that any issues are addressed prior to class and/or assessments.

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## Methods of Instruction/Learning

UTEP or SoP may change to primarily online course if major disruption (e.g., pandemic, weather). For tips on succeeding in an online environment, see: <https://www.utep.edu/extendeduniversity/utepconnect/blog/february-2017/tips-for-online-learning-success.html>.

The learning outcomes in this course will be achieved via activities such as:

1. Outside Preparation (e.g., readings, micro-lecture videos)
2. Lectures (in-person or virtual, synchronous, and asynchronous; the availability of lecture recordings after class will not be guaranteed and is up to instructor preference)
3. Individual Assignments/Activities
4. Exams/Quizzes

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## Required Course Technology/Tools/Needs

### Recommended Textbooks:

- Golan DE. Principles of Pharmacology: The Pathophysiologic Basis of Therapeutics. 4th ed. ISBN 978-1451191004. Available in the bookstore or through online book sellers.
- Katzung BG. Basic and Clinical Pharmacology. 14th ed. ISBN 978-1259641152. Available in AccessPharmacy.
- Roche V, et al. Foye's Principles of Medicinal Chemistry, 8<sup>th</sup> ed. ISBN 978-1496385024. Available in the bookstore or through online book sellers.

\*Note: this list is not exhaustive. Course faculty may require or recommend additional resources. These will be posted on the Blackboard course page as needed.

### Laptop Computer

- Students are expected to have computer access for class each day and for participation in on-line exercises or assessments. It is the responsibility of the students to make sure that the laptops are in working condition and meets the University and School of Pharmacy IT requirements (See SOP Student Handbook).
- **Audio (speaker & microphone) and video (camera) MUST be functional for classes and online exams.**
- Students should be ready at any time to share their screen, camera, audio with classmates/faculty for online course learning situations

## Calculator

- Students are expected to have access to a non-programmable calculator for all assessment activities (electronic device calculators are acceptable). Some exams (e.g., ExamSoft®) may require use the software calculator only.

## Software/Technology must be tested in orientation/first week of courses to ensure functionality.

- Exemplify, ExamSoft® Exam Monitor
- Blackboard® Respondus Lockdown
- Microsoft® Teams
- Zoom® (via UTEP access with email)
- **Audio (speaker & microphone) and video (camera) MUST be functional for classes and online exams**

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## **Conduct Expectations**

### Attendance

The attendance policy for the School of Pharmacy is outlined in the Student Handbook. It is expected that students should demonstrate their commitment to the profession and respect for faculty, guest speakers, and colleagues by attending all classes and arriving to class on time and prepared for the day's lesson(s).

Attendance at lectures is not mandatory in that attendance will not be taken at each lecture. However, attendance and punctuality at lectures are strongly recommended and expected as a sign of professional behavior. The course coordinator and other instructors reserve the right to give unannounced quizzes. Additionally, individual instructors may require attendance for their lectures or activities. It is the student's responsibility to take note of these requirements and assure they can attend any required sessions. If attendance is required, this will be indicated on Blackboard.

**Missing class for work is NOT a valid reason for your absence.**

If a student is seeking an excused absence, they should **immediately**:

1. Notify the course coordinator(s) and instructor(s) for any affected course day(s)
2. Contact the Director of Student Affairs (Mrs. Carmen Ramos: [crtorres2@utep.edu](mailto:crtorres2@utep.edu)) via online form - <https://www.utep.edu/pharmacy/current-students/student-absence-form.html> (include supporting documentation to justify absence excusal)

Refer to the Handbook for more information regarding required documentation for submission to the Office of Student Affairs. If this process is not followed, absences will be unexcused, *and course faculty have no obligation to accommodate unexcused absences*. Additionally, absences will be considered unexcused until officially excused after approval from the Office of Student Affairs.

If a student has an excused absence (e.g., personal illness, family emergency, professional travel), they must notify the course coordinator(s) and instructor(s) teaching that day **at least 2 hours prior** to the start of class/exam.

### Classroom Behavior

Students are expected to be professionals and will be treated as such unless circumstances deem otherwise. Any behavior that impairs student ability to learn will not be tolerated (e.g., side conversation, cell phone use, electronic device use for activities not related to coursework). Laptops may be used during class for taking notes or completing course activities. Using laptops for other activities than these causes a disruption to the class around you, and so is considered a lack of professionalism.

Your instructors and classmates want to generate a safe in-person and online learning environment. **Students are expected to conduct themselves at all times in a manner becoming to a pharmacy professional**. This includes both "live" and virtual forms of communication (class sessions, video conferencing, assignment submissions, emails, etc.). Aggressive, demeaning, or disrespectful communication to faculty or other students will not be tolerated.

Please refer to the Student Handbook for further details regarding professionalism expectations and repercussions of unprofessional conduct, which may include but are not limited to review by the SOP Office of Student Affairs, OSCCR, the SOP Progressions Committee, School of Pharmacy administrators, and the UTEP Dean of Students.

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## **COVID-19 Precautions**

**\*\*When the course meets on campus during the semester, all CURRENT public health precautions/measures should be taken. For up-to-date UTEP policies, please see: <https://www.utep.edu/resuming-campus-operations/?home> \*\***

Please stay home if you have been diagnosed with COVID-19 or are experiencing COVID-19 symptoms. If you are feeling unwell, please let the course coordinator and Ms. Carmen Ramos, Director of Student Affairs at [crtorres2@utep.edu](mailto:crtorres2@utep.edu) know as soon as possible (See excused absence procedures outlined above). If you have tested positive for COVID-19, you are encouraged to report your results to [covidaction@utep.edu](mailto:covidaction@utep.edu), so that the UTEP Dean of Students Office can provide you with support and help with communication with your professors. The Student Health Center is equipped to provide COVID-19 testing.

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## Evaluation and Grading Policy

Course point distribution:

Type of Assessment	Total Points	% Course Grade
Quiz 1	40	4%
Exam 1	160	16%
Quiz 2	40	4%
Exam 2	160	16%
Quiz 3	40	4%
Exam 3	160	16%
Quiz 4	40	4%
Final Exam (Exam #4)	240	24%
Assignment	120	12%
<b>Total Points</b>	<b>1000</b>	<b>100%</b>

### Assignment of grades:

**A = 90 – 100%**

**B = 80 – 89%**

**C = 70 – 79%**

**D = 60-69%**

**F = < 60%**

It is the responsibility of the **student** to monitor their progress during the course and see that he/she is maintaining the required competency level. Students should seek advice and assistance from the course facilitators as soon as they encounter any difficulty in the course.

Grades are earned throughout the course, not given at the end. As such, grade will be determined based on completed coursework. Final grades will be rounded per typical rounding conventions ( $\geq 0.5$  will be rounded up to the next whole percentage point).

For instance, a 79.6% rounds up to an 80%, equating to a letter grade of a B. However, 79.2% rounds down to a 79%, equating to a letter grade of a C.

### Exams:

There will be a total of 4 quizzes and 4 exams, including a comprehensive final exam. The exams will consist of question types including true/false, matching, "hot spot", fill in the blank, multiple choice, multiple answer (e.g. select all that apply), and short answer questions. All exams will be administered via Examplify by Examssoft®, unless otherwise noted. Students will have 80 minutes to complete exams (excluding the final).

**REGRADE REQUEST:** Regrade requests for assignments or exams should be made within five (5) **business days** of the posting of the grades. Requests must be made in writing with evidence/rationale to support the requested appeal. Requests will not be entertained after this period (unless excused absence due to extenuating circumstances or per course coordinator discretion).

### Assignment:

The course coordinator will post an assignment designed to reinforce the learning objectives of the course. You may use any accessible resources to complete this assignment. As students in a professional health care program, you are expected to do your own, individual work on this assignment (i.e., this is not a group or collaborative project).

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## Exam-Related Policies and Guidance:

Please refer to the UTEP School of Pharmacy Student Handbook as well as the **SOP Exam Guidance** document available on Blackboard for more information regarding the procedure followed for all in-person or virtual exams.

### Exam Day Policy

Students must arrive on time for examinations. Students arriving after any student(s) has/have completed the exam and have left the room may not be allowed to sit for the exam and may receive a score of zero. **No allowances will be made for an exam being missed**, other than documented illness or emergency, as per the Excused Absence policies. The student must contact the course coordinator prior to the missed exam. If permission is granted to delay the exam; it is the student's responsibility to contact the course coordinator to arrange for an alternative exam time. In this event, the nature of the make-up will be at the discretion of the course coordinator (oral, written, increased weighting, etc.). An unexcused absence from an exam may result in a grade of zero for that exam.

### Student Expectations Prior and During Examination

- *Seating:* Randomized assigned seating will be utilized for each examination.
- *Room:* Students must arrive to the testing area **at least 15 minutes ahead of the examination**. Students are not permitted to be in the examination room prior to assigned seating. If the student arrives after the examination has started, no additional time will be provided for the examination. If another student has already completed his/her exam and left the exam room when an unexcused late student arrives, the student arriving late will not be permitted to sit for the exam and will receive a grade of zero.
- *Exams:* Electronic exams need to be downloaded at a minimum 2 hours prior to the examination.
- *Questions/Issues:* Questions related to content on an exam will **NOT** be answered during any exam.
- *Breaks/leaving the exam room:* Leaving the exam room is not permitted during examinations unless a prior accommodation is made. Faculty maintain discretion over the permissibility of any situation requiring a student to leave the room (bathroom breaks, phone calls, etc.). If permission to leave the room is granted, students should expect that a proctor will escort them out of the exam and may remain nearby. No additional time will be provided for examinations when any type of break occurs.

Students are responsible for having a computer for electronic exams. Computers are available to checkout as a loan for exams from the ILC. Students should make early arrangements for securing computers. Students who show up without a computer to take an electronic exam will (1) be provided a paper exam, (2) may receive a grade deduction, and (3) will receive a professionalism referral to the SOP Progression Committee and/or OSCCR. Students should be aware that using other devices such as tablets may result in technical errors with test taking. Students are responsible for troubleshooting, preventing, and managing these issues, NOT the course faculty.

### Availability of items during exam

Faculty will provide scratch paper for examinations, if needed. Only faculty will provide scratch paper, and only scratch paper provided by the School of Pharmacy can be used during the examination. Any scratch paper utilized during an examination must have the student's name and date on every page and all pages must be turned in at the completion of the examination.

- No backpacks, purses, hats, large coats, and/or other bulky clothing permitted; these items need to be left outside the examination room or in an area in the exam room designated by the faculty/proctor.
- No food or drink allowed during an exam.
- No electronic devices (e.g.: watches, phones, calculators, etc.) are permitted on the student during an examination unless approved by the instructor prior to the examination or inspected upon entry into the exam room for approval. Calculators are provided in the electronic exam platform if needed.
- Disruption of examination time due to any of the above can result in confiscation of the device, a grade penalty/receiving a score of zero for the exam, and/or a report being submitted to OSCCR.

### Assessment Requirements:



This course requires the use of ExamSoft®/Examplify. Students are responsible for ensuring they have access to the assessment system. Assessments will be required to be downloaded using an internet connection **a minimum of 2 hours prior to the examination** time. It is the student's responsibility to maintain access to a reliable internet connection (with the rare exception of when UTEP's systems are down). Students are also expected to maintain a functioning camera and microphone with their computer to allow for recorded proctoring as necessary. Students will be required to follow any exam monitoring procedures as determined by the School of Pharmacy.

If a student cannot access their required software/accounts, please contact **Adrian Enriquez** ([aealonso@utep.edu](mailto:aealonso@utep.edu)) to resolve this issue **within five (5) business days of the first day of class**. Students are responsible for ensuring they have access to the online assessment system. Mr. Enriquez is **NOT available** for questions or laptop failures/requests **after business hours or on weekends**.

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## Missed Quizzes / Exams / Assignments – Excused/Unexcused Absences

Only students who miss an exam or quiz because of an **excused absence** will be allowed to make-up the missed assignment or assessment. Students should consult the UTEP School of Pharmacy **Student Handbook** for definitions and examples of excused absences.

- The course coordinator and faculty instructor **MUST** be notified **at least 2 hours** prior to the start of class or exam for the student to be excused.
- Students must follow the procedures in the Student Handbook to submit documentation using the Student Absence Form to procure an excused absence for missed exams.
- Any excused absence from an exam for **health reasons** must be documented with a note from an appropriate health professional.
- In the case of **religious holidays or professional conference attendance**, the student **MUST** notify the course coordinator at least **ten (10) business days prior** to the assignment/quiz/exam. Students should not assume that they can miss an assignment/quiz/exam for vacation or other personal conflicts.
- Any unexcused absence from a quiz/exam will result in a grade of **ZERO**.

The course coordinator will determine the time and date for a make-up exam, which will occur before the final exam period. If the student is unable to attend either the original exam or the make-up exam, the course coordinator is not required to provide additional opportunities for the student make-up exam. The format of the make-up examination is at the discretion of the course coordinator, and may include any question type including, but not limited to, open-ended questions, an essay examination, or oral examinations.

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## Remediation Policy

Remediation occurs if a student fails the course. Students must participate fully in the course to be eligible for remediation. Please refer to the **Student Handbook** for end-of-course remediation policies and timelines (*see Student Handbook: Table of Contents for End of Course Remediation*).

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## Course Evaluations

During this course, students will be provided with an opportunity to evaluate this course and the instructors. UTEP uses an online course evaluation system. Course Evaluations will open toward the end of the course and can be accessed at [my.utep.edu](http://my.utep.edu) by clicking on the CLASSES TAB on the left. Click on the Course Name, or CRN, to complete the evaluation for the course. Every student's participation is an integral part of this course and the accreditation process, and feedback is vital to improving education at the School of Pharmacy. It is each student's professional responsibility to provide such feedback.

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## General Course Policies

The syllabus is subject to change to meet course needs, especially if there are unexpected disruptions or changes in class size, resources, etc. The most updated syllabus can be found on the course Blackboard shell. It is the student's responsibility to review the syllabus periodically for updates.

### UTEP and SOP Policy for Academic Integrity

Any student who commits an act of academic dishonesty is subject to discipline. The instructor is required to report all suspected academic dishonesty to the UTEP Office of Student Conduct and Conflict Resolution (OSCCR). Please refer to the Student Handbook for SOP guidance on academic integrity.

Academic dishonesty includes, but is not limited to, cheating (including utilization of unapproved resources or other student's work to complete your own), plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, breaching any course policy outlined in this syllabus, and any act designed to give unfair advantage to a student or the attempt to commit such acts.

Proven violations may result in sanctions including, but not limited to disciplinary probation, a failing grade on the work in question, a failing grade in the course, suspension, or dismissal. (For more information, see: <https://www.utep.edu/student-affairs/osccr/student-conduct/academic-integrity.html>)

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## UTEP and SOP Policy for Special Accommodations (ADA)

If you have or suspect a disability and need classroom accommodations, you should contact the Center for Accommodations and Support Services (CASS) at 747-5148. You can also e-mail the office at [cass@utep.edu](mailto:cass@utep.edu) or go by their office in Union Building East (Room 106). For additional information, visit the CASS website at <http://sa.utep.edu/cass/>

**Students must notify the course coordinator by the completion of the first week of the semester if they will be using their accommodations. This is to allow sufficient time for the course coordinator to accommodate alternate exam-taking locations/times or any other accommodations approved by CASS.**

**PHAR 6219: Course Calendar**  
**Principles of Drug Action IA (Pharmaceutical Foundations Track)**

**Course Dates:** August 22 – December 9, 2022

**Scheduled Course Time:** Friday, 9:00 – 10:50 AM

**Delivery:** Synchronous/Live (some online/asynchronous content)

**Location:** Campbell Rm 212 (virtual via Zoom)

<b>Date</b>	<b>Content</b>	<b>Instructor</b>
August 26	Syllabus Review, Course Introduction & Overview; Drug Discovery	Weston
September 2	Drug Discovery, Physicochemical Properties of Drugs	Weston
September 9	<b>Quiz #1</b> , Physicochemical Properties of Drugs, Drug Metabolism	Weston
September 16	Drug Metabolism, Review for Exam #1, Functional Groups Found in Drugs	Weston
September 23	<b>Exam #1 (Drug Discovery, Physicochemical Properties of Drugs, Drug Metabolism)</b>	Weston
September 30	Functional Groups Found in Drugs	Weston
October 7	Functional Groups Found in Drugs	Weston
October 14	<b>Quiz #2</b> , Functional Groups Found in Drugs, Pharmacogenomics	Weston
October 21	Pharmacogenomics, Review for Exam #2, ADMET	Weston
October 28	<b>Exam #2 (Functional Groups, Pharmacogenomics)</b>	Weston
November 4	ADMET	Weston
November 11	ADMET	Weston
November 18	<b>Quiz #3</b> , Pharmacognosy & Dietary Supplements	Weston/Smith/ Rivera
November 25	<b>Thanksgiving Holiday (no class meeting)</b> , ADMET material posted	Weston
December 2	<b>Exam #3 (ADMET, Pharmacognosy &amp; Dietary Supplements)</b>	Weston
December 4 (Sunday, 12 midnight)	<b>Assignment Due</b>	Weston
December 8 (Thursday, 8:30 am)	<b>Final Exam (cumulative)</b>	Weston

\*\* This topical outline will be followed as closely as possible throughout the semester; however, the instructor(s) reserve the right to adjust the course schedule as deemed necessary\*\*