School of Pharmacy

Required Course Syllabus

Fall – P1

Course # PHAR6202 / Track: Pharmaceutical Foundations
Pharmaceutics IA: Principles of Physical Pharmacy
August 24 to December 9, 2022
Scheduled Course Time: In-Class (Wednesday 9-11 am)
Location: Campbell Rm 211

Course Coordinator

Taslim Al-Hilal, Ph.D.
Office Room Number: 510
Office Phone: (915) 747-8390; E-mail: taalhilal@utep.edu

Course Faculty

Faculty Lecturers/Facilitators
Faculty Name: Taslim Al-Hilal
Office Room: Campbell building 510
Email: taalhilal@utep.edu
Phone: (915) 747-8390
Faculty Name: Md Nurunnabi
Office Room: Campbell building 507
Email: mnurunnabi@utep.edu
Phone: 915-747-8335

Course Teaching Assistant
Name: TBD
Contact Information: TBD

Office Hours
Students may request an appointment with the coordinator in person or via e-mail. Individual guest faculty should provide office hours during lecture days. All appointments should be made at least 2 business days in advance. Virtual Office Hours will be synchronous through Microsoft Teams and will be used to discuss problematic exam questions and any course logistic problems. The course coordinator will try to respond as soon as possible (generally within 24-48 hours). When sending an email, send through the Blackboard® course email or place the course number and name (e.g., PHAR 6207 Pharm Calc. and the issue/topic in the subject line of the email).
**Course Description**

This course focuses on learning physical pharmacy concepts and developing skills on integrating physical, chemical and biological principles underlying the design and development, preparation, compounding, packaging and manufacture of therapeutically effective, pharmaceutical dosage forms. This course further emphasizes the influence of physicochemical properties of drugs and excipients to optimize drug bioavailability and drug delivery characteristics from dosage forms. Topics covered will include key areas of pharmaceutics which influence the process of drug development, preformulation and formulation strategies, drug solubility and dissolution, solutions and ionic equilibria, pH and buffer systems, isotonicity, osmotic and thermodynamic properties of pharmaceutical systems, drug stability, drug diffusion and solid dosage form characteristics. Relevant pharmaceutical ingredients and contemporary industrial manufacturing methods will also be discussed in this course.

**Pharmacists’ Patient Care Process:** This course will assist students in enhancing knowledge required for understanding the physical properties of drugs to help **assess and plan** for the appropriate therapy for a patient.


The course coordinator may adapt the syllabus/course calendar to support student and course success.

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**Course Learning Objectives**

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

1. Explain the purpose and significance of preformulation steps involved in the process of drug candidate selection and dosage form development.
2. Define and elucidate the mechanisms of drug solubility, stability, dissolution, and diffusion from pharmaceutical dosage forms.
3. Define the terms ionization and pH; buffer systems, and their significance in pharmacy.
4. Define the terms surface tension and interfacial tension; and the applications of surface-active agents in pharmacy.
5. Distinguish between different kinds of colloidal systems and their principal characteristics.
6. Explain major concepts of biopharmaceutics including transit of pharmaceuticals in the GI tract, mechanisms of drug transport, and crystal properties.
7. Differentiate between a powder and a granule; a hard and a soft gelatin capsule; and various types of tablets.
8. Describe various routes of administration for pharmaceutical dosage forms.
Course Objectives mapped to National Pharmacy Education Outcomes

<table>
<thead>
<tr>
<th>Course Objectives</th>
<th>CAPE Outcomes</th>
<th>PCOA</th>
<th>NAPLEX</th>
<th>Learning Activities</th>
<th>Assessment Measures</th>
<th>Level of Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective 1</td>
<td>1.1, 2.1, 3.1</td>
<td>2.4.3</td>
<td>2.4.4</td>
<td>Reading assignments, lectures, discussions, and class activities (classroom, outside classroom, and/or online environments)</td>
<td>Quiz, Exam &amp; Final</td>
<td>I</td>
</tr>
<tr>
<td>Explain the purpose and significance of preformulation steps involved in the process of drug candidate selection and dosage form development.</td>
<td></td>
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</tr>
<tr>
<td>Objective 2</td>
<td>1.1, 2.1, 3.1</td>
<td>2.4.3</td>
<td>2.4.4</td>
<td>Reading assignments, lectures, discussions, and class activities (classroom, outside classroom, and/or online environments)</td>
<td>Quiz, Exam &amp; Final</td>
<td>I</td>
</tr>
<tr>
<td>Define and elucidate the mechanisms of drug solubility, stability dissolution, and diffusion from pharmaceutical dosage forms.</td>
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<td></td>
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<tr>
<td>Objective 3</td>
<td>1.1, 3.1</td>
<td>2.4.3</td>
<td>2.4.4</td>
<td>Readings, lectures, discussions, and class activities (classroom, outside classroom, and/or online environments)</td>
<td>Quiz, Exam &amp; Final</td>
<td>I</td>
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<td>Define the terms ionization and pH; buffer systems, and their significance in pharmacy.</td>
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<tr>
<td>Objective 4</td>
<td>1.1, 3.1</td>
<td>2.4.3</td>
<td>2.4.4</td>
<td>Readings, lectures, discussions, and class activities (classroom, outside classroom, and/or online environments)</td>
<td>Quiz, Exam &amp; Final</td>
<td>I</td>
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<tr>
<td>Define the terms surface tension and interfacial tension; and the applications of surface-active agents in pharmacy.</td>
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<tr>
<td>Objective 5</td>
<td>1.1, 3.1</td>
<td>2.4.3</td>
<td>2.4.4</td>
<td>Readings, lectures, discussions, and class activities (classroom, outside classroom, and/or online environments)</td>
<td>Quiz, Exam &amp; Final</td>
<td>I</td>
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<tr>
<td>Distinguish between different kinds of colloidal systems and their principal characteristics.</td>
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<tr>
<td>Objective 6</td>
<td>Explain major concepts of biopharmaceutics including transit of pharmaceuticals in the GI tract, mechanisms of drug transport, and crystal properties</td>
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<tr>
<td>1.1, 3.1</td>
<td>2.4.3 2.4.4</td>
<td>Readings, lectures, discussions, and class activities (classroom, outside classroom, and/or online environments)</td>
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<td></td>
<td>Quiz, Exam &amp; Final</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Objective 7</th>
<th>Differentiate between a powder and a granule; a hard and a soft gelatin capsule; and various types of tablets.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1, 3.1</td>
<td>2.4.3 2.4.4</td>
</tr>
<tr>
<td></td>
<td>Quiz, Exam &amp; Final</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Objective 8</th>
<th>Describe various routes of administration for pharmaceutical dosage forms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1, 3.1</td>
<td>2.4.3 2.4.4</td>
</tr>
<tr>
<td></td>
<td>Quiz, Exam &amp; Final</td>
</tr>
</tbody>
</table>
Additional / Detailed Course Meetings & Location
In a major disruption (e.g., H1N1 epidemic, subzero weather), be prepared to maintain course progress via other means (e.g., Internet, our Blackboard course shell, etc.) and check your email (especially your UTEP miners account) regularly.

Online Platform/Blackboard:
This semester the course will be taught using Blackboard as the primary learning management system.

Accessing Course Content on Blackboard: All lectures, handouts, and course material will be located in Blackboard. Log into My UTEP.edu and click on the Blackboard link to access the online course for PHAR 6207. The course is individualized and students may access lectures/handouts as they are made available by course instructors. Except in cases of a UTEP network being “down” or “offline” you are ultimately responsible to ensure that your computer is connected to the internet and that any issues are addressed prior to class and/or assessments.

Methods of Instruction/Learning
This semester, the course will be taught primarily face-to-face in the classroom.
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:
1. Outside Preparation: Students are expected to spend a minimum of 4-6 hours per week (or more as necessary) outside class study time to be successful in this class.
2. In-class Lectures/Worksheets: To assess student understanding of the material and identify any gaps early on.
3. Assignments: The purpose of the two major assignment packets is to provide consistent use of the course material and to help students retain the methods and habits they develop in the course.
4. Exams/Quizzes: This allows students to demonstrate the course ability outcomes and instructors to provide necessary feedback.

Required Course Technology/Tools/Needs
Required Textbooks:

Recommended Textbooks (If any, optional):
Laptop Computer
- Students are expected to bring laptop computers to the class each day 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).

Calculator
- Students are expected to bring a non-programmable calculator to class and to all assessment activities.

Software/Technology must be tested in orientation/first week of courses to ensure functionality.
- ExamSoft® Exam Monitor
- Blackboard® Collaborate: Chrome Browser
- Microsoft® Teams
- Blackboard® Respondus Lockdown
- CoreELMS® for Experiential Learning (if IPPE/IPE in course)
- Audio (speaker & microphone) and video (camera) MUST be checked to be functional for classes and online exams

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 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. If large numbers of students are absent, the course coordinator reserves the right to give unannounced quizzes. Missing class for work is NOT a valid reason for your absence. If a student has an excused absence, they should immediately notify the course coordinator(s) and instructor(s). To secure approval for an absence related to travel for professional meetings or for events that fall outside of the criteria outlined in the Student Handbook, please refer to the Handbook for more information regarding required documentation for submission to the Office of Student Affairs.

Classroom / Online Etiquette
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. Using laptops for other activities than taking notes causes a disruption to the class around you.

IF ONLINE: Your instructors and classmates want to generate a safe online learning environment. Please use appropriate online classroom behavior by reading the UTEP Netiquette Guide for Online Courses available at https://www.utep.edu/extendeduniversity/cid/_Files/docs/faculty-orientation/NetiquetteGuideforOnlineCourses.

Expectations of Students During Course
It is the responsibility of the student to monitor their progress during the course and see that they are maintaining the required competency level. Students should seek advice and assistance from the course facilitator as soon as they encounter any difficulty in the course.
Unique Dress Policy for Course
No dress code is required.

COVID Precautions
**If the course meets on campus during the semester, then 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 know as soon as possible, so that we can work on appropriate accommodations. If you have tested positive for COVID-19, you are encouraged to report your results to 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.

The Center for Disease Control and Prevention recommends that people in areas of substantial or high COVID-19 transmission wear face masks when indoors in groups of people. The best way that Miners can take care of Miners is to get the vaccine. If you still need the vaccine, it is widely available in the El Paso area, and will be available at no charge on campus during the first week of classes. For more information about the current rates, testing, and vaccinations, please visit epstrong.org.

Evaluation and Grading Policy
Course point distribution will be as follows:
There will be 3 exams during the course. Students should arrive in the examination room at least 5 minutes before exam start. Dr. Taslim will administer quizzes and exams in all their classes.

<table>
<thead>
<tr>
<th>Type of Assessment</th>
<th>Total Points</th>
<th>% Course Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes, equally weighted</td>
<td>50</td>
<td>20%</td>
</tr>
<tr>
<td>Exam 1</td>
<td>50</td>
<td>25%</td>
</tr>
<tr>
<td>Exam 2</td>
<td>50</td>
<td>25%</td>
</tr>
<tr>
<td>Final Exam, comprehensive</td>
<td>50</td>
<td>30%</td>
</tr>
</tbody>
</table>

Assignment of grades:
- A = 90 – 100%
- B = 80 – 89%
- C = 70 – 79%
- D = 60-69%
- F = < 60%

All Assessments will be administered via ExamSoft®, unless noted otherwise.
It is the responsibility of the student to monitor his/her progress during the course and see that he/she is maintaining the required competency level. Students should seek advice and assistance from the course facilitator as soon as he/she encounters any difficulty in the course.

**Exams:** Exams will be administered on the days and times listed in the course outline. Students should ensure they familiarize themselves with those dates and times. Exams MUST be taken on the scheduled date and time. To receive approval to reschedule an examination date, the student MUST have an excused absence and give prior notice to the course coordinator. The rescheduling and format of the repeat examination is at the discretion of the course coordinator. All book bags and other bags should be left at the front of the room. Scratch paper will be provided to you by the instructor and must be turned in at the end of the examination. The use of programmable calculators and electronic devices, capable of storing receiving or transmitting data, is prohibited during an exam or quiz unless authorized by the course instructor. Instructor reserves the right to restrict any other items (hats, water bottles etc.) in an exam hall.

**Quizzes:** There will be a quiz in each class (after the first week of class) based on assigned readings and materials and/or previously covered material. There are NO make-up quizzes. An unexcused absence will result in a grade of “0” for the missed quiz. Students will not be penalized for a missed quiz due to an excused absence. In this scenario, this quiz will not be used in the calculation of the students' final course grade. Certain absences (as outlined in Student handbook), may be excused absences, and will be decided on case-by-case basis, at the discretion of the course coordinator. Only students who miss a quiz or exam due date as a result of an excused absence will be allowed to make-up the missed quiz or exam. Students should consult the UTEP School of Pharmacy Student Handbook for definitions and examples of excused absences. The use of programmable calculators and electronic devices, capable of storing receiving or transmitting data, is prohibited during an exam or quiz unless authorized by the course instructor.

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**Questions Related to the Course and Grading/Exams**

**MATERIAL:** 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.

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

**Regrade Request**

Regrade requests for assignments or exams should be made within five (5) business days of the posting of the grades. Faculty may make request in writing with evidence/rationale to support their decisions. Requests regarding regrading will not be entertained after this period (unless excused absence due to extenuating circumstances or faculty coordinator).

**EXAM-RELATED Technology and Guidance:**

Please refer to the UTEP School of Pharmacy Student Handbook for guidance for exams (online/remote as well as on campus) [https://www.utep.edu/pharmacy/current-students/current-students.html](https://www.utep.edu/pharmacy/current-students/current-students.html)

(NOTE: if a lab or elective does not use ExamSoft – can delete)
Online Assessment Requirements:
This course requires the use of ExamSoft® (or CORE ELMS®). Students are responsible for creating their online login within the first week of class. 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).

If students cannot access your online account, please contact Adrian Enriquez (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.

Exam Accommodations:
Students who need accommodations for taking exams outside the posted time must submit a written email request to the Course Coordinator explaining why they cannot take the exam at the time of the exam. The request must be prior to the scheduled exam. For unanticipated or emergency absences when advance notification to a course coordinator is not possible, the student should contact the course coordinator as soon as possible by email. When the student is unable to email the course coordinator and is unable to leave word with the because of circumstances beyond the student’s control, and in cases of bereavement, the student or the student’s representative should contact the Office of the Director of Student Affairs.

Missed Quizzes / Exams / Assignments – Excused/Unexcused Absences
Only students who miss an exam, quiz or an assignment due date as a result 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 MUST be notified on the day of the exam for the student to be excused from that exam for an emergency.
- In the case of religious holidays, the student MUST notify the course coordinator 10 business days prior to the exam. Students should not assume that they can miss an exam for vacation or other personal conflicts.
- Any excused absence from an exam for health reasons must be documented with a note from an appropriate health professional.
- Any unexcused absence from an exam will result in a grade of zero for that exam.

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.

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).

Course Evaluation
During this course, you will be provided with an opportunity to evaluate this course and your instructors. The Associate Dean for Assessment, Accreditation, and Strategic Planning will send an email reminder toward the end of this course for you to complete the course evaluation. UTEP uses an online course evaluation system.
Course Evaluations can be taken at my.utep.edu by clicking on the CLASSES TAB on the left. The Course Evaluation module will appear and your classes will be listed. Click on the Course Name, or CRN, to complete the evaluation for the course. Your participation is an integral part of this course and the accreditation process, and your feedback is vital to improving education at the School of Pharmacy.

**General Statement about Course Policy**

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. Please refer to the Student Handbook for SOP guidance on academic integrity (see Table of Contents for Curriculum and Classroom Policies: Academic Integrity).

Academic dishonesty includes, but is not limited to, cheating, 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, and any act designed to give unfair advantage to a student or the attempt to commit such acts.

Proven violations of the detailed regulations, as printed in the Handbook of Operating Procedures (HOP), and available in the Office of the Dean of Students and on the homepage of the Dean of Students at www.utep.edu/dos, may result in sanctions ranging from disciplinary probation, to a failing grade on the work in question, to a failing grade in the course, to suspension or dismissal, among others. (For more information, see: https://www.utep.edu/student-affairs/osccr/student-conduct/academic-integrity.html).

**Professionalism and Professional Conduct**

While enrolled at the University, a student neither loses the rights nor escapes the responsibilities of citizenship. Thus, UTEP and the SOP value professionalism and expect all students to not only acquire but also maintain the highest standards of professional attitudes and behaviors in their interactions with their fellow classmates, staff, faculty, colleagues and their patients, as described in the UTEP School of Pharmacy Student Handbook and as per UTEP’s student conduct policies (see https://www.utep.edu/student-affairs/osccr/student-conduct/index.html/ for further information). Any student who engages in conduct that is prohibited by the Board of Regents’ Rules and Regulations, University or SOP rules or by federal, state, or local law is subject to discipline whether such conduct takes place on or off campus or whether civil or criminal penalties are also imposed for such conduct. Please refer to the Student Handbook for specific expectations regarding professional conduct in the SOP (see Table of Contents for Academic Progression: Good Standing: Professional).

**Cell Phones**

Students should carry cell phones, but keep the phone on the vibrate mode in the event students need to be notified by the emergency alert system. Cell phone use for the purpose of texting, email or social media is not permitted. This use is disruptive to fellow classmates, faculty and the learning environment. The use of a cell phone or the ringing of the phone in class is considered unprofessional behavior. No cellphones, calculators, laptops or other items may be used during an assessment (e.g., exam or a quiz) unless specifically as part of that assessment and approved by the faculty member/instructor.
Technical Assistance

Checking computer requirements and ensuring that all software up to date is essential for students to access course content. **Supported browsers include** –

1) **For a PC:** FireFox, Internet Explorer (Do NOT use IE7), and Chrome
2) **For a Mac:** Safari, Firefox, and Chrome

To enhance browser performance, students should clear the browser cache and allow pop-ups. In addition to testing the web browser, check to ensure that the computer has an updated version of **Java** (go to [http://java.com](http://java.com), click on “Do I have Java”, click on “Verify Java Version,” update Java if needed). Additional browser plug-ins may also be needed to view some content that your instructor may share on the learning management system. Common plug-ins include: **Adobe Reader, Flash Player, Windows Media Player, QuickTime**. When creating documents, slide presentations, spreadsheets, etc., be sure to use Microsoft Office or a compatible program (see 10 Free MS Word Alternatives). The UTEP Technology Support Services (3rd floor, UTEP Library) can also provide students with any applications, compatibility packs, patches, and updates that may be needed.

Students working off campus may need to set up a **Virtual Private Network (VPN)** on their computer to access UTEP resources for this class (i.e., Library). The link below provides information in setting up a VPN connection depending on the operating system. Students may contact the UTEP Help Desk (915-747-HELP) for assistance (or [https://www.utep.edu/technologysupport/ServiceCatalog/NET_VPNGlobalProtect.html](https://www.utep.edu/technologysupport/ServiceCatalog/NET_VPNGlobalProtect.html)).

ExamSoft Technical Support

- 866.429.8889 or 954.429.8889

If technical problems are experienced with the course, students should contact the **UTEP Help Desk** during: Monday– Friday: 8AM – 5PM. If calling within UTEP: 915.747.4357. If calling from outside UTEP: 915.747.5257. For more information, please visit [http://helpdesk.utep.edu](http://helpdesk.utep.edu). For help with **Blackboard**: [https://www.utep.edu/technologysupport/ServiceCatalog/BB_Students.html](https://www.utep.edu/technologysupport/ServiceCatalog/BB_Students.html)

**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 or go by their office in Union Building East (Room 106). For additional information, visit the CASS website at [http://sa.utep.edu/cass/](http://sa.utep.edu/cass/)
Course Number 1234: Course Calendar and Topic Outline
Pharmaceutics IA
October 20th 2020 - December 11th 2020

The course coordinator may adapt the syllabus/course calendar to support student and course success

<table>
<thead>
<tr>
<th>Day</th>
<th>Date</th>
<th>Time</th>
<th>Topics</th>
<th>Required Reading*</th>
<th>Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>08/24/2022</td>
<td>9-11 am</td>
<td>Introduction to pharmaceutics Routes of drug administration</td>
<td>Material provided by the course coordinator and Textbook</td>
<td>Taslim</td>
</tr>
<tr>
<td>2</td>
<td>08/31/2022</td>
<td>9-11 am</td>
<td>Preformulation considerations Biopharmaceutics of oral drug absorption</td>
<td>Material provided by the course coordinator and Textbook</td>
<td>Taslim</td>
</tr>
<tr>
<td>3</td>
<td>09/07/2022</td>
<td>9-11 am</td>
<td>(Quiz 1 = 5 points) Drug Discovery and Development</td>
<td>Material provided by the course coordinator and Textbook</td>
<td>Taslim</td>
</tr>
<tr>
<td>4</td>
<td>09/14/2022</td>
<td>9-11 am</td>
<td>Pharmaceutical Solubility (Quiz 2 = 5 points)</td>
<td>Material provided by the course coordinator and Textbook</td>
<td>Taslim</td>
</tr>
<tr>
<td>5</td>
<td>09/21/2022</td>
<td>9-11 am</td>
<td>Exam 1, 25% of grade</td>
<td>Material provided by the course coordinator and Textbook</td>
<td>Taslim</td>
</tr>
<tr>
<td>6</td>
<td>09/28/2022</td>
<td>9-11 am</td>
<td>Review of Exam 1</td>
<td>Material provided by the course coordinator and Textbook</td>
<td>Taslim</td>
</tr>
<tr>
<td>7</td>
<td>10/05/2022</td>
<td>9-11 am</td>
<td>Powders and Granules</td>
<td>Material provided by the course coordinator and Textbook</td>
<td>Taslim</td>
</tr>
<tr>
<td>8</td>
<td>10/12/2022</td>
<td>9-11 am</td>
<td>Capsules (Quiz 3 = 5 points)</td>
<td>Material provided by the course coordinator and Textbook</td>
<td>Taslim</td>
</tr>
<tr>
<td>9</td>
<td>10/19/2022</td>
<td></td>
<td>NO CLASS</td>
<td></td>
<td></td>
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<tr>
<td>10</td>
<td>10/26/2022</td>
<td>9-11 am</td>
<td>Tablets</td>
<td>Material provided by the course coordinator and Textbook</td>
<td>Taslim</td>
</tr>
<tr>
<td>11</td>
<td>11/02/2022</td>
<td>9-11 am</td>
<td>Exam II, 25% of grade</td>
<td>Material provided by the course coordinator and Textbook</td>
<td>Taslim</td>
</tr>
<tr>
<td>12</td>
<td>11/09/2022</td>
<td>9-11 am</td>
<td>Dosage form Diffusion and Dissolution</td>
<td>Material provided by the course coordinator and Textbook</td>
<td>Nabi</td>
</tr>
<tr>
<td>13</td>
<td>11/16/2022</td>
<td>9-11 am</td>
<td>Interfacial Phenomena Biopharmaceutics B</td>
<td>Material provided by the course coordinator and Textbook</td>
<td>Nabi</td>
</tr>
<tr>
<td>13</td>
<td>11/23/2022</td>
<td>9-11 am</td>
<td>(Quiz 4 = 5 points) Colloids and Solutions</td>
<td>Material provided by the course coordinator and Textbook</td>
<td>Nabi</td>
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<tr>
<td>14</td>
<td>12/05/2022</td>
<td>3-6 pm</td>
<td>Final exam, comprehensive (30% of grade), 8:00 am – 11:00 am</td>
<td>Material provided by the course coordinator and Textbook</td>
<td>Taslim/Nabi</td>
</tr>
</tbody>
</table>

* Additional reading material may be required by some lecturers.
** Topic outline is subject to change based on instructor discretion