PHM 388M - PHARMACEUTICS
Spring 2020

Course Coordinators:
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  Office Hours: By Appointment

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  Office Hours: By Appointment

Course Unique Number: 57790

Classroom: Sanchez 104

Class Day/Time: Friday 8:15 - 11:15 am

Teaching Assistants:

Academic Assistants/Advanced Academic Assistants:
Course Information

Course Description: Pharmaceutics is the discipline of pharmacy that deals with the materials and processes of turning a new chemical entity (NCE) into a medication to be used safely and effectively by patients. It is also called the science of dosage form design. There are many chemicals with pharmacological properties, but they need to be formulated and engineered to help them achieve therapeutically relevant amounts at their sites of action, at the right time, for the right duration. Pharmaceutics helps relate the formulation of drugs to their delivery and disposition in the body. Pharmaceutics deals with the formulation of a pure drug substance into a dosage form.

Course Prerequisites/Co-Requisites: Pharmacy PharmD 387M (or Pharmacy 342C) and 187P (or Pharmacy 142P) and credit or registration for Pharmacy PharmD 188P

Course Learning Objectives:

Concept: Critical Thinking and Problem Solving

Outcome #1: Methodically identify, describe, analyze and solve pharmaceutics-related problems.

Performance Criteria (characteristics, skills, knowledge, attitudes and/or values the student will exhibit)--- these will help in mapping course objectives):

1) Recognize a problem ; 2) Analyze a problem; 3) Find and evaluate potential solutions; 4) Choose optimal solution; 5) Evaluate outcome

In this course, we are accomplishing this by incorporating active learning to solve real-life case studies about drug products using the knowledge gained in the reading materials.

Concept: Interpersonal / Collaboration Skills

Outcome #2: Function effectively in groups to accomplish objectives.

Performance Criteria: 1) Participate effectively and work cooperatively with others, including healthcare providers and patients; 2) Recognize, respect, and encourage diverse views; 3) Recognize and manage conflict ; 4) Lead as the need arises to accomplish the group's objectives; 5) Evaluate and motivate others to improve performance as necessary.

In this course, we are accomplishing this by establishing teams of students to effectively communicate, both written and verbally, to solve problems.

Concept: Knowledge

Outcome #3: Demonstrate the pharmaceutics body of knowledge as specified in pharmaceutics’ outcomes below that encompasses the discipline of pharmaceutics.
Performance Criteria: 1) Demonstrate appropriate depth and breadth of knowledge in the pharmaceutical sciences; 2) Demonstrate mastery of integration of pharmaceutical sciences; 3) Demonstrate application of knowledge in the pharmaceutical sciences and in the resolution of pharmaceutics-related problems; 4) Contribute to the development of knowledge

In this course, we are accomplishing this by assigning the reading materials that will be mastered before class, testing each individual on the content of the reading materials, and applying the knowledge learned from the reading materials to solve the problems posed to the teams. Students will also be tested on this knowledge in a midterm and final exam.

*Concept: Self-Directed Learning*

**Outcome #4: Demonstrate responsibility for own learning and professional competence.**

Performance Criteria: 1) Independently acquire new knowledge and skills; 2) Evaluate new information critically; 3) Incorporate new knowledge and recommendations into the practice of pharmacy and the management of medication use systems; 4) Develop and enhance skills to contribute to the development of new knowledge

In this course, we are accomplishing this by assigning students activities that must be completed on their own, and then each individual must demonstrate their competence individually or working as a group.

*Concept: Literature Skills*

**Outcome #5: Demonstrate a rational and systematic process to comprehensively assess and evaluate pharmaceutics-related information**

Performance Criteria: 1) Develop and document a rational and systematic search strategy to retrieve information; 2) Comprehend benefits and limitations of different forms of literature; 3) Critically evaluate basic science and clinical information with respect to appropriateness and validity of the evidence and implications of the major findings for the practice of pharmacy; 4) Apply critically evaluated information to formulate and communicate an appropriate response

In this course, we are accomplishing this by assigning real-life problems that the students must strategically evaluate and solve using the pharmaceutics-related knowledge acquired through their independent reading or team research conducted during class. Students must master the “Pharmaceutics” portal and gain the skills to effectively use and cite the literature to support their answers.

**CAPE Supplemental Outcomes for Pharmaceutics:**

1. Identify and explain the physicochemical and formulation properties of a drug that influence its absorption and stability.
   a. Identify and describe the factors that influence the aqueous solubility and partition coefficient of a drug. Explain the importance of appropriate aqueous solubility and
partition coefficient in the formulation design and absorption of drugs.

b. Understand and explain the ionization of weak acidic and weak basic drugs and calculate the fraction of a drug in its ionized and un-ionized forms as a function of pH.

c. Describe how pKa and pH influence the observed solubility and partitioning of a drug.

d. Identify, evaluate, and explain the factors that affect the chemical stability of a drug under various environmental and packaging conditions.

e. Identify and explain the factors that control the physical and microbiological stability of a drug product under various environmental and packaging conditions.

f. Identify and explain the unique pharmaceutical challenges posed by contemporary biotechnology-based drug products (biopharmaceuticals).

2. Identify and explain the properties of a drug that influence dosage form design and its route of administration.

a. Describe the various routes of administration available for drug delivery, and discuss the advantages and disadvantage of each delivery system.

b. Describe the characteristics of an ideal drug delivery system. Identify the various types of liquid, solid and semisolid dosage forms available.

c. Discuss how physicochemical properties of a drug influence the design of various dosage forms, including biotech drugs.

d. Explain the various formulation approaches taken to improve the in-vitro dissolution, solubility, stability and absorption of drugs from different dosage forms.

e. Identify physical-chemical and formulation properties that make a drug suitable for modified release/controlled release, and explain the various formulation approaches available for modifying drug release from dosage forms.

f. Discuss the methods/techniques used for establishing the performance and quality of dosage forms.

3. Identify and explain the dosage form features that influence therapeutic outcomes.

a. Describe the role and functions of inactive/inert ingredients in different types of dosage forms.

b. Describe the various methods of compounding and/or manufacture of different types of dosage forms.

c. Explain the importance of packaging and storage conditions in expiration dates and drug product quality and assurance.

d. Select an appropriate packaging container based on the physicochemical properties of the drug, which meets a patient’s need.

e. Explain principles underlying the proper use of dosage forms, and their influence on bioavailability and therapeutic outcome.

f. Determine the importance of selection of appropriate dosage form in drug therapy.

g. Explain the influence of formulation, physiological, and anatomical factors on drug absorption from dosage forms.

h. Discuss how compliance and adherence can be improved by appropriate dosage form selection.

i. Select and recommend the best route of administration and dosage form for a patient.

j. Identify and prevent drug interactions and incompatibilities based on presence of active and inactive pharmaceutical ingredients.

k. Identify, solve, and prevent drug therapy problems related to dosage form, delivery system, and route of administration.
4. Make appropriate selection decisions for multisource drug products.
   a. Explain and understand the concepts of pharmaceutical equivalence, bioequivalence
      and therapeutic equivalence. Understand the basis for therapeutic equivalence or
      nonequivalence.
   b. Use the Orange Book appropriately to select and recommend a drug.
   c. Select and recommend appropriate drug product according to scientific, legal and
      economic guidelines where appropriate.

5. Compound safe and effective extemporaneous pharmaceutical products.
   a. Apply relevant standards of practice (including ethical guidelines) to prepare safe and
      effective dosage forms and perform in-process quality control.
   b. Search and apply most accurate and standardized information on extemporaneous
      compounding.
   c. Evaluate the suitability of an extemporaneously compounded dosage form for the
      administration of a drug for a patient.
   d. Identify physical and chemical incompatibilities among active and inactive
      pharmaceutical ingredients of a formulation; recommend and follow approaches to
      avoid incompatibilities and unwanted interactions.
   e. Calculate and measure the correct quantity of active and inactive pharmaceutical
      ingredients.
   f. Use correct laboratory measuring procedures to obtain the desired quantity of all
      formulation ingredients.
   g. Use good extemporaneous compounding practices in the preparation of a patient
      specific drug product.
   h. Design and maintain an adequate operational facility for compounding pharmaceutical
      products.

6. Preparing safe and effective sterile dosage forms and enteral nutrition products.
   a. Apply relevant standards of practice (including ethical guidelines) to prepare safe and
      effective sterile dosage forms and perform in-process quality control.
   b. Calculate and measure the correct quantity of ingredients for preparing a sterile
      product.
   c. Use proper aseptic techniques to prepare sterile products.
   d. Identify physical and chemical incompatibilities among active and inactive components
      of sterile formulations; recommend and follow approaches to avoid unwanted
      interactions and incompatibilities.
   e. Use sterilization methods that are appropriate for the drug and product.
   f. Calculate the rate of drug administration based on the prescription order and the type
      of infusion pump used.
   g. Determine a patient’s fluid, electrolyte and nutritional needs and calculate the
      composition of parenteral or enteral nutrition sources to meet their needs.
   h. Apply appropriate quality control procedures for sterile products.
   i. Evaluate the impact of physical and chemical stability on a sterile product.
   j. Design and maintain an adequate operational facility for compounding sterile
      pharmaceutical products.

7. Maintain professional competence by identifying and analyzing emerging issues in
   pharmaceutical dosage forms and compounding.
Course Success:

Classroom Expectations: This course is designed and structured to provide you with the BEST training in pharmaceutics in the country. We are a nationally and internationally recognized program, and we are ensuring that you get the best education to reflect this standard of excellence.

You will be asked to take responsibility to acquire information (facts, principles, concepts) by reading independently as homework. Then, you will actively do things in class; work harder in class in a learning-centered classroom. We are asking you to construct deeper meaning at an application/problem-solving level.

Classroom Protocol: This class is run using the protocol of a project team meeting or board meeting. This means full respect for people’s input, while still challenging people in a professional manner. This also means if you have the floor, you are concise, you present new or compelling material, and you back your position up with facts, not opinions. Participating in a project team meeting or board meeting means arriving on time, being fully engaged, no cell phone interruptions, and expectations of being asked to participate at any time.

Teams are not allowed to collaborate and share information with other teams in any way during class time. Teams are not allowed to use any case study materials from other students who took the course in past semesters.

This class respects and welcomes students of all backgrounds, identities, and abilities. If there are circumstances that make our learning environment and activities difficult, or if you need specific arrangements in case the building needs to be evacuated, please let us know. We are committed to creating an effective learning environment for all students but can only do so if you discuss your needs with us as early as possible. We promise to maintain the confidentiality of these discussions.

Teamwork: Teams will be assigned and announced on or before the first day of class. Each team will be composed of up to 5 students; and each team will be permanent throughout the semester. Changing teams is not permitted. Each team will be assigned by team number to a specific seating area in the classroom; and the seating area in the classroom may change from week to week.

Peer Evaluation: Team members will evaluate each other via an anonymous survey one time during the semester. Each team member will rate the other team members and themselves as to the following attributes: Motivation, communication, accountability, contribution and quality of work (See, “Peer Evaluation Rubric”).

How to Succeed as a Team: Success in the professional world is influenced by three things: your own effort, the effort of the people you depend upon, and the way you work together. The same is true in this class. Based on observations of the behaviors of high- and low-performing teams, we offer these suggestions:

1. Sit close at the assigned seating area. This enables easy communication and eye contact, which is very important to team performance.

2. Do your part. Before coming to class, read as assigned. Bring your computer, calculator and
readings, complete with your underlining, marginalia, and other notes.

3. For the team-based assignments, prepare to share three things with your teammates:
   - What answer you chose as an individual;
   - Why you chose that answer; and
   - How confident you are about it.

4. Deliberate and discuss as long as time permits. It has been found that teams that discuss their proposed answers longer (especially at the beginning of the semester) do better in team activities and on the exams.

5. Keep an open mind and a willing attitude. Each of you (individually) are responsible for the success of the entire team.

6. Teamwork will be done only during class time. Readings and team assignments complement and inform each other. One is not a substitute for the other.

7. Teams are not expected to meet outside of class time.

8. A significant proportion of the grade in this class is determined by team activities.

9. Teams cannot discuss (either verbally or via any digital form of messaging) their work with other teams until the class comparison in order to ensure a diversity of answers and outcomes.

10. Teams will be called upon to answer questions regarding their drug product design assignments in front of the class. Team member will answer a question. The purpose is to provide opportunities to practice communication skills before their peer group.

Course Website:
This course uses Canvas, a Web-based course management system in which a password-protected site is created for each course. You are strongly encouraged to visit this site for additional resources associated with this course (your grades, Powerpoint presentations, etc). The website will also be used for official, course-related announcements. Canvas is available at http://canvas.utexas.edu. Support is provided by the ITS Help Desk at 475-9400 Monday through Friday 8 am to 6 pm.

Course Communications:
Official course communications will take place in class, through e-mail and on the course Canvas website. Students are advised to configure their Canvas settings to forward course announcements to their official e-mail address. Canvas uses only the e-mail address listed on the official University of Texas directory, so please check the University’s online directory to ensure your e-mail address is listed correctly.

Course Video Recordings: Taped and video-streamed recordings will not be available for this class.
Course Grading Policies:

**Components of Final Grade:**

| Component                        | Percentage  
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<thead>
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<tbody>
<tr>
<td>Midterm Exam</td>
<td>23.5%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>23.5%</td>
</tr>
<tr>
<td>Readiness Tests</td>
<td>20% (13 Readiness Tests; dropping the lowest two)</td>
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<tr>
<td>Team-based Case Studies</td>
<td>30% (25 case studies over 13 modules)</td>
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<tr>
<td>Peer Evaluation of Team Members</td>
<td>3% (1 peer evaluation during the semester)*</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
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**Bonus Points**

Bonus points may be given at the discretion of the instructors within the team-based case studies and/or the exams.

*for Teams of less than 5, the total points for each person will be calculated by taking the average of the peer scores for each team member multiplied by 5.

**Course Grade:**

Letter grades will be assigned according to the following scale:

<table>
<thead>
<tr>
<th>Percentage Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>93 – 100%</td>
<td>A</td>
</tr>
<tr>
<td>90 – 92%</td>
<td>A-</td>
</tr>
<tr>
<td>87 – 89%</td>
<td>B+</td>
</tr>
<tr>
<td>83 – 86%</td>
<td>B</td>
</tr>
<tr>
<td>80 – 82%</td>
<td>B-</td>
</tr>
<tr>
<td>77 – 79%</td>
<td>C+</td>
</tr>
<tr>
<td>73 – 76%</td>
<td>C</td>
</tr>
<tr>
<td>70 – 72%</td>
<td>C-</td>
</tr>
<tr>
<td>67 – 69%</td>
<td>D+</td>
</tr>
<tr>
<td>63 – 66%</td>
<td>D</td>
</tr>
<tr>
<td>60 – 62%</td>
<td>D-</td>
</tr>
<tr>
<td>0-59%</td>
<td>F</td>
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**Assignments:**

**Readiness Assessment Test (Grade Based on Individual Effort)** - You will be given up to a 20-question, multiple-choice or True/False quiz over the assigned readings at the beginning of the class. The purpose of the Readiness Assessment Test is to evaluate the student’s readiness for working in a productive team to apply the knowledge to solve the “case study” assignment. It will also ensure that the student is prepared for the midterm exam and final exam.

**Team-based Case Study (Grade Based on Team’s Activity)** – The purpose of the Team-based Case Study is to apply the knowledge learned from the assigned reading material to solve real-life pharmaceutics related problems. Each team will complete and submit a structured worksheet for each of the two critical thinking “case studies” related to the pharmaceutics of contemporary pharmaceutical products assigned that day. Each “case study” will give the team the chance to
demonstrate their problem solving ability and knowledge of pharmaceutical dosage form design, while analyzing the “case study” in terms of the literature. A grading rubric will be used for grading of the “case studies.”

Instructions for writing up the Team Drug Product Design Assignment:

1. Each “assignment” will be typed in the template available in the Canvas folder, and the completed worksheet will be electronically uploaded as a “.PDF” in final form at completion of the respective “case study”.
2. Response word limit per question – **200 words (excluding citations) for the entire question (including any and all subparts)**
3. References/citations of any of the following types **must** be used to support your answers:
   a. Peer-reviewed primary resources: published works of original research and new discoveries that introduce new knowledge or enhance existing knowledge (e.g., clinical trials)
      i. NOT all journal articles are primary literature (e.g., review articles, policy statements, position papers)
   b. Secondary resources: bibliographic services designed to help retrieve primary literature (e.g., MEDLINE, IPA, Pubmed)
   c. Tertiary resources: resources that collect and evaluate/interpret primary literature from multiple sources into a more concise, and frequently more usable or practical format (e.g., textbooks, compendia, review articles, full-text computer databases such as lexicomp)
4. **Citation format:** See ICMJE Recommendations for citation format (Vancouver Style) on PHM 388M Web Portal.
5. **General Style** - You, as future professional healthcare workers, are asked to take into account a diverse audience. Some specific points on style follow:
   a. Authors should write in clear, concise US English. Language and grammar should be consistent with Fowler's English Usage; spelling and meaning of words should conform to Webster's Dictionary. If English is not your native language please ensure other team members have reviewed it.
   b. Latin terminology, including microbiological and species nomenclature, should be italicized.
   c. Use standard convention for human and animal genes and proteins: italics for genes and regular font for proteins, and upper case for human products and lower case for animal products.
   d. “US” is preferred to “American”, “USA” to “United States”, and “UK” to “United Kingdom”.
   e. Double quotation marks rather than single are used unless the “quotation is ‘within’ another”.
   f. Punctuation of common abbreviations should adhere to the following conventions: “e.g.”; “i.e.”; “cf.”. Note that such abbreviations should not generally be followed by a comma or a (double) point/period.
   g. Upper case characters in headings and references should be used sparingly, e.g. only the first word of paper titles, subheadings and any proper nouns begin upper case; similarly for the titles of papers from journals in the references and elsewhere.
   h. Apostrophes should be used sparingly. Thus, decades should be referred to as
follows: “The 1980s [not the 1980’s] saw ...”. Possessives associated with acronyms (e.g. FDA), should be written as follows: “The FDA’s findings that ...” but note that the plural is “FDAs”.

i. All acronyms for national agencies, examinations, etc., should be spelled out the first time they are introduced in text or references. Thereafter the acronym can be used if appropriate, e.g. “The work of the Food & Drug Administration (FDA) in the early 1980s ...” and subsequently, “The FDA studies drug efficacy ...”, in a reference “(Department of Education and Science [DES] 1989a)”.

j. Material to be emphasized by italicization in the printed version should be italicized in the typescript rather than underlined. Please use such emphasis sparingly.

k. Numbers in text should take the following forms: 300, 3000, 30000 or 30 000 (not 30,000). Spell out numbers under 10 unless used with a unit of measure, e.g. nine pupils but 9 mm (do not use full stops (periods) within units). For decimals, use the form 0.05 (not .05).

Peer Evaluation - It is important to provide positive feedback to people who truly work hard for the good of the team and to make suggestions to those you perceive could be working more effectively on team tasks. During the semester, you will assess each of your team members in the areas of motivation, communication, accountability, contribution and quality of work. You will also assess yourself. Instructions will be provided electronically at the time of conducting this peer evaluation.

Appeals for Contesting Readiness Assessment Quiz - If you feel strongly about the correctness of an answer that was counted wrong on the Readiness Assessment Quiz, you may submit a written appeal to Drs. Smyth and Williams by email. This appeal process must occur during or immediately following (i.e., by 5:00pm that same day) the class period. A successful appeal will raise grades on individual quizzes that reflect the “new” answer.

Appeals for Contesting Team-based Case Studies - If you feel strongly about the correctness of an answer that was counted wrong on the Team-based Case Studies, your team may submit a written appeal to Drs. Smyth and Williams by email. This appeal process must occur by 5:00pm on the day after the graded case study in question has been released. A successful appeal will raise the grade on the team’s case study as limited to the scope of the written appeal.

Appeals are not simply a chance to dig for more points. They are an opportunity for individuals and teams to make scholarly arguments for their position. All arguments must be supported by evidence from the references. The decision to grant or refuse an appeal will be made by the instructors. The decision is final.

Bonus Points – There may be opportunities for bonus points throughout the semester to enhance team activities and interactions.
Attendance:

Class Attendance: Attendance in this course is mandatory.

Excused Absences:
Students with an excused absence (i.e., prior approved professional or illness related absence; Note that birthdays, weddings, vacations and the like are not considered valid excused absences) arranged with either Drs. Smyth or Williams BEFORE the start of the class period may participate in the team-based case studies during class by an approved remote electronic conferencing method (i.e., Facetime, Skype, or other electronic conferencing methods). Participation in the team-based activities during the entire class period is a requirement for obtaining a grade for the team-based activities (i.e., you must be visible to the instructors and actively participating for the entire class period).

Attendance at Professional Meetings:
It is the student’s responsibility to ASK permission IN ADVANCE if they plan to attend a professional meeting that would necessitate missing an exam, assignment, or other required course activity. It is at the discretion of the course coordinator as to whether to grant permission and allow the student to make up any missed work.

NOTE: We cannot guarantee the technical capabilities of Sanchez 104 connections to allow web-based conferencing. In the event of connection difficulties, the student may not be able to participate remotely and will receive a grade of ZERO for that case study.

NOTE: Missed Readiness Assessment Quizzes cannot be made up.

Required Materials:

Required Textbook: “Essential Pharmaceutics” (A. Brunaugh, H. D. C. Smyth and R. O. Williams III). This will be provided.

Search Databases: Reference literature will be obtained through the following link to the University of Texas at Austin library (see, “Pharmaceutics 388M/188P” tab).

https://guides.lib.utexas.edu/phm388m

Required Electronics: A device that can communicate with the internet and access Canvas to allow writing a report using word processing, e.g. googledocs. (Suggested: PC or Mac based laptop; Wireless internet capability; Battery life to support 3+ hours of usage; iPad or tablet to support 3+ hours of usage). Assume that there are NO power outlets in our classroom to use.

NOTE: Students should purchase additional bandwidth allocation BEFORE the first class day. (http://www.utexas.edu/its/help/network/403) We recommend
“Tier 1”; 10 GB per week for the semester; or the equivalent currently offered by the university.

**Classroom Expectations:**

**Cell Phones:** Cell phones must be put away during class.

**Laptops:** Laptop computer use during class is strictly limited to viewing lecture handouts and taking notes.

**Class Format:**

**Before class – Pre-class Focused Readings:**

Focused readings covering the week’s module topic will be assigned prior to class. These focused readings are **critical** to prepare you for 1.) the readiness test that will be taken at the beginning of each class period, 2.) the team-based “case studies” that will be completed during the class period, and 3.) the midterm and final exams. Reading assignments and study guides will be posted on the Canvas course website one week prior to class.

Reading assignments **must** be completed before coming to class on the date they are listed.

**During class –**

<table>
<thead>
<tr>
<th>Start Time</th>
<th>Finish Time</th>
<th>Activity</th>
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<tbody>
<tr>
<td>8:15</td>
<td>8:35</td>
<td>Individual Readiness Assessment quiz on Day’s Topic followed by quiz review</td>
</tr>
<tr>
<td>8:35</td>
<td>8:50</td>
<td>Module Introduction and Integration</td>
</tr>
<tr>
<td>8:50</td>
<td>9:50</td>
<td>Case Study: Drug Product Design Assignment 1</td>
</tr>
<tr>
<td>9:50</td>
<td>10:00</td>
<td>Class Comparison</td>
</tr>
<tr>
<td>10:00</td>
<td>10:05</td>
<td>Module Introduction and Integration</td>
</tr>
<tr>
<td>10:05</td>
<td>11:05</td>
<td>Case Study: Drug Product Design Assignment 2</td>
</tr>
<tr>
<td>11:05</td>
<td>11:15</td>
<td>Class Comparison</td>
</tr>
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Exam Policies

ExamSoft®:
Students are responsible for the maintenance of their approved personal devices and Examplify® software. Students are required to bring approved personal devices and privacy screens for all exam and indicated assignments. Lack of preparation may result in an inability to take the exam, adjustments to course grades at the discretion of course coordinators, and/or an unprofessional conduct referral.

Any problems with Examplify® or ExamSoft® should be addressed via phone to Student Tech Support at 866.429.8889, email to support@examsoft.com, or live chat at www.examsoft.com. Do not expect your faculty to troubleshoot your technology issues.

Students found improperly using ExamSoft® or Examplify® to gain unfair academic advantage are violating the College of Pharmacy Honor Code. Violations such as “academic dishonesty” and/or “professional misconduct” would include, but are not limited to using a classmate’s login/password, tampering with exam files, and falsifying upload or download information, or any attempt to circumvent the security features of the software.

Students should refer to the ExamSoft® Policies Handbook for a complete listing of policies related to exams, quizzes and assignments.

Exam Format:

Students must arrive on time for examinations. All instructions and corrections will be made at the beginning of the examination period and will not be repeated. Semester exams will begin promptly at the designated hour. Students arriving after any students have completed the exam and left the room may not be allowed to sit for the exam and may receive a score of zero for the exam.

The two lowest Individual Readiness Tests from the semester will not be counted. If a student has missed class due to an excused or unexcused reason, then this missed test will be scored ZERO and will count as one of the two lowest test scores to be dropped.

For circumstances OTHER THAN A DOCUMENTED AND PRE-APPROVED EXCUSED ABSENCE, if you are absent for teamwork, it cannot be made up. Your team depends on your participation. You will receive a grade of “zero” for missed class quizzes and Team-based Case Studies. Rare exceptional circumstances will be handled on a case-by-case basis at the sole discretion of Drs. Smyth and Williams.

No allowances will be made for the midterm or final exam being missed, other than for rare exceptional circumstances. The student must contact Drs. Smyth and Williams for confirmation prior to the exam. If permission is granted to delay the exam, it is the student’s responsibility to complete the College Form titled "Student Request for Alternate Exam Time" for final consideration and final approval by the Faculty member. In this event, the nature of the make-up will be at the discretion of the course coordinator (oral, written, increased weighting on the final, etc.). An unexcused absence from an exam may result in a grade of "zero" for that exam.

Exam Grading:
Grading of exams, along with statistical analysis and review of exam questions, will be the responsibility of the
course coordinator and faculty, who may choose to grant credit for statistically poor questions.

**Exam Return:**
No examinations will be returned. Exam scores will be posted on the course Canvas site.

**Exam Review:** One-on-one review of exams can be arranged by contacting the course coordinator.

**Exam Reconsideration Requests:** If there is a disagreement over the answer to a specific question, the student must present his/her exam plus a written explanation (with appropriate reference citations with evidence) to Drs. Smyth and Williams within 24 hours from the time the graded exam is made available to the students. This policy does not apply to point addition or other grading errors). Note that faculty are instructed to not respond to reconsideration requests until the deadline has passed, so do not expect an immediate response to your request.

**Final Exam Re-Examination Policy:**

The re-examination policy for this course will follow the General Information Catalog (GIC) and College of Pharmacy policies for the University, which reads as follows: "Only a student who has a grade average of at least a C on all class work and lab work submitted before the final exam (in this course, >70% on each exam) may request a temporary delay of the final course grade because he or she failed the final examination (i.e., <60%), which is the examination given during the final exam period as printed in the official examination schedule. If the petition is denied by the instructor, the student's final course grade will remain as originally determined. If the petition is granted by the instructor, the grade on the reexamination will be substituted for the grade on the original exam in determining the student's final course grade, provided the student earns at least a C on the reexamination. If the grade on the reexamination is less than a C (in this course, <70%), a final course grade of F must be recorded."

All students who are eligible for re-examination according to the University criteria specified above will be notified by the Course Coordinator within 24 hrs of posting the final examination scores, and must reply within the specified time as to whether they will be taking the re-examination. Those students who choose to take the re-examination will be awarded a course grade of "X" until the re-examination is evaluated and the final course grade computed.

**Request for an Alternate Exam Time:**
No allowances will be made for an exam being missed, other than documented illness or emergency, or by prior approval by the Course Coordinator. An unexcused absence from an exam may result in a grade of "zero" for that exam. Any student requesting accommodation for an upcoming exam must submit the request to the course coordinator using the online form posted on Canvas® at least one month prior to the exam.

Note the new policy that an alternate exam time will be considered only if the student documents that they can’t be physically present on the date the exam is already scheduled.

**Academic Integrity:**
The "Statement on Scholastic Integrity of the College of Pharmacy" reads as follows: "Pharmacy
practitioners enjoy a special trust and authority based upon the profession's commitment to a code of ethical behavior in its management of client affairs. The inculcation of a sense of responsible professional behavior is a critical component of professional education, and high standards of ethical conduct are expected of pharmacy students. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including failure of the course involved and dismissal from the college and/or the University. Since dishonesty harms the individual, fellow students, and the integrity of the University and the College of pharmacy, policies of scholastic dishonesty will be strictly enforced in this class.

Students are expected to work independently on all examinations. Any student caught cheating will be given a "zero" on the exam (minimum). Any student suspected of dishonesty will be reported to the Dean of the College of Pharmacy and to the Dean of Students, as per University regulations. Students are expected to have read and understood the current issue of the General Information Catalog published by the Registrar's Office for information about procedures and about what constitutes scholastic dishonesty.

Religious Holy Days
If you will miss a class, an examination, a work assignment or a project in order to observe a religious holy day, you must notify the course coordinator the first week of class so that arrangements for all such students can be made for the full semester.

Services for Students with Disabilities:
Students with disabilities may request appropriate academic accommodations from the Division of Diversity and Community Engagement, Services for Students with Disabilities at 471-6259 (voice) or 232-2937 (video phone) or https://diversity.utexas.edu/disability/. All University rules concerning accommodations must be followed, including the student arranging for special accommodations prior to each examination. In the absence of such prearrangement, it will be assumed that the student is not requesting special accommodations for that exam, and will be expected to take the exam with the rest of the class at the regularly scheduled exam time.

Please provide a copy of the letter to the course coordinator and the office of the Associate Dean for Academic Affairs as soon as possible after receipt.
<table>
<thead>
<tr>
<th>Date</th>
<th>Assignment</th>
<th>Module Topic</th>
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<tbody>
<tr>
<td><strong>January 24, 2020</strong></td>
<td><strong>BEFORE CLASS</strong> Module 01 – Pre-reading assignment due</td>
<td>Preformulation concepts</td>
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<td><strong>DURING CLASS</strong> M01 Readiness Assessment Test M01A01 Case Study</td>
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<td><strong>January 31, 2020</strong></td>
<td><strong>BEFORE CLASS</strong> Module 02 – Pre-reading assignment due</td>
<td>Immediate release oral dosage forms</td>
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<td><strong>DURING CLASS</strong> M02 Readiness Assessment Test M02A01 Case Study M02A02 Case Study</td>
<td>Immediate release oral dosage forms</td>
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<td><strong>February 7, 2020</strong></td>
<td><strong>BEFORE CLASS</strong> Module 03 – Pre-reading assignment due</td>
<td>Solid oral modified release dosage forms</td>
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<td><strong>DURING CLASS</strong> M03 Readiness Assessment Test M03A01 Case Study M03A02 Case Study</td>
<td>Solid oral modified release dosage forms</td>
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<td><strong>February 14, 2020</strong></td>
<td><strong>BEFORE CLASS</strong> Module 04 – Pre-reading assignment due</td>
<td>Solid oral modified release dosage forms</td>
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<td><strong>DURING CLASS</strong> M04 Readiness Assessment Test M04A01 Case Study M04A02 Case Study</td>
<td>Solid oral modified release dosage forms</td>
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<td><strong>February 21, 2020</strong></td>
<td><strong>BEFORE CLASS</strong> Module 05 – Pre-reading assignment due</td>
<td>Solid oral modified release dosage forms</td>
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<td><strong>DURING CLASS</strong> M05 Readiness Assessment Test M05A01 Case Study M05A02 Case Study</td>
<td>Solid oral modified release dosage forms</td>
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<td><strong>February 28, 2020</strong></td>
<td><strong>BEFORE CLASS</strong> Module 06 – Pre-reading assignment due</td>
<td>Solution based drug delivery systems (e.g. oral, ophthalmic, injectable)</td>
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<td><strong>DURING CLASS</strong> M06 Readiness Assessment Test M06A01 Case Study M06A02 Case Study</td>
<td>Solution based drug delivery systems (e.g. oral, ophthalmic, injectable)</td>
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<td><strong>March 6, 2020</strong></td>
<td><strong>BEFORE CLASS</strong> Module 07 – Pre-reading assignment due</td>
<td>Solution based drug delivery systems (e.g. oral, ophthalmic, injectable)</td>
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<td><strong>DURING CLASS</strong> M07 Readiness Assessment Test M07A01 Case Study M07A02 Case Study</td>
<td>Solution based drug delivery systems (e.g. oral, ophthalmic, injectable)</td>
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<td><strong>March 13, 2020</strong></td>
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<td>Midterm Exam</td>
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<td><strong>March 20, 2020</strong></td>
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<td>NO CLASS SPRING BREAK</td>
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<td><strong>March 27, 2020</strong></td>
<td><strong>BEFORE CLASS</strong> Module 08 – Pre-reading assignment due</td>
<td>Dispersion systems (e.g. oral suspension, injectable suspension)</td>
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<td><strong>DURING CLASS</strong> M08 Readiness Assessment Test M08A01 Case Study M08A02 Case Study</td>
<td>Dispersion systems (e.g. oral suspension, injectable suspension)</td>
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<td><strong>April 3, 2020</strong></td>
<td><strong>BEFORE CLASS</strong> Module 09 – Pre-reading assignment due</td>
<td>Dispersion systems (e.g. oral suspension, injectable suspension)</td>
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<td>DURING CLASS</td>
<td>Topical and transdermal drug delivery systems</td>
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<td>April 24, 2020</td>
<td>BEFORE CLASS</td>
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<td>DURING CLASS</td>
<td>Suppository drug delivery systems</td>
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<td>May 1, 2020</td>
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<td>May 13, 2020</td>
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