

**Pharmaceutics II**  
**PHRD 4029**  
**CRN# 61105**

**I. Contact Information**

**Course Coordinators:**

Georgios Matthaiolampakis Ph.D.  
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\*Office Hours: M-F 1-3 pm

**Course Instructors:**

Jessica Brady, Pharm.D., BCPS  
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Phone: 342-1697  
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Dr. Ronald Hill, Ph.D.  
Associate Professor of Medicinal Chemistry  
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Phone: 318-342-1706  
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\*Office hours:  
Preferred method of contact:

**II. Course Pre-requisites/Co-requisites**

PHRD 4008 Pharmaceutics I

**III. Course Description**

Fundamentals and description of drug delivery systems and delivery routes. 3 Cr.

**IV. Curricular Objectives and Outcomes**

**Domain 1 – Foundational Knowledge**

**1.1. Learner (Learner)** - Develop, integrate, and apply knowledge from the foundational sciences (i.e., *pharmaceutical, social/behavioral/administrative*, and *clinical sciences*) to evaluate the scientific literature, explain drug action, solve therapeutic problems, and advance population health and *patient-centered care*.

**Domain 3 - Approach to Practice and Care**

**3.1. Problem Solving (Problem Solver)** – Identify problems; explore and prioritize potential strategies; and design, implement, and evaluate a viable solution.

**ACPE APPENDIX 1**

Pharmaceutical Sciences

Pharmaceutics/Biopharmaceutics Physicochemical properties of drugs, excipients, and dosage forms important to the rational design and manufacture of sterile and non-sterile products. Application of physical chemistry and dosage form science to drug stability, delivery, release, disposition, pharmacokinetics, therapeutic effectiveness, and the development of quality standards for drug products.

## **V. Course Specific Objectives and Outcomes**

**At the conclusion of this course, students should be able to:**

## **VI. Course Topics**

- 1) Oral drug delivery
  - A. Powders
  - B. Tablets
  - C. Capsules
- 2) Topical drug delivery systems and their formulation
- 3) Transdermal drug delivery systems and their formulation
- 4) Otic drug delivery
- 5) Ocular drug delivery
- 6) Nasal drug delivery
- 7) Pulmonary drug delivery
- 8) Rectal, vaginal, and urethral delivery
- 9) Novel drug delivery carriers

## **VII. Instructional Methods and Activities**

Traditional lecture format. Instructional methods may include technology-driven lectures with in-class discussion, quizzes and exams.

## **VIII. Evaluation and Grade Assignment**

In order to assess each student's performance three tests, of approximately 50 minutes in duration, and a final examination will be given. Each exam is "closed-book". No informational resources or personal electronics of any kind are to be used during an examination, unless authorized by the course coordinator. Exams may be multiple-choice, fill in the blank, short answer, essay, or any other format deemed necessary.

Unless otherwise specified, exams will be administered in electronic format by use of examsoft, each student will be required to present to the exam with a working computer on which the exam has been downloaded. Scratch paper will be provided and must be returned prior to exiting the classroom following the exam.

- The exam will be made available in a time such that students will be able to download the exam prior to the test time. Students will not be given extra time to take the exam to allow for the downloading of the test document.
- Students must upload the exam in a timely fashion. Failure to do so will result in a zero on that exam. In the event of an internet issue, students who have an issue uploading the exam will contact the course coordinators immediately and it will be addressed at the discretion of the coordinators.
- Students will not be allowed to leave the classroom with their computer prior to the end of the examination period.

Each test throughout the semester will be primarily new material between exams. Due to the nature of the course, comprehensive questions may be included (ex. Materials in tablets can be used in capsules, thus the student must possess such comprehensive knowledge, even though the topics are separated by an exam). Information acquired from previous courses in the pharmaceutics sequence and from other courses in the professional pharmacy curriculum may be needed in preparing for these examinations.

The final may include new material as well as comprehensive material.

Students wishing to review their exams with the course instructors must do so within 2 weeks of when test scores are posted. In the event that a question is eliminated from an exam, the exam may be graded based on the remaining number of questions and adjusted to represent correct number of points.

Students wishing to challenge a question on the test must provide the course coordinator with a written statement (email or hard copy) that identifies which question or questions are being challenged; and why the student feels his or her answer(s) is/are correct.

Discussion of a dispute will occur only after a written query is submitted. Challenges of test questions will only be considered within 1 week of when test scores are posted. If there is a conflict between the lecture notes and the textbook or any other reference material, precedence will be given to the lecture notes.

Grading will take place according to the following:

	<b>Points</b>
<b>First Exam</b>	100
<b>Second Exam</b>	100
<b>Third Exam</b>	100
<b>Final Exam</b>	100
<b>Total</b>	400

<b>Grade</b>	<b>Points</b>
<b>A</b>	360 to 400
<b>B</b>	320 to <360
<b>C</b>	280 to <320
<b>D</b>	240 to <280
<b>F</b>	Less than 240

**NOTE:** At the discretion of the course coordinator, bonus points may or may not be given to any of the above listed categories.

A single home assignment will provide the opportunity for students to be rewarded with 10 bonus points to the final sum of points, as determined by the course coordinator. The topic, the announcement and the deadline submission will take place during the semester by the course coordinator.

Each question in each exam will have equal contribution to the calculation of the final grade, disregarding the question's format or level of difficulty.

Any student earning a non-passing grade of "D" or "F" on an exam will be required to participate in mandatory tutoring sessions offered by the course instructor(s) until such a time that they obtain a passing average in the course.

*Undergraduate mid-term grades will be posted on-line for students to view via Banner. Mid-term grades indicate a student's status at mid-semester only and do not indicate the final performance outcome of a student.*

NOTE: scores will NOT be rounded. Therefore, scores of 0.5 and greater will NOT be rounded upwards.

**Student Success Policy:** <http://www.ulm.edu/pharmacy/documents/ospa/earlyintervention.pdf>

**Remediation Policy:** <http://www.ulm.edu/pharmacy/documents/ospa/remediationpolicy.pdf>

## IX. Class Policies and Procedures

At a minimum, all policies stated in the current ULM *Student Policy Manual & Organizational Handbook* should be followed (see <http://www.ulm.edu/studentpolicy/>). Additional class policies include:

**a. Textbooks (recommended):**

1. *Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems | Edition: 10 (ISBN: 9781451188769)*

- b. Attendance Policy:** Class attendance is regarded as an obligation as well as a privilege, and students are expected to know attendance regulations and to attend regularly and punctually at classes in which they are enrolled. Failure to do so may: (1) prevent access to the classroom during regularly scheduled times; (2) jeopardize a student's scholastic standing; and (3) lead to suspension from the School or University. Students must submit excuses for class absences to course coordinators within three class days after returning to classes.

Professors shall accept an official University excuse. With the following exceptions, professors are to determine whether absences are excused or unexcused: 1) Absences arising from authorized trips away from the University or from special duties at the University shall be excused. 2) Absences arising from a student's confinement in a hospital or other in-patient facility or doctor's excused absences shall be excused. Students are responsible for verifying providing documentation to the faculty, which will be verified. 3) Absences arising from a death in the immediate family shall be excused. The immediate family is defined as spouse, child, step-child, mother, father, sister, brother, grandmother, grandfather, step-mother, step-father, step-brother, step-sister, aunt, uncle, mother-in-law or father-in-law.

- c. Make-up Policy:** Each student is expected to attend each exam at the date and time specified. If a student cannot attend an exam due to valid University excuse, he/she must speak directly with the course coordinator, as soon as possible. The course coordinator must be notified **prior** to an examination if a student misses an exam. The ULM SOP Excused Absence Policy must be followed. Please refer to the official document for details. In case of emergency, the course coordinator must be notified within 48 hours of the emergency. Failure to do so will result in a zero (0) grade for that exam. Make-up exams will be prepared at the same or higher level than the original exam. The format of the make-up exam may be written or oral. Failure to attend a scheduled make-up exam will result in a zero (0) grade for that exam. *Students missing an exam due to a University approved excuse will take the make-up exam during the week of finals, or as determined by the course coordinator.* <http://www.ulm.edu/pharmacy/documents/ospa/excusedabsence.pdf>

- d. Academic Integrity:** Faculty and students must observe the ULM published policy on Academic Dishonesty (see Page 4 of the ULM *Student Policy Manual* - <http://www.ulm.edu/studentpolicy/>). All professional students will adhere to the standards set forth in the School of Pharmacy's Code of Conduct (<http://www.ulm.edu/pharmacy/documents/ospa/codeofconductv82011.pdf>).

### Censures (Penalties)

Academic dishonesty will result in a referral to the Committee on Ethical and Professional Standards with a recommendation for a grade of "F" for the course and expulsion from the School of Pharmacy. Academic dishonesty includes, but is not limited to, the use of information taken from others' work or ideas, the provision of help to others on non-collaborative evaluations (tests, quizzes, etc.), collaboration on take home exams, or the use of unapproved information or electronic devices to assist in obtaining an answer to the question

- e. Course Evaluation Policy:** At a minimum, students are expected to complete the online course evaluation.
- f. Student Services:** Information concerning student services in the School of Pharmacy can be found in the School of Pharmacy Student Handbook. In particular, students should pay special attention to

the University's technical standards and policies concerning students with special needs (<http://www.ulm.edu/studentpolicy/studentpolicy.pdf>). ULM student services, such as the Student Success Center (<http://ulm.edu/cass/>), Counseling Center (<http://ulm.edu/counselingcenter/>), and Student Health Services, is available at the following Student Services web site <http://ulm.edu/studentaffairs/>. Students with special needs requiring accommodations MUST follow the process described at <http://rxweb.ulm.edu/pharmacy/student/specialneeds.pdf>.

#### Mental Wellness on the ULM Campus

If you are having problems with emotional, social, and/or behavioral issues please call any of the mental health clinics on the ULM campus to make an appointment. All services are free to ULM students, staff, and faculty, and are strictly confidential.

- COP Office of Student and Professional Affairs: 342-3800
- ULM Counseling Center: 342-5220
- Marriage and Family Therapy Clinic: 342-5678
- Community Counseling Center: 342-1263
- ULM HELPS (Helping Educators and Learners Prevent Suicide) Project Office: 342-1335

The University of Louisiana at Monroe strives to serve students with special needs through compliance with Sections 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act. These laws mandate that postsecondary institutions provide equal access to programs and services for students with disabilities without creating changes to the essential elements of the curriculum. While students with special needs are expected to meet our institution's academic standards, they are given the opportunity to fulfill learner outcomes in alternative ways. Examples of accommodations may include, but are not limited to, testing accommodations (oral testing, extended time for exams), interpreters, relocation of inaccessible classrooms, permission to audiotape lectures, note-taking assistance, and course substitutions.

*Title IX of the Education Amendments of 1972 prohibits sex discrimination against any participant in an educational program or activity that receives federal funds, including federal loans and grants. Furthermore, Title IX prohibits sex discrimination to include sexual misconduct, sexual violence, sexual harassment and retaliation. If you encounter unlawful sexual harassment or gender-based discrimination, please contact Student Services at 318-342-5230 or to file a complaint, visit [www.ulm.edu/titleix](http://www.ulm.edu/titleix).*

- g. Emergency Procedures:** Please review the emergency escape plan in the classrooms and hallways of the Bienville building. Move quickly and in an orderly manner to the appropriate stairwell and exit the building. The meeting place for this class will be the far end of the north parking lot between the Bienville building and Broadmoor Blvd. Under no circumstances is the elevator to be used for emergency evacuation. Any student needing assistance should notify the professor immediately. For emergencies, to contact University Police, call **1-911** from landlines and **342-5350** from cell phones. **The course coordinators reserve the right to adjust the syllabus or schedule, in accordance with University and School policies and procedures.**
- h.** Federal Regulations require determination and verification of every students' physical location while enrolled in classes (where they are physically located while taking classes), regardless of the delivery method (on campus, online). At the beginning of every semester and whenever physical location changes, students must update or verify their current location through banner [https://ssb-prod.ec.ulm.edu/PROD/bwggkogad.P\\_SelectAtypUpdate](https://ssb-prod.ec.ulm.edu/PROD/bwggkogad.P_SelectAtypUpdate). Students should do this by the end of the first week of classes
- i.** This course may be/is a major requirement for the professional degree in Pharmacy. Completion of degree requirements leads to eligibility for professional licensure and/or certification in Louisiana upon graduation. Federal Regulations require universities to provide information to students about the alignment between Louisiana's requirements and those of other states. ULM has created a web page with discipline-specific information containing hyperlinks to Licensure Boards in the United

States <https://www.ulm.edu/professional-licensure-disclosures/index.html>. Program Directors and/or faculty will discuss this information with you during advising or other program meetings but is also available to answer questions and address any concerns you might have. It is also important to note that licensure or certification requirements are subject to change. Although ULM Program Directors annually review and update licensure information for every state, the faculty recommends that before enrolling in a program and throughout enrollment, students communicate with the applicable state board to confirm understanding and whether upon completion of ULM's program, they will meet requirements.

**X. Example:**

**A. Contact Information:** Name of instructor, telephone, e-mail, webpage, office location, and hours.

Georgios Matthaiolampakis Ph.D.  
 Assistant Professor of Pharmaceutics  
 Office: Bienville 380  
 Phone: 318-342-7930  
 Email: matthaiolampakis@ulm.edu  
 \*Office Hours: M-F 1-3 pm

**B. Schedule:** *The instructor reserves the right to adjust the schedule as needed.*

<b>PHRD 4029, Pharmaceutics II</b>				
<b>Monday, Wednesday and Friday 9-9:50 am</b>				
<b>#</b>	<b>Day</b>	<b>Date</b>	<b>Instructor</b>	<b>Topic</b>
1	Monday	11-Jan	Dr. Matthaiolampakis	Powders
2	Wednesday	13-Jan	Dr. Matthaiolampakis	Powders
3	Friday	15-Jan	Dr. Matthaiolampakis	Tablets
	Monday	18-Jan		<b><i>Martin Luther King</i></b>
4	Wednesday	20-Jan	Dr. Matthaiolampakis	Tablets
5	Friday	22-Jan	Dr. Matthaiolampakis	Tablets
6	Monday	25-Jan	Dr. Matthaiolampakis	Tablets
7	Wednesday	27-Jan	Dr. Matthaiolampakis	Tablets
8	Friday	29-Jan	Dr. Matthaiolampakis	Tablets
9	Monday	1-Feb	Dr. Matthaiolampakis	Tablets
	Wednesday	3-Feb		<b><i>TEST</i></b>
10	Friday	5-Feb	Dr. Matthaiolampakis	Capsules
11	Monday	8-Feb	Dr. Matthaiolampakis	Capsules
12	Wednesday	10-Feb	Dr. Matthaiolampakis	Capsules
13	Friday	12-Feb	Dr. Matthaiolampakis	Capsules
14	Monday	15-Feb		<b><i>Mardi Grass</i></b>
	Wednesday	17-Feb		<b><i>Mardi Grass</i></b>
15	Friday	19-Feb	Dr. Matthaiolampakis	Modified Oral Drug Delivery Systems
16	Monday	22-Feb	Dr. Matthaiolampakis	Modified Oral Drug Delivery Systems
17	Wednesday	24-Feb	Dr. Matthaiolampakis	Modified Oral Drug Delivery Systems
	Friday	26-Feb	Dr. Matthaiolampakis	Modified Oral Drug Delivery Systems
18	Monday	1-Mar		<b><i>TEST</i></b>
19	Wednesday	3-Mar	Dr. Matthaiolampakis	Topical and Transdermal Drug delivery

20	Friday	5-Mar	Dr. Matthaiolampakis	Topical and Transdermal Drug delivery
21	Monday	8-Mar	Dr. Matthaiolampakis	Topical and Transdermal Drug delivery
22	Wednesday	10-Mar	Dr. Matthaiolampakis	Topical and Transdermal Drug delivery
23	Friday	12-Mar	Dr. Matthaiolampakis	Topical and Transdermal Drug delivery
24	Monday	15-Mar	Dr. Matthaiolampakis	Topical and Transdermal Drug delivery
25	Wednesday	17-Mar	Dr. Matthaiolampakis	Topical and Transdermal Drug delivery
	Friday	19-Mar	Dr. Matthaiolampakis	Topical and Transdermal Drug delivery
26	Monday	22-Mar		<b>TEST</b>
27	Wednesday	24-Mar	Dr. Matthaiolampakis	Otic Drug Delivery
28	Friday	26-Mar	Dr. Matthaiolampakis	Suppositories
29	Monday	29-Mar	Dr. Matthaiolampakis	Suppositories
30	Wednesday	31-Mar	Dr. Matthaiolampakis	Ocular Drug Delivery
	Friday	2-Apr		<b>Spring break</b>
	Monday	5-Apr		<b>Spring break</b>
	Wednesday	7-Apr		<b>Spring break</b>
	Friday	9-Apr		<b>Spring break</b>
31	Monday	12-Apr	Dr. Matthaiolampakis	Ocular Drug Delivery
32	Wednesday	14-Apr	Dr. Matthaiolampakis	Nasal Drug Delivery
33	Friday	16-Apr	Dr. Matthaiolampakis	Pulmonary Drug Delivery
34	Monday	19-Apr	Dr. Brady	Dry powder Inhalators
35	Wednesday	21-Apr	Dr. Brady	Dry powder Inhalators
36	Friday	23-Apr	Dr. Matthaiolampakis	Analytical Techniques
37	Monday	26-Apr	Dr. Matthaiolampakis	Novel Drug Delivery Systems
<b>Final exam: TBD</b>				