PHM 590: Case Studies in Clinical Pharmacology

Fall 2025, 09/3/2025-12/12/2025

Updated last: 06/03/2025 /CR

Table of Contents

Faculty & Staff Information

Course Director Biosketch

Contact Information	Biosketch
 Carolina Restini, PharmD, Ph.d restinic@msu.edu 586-263-6757 (MUC) 313-578-9646 (DMC) Primary Site: MUC and DMC Office Hours: as needed.	Areas of knowledge: Cardiovascular Pharmacology, Hypertension, Pharmacoepidemiology, and Healthcare/Medical Education and Curriculum Development. She earned a PharmD and a PhD in Pharmacology from the School of Medicine at the University of São Paulo, Brazil, with part of her training at King's College of London. Until 2016, she taught and mentored students from health-related programs in Brazil. She joined MSUCOM in 2017, where she serves as the pharmacology thread director for the DO program, and as the pharmacology course director for the PA program. She is the Director of the Foundry for Innovative Research and Education (FIRE), a program that supports scholarly activities (education and healthcare) and generates research projects. By providing resources, mentorship, and collaborative opportunities, FIRE empowers faculty and students to lead scholarly activities and service-driven initiatives. Her research is focused on the practical application of pharmacology, to bridge bench research and patient care, particularly in the areas of cardiovascular and renal pharmacology. She is also committed to integrating pharmacology core concepts into community service, street medicine, medical training, and interprofessional education. To foster student engagement, she employs active didactic methods (e.g., PBL, CBL, service learning, etc.) and actively solicits student feedback. As an educator, she aims to enable students, as future providers, to collaborate with diverse healthcare professionals and promote equity and inclusion to address health disparities.

Contributing Faculty

Name	Email	Phone	Location
Carolina Restini, PharmD, PhD	restinic@msu.edu	586-263-6757 313-578-9646	MUC DMC
Reza Nassiri, PhD	nassiri@msu.edu	814-566-3484	EL
Jamie Alan	alanjami@msu.edu	517-353-3805	EL

Curriculum Assistants (CAs)

Name	Email	Phone	Location
Smita Deb	debsmita@msu.edu	313-578-9628	DMC

Who to Contact with Questions

Question, Need, or Topic	Contact Person
Course - Logistics & Details	Contact CAs for rooms, groups, materials, links, schedule, etc.
Course - Overall	Contact Course Directors (in bold above).
Course - Specific Content	Contact Contributing Faculty for the content (see schedule).
Absences	Contact Course Directors (in bold above).
Behavior	Submit exemplary or concerning behavior to the CGPI.
Enrollment	Inquire with MSUCOM Registrar.
Personal/Wellness Needs	Inquire with Wellness & Counseling.
Report kudos or suggestions related to inclusion in the curriculum	Submit a DO Better form. https://tinyurl.com/DO-Better-Form
Study Skills or Progression	Inquire with Academic & Career Advising.
Technical Support	Inquire with MSU IT Service Desk. Indicate COM affiliation.

Course Information

Course Description & Overview

PHM 590 Case Studies in Clinical Pharmacology is a 2-credit hour course that allows students who have completed a basic pharmacology course/discipline to learn, refresh, and apply basic knowledge of pharmacology to clinical therapeutic problems. The Course will be presented through Zoom meetings with chat and polling participation. There will be nongraded questions in multiple-choice, clinical vignette-style for students to encourage rich discussions during the sessions. The course is great opportunity to review core concepts in Pharmacology and integrate them into clinical settings.

Course Objectives

The American Osteopathic Association has identified core competencies essential for future practice as an osteopathic physician. These are embedded throughout our programmatic and course objectives. By the end of this course, learners are expected to accomplish the following:

Competency	Related Course Objective(s)

Medical Knowledge	1. Apply existing knowledge to clinical therapeutic problems.
	 2. Find, interpret, and apply new drug information to clinical therapeutic problems.
	 3. Apply knowledge of pharmacogenomics to personalized therapeutics.
	 4. Recognize and apply therapeutic concepts to a diverse population, identifying the importance of precision medicine in geriatrics, women/menopause, and pediatrics.
	 5. Explain the foundation for integrating Autonomic Pharmacology into diseases affecting the cardiovascular, respiratory, endocrine, and central nervous system.
	 6. Discuss clinical cases and questions to practice for the board exams founded on the following topics:
	    a. Drugs affecting metabolism and endocrine-related diseases
	    b. Psychoactive Drugs
	    c. Adverse Drug Reactions/Drug Interactions
	    d. Anti-inflammatory Drugs
	    e. Pharmacology of irritable bowel disease
	    f. Antibiotic Resistance
	    g. Travel-Associated Infectious Diseases
	    h. Cardiovascular Drugs
	    i. HIV/AIDS
	    j. COVID-19

Systems-Based Practice	7. Discuss clinical cases and questions to practice for the board exams.

Textbooks and Resources

Most MSUCOM courses make use of D2L as a course website to share materials, Google Calendar to share course schedules, Zoom to host online meetings, and iClicker to facilitate audience polling. Visit https://bit.ly/msucomtech for reminders on how to access and use these resources. Other course-specific resources include:

Status	Resource
Required	Cases and resources posted at D2L related to each session. The cases will be posted one week ahead of the respective session. **Note: didactic material used by the instructor to resolve the cases during the lecture will be posted <u>after the respective lecture</u>.** Utilize relevant current medical literature.
Optional	Goodman and Gilman's The Pharmacological Basis of Therapeutics, 14th ed. 2023. https://accessmedicine-mhmedical-com.proxy1.cl.msu.edu/book.aspx?bookid=3191 Katzung's Basic and Clinical Pharmacology. 15th ed. 2021. https://accessmedicine-mhmedical-com.proxy2.cl.msu.edu/book.aspx?bookid=2988

Grading Schema

Course scores will be determined using the following formula:

(Combined Individual Activity or Assessment Points+ Exam) / (Total Points Possible) * 100%
= Final Percent Score

Course grades will then be assigned based on those course scores as follows:

- **P or Pass** - Satisfactory performance has been achieved, and credit will be granted if a student's final percent score is 70% or higher.
- **N or No Grade** - Satisfactory performance has not been achieved and credit will not be granted if a student's final percent score is below 70%.

  o   More than 4 unexcused absences, without reasoning prior or within 24 hours after the session, the student will receive an 'N' grade.

o Students must e-mail the course coordinator to justify the absence prior to or within 24 hours after the missed session; an assignment related to the missed session will be given to be turned in within one week only to the students who have their absence excused.

Remediation is not offered for this course.

Grading Requirements

The MSUCOM D.O. degree program incorporates both horizontal and vertical curriculum integration, meaning course activities and assessments require ongoing development and integration of knowledge and skills acquired in previous courses. Required components include:

Required Component	Projected Points	Material to be Covered
Participation points	10	Students will demonstrate participation in answering questions during clinical case discussions. Students who miss 4 or more lectures without excuses will not receive participation points. See details below
End of Course open-book take-home exam	90	Pharmacologic principles covered in the Course will be in the form of clinical cases.

*Note about the exam: Exam questions will be available through D2L. Students will have access to the exam questions from Dec 5th, 2025, 7:00 AM to Dec 12th, 2025, 12:00pm. During this time, the students will have free access to the questions at their demand.

The students will take an open-book, take-home exam. The students will receive the take-home exam questions through D2L. There is no need for proctoring arrangements.

Missed Session

All sessions are mandatory. Students who miss a session must request an excused absence by contacting Dr. Restini at restinic@msu.edu before or within 24 hours after the missed session.

If the absence is excused, the course coordinator may offer a makeup opportunity for the missed session, and no participation points will be deducted.

No makeup session will be available if the absence is not excused, and 2.5 participation points will be deducted for each missed session.

Students with more than 4 unexcused absences will receive an N grade for the course.

Policies & Resources

Academic Support Resources at MSUCOM

Students are encouraged to connect with [Academic and Career Advising](#) (ACA) to access academic, board, and career advising across the 4-year D.O. curriculum. As a way to acclimate to the MSUCOM curriculum, you may access ACA's [On Target](#) website for semester roadmaps, tools needed to be successful in the curriculum, and targeted resources for different learning situations. Each semester's roadmap contains course expectations, tips, potential challenges, notes on longitudinal content and skills integration, and study guides.

College or University Policies with Which Enrolled Students Must Be Familiar

Policy	Location
Common Ground Professionalism Initiative	[MSUCOM CGPI Site](#)
Computer-Based Testing	[Student Handbook - CBT Policy](#)
Disability & Reasonable Accommodation	[Student Handbook - Diversity and Inclusion](#)
iClicker	[Student Handbook - Information Technology Resources](#)
Medical Students Rights and Responsibilities	[Office of Spartan Experiences Site](#)
MSUCOM Academic Code of Professional Ethics	[Student Handbook - Academic Code of Professional Ethics](#)
Osteopathic Clinical Training & Student Safety	[Student Handbook - Osteopathic Clinical Training & Student Safety](#)
Preclerkship Attendance & Absences	[Student Handbook - Attendance & Absences](#)
Pregnancy and Pregnancy-Related Conditions	[Pregnancy and Parenting Information	Office for Civil Rights and Title IX](#)
Relationship Violence & Sexual Misconduct & Title IX	[Office for Civil Rights & Title IX Education & Compliance Site](#)
Religious Observance Policy	[Office of the Registrar Site](#)
Remediation	[Student Handbook - Remediation](#)
Student Handbook	[Student Handbook](#)

Student Feedback

MSUCOM values student feedback, using this to model practice-based learning and improvement and to promote continuous quality improvement of learning experiences.

Route	Description
Informal	We invite you to respectfully provide constructive suggestions to Course Directors, Contributing Faculty, or Curriculum Assistants at any time.
Formal	MSUCOM will deploy brief surveys through Medtrics to gain feedback on the Course, Course Directors and Contributing Faculty. Additionally, MSU sends an optional Student Perceptions of Learning Survey (SPLS) to enrolled students at the conclusion of each course to gain feedback on the course and Course Directors.

Course Schedule and Changes to Schedule or Requirements

Due to external circumstances (e.g., weather/maintenance closures, clinical obligations, student cohort needs, etc.), course requirements published in the course syllabus and/or course schedule may be subject to change. Timely communication regarding changes will be provided to enrolled students via the course D2L site, Google Calendar, and/or MSU email. Contact curriculum assistants with questions. Any changes made will be considerate of the MSU Code of Teaching Responsibility and the Medical Students Rights and Responsibilities.

Addendum: Course Schedule

Updated 06/05/2025

Date	Time	Topic/Title	Faculty	Venue (Origin*)Event Type	Notes
Sept 3	5:00pm - 6:50pm	Autonomic Pharmacology	Restini	**Zoom**	Mandatory
Sept 10	5:00pm - 6:50pm	Travel-Associated Infectious Diseases	Nassiri/Restini	**Zoom**	Mandatory
Sept 17	5:00pm - 6:50pm	Adverse Drug Reactions/Drug Interactions	Restini	**Zoom**	Mandatory
Sept 24	5:00pm - 6:50pm	Cardiovascular Pharmacology	Restini	**Zoom**	Mandatory
Oct 1	5:00pm - 6:50pm	Endocrine Pharmacology	Restini	**Zoom**	Mandatory
Oct 8	5:00pm - 6:50pm	Anti-inflammatory Pharmacology	Restini	**Zoom**	Mandatory
Oct 15	5:00pm - 6:50pm	Pharmacology of irritable bowel disease	Nassiri/Restini	**Zoom**	Mandatory
Oct 22	5:00pm - 6:50pm	Geriatric Pharmacology	Restini	**Zoom**	Mandatory
Oct 29	5:00pm - 6:50pm	Antibiotic Resistance	Nassiri/Restini	**Zoom**	Mandatory
Nov 5	5:00pm - 6:50pm	HIV/AIDS	Nassiri/Restini	**Zoom**	Mandatory
Nov 12	5:00pm - 6:50pm	COVID-19	Nassiri/Restini	**Zoom**	Mandatory
Nov 19	5:00pm - 6:50pm	Pharmacology of Psychoactive Drugs	Restini	**Zoom**	Mandatory
Nov 26	Asynchronous	Clinical Cases – MCQ Quiz for points	Restini	**On D2L / Asynchronous**	**The quiz will open on November 26th at 5 PM and close on December 3rd at 4 PM**

Date	Time	Topic/Title	Faculty	Venue (Origin*)Event Type	Notes
Dec 3	5:00pm - 6:50pm	Pharmacology of pain and substance use disorder	Restini / Alan	**Zoom**	Mandatory
Dec 5-12		OPEN BOOK EXAM		**On D2L / Asynchronous FINAL EXAM**	**The exam will open on Dec 5th at 7:00 AM and close on Dec 12th at 12:00 PM.**
Dec 10	5:00pm - 6:50pm	Pharmacogenomics & Precision Medicine	Restini	**Zoom**	Mandatory