



Course syllabus		College of Pharmacy
Course code	PHA 352	Credit No. 1(0-3-2)
Course title	Pharmacology for Pharmacy Laboratory	Section 11, 12, 13
Semester	1	Academic year 2025
Students	Pharmacy students, 3 <sup>rd</sup> year	
Instructor(s)	<div>1. Assoc. Prof. Prapawadee Puapairoj      2. Asst. Prof. Dr. Amorntus Sodsai</div> <div>3. Asst. Prof. Dr. Tipsuchon Aiamsa-ard      4. Asst. Prof. Dr. Abhiruj Navabhatra</div> <div>5. Asst. Prof. Dr. Thidarat Phetmanee      6. Asst. Prof. Dr. Preeyaporn Plaimmee</div> <div>Phiboonchaiyanan</div> <div>7. Asst. Prof. Dr. Nalinee Pradubayat      8. Dr. Patompong Satapornpong</div> <div>9. Miss Napaporn Lakkana      10. Mr. Tak Karuncharoenpanich</div> <div>11. Miss Sulakkhana Suporn</div>	
Course coordinator(s)	Asst. Prof. Dr. Abhiruj Navabhatra Asst. Prof. Dr. Thidarat Phetmanee Asst. Prof. Dr. Preeyaporn Plaimmee Phiboonchaiyanan Asst. Prof. Dr. Nalinee Pradubayat	
Class hours and location	Brief lab Friday, 03.00 – 05.00 p.m., 3-101B Sec.11 Wednesday, 01.00 – 04.00 p.m., 4/1-403 Sec.12 Thursday, 09.00 a.m. – 12.00 p.m., 4/1-403 Sec.13 Thursday, 01.00 – 04.00 p.m., 4/1-403	
Pre-requisite course(s)	PSO 201 Physiology BCH 206 Biochemistry for Pharmacy	
Co-requisite course(s)	PHA 351 Pharmacology for Pharmacy I	

**Course description**

Experiments on drug actions; drug synergy and antagonization; toxicity study of some drugs.

**Course learning outcomes (CLOs)** When completion of this course, the students should be able to:

1. PHA352-CLO1 Perform basic skills to handle laboratory animals for experimental purposes.
2. PHA352-CLO2 Explain the basic principles of pharmacology and toxicology laboratory.
3. PHA352-CLO3 Describe the principles of pharmacology and toxicology experiments in various models.
4. PHA352-CLO4 Describe molecular mechanism of drugs or substances from pharmacology experiments.
5. PHA352-CLO5 Interpret and analyze results from pharmacology and toxicology experiments.
6. PHA352-CLO6 Apply the results from pharmacology and toxicology experiments in case studies.

7. PHA352-CLO7 Prepare a written document pertaining to the pharmacological laboratory.
8. PHA352-CLO8 Provide an exposition of the findings and deliberation of the pharmacological laboratory.
9. PHA352-CLO9 Comply with standard protocol of laboratory safety.
10. PHA352-CLO10 Take accountability for the assigned tasks.
11. PHA352-CLO11 Exhibit discipline, punctuality, and a sense of responsibility towards oneself and society.

**Course outlines** (as shown in table below)

### Methods of Instruction

1. In-class practice, demonstration, and video presentation.
2. Questioning, discussion, opinion expression, and presentation.
3. The innovation is incorporated in learning activities and evaluation of this course.

### Assessment

Learning evaluations include

- Paper examinations will cover all topics in Course Outlines. Weighted components of paper examinations are allocated as percent content of each topic and divided into:
 

Examination 1	Midterm exam	35%
Examination 2	Final exam	25%
- Practice examination: 5%
 

Examination 1	Animal handling and drug administration in animal
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- Integrated case study 5%
- Laboratory reports 6%
- Laboratory discussion 10%
- Student behavior evaluation 14%
- Grading Criteria: Earning marks lower than 50% is considered as F grade.
- Student grades must be approved by the Academic Committee and the Academic Standards Board of the college.

**Note** Class attendance is not less than 80% of all class sessions.

### Required texts and references

1. Neal MJ. Medical pharmacology at a glance. 8<sup>th</sup> ed. London: Wiley Blackwell; 2015.
2. Hilal-Dandan R and Brunton LL. Goodman & Gilman manual of pharmacology and therapeutics, 2<sup>nd</sup> ed. New York : McGraw-Hill; 2014.
3. Katzung BG, et al. Basic & clinical pharmacology, 15<sup>th</sup> ed. Singapore: McGraw-Hill; 2021.
4. Brunton LL and Knollmann BC. Goodman & Gilman's: The Pharmacological Basis of Therapeutics, 14<sup>th</sup> ed. New York : McGraw-Hill; 2024.

**Special materials and data** -

**Suggested materials and data** -

### Course outline

<b>Course code/ Course title</b>	PHA 352 Pharmacology for Pharmacy Laboratory	<b>Credit No.</b> 1(0-3-2)
<b>Semester</b>	1	<b>Academic year</b> 2025
<b>Class hours and location</b>	Section 11    Wednesday, 01.00 – 04.00 p.m., 4/1-403 Section 12    Thursday, 09.00 a.m. – 12.00 p.m., 4/1-403 Section 13    Thursday, 01.00 – 04.00 p.m., 4/1-403	

No.	Day	Topics	Instructors
1	15 Aug 2025 (4/1-503)	Introduction to pharmacology lab Principle and concept of pharmacological experiment, report writing and lab safety rules	Asst. Prof. Dr. Abhiruj Navabhatra Asst. Prof. Dr. Preeyaporn P. Phiboonchaiyanan Mr. Tak Karunchareonpanich
2	20 Aug 2025 21 Aug 2025	Estimation of dose response relationship	Miss Napaporn Lakkana Asst. Prof. Dr. Thidarat Phetmanee and staff
3	27 Aug 2025 28 Aug 2025	Ames test for mutagenicity	Asst. Prof. Dr. Preeyaporn P. Phiboonchaiyanan Miss Napaporn Lakkana and staff
4	3 Sep 2025 4 Sep 2025	Inhibitory and inductive of cytochrome P450 testing	Asst. Prof. Dr. Abhiruj Navabhatra Asst. Prof. Dr. Thidarat Phetmanee Miss Napaporn Lakkana and staff
5	10 Sep 2025 11 Sep 2025	Cytotoxic screening testing	Asst. Prof. Dr. Abhiruj Navabhatra Asst. Prof. Dr. Thidarat Phetmanee Asst. Prof. Dr. Preeyaporn P. Phiboonchaiyanan and staff
6	17 Sep 2025 18 Sep 2025	Genetic polymorphism detection and screening	Asst. Prof. Dr. Preeyaporn P. Phiboonchaiyanan Asst. Prof. Dr. Abhiruj Navabhatra Asst. Prof. Dr. Thidarat Phetmanee Dr. Patompong Satapornpong and staff
7	24 Sep 2025 25 Sep 2025	Isolated organs model (drug effects on GI tract and CVS)	Asst. Prof. Dr. Amorntus Sodsai Asst. Prof. Dr. Tipsuchon Aiamsa-ard Asst. Prof. Dr. Thidarat Phetmanee and staff
Midterm exam, 29 Sep - 10 Oct 2025, (No. 1-7)			
8	15 Oct 2025 16 Oct 2025	Basic techniques of pharmacology lab Animal handling, drug testing and administration and animal ethics	Asst. Prof. Dr. Tipsuchon Aiamsa-ard Miss Napaporn Lakkana Mr. Tak Karunchareonpanich and staff

No.	Day	Topics	Instructors
9	29 Oct 2025 30 Oct 2025 22, 23	Animal behavior testing	Assoc. Prof. Prapawadee Puapairoj Asst. Prof. Dr. Thidarat Phetmanee Miss Napaporn Lakkana and staff
10	5 Nov 2025 6 Nov 2025	Analgesic testing and anti-inflammatory testing (Part I)	Asst. Prof. Dr. Tipsuchon Aiamsa-ard Asst. Prof. Dr. Thidarat Phetmanee and staff
11	12 Nov 2025 13 Nov 2025	Analgesic testing and anti-inflammatory testing (Part II)	Asst. Prof. Dr. Thidarat Phetmanee Asst. Prof. Dr. Tipsuchon Aiamsa-ard and staff
12	19 Nov 2025 20 Nov 2025	Mechanism of action at molecular level	Asst. Prof. Dr. Nalinee Pradubayat Asst. Prof. Dr. Abhiruj Navabhatra Asst. Prof. Dr. Thidarat Phetmanee and staff
13	26 Nov 2025 27 Nov 2025	Immunological study	Asst. Prof. Dr. Amornatus Sodsai Asst. Prof. Dr. Thidarat Phetmanee and staff
14	3 Dec 2025 4 Dec 2025	Integrated case study	All staff
15	Schedule extra sessions outside regular hours	Integrated case study (self-study)	All staff
Final exam, 11 - 22 Dec 2025, (No. 9 - 13)			