

**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	2024
Students	Pharmacy students, 3 rd year		

Instructor(s)

1. Assoc. Prof. Prapawadee Puapairoj
2. Asst. Prof. Dr. Amorntus Sodsai
3. Asst. Prof. Dr. Tipsuchon Aiamsa-ard
4. Asst. Prof. Dr. Abhiruj Navabhatra
5. Asst. Prof. Dr. Thidarat Phetmanee
6. Asst. Prof. Dr. Preeyaporn Plaimee Phiboonchaiyanan
7. Dr. Thanet Fuangfoo
8. Dr. Sakdipat Sangsuriyong
9. Dr. Patompong Satapornpong
10. Dr. Nalinee Pradubiyat
11. Miss Napaporn Lakkana
12. Mr. Tak Karuncharoenpanich
13. Miss Sulakkhana Suporn

Course coordinator(s)	Asst. Prof. Dr. Abhiruj Navabhatra Asst. Prof. Dr. Thidarat Phetmanee Asst. Prof. Dr. Preeyaporn Plaimee Phiboonchaiyanan Dr. Nalinee Pradubiyat
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Class hours and location	Brief lab Tuesday, 03.00 – 05.00 p.m., 6-604 Sec.11 Thursday, 01.00 – 04.00 p.m., 4/1-403 Sec.12 Friday, 09.00 a.m. – 12.00 p.m., 4/1-403 Sec.13 Friday, 01.00 – 04.00 p.m., 4/1-403
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Pre-requisite course(s)	PSO 201 Physiology BCH 206 Biochemistry for Pharmacy
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Co-requisite course(s)	PHA 351 Pharmacology for Pharmacy I
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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:

Examination 1	Animal handling and drug administration in animal	5%
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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. 8th ed. London: Wiley Blackwell; 2015.
2. Hilal-Dandan R and Brunton LL. Goodman & Gilman manual of pharmacology and therapeutics, 2nd ed. New York : McGraw-Hill; 2014.
3. Katzung BG, et al. Basic & clinical pharmacology, 15th ed. Singapore: McGraw-Hill; 2021.
4. Brunton LL and Knollmann BC. Goodman & Gilman's: The Pharmacological Basis of Therapeutics, 14th ed. New York : McGraw-Hill; 2024.

Special materials and data -

Suggested materials and data -

Course outline

Course code/ Course title	PHA 352 Pharmacology for Pharmacy Laboratory	Credit No. 1(0-3-2)
Semester	1	Academic year 2024
Class hours and location	Section 11 Thursday, 01.00 – 04.00 p.m., 4/1-403 Section 12 Friday, 09.00 a.m. – 12.00 p.m., 4/1-403 Section 13 Friday, 01.00 – 04.00 p.m., 4/1-403	

No.	Day	Topics	Instructors
1	15 Aug 2024 16 Aug 2024	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	22 Aug 2024 23 Aug 2024	Estimation of dose response relationship	Miss Napaporn Lakkana Asst. Prof. Dr. Thidarat Phetmanee and staff
3	29 Aug 2024 30 Aug 2024	Ames test for mutagenicity	Asst. Prof. Dr. Preeyaporn P. Phiboonchaiyanan Dr. Sakdipat Sangsuriyong and staff
4	5 Sep 2024 6 Sep 2024	Inhibitory and inductive of cytochrome P450 testing	Asst. Prof. Dr. Abhiruj Navabhatra Asst. Prof. Dr. Thidarat Phetmanee Miss Napaporn Lakkana and staff
5	12 Sep 2024 13 Sep 2024	Cytotoxic screening testing	Asst. Prof. Dr. Abhiruj Navabhatra Asst. Prof. Dr. Preeyaporn P. Phiboonchaiyanan and staff
6	19 Sep 2024 20 Sep 2024	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

No.	Day	Topics	Instructors
7	26 Sep 2024 27 Sep 2024	Isolated organs model (drug effects on GI tract and CVS)	Dr. Thanes Fuangfoo and staff
Midterm exam, 30 Sep - 11 Oct 2024, (No. 1-7)			
8	17 Oct 2024 18 Oct 2024	Basic techniques of pharmacology lab Animal handling, drug testing and administration and animal ethics	Dr. Sakdipat Sangsuriyong Mr. Tak Karunchareonpanich and staff
9	24 Oct 2024 25 Oct 2024	Animal behavior testing	Assoc. Prof. Prapawadee Puapairoj Dr. Thanes Fuangfoo and staff
10	31 Oct 2024 1 Nov 2024	Analgesic testing and anti-inflammatory testing (Part I)	Asst. Prof. Dr. Tipsuchon Aiamsa-ard Dr. Sakdipat Sangsuriyong and staff
11	7 Nov 2024 8 Nov 2024	Analgesic testing and anti-inflammatory testing (Part II)	Asst. Prof. Dr. Thidarat Phetmanee Asst. Prof. Dr. Tipsuchon Aiamsa-ard and staff
12	14 Nov 2024 15 Nov 2024	Mechanism of action at molecular level	Dr. Nalinee Pradubyat Asst. Prof. Dr. Abhiruj Navabhatra Asst. Prof. Dr. Thidarat Phetmanee and staff
13	21 Nov 2024 22 Nov 2024	Immunological study	Asst. Prof. Dr. Amorntus Sodsai and staff
14	28 Nov 2024 29 Nov 2024	Integrated case study	All staff
15	5 Dec 2024 6 Dec 2024	Integrated case study (self-study)	All staff
Final exam, 11 - 20 Dec 2024, (No. 9 - 13)			