

Course Syllabus
SIPS 528
Academic Year 2026
Department of Physiology
Faculty of Medicine Siriraj Hospital, Mahidol University

Course ID and name:	SIPS 528: Research Rotation in Medical Physiology
Course coordinator:	Assoc. Prof. Narawut Pakaprot, MD, PhD
Instructors:	Assoc. Prof. Narawut Pakaprot, MD, PhD Assoc. Prof. Wattana Watanapa, MD, PhD Assoc. Prof. Chailerd Pichitpornchai, MD, PhD Assoc. Prof. Suwattanee Kooptiwut, MD, PhD Assoc. Prof. Sorachai Srisuma, MD, PhD Assoc. Prof. Panapat Uawithya, MD, PhD Assoc. Prof. Reawika Chaikomin, MD, PhD Assoc. Prof. Chantacha Sitticharoon, MD, PhD Assist. Prof. Sompol Tapechum, MD, PhD Assist. Prof. Yodying Dangprapai, MD, PhD Assist. Prof. Rujapope Sutiwisesak, MD, PhD Dr. Leucha Boontaveekul, MD Dr. Thaksaon Kittipassorn, MD, PhD Dr. Kanat Chanthongdee, MD PhD Dr. Patamat Nitiwarangoon, MD, PhD Dr. Thanus Teeratitayang-gool, MD
Credits:	1 (0-2-1) (lecture – laboratory – self-study)
Curriculum:	Masters of Science Program in Medical Physiology
Course type:	☐ Core ☒ Required ☐ Electives
Semester offering:	01/2026
Prerequisite:	None
Date of Latest Revision:	26/6/2026

Course Description:

Scope and conceptualization of research in medical physiology; safety in research practice

Course-level Learning Outcomes (CLOs)

Upon completion of this course, students are able to:

1. Discuss research data or findings from specific physiological techniques with responsibility and academic integrity

2. Apply physiological concepts and laboratory techniques safely and responsibly

Constructive Alignment of CLOs and Program's ELOs

CLOs	ELO1	ELO2	ELO3	ELO4
1. Discuss research data or findings from specific physiological techniques with responsibility and academic integrity	P	R	P	R
2. Apply physiological concepts and laboratory techniques safely and responsibly	P	R	P	R

Remarks: Show the level of the course management with the symbols I, R, P, and M.

Program's Expected Learning Outcomes

1. Demonstrate the current medical physiological knowledge for common clinical application.
2. Evaluate the scientific research and major research developments.
3. Perform medical physiology research with a technique in an ethical way to test an idea or hypothesis in an area of interest.
4. Communicate knowledge and ideas of medical physiological research clearly to peers and the scientific community at national level.

Course Schedule and teaching/assessment plan

No.	Topic	Schedule	Hours			CLOs	Teaching & learning strategy	Assessment (in-class)	Lecturers
			Lecture	Laboratory	Self-Study				
1	Orientation	5/8/2026: 13.00-13.30	0.5	-	-	-	Onsite	-	Narawut
2	Presentation of experiments done by physiology faculties 1	-	1	-	2	1	Asynchronous clip lecture	Q&A	Faculty
3	Presentation of experiments done by physiology faculties 2	-	1	-	2	1	Asynchronous clip lecture	Q&A	Faculty
4	Laboratory safety techniques	-	-	-	2	2	MU labpass training (Asynchronous)	Quiz	MU labpass
5	Practicing research techniques 1	TBA	-	3	1.5	1,2	Practice (onsite lab)	Rubric	Faculty
6	Practicing research techniques 2	TBA	-	3	1.5	1,2	Practice (onsite lab)	Rubric	Faculty
7	Practicing research techniques 3	TBA	-	3	1.5	1,2	Practice (onsite lab)	Rubric	Faculty
8	Practicing research techniques 4	TBA	-	3	1.5	1,2	Practice (onsite lab)	Rubric	Faculty
9	Practicing research techniques 5	TBA	-	3	1.5	1,2	Practice (onsite lab)	Rubric	Faculty

10	Practicing research techniques 6	TBA	-	3	1.5	1,2	Practice (onsite lab)	Rubric	Faculty
11	Practicing research techniques 7	TBA	-	3	1.5	1,2	Practice (onsite lab)	Rubric	Faculty
12	Practicing research techniques 8	TBA	-	3	1.5	1,2	Practice (onsite lab)	Rubric	Faculty
13	Practicing research techniques 9	TBA	-	3	1.5	1,2	Practice (onsite lab)	Rubric	Faculty
14	Presentation about what students have learned	TBA	2	-	4	1,2	Presentation (live lecture)	Rubric	Faculty
15	Conclusion remarks	TBA	0.5	-	1	1,2	Discussion (live lecture)	Q&A	Faculty
Total hours of the study			5	27	24.5				

Course Assignments

Read the assigned articles

Present what the students have learned such as concepts of learned techniques (1 time)

Assessment Criteria

- Submit MU LabPass Certificate (must have)
- Attend the assigned activities not less than 80%

Grading Criteria

- Assess the presentation with rubric score assessment (20%)
- Assess the discussion about the appraisal of scientific articles of interest, and research activities in the laboratory with rubric score assessment (80%)

Evaluation of Student Performance in Laboratory Rotation

Evaluation Criteria	CLO
1) Clarity and Accuracy of Research Framework: Ability to explain key research frameworks (questions, objectives, and hypotheses) of the laboratory clearly and accurately.	CLO 2
2) Technical Principles: Ability to explain the underlying principles and objectives of the experimental techniques utilized in the lab.	CLO 2
3) Procedural Knowledge and Safety: Ability to explain experimental procedures correctly and demonstrate strict adherence to laboratory safety protocols.	CLO 2
4) Discussion of Research Findings: Ability to discuss and interpret research data or laboratory findings derived from specific techniques logically.	CLO 1
5) Research Integrity and Responsibility: Demonstrates honesty in data reporting and fulfills assigned laboratory tasks with high professional responsibility.	CLO 1

Grading Scale (0 - 4):

- 4 (**Exceeding expectation**): Accurate, well-organized, and complete. Demonstrates strong understanding.
- 3 (**Expected performance**): Mostly accurate and clear with minor gaps. Reflects good understanding.
- 2 (**Minor shortcomings**): Provides correct basic information but lacks depth or clarity.
- 1 (**Major shortcomings**): Contains several inaccuracies or unclear explanations. Limited understanding.
- 0 (**Failure to show outcome**): Content is mostly incorrect or too incomplete to evaluate.

Evaluation of Student Performance in Presentation of SIPS528					
Student		Faculty	Time of learning experience		
Outcome	Exceeding expectation	Expected performance	Minor shortcomings	Major shortcomings	Failure to show the expected outcome
Grading	4	3	2	1	0
Clarity and Accuracy of Content (CLO2)	The presentation shows accurate, well-organized, and complete information. The student explains key concepts clearly and demonstrates a strong understanding of the topic.	The content is mostly accurate and clear, with minor gaps or areas that could be more detailed. Overall, the explanation reflects good understanding.	The student provides correct basic information but lacks depth or clarity. Some parts may be confusing or insufficiently explained.	The presentation contains several inaccuracies or unclear explanations. The student shows limited understanding of the content.	The content is mostly incorrect or too incomplete to evaluate.

GRADE SCALE

A	80%	to	100%, with all CLOs passed (minimum 50% each)
B+	65%	to	<80%, with all CLOs passed (minimum 50% each)
B	50	to	<65%, with all CLOs passed (minimum 50% each)
F	<50%		

Actions Based on CLO Status:

I-1	Retake the exam and/or complete the assigned work within one month after the exam result is announced, if at least one CLO (CLO1-2) is failed
I-2	Complete the assigned work and undergo a new evaluation within the next semester if all CLOs all failed.
I-3	Repeat the course when it is next offered, if all CLOs are failed.

Appeal Procedure

Students are able to inquire about their scores or grade directly to the course coordinator either by direct contact, telephone or email within 1 week after the scores or grade is announced. The appealing though the program is also available.