

Course Syllabus
SIPS 534
Academic Year 2025
Department of Physiology
Faculty of Medicine Siriraj Hospital, Mahidol University

Course ID and name: SIPS 534: Medical Respiratory Physiology
Course coordinator: Assoc. Prof. Sorachai Srisuma, MD, PhD
Instructors: Assoc. Prof. Sorachai Srisuma, MD, PhD
Instructor Thaksaon Kittipassorn, MD, PhD

Credits: 1 (1-0-2) (lecture – laboratory – self-study)
Curriculum: Masters of Science Program in Medical Physiology
Course type: ☐ Core ☒ Required ☐ Electives
Semester offering: 01/2025
Prerequisite: None
Date of Latest Revision: Sep 10, 2025

Course Description:

Respiratory system, lung volumes and ventilation, the chest and mechanics of breathing, pulmonary function tests, pulmonary circulation, blood gas transport, gas exchange, control of ventilation, respiratory system under stress

Course-level Learning Outcomes (CLOs)

Upon completion of this course, students are able to:

1. Apply the knowledge of lung ventilation, mechanics of breathing and pulmonary function tests to analyze normal mechanisms of the respiratory system, including common clinical abnormalities accurately.
2. Apply the knowledge of gas exchange and control of ventilation to analyze normal mechanisms of the respiratory system, including common clinical abnormalities accurately.
3. Participate in the discussion of medical respiratory physiological knowledge to solve problems about the respiratory system.

Constructive Alignment of CLOs and Program's ELOs

CLOs	ELO1	ELO2	ELO3	ELO4
1. Apply the knowledge of mechanics of breathing and pulmonary function tests to analyze normal mechanisms of the respiratory system, including common clinical abnormalities accurately.	R	R	R	
2. Apply the knowledge of gas exchange and control of ventilation to analyze normal mechanisms of the respiratory system, including common clinical abnormalities accurately.	R	R	R	
3. Participate in the discussion of medical respiratory physiological knowledge to solve problems about the respiratory system				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.	Date	Topic	Hours			CLOs	Teaching & learning strategy	Assessment (in-class)	Lecturers
	Time		Lecture	Laboratory	Self Study				
1	Mon, Nov 24 9.00 – 9.30 a.m.	Respiratory system	0.5	-	1	1,2	On site lecture	Q&A	Dr.Sorachai
2	Mon, Nov 24 9.45 – 10.45 a.m.	Lung volume and ventilation	1	-	2	2	On site lecture	Q&A	Dr.Sorachai
3	Wed, Nov 26 9.00 – 10.00 a.m.	Blood gas transport	1	-	2	2	On site lecture	Q&A	Dr.Sorachai
4	Fri, Nov 28 6.00 – 7.00 p.m.	Static mechanics of breathing	1	-	2	1	Asynchronous lecture	Post-learning exercise	Dr.Thaksaon
5	Mon, Dec 1 6.00 – 7.00 p.m.	Dynamic mechanics of breathing	1	-	2	1	Asynchronous lecture	Post-learning exercise	Dr.Thaksaon
6	Thu, Dec 4 9.00 – 10.00 a.m.	Pulmonary circulation and gas diffusion	1	-	2	2	On site lecture	Q&A	Dr.Sorachai
7	Thu, Dec 4 10.30 – 11.30 a.m.	Control of ventilation	1	-	2	2	On site lecture	Q&A	Dr.Sorachai
8	Mon, Dec 8 9.00 – 11.30 a.m.	The chest and mechanics of breathing 1	-	2.5	1.25	1,3	Practical	Performance	Dr.Thaksaon
9	Mon, Dec 8 1.30 – 2.30 p.m.	Ventilation and perfusion relationships	1	-	2	2	On site lecture	Q&A	Dr.Sorachai
10	Thu, Dec 11 10.30 a.m. – 12.00 p.m.	The chest and mechanics of breathing 2	1.5	-	3	1,3	On site discussion	Performance	Dr.Thaksaon

11	Mon, Dec 15 9.30 a.m. – 12.30 p.m.	Pulmonary function tests 1	-	3	1.5	1,3	Practical	Performance	Dr.Thaksaon
12	Mon, Dec 15 2.00 – 3.30 p.m.	Integrated responses in respiratory system	1.5		3	1,2,3	On site discussion	Performance	Dr.Sorachai
13	Wed, Dec 17 1.00 – 2.30 p.m.	Pulmonary function tests 2	1.5	-	3	1,3	On site discussion	Performance	Dr.Thaksaon
14	Thu, Dec 18 1.00 – 2.30 p.m.	Respiratory system under stress	1.5		3	1,2,3	On site discussion	Performance	Dr.Thaksaon
15	Sat, Dec 20 9.00 a.m. – 12.00 p.m.	Summative exam					Online exam		
Total hours of the study			13.5	5.5	29.75				

Course Assignments

Assignment materials; reading, VDO

Assessment Criteria

GRADE DISTRIBUTION

65% Summative examination

35% Performance in laboratory and discussion classes

	4	3	2	1	0
How well does the student participate in class by presenting data/asking questions/offering ideas? (Frequency of contributions)	Frequently and voluntarily (*Does not prevent others from answering)	Voluntarily	Responses only after being questioned or named	Rarely, reluctantly	Never
How good is the quality of student's contributions? (Quality of contributions)	Demonstrates comprehensive knowledge and critical thinking skills	Mostly relevant, reflecting understanding of knowledge	Somewhat relevant, reflecting some levels of understanding of knowledge	Not relevant, reflecting insufficient understanding of knowledge	Lacks understanding of knowledge or infrequent contributions
How well does the student behave during presentation? (Behavior in class)	Actively and respectfully pays attention to peers/instructor; full engagement throughout the class	Pays attention to peers/instructor; engages most of the time in class	Listens to peers/instructor	Sometimes does not listen to peers/instructor; sometimes displays inappropriate behavior	Fails to pay attention; displays inappropriate behavior in class

GRADE SCALE

A-B	Passing grade with passing all CLOs
C-F	Non-passing grade
I-1	Retake the exam and/or complete the assigned work within one month after the exam result is announced.
I-2	Complete the assigned work and retake the new evaluation within the next semester.
I-3	Repeat the course as soon as it is offered.

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.