

Course Syllabus

SIPS 537 Integrative Physiology Academic Year 2025

Department of Physiology, Faculty of Medicine Siriraj Hospital, Mahidol University

Course ID and name:	SIPS 537: Integrative Physiology
Course coordinator:	Assoc. Prof. Chantacha Sitticharoon, MD, PhD
Instructors:	Assoc. Prof. Sorachai Srisuma, MD, PhD Assist. Prof. Sompol Tapechum, MD, PhD Assoc. Prof. Narawut Pakaprot, MD, PhD Assoc. Prof. Panapat Uawithya, MD, PhD Lecturer Rujapope Sutiwisesak, PhD, MD Lecturer Kanat Chanthongdee, MD, PhD Lecturer Thanus Teeratitayang-gool, MD
Credits:	1 (1-0-2) (lecture – laboratory – self-study)
Curriculum:	Masters of Science Program in Medical Physiology
Course type:	☐ Core ☒ Required ☐ Electives
Semester offering:	02/2025
Prerequisite:	None
Date of Latest Revision:	02/10/2025

Course Description:

Body holistic functions in thermoregulation, exercise; physiological changes related with pregnancy and birth, aging and frailty; circulation through special body regions; physiological changes leading to shock, hypertension, non-communicable diseases; contemporary topics of integrative physiology

Course-level Learning Outcomes (CLOs)

Upon completion of this course, students are able to:

1. Explain integrative physiological mechanisms of thermoregulation, exercise, pregnancy, aging, frailty, circulation in special body regions, and systemic changes in shock, hypertension, and non-communicable diseases.

2. Apply integrative physiological knowledge to analyze biological and clinical problems related to health and disease.
3. Participate effectively in discussions on contemporary topics in integrative physiology.

Constructive Alignment of CLOs and Program's ELOs

CLOs	ELO1	ELO2	ELO3	ELO4
1. Explain integrative physiological mechanisms of thermoregulation, exercise, pregnancy, aging, frailty, circulation in special body regions, and systemic changes in shock, hypertension, and non-communicable diseases.	I			
2. Apply integrative physiological knowledge to analyze biological and clinical problems related to health and disease.	I			R
3. Participate effectively in discussions on contemporary topics in integrative physiology.	I			R

Remarks: Show the level of the course management with the symbols I (Introduced & assessed), R (Reinforced & assessed), P (Practiced & assessed), and M. (Level of Mastery is assessed)

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	Date & Time	Hours			CLOs	Teaching & learning strategy	Assessment	Lecturers
			Lec- ture	Labo- ratory	Self- Study				
1	Course orientation	Mon 2 Mar 26 10.00-10.30	0.5		1	1	Lecture	-	Assoc. Prof. Chantacha Sitticharoon
2	Body holistic functions in thermoregulation	Mon 2 Mar 26 11.00-12.00	1		2	1	Lecture, interactive Q&A	Short answer/ MCQ	Assist. Prof. Sompol Tapechum
3	Exercise physiology 1: Laboratory practice	Wed 4 Mar 26 10.30-12.00		1.5	0.75	1, 2	Laboratory	Rubric score (performance), Short answer	Assoc. Prof. Sorachai Srisuma
4	Exercise physiology 2: Physiological adaptations during exercise	Thurs 5 Mar 26 13.00-15.00	2		4	1, 2, 3	Group discussion	Rubric score, Short answer/ MCQ	Assoc. Prof. Sorachai Srisuma; Assoc. Prof. Chantacha Sitticharoon; Lecturer Kanat Chanthongdee; Lecturer Thanus Teeratitayang-gool
5	Pregnancy physiology 1: Hormonal changes during pregnancy and birth	Mon 9 Mar 26 13.00-14.00	1		2	1	Lecture, interactive Q&A	Short answer/ MCQ	Assoc. Prof. Chantacha Sitticharoon
6	Pregnancy physiology 2: Cardiovascular changes during	Wed 11 Mar 26 13.00-14.00	1		2	1	Lecture, interactive Q&A	Short answer/ MCQ	Lecturer Thanus Teeratitayang-gool
7	Pregnancy physiology 3: Fetal circulation	Fri 13 Mar 26 13.00-14.00	1		2	1	Lecture, interactive Q&A	Short answer/ MCQ	Assoc. Prof. Panapat Uawithya
8	Aging & Frailty 1: Hormonal and metabolic changes	Mon 16 Mar 26 13.00-14.00	1		2	1, 2	Lecture, interactive Q&A	Short answer/ MCQ	Assoc. Prof. Chantacha Sitticharoon

No.	Topic	Date & Time	Hours			CLOs	Teaching & learning strategy	Assessment	Lecturers
			Lec- ture	Labo- ratory	Self- Study				
9	Q&A 1	Mon 16 Mar 26 14.00-15.00							Faculty
10	Aging & Frailty 2: Neuromuscular changes	Wed 18 Mar 26 13.00-16.00	3		4	1, 2	Lecture, interactive Q&A	Short answer/ MCQ	Assist. Prof. Sompol Tapechum; Assoc. Prof. Narawut Pakaprot;
11	Aging & Frailty 3: Cardiovascular and respiratory changes	Fri 20 Mar 26 13.00-14.00	1		4	1	Lecture, interactive Q&A	Short answer/ MCQ	Lecturer Thanus Teeratitayang-gool
12	Physiological changes according to shock, hypertension, and non-	Mon 23 Mar 26 9.00-11.00	2		4	1, 2	Lecture, interactive Q&A	Short answer/ MCQ	Lecturer Thanus Teeratitayang-gool
13	Integrative physiology in current clinical and translational research	Thurs 26 Mar 26 13.00-14.00	1		2	3	Group discussion	Rubric score, Short answer/ MCQ	Assoc. Prof. Chantacha Sitticharoon
14	Q&A 2	Thurs 26 Mar 26 14.00-15.00							Faculty
	Exam	Mon 30 Mar 26 9.00-12.00							
	Total hours of the study		14.5	1.5	29.75				

Course Assignments

Students are required to review assigned readings and preparatory materials before class, actively participate in interactive sessions, and complete in-class exercises or laboratory assignments as scheduled.

Assessment Criteria

- MCQ and short answer tests: 70%
- Laboratory performance (rubric): 5%
- Group discussion (rubric): 15%
- Assignment (rubric): 10%

Appeal Procedure

Students may appeal academic assessment results by submitting a written request to the course coordinator within 7 days of grade release. The appeal will be reviewed by the course committee according to Faculty of Medicine Siriraj Hospital academic regulations.