

Course Syllabus
SIPS 536
Academic Year 2026
Department of Physiology
Faculty of Medicine Siriraj Hospital, Mahidol University

Course ID and name: SIPS 536: Neuroscience II
Course coordinator: Assoc. Prof. Narawut Pakaprot, MD, PhD
Dr. Kanat Chanthongdee, MD, PhD
Instructors: Assoc. Prof. Chailerd Pichitpornchai, MD, PhD
Assist. Prof. Sompol Tapechum, MD, PhD
Assoc. Prof. Narawut Pakaprot, MD, PhD
Assist. Prof. Rujapope Sutiwisesak, MD, PhD
Instructor Kanat Chanthongdee, 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: 01/2026
Prerequisite: None
Date of Latest Revision: 20/07/2026

Course Description:

Neuroanatomy, properties of sensory receptors, somatosensation, special senses, vision tests, auditory tests, vestibular functions and body equilibrium tests, motor function, sleep-wake, circadian and homeostatic control, learning, memory, language and speech, electroencephalography and evoked potential

Course-level Learning Outcomes (CLOs)

Upon completion of this course, students are able to:

1. Apply the structures and functions of sensory system at circuitry levels (ELO 1,2,3)

2. Apply the structures and functions of brain areas that are involved in motor system, sleep-wake, circadian and homeostatic control, Learning, memory, language, and speech (ELO 1,2,3)
3. Participate in the discussion of neuroscience knowledge to solve problems about the nervous system (ELO 4)

Constructive Alignment of CLOs and Program's ELOs

CLOs	ELO1	ELO2	ELO3	ELO4
1. Apply the structures and functions of sensory system at circuitry levels	R	R	R	
2. Apply the structures and functions of brain areas that are involved in motor system, sleep-wake, circadian and homeostatic control, Learning, memory, language, and speech	R	R	R	
3. Participate in the discussion of neuroscience knowledge to solve problems about the nervous 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.	Topic	Date / Time	Hours			CLOs	Teaching & learning strategy	Assessment	Lecturers
			Lecture	Laboratory	Self-Study				
1	Orientation	Tue 4 August 2026: 18:00-18:30	0.5	-	-	-	Online synchronous lecture	-	Dr.Narawut Dr.Kanat
2	Neuroanatomy	Tue 4 August 2026: 18:30-20:30	2	-	4	1,2	Asynchronous lecture	Short answer/ MCQ	Dr.Kanat
3	Properties of sensory receptors	Thu 6 August 2026: 18:00-19:00	1	-	2	1	Asynchronous lecture	Short answer/ MCQ	Dr.Narawut
4	Somatosensation	Fri 7 August 2026: 18:00-19:00	1	-	2	1	Asynchronous lecture	Short answer/ MCQ	Dr.Narawut
5	Special senses	Mon 10 August 2026: 18:00-20:30	2.5	-	5	1	Online synchronous lecture	Short answer/ MCQ	Dr.Chailerd Dr.Kanat
6	Discussion of sensory functions and sensory disorders	Fri 14 August 2026: 18:00-19:00	1	-	2	1,3	Online synchronous Discussion	Rubric	Dr.Chailerd Dr.Kanat
7	Motor function 1 (motor pathway and muscle receptors, motor cortex and descending pathways, brain stem descending pathways	Mon 17 August 2026: 18:00-20:00	2	-	4	2	Asynchronous lecture	Short answer/ MCQ	Dr.Sompol

No.	Topic	Date / Time	Hours			CLOs	Teaching & learning strategy	Assessment	Lecturers
			Lecture	Laboratory	Self-Study				
8	Motor function 2 (cerebellum and basal ganglia)	Wed 19 August 2026: 18:00-20:00	2		4	2	Asynchronous lecture	Short answer/ MCQ	Dr.Rujapope
9	Discussion of motor functions and motor disorders	Thu 20 August 2026: 18:00-19:00	1	-	2	1,3	Online synchronous Discussion	Rubric	Dr.Sompol Dr.Rujapope
10	Sleep-wake, circadian and homeostatic control	Tue 25 August 2026: 18:00-19:00	1	-	2	2	Asynchronous lecture	Short answer/ MCQ	Dr.Sompol
11	Learning, memory, language, and speech,	Tue 25 August 2026: 19:00-20:00	1	-	2	2	Asynchronous lecture	Short answer/ MCQ	Dr.Narawut
12	Discussion of higher cortical function (Electroencephalography and evoked potential)	Thu 27 August 2026: 18:00-19:00	1	-	2	1,2,3	Online synchronous Discussion	Rubric	Dr.Narawut
13	Q & A	Fri 28 August 2026: 18:00-19:00	-	-	-	-	Online synchronous Discussion	-	Dr.Chailerd Dr.Sompol Dr.Narawut Dr.Rujapope Dr.Kanat

No.	Topic	Date / Time	Hours			CLOs	Teaching & learning strategy	Assessment	Lecturers
			Lecture	Laboratory	Self-Study				
14	EXAM	Wed 2 September 2026: 13:00-16:10					Onsite exam	-	
Total hours of the study			17	0	31				

Course Assignments

Assignment materials; reading, VDO

Assessment Criteria

GRADE DISTRIBUTION

80%	Summative examination
20%	Performance in discussion classes

RUBRIC FOR PERFORMANCE ASSESSMENT

	5	4	3	2	1
1. Ideation & Engagement <i>Measurable</i> <i>Action:</i> Volunteering & initiating	Initiates scientific ideas or perspectives voluntarily and frequently.	Offers relevant ideas or insights voluntarily when prompted.	Contributes answers or ideas only when directly called upon.	Rarely contributes ; remains passive during group work.	Fails to contribute any ideas or refuses to answer.
2. Scientific Quality <i>Measurable</i> <i>Action:</i> Analyzing & backing with data	Analyzes cases deeply and justifies views with empirical data.	Explains relevant mechanisms accurately and correctly.	States basic facts from memory without mechanical depth.	Provides irrelevant info that deviates from the clinical topic.	Shows no scientific substance or pre-class preparation.
3. Professionalism & Collaborative spirit <i>Measurable</i> <i>Action:</i> Responding & building on ideas	Actively and respectfully pays attention and builds on peers/instructor's ideas to move discussion forward.	Pays attention and responds to peers/instructor appropriately and politely.	Listens but occasionally loses focus or interrupts others.	Disengages from the group (e.g., uses mobile devices).	Fails to pay attention; disrupts the class or displays disrespectful behavior.

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 (CLO1-3) 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.