Course Syllabus

SIPS 535

Academic Year 2024

Department of Physiology

Faculty of Medicine Siriraj Hospital, Mahidol University

Course ID and name:	SIP535: Medical Gastrointestinal and Urinary Tract Physiology
Course coordinator:	Assoc. Prof. Reawika Chaikomin, MD, PhD
Instructors:	Assoc. Prof. Reawika Chaikomin, MD, PhD
	Assist. Prof. Yodying Dangprapai, MD, PhD
	Instr. Patamat Nitiwaranggoon, 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:	2/2025
Prerequisite:	None
Date of Latest Revision:	Sep 15, 2025

Course Description:

Functions of the gastrointestinal tract, gastric functions, bile and biliary tree, intestinal functions; functions of the urinary system, renal circulation, glomerular filtration, tubular transport, urine formation, functions of lower urinary tract, sodium and water balance, potassium and pH balance, oliguria and renal failure

Course-level Learning Outcomes (CLOs)

Upon completion of this course, students are able to:

1. Explain functions and regulation of gastrointestinal tract.
2. Apply principle of gastrointestinal physiology in context of common disease.
3. Explain function of liver and biliary system.
4. Apply principles of hepatobiliary physiology in context of common disease.
5. Explain basic renal processes.
6. Apply principles of renal physiology to common fluid and electrolyte disturbances.
7. Discuss renal pathophysiology in common diseases.

Constructive Alignment of CLOs and Program's ELOs

CLOs	ELO1	ELO2	ELO3	ELO4
1. Explain functions and regulation of gastrointestinal tract.	I			
2. Apply principle of gastrointestinal physiology in context of common disease.	R	R	I	P
3. Explain function of liver and biliary system.	I			
4. Apply principles of hepatobiliary physiology in context of common disease.	R			
5. Explain basic renal processes.	I			
6. Apply principles of renal physiology to common fluid and electrolyte disturbances.	R			
7. Discuss renal pathophysiology in common diseases.	R			P

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	Hours			CLOs	Assessment	Lecturers	ป.โท ในเวลา (onsite)	ป.โท นอกเวลา
		Lecture	Laboratory	Self Study		(in-class)			Asynchronous (A)/ Synchronous (S)
1	Functions and regulation of gastrointestinal tract	1	-		1		Dr.Reawika	พุธ 7 ม.ค. 69 10-11 น.	ศ 9 ม.ค. 69 17-18 น.**(A)**
2	Oral cavity and esophagus	1	-		1		Dr.Reawika	พุธ 7 ม.ค. 69 11-12 น.	ศ 9 ม.ค. 69 18-19 น.**(A)**
3	Stomach	1	-		1		Dr.Reawika	จ 12 ม.ค. 69 10-11 น.	พุธ 14 ม.ค. 69 13.30-14.30 น. **(A)**
4	Small bowel & large intestine and pancreas	1.5	-		1		Dr.Reawika	อ 13 ม.ค. 69 13.30-15 น.	พฤ 15 ม.ค. 69 17-18.30 น. **(A)**
5	Hepatobiliary	2	-		1		Dr.Reawika	จ 19 ม.ค. 69 10-12 น.	พุธ 21 ม.ค. 69 13.30-15.30 น. **(A)**
6	Gastrointestinal research	1	-		1		Dr.Reawika	อ 20 ม.ค. 69 13.30-14.30 น.	พฤ 22 ม.ค. 69 17-18 น. **(S)**
7	Overview of renal functions and non-excretory function	0.5	-		1		Dr.Yodying	จ 19 ม.ค. 69 13.30-14 น.	อ 13 ม.ค. 69 16-18 น. **(S)**
8	Glomerular filtration	1	-		1		Dr.Yodying	จ 19 ม.ค. 69 14-15 น.	อ 13 ม.ค. 69 16-18 น. **(S)**
9	Tubular transport	1	-		1		Dr.Yodying	พุธ 21 ม.ค. 69 9-10 น.	พุธ 21 ม.ค. 69 13-15.30 น. **(S)**
10	Physiology of lower urinary tract	0.5	-		1		Dr.Yodying	พุธ 21 ม.ค. 69 10-10.30 น.	อ 13 ม.ค. 69 16-18 น**. (S)**
11	Basic concepts of fluid & electrolyte balance	2	-		1		Dr.Yodying	พฤ 22 ม.ค. 69 9-11 น.	พุธ 21 ม.ค. 69 13-15.30 น. **(S)**
12	Integrated renal physiology (GA)	2.5	-		1		Dr.Yodying	ศ 23 ม.ค. 69 13.30-16 น.	จ 26 ม.ค. 69 16-18.30 น. **(S)**

13	Examination							พุธ 28 ม.ค. 69 13.30-16 น.	พุธ 28 ม.ค. 69 13.30-16 น. (onsite)
Total hours of the study		15							

Assessment Criteria

Assessment	Proportion of Evaluation (%)
1. Written exam (MCQ + Essay ≥ 60%)	60
2. Required Posttest or assignment	20
3. Participation ≥ 80%	20