MAP-C

Course Syllabus

SIPS 535

Academic Year 2026

Department of Physiology

Faculty of Medicine Siriraj Hospital, Mahidol University

Course ID and name:	SIPS535: 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
Credits:	1 (1-0-2) (lecture – laboratory – self-study)
Curriculum:	Masters of Science Program in Medical Physiology
Course type:	☑ Core ☐ Required ☐ Electives
Semester offering:	1/2026
Prerequisite:	None
Date of Latest Revision:	2 Nov, 2026

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 and biliary tree physiology.
2. Apply principle of gastrointestinal tract and biliary tree physiology in context of common disease.
3. Explain basic renal processes.
4. Apply principles of renal physiology to common fluid and electrolyte disturbances.
5. Demonstrate effective communication based on rubric for participation in discussion on gastrointestinal, biliary tree and 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 and biliary tree physiology	R			
2. Apply principle of gastrointestinal tract and biliary tree physiology in context of common disease	R	R		R
3. Explain basic renal processes.	R			
4. Apply principles of renal physiology to common fluid and electrolyte disturbances.	R			
5. Demonstrate effective communication based on rubric for participation in discussion on gastrointestinal, biliary tree and renal pathophysiology in common diseases.	R			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	Hours			CLOs	Assessment (in-class)	Lecturers	Asynchronous (A)/ Synchronous (S)
		Lecture	Laboratory	Self Study				
0	Course Orientation	0.5	-	-	-	-	Dr.Reawika & Dr.Yodying	พุธ 4 พ.ย. 69 18.30-19 น. **(S)**
1	Functions and regulation of gastrointestinal tract	1	-	2	1	Formative feedback	Dr.Reawika	พุธ 4 พ.ย. 69 19-20 น. **(S)**
2	Oral cavity and esophagus	1	-	2	1, 2	Formative feedback	Dr.Reawika	จ 9 พ.ย. 69 18-19 น. **(S)**
3	Stomach	1	-	2	1, 2	Formative feedback	Dr.Reawika	จ 9 พ.ย. 69 19-20 น. **(S)**
4	Small bowel & large intestine and pancreas	1.5	-	3	1, 2	Formative feedback	Dr.Reawika	อ 10 พ.ย. 69 17-18.30 น. **(S)**
5	Bile and biliary tree	2	-	4	1, 2	Formative feedback	Dr.Reawika	พ 11 พ.ย. 69 17-19 น. **(S)**
6	Movement of human's esophagus and rat's stomach & Gastrointestinal research	1	-	2	1, 2, 5	Participation and Posttest (Rubric)	Dr.Reawika	พ 18 พ.ย. 69 13-14 น. **(S)**
7	Overview of renal functions and non-excretory function	0.5	-	1	3	Formative feedback	Dr.Yodying	จ 16 พ.ย. 69 16-16.30 น. **(S)**
8	Glomerular filtration	1.5	-	2	3	Formative feedback	Dr.Yodying	พฤ 19 พ.ย. 69 16-17.30 น. **(S)**
9	Tubular transport	1	-	2	3	Formative feedback	Dr.Yodying	จ 23 พ.ย. 69 16-17 น. **(S)**
10	Physiology of lower urinary tract	0.5	-	1	4	Formative feedback	Dr.Yodying	อ 23 พ.ย. 69 17-17.30 น. **(S)**

11	Basic concepts of fluid & electrolyte balance	2	-	4	4, 5	Participation and Posttest (Rubric)	Dr.Yodying	พฤ 26 พ.ย. 69 16-18 น. **(S)**
12	Integrated renal physiology & Oliguria and renal failure (GA)	2	-	5	4, 5	Participation and Posttest (Rubric)	Dr.Yodying	จ 30 พ.ย. 69 16-18 น. **(S)**
13	Examination				1, 2, 3, 4	Summative (onsite)		พุธ 2 ธ.ค. 69 13.30-16 น. (onsite)
14	Reflection & Feedback	-	-	-	-	-	Dr.Reawika & Dr.Yodying	พุธ 23 ธ.ค. 69 เวลา 14-15 น. (onsite)
Total hours of the study		**15.5**		**30**				

Assessment Criteria

Assessment	Proportion of Evaluation (%)
1. Written exam (MCQ + Essay ≥ 60%)	60
2. Required Posttest or assignment (ครั้งที่ 6,11,12)	20
3. Participation in Discussion Classes ≥ 80% (ครั้งที่ 6,11,12)	20

Rubric for Participation in Discussion Classes (CLO5)

Scoring Scale: 5 = Excellent | 4 = Good | 3 = Satisfactory | 2 = Developing | 1 = Unacceptable

	5	4	3	2	1
1. Ideation & Engagement *Measurable Action*: 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 *Measurable Action*: 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 *Measurable Action:* 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.

Grading Criteria

GRADE SCALE	
A	80% to 100%, with all CLOs passed (minimum 50% each)
B+	65% to <80%, with al 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 results are 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 are failed.
I-3	Repeat the course when it is next offered, if all CLOs are failed.